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# SOCIOLINGUISTICS AND COMPARATIVE LINGUISTICS

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1. The sociolinguistic approach to the history of languages presupposes a general typology of speech situations beginning with the oldest periods of human history and up to modern times. From this point of view some problems connected with comparative linguistics require also a sociological interpretation. Except some relatively late families (e.g. Romance languages), the origin of linguistic families is in general traceable to the speech communities of tribal society. The problems at issue here include typical speech situations, levels and forms of intercourse — in a word, all the factors determining the processes of linguistic development at different stages of the abovementioned social structure.

2. The problem of linguistic relationships can be studied from two points of view. The first aims at an explanation of processes which brought about the dissolution of primitive linguistic communities. The second emphasizes the opposite side of the problem: what tended to the conservation of parent languages as linguistic unities during considerably long periods of time? What were the causes of their relative stability which later formed the base of the common inheritance as characteristic of cognate languages? In comparative linguistics the first aspect has absolutely predominated up to now. But from the standpoint of linguistic development both aspects deserve carefull study. Not only the processes of differentiation but also the stable conservation of the inherited linguistic affinity must have equally depend on the structure of ancient society.

3. Proceeding from the model of highly developed tribal society we can reconstruct two levels of oral intercourse as characteristic of it. This assumption, put forward as a working hypothesis, is supported not only by theoretical considerations but also by linguistic evidence as well. A structurally organized primitive society, richly provided with a set of tribal institutions (councils, folk assemblies, the common law, a system of rites) and possessing oral poetry could have achieved a certain degree of regulation in its speech activity. The great authority of the numerous rites and of the social intercourse on the level of tribal institutions could result in the general framework of the speech situation, acquiring the character of diglossia. There could have existed two varieties of speech representing two levels of communication (high and low), opposed as formal and informal. The high variety meant for more important socio-cultural and juridical purposes could have acquired a certain degree of stability. Being rather conservative, it could approach a sort of standard norm. Oral poetry which usually enjoys high prestige in ancient societies, contributed to the formal qualities of this speech variety. Informal speech, on the contrary, meant for simple every day intercourse, could be exposed to spontaneous variability, to dialectal fluctuations.



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4. The confused variability of informal speech resulted in the state of dialectal continuity underlying the superimposed unity of the high level speech. Through the stability of the latter the unity of the tribal language could be ensured as long as the tribe itself existed as a social unit. When the tribe desintegrated there would appear some new dialects belonging to the new cognate tribes. The process of linguistic differentiation could begin with the spontaneous fluctuations which first characterized informal speech; later it freed itself from the impact of the high level standard, connected with the former unity of the parent tribe.

But it is important to assume that when cognate tribes continued to be in close contact, especially as due to tribal confederations, the high variety of language, adjusted to the needs of socio-cultural tribal institutions and especially to the needs of the common law and of the oral poetry, could to a certain degree preserve its original significance and become a kind of oral literary koiné. Being looked upon as common cultural inheritance it could exercise a unifying influence on the further development of cognate languages.

5. Turning to the terms of comparative linguistics we can try to compare the long and stable preservation of the inherited common features by the cognate languages (especially at the early periods of their history) with the above-mentioned perseverance in the preservation of the traditional high language forms as a linguistic attitude allegedly characteristic of the tribal society. In respect to the processes of differentiation, some well-know factors must be taken into account, such as slackening and breaking of contacts, territorial isolation (especially when caused by migrations), contacts with alien populations.

6. It is quite clear that the parent languages of different linguistic families cannot be traced back to the same stage of tribal society. The periods and the conditions of their formation and existence could be quite different, beginning with more primitive forms of tribal organization and up to the stage of its final dissolution. According to their differences, some of the existing varieties of linguistic relationships can be classified from the typological point of view. It can be supposed that some linguistic families with well pronounced systems of correspondences (especially in morphology and phonemics) have inherited their affinity from the later stages of tribal societies. There are other linguistic groups displaying sets of affinities of a less systemic character. Some of them seem to be sufficiently relevant enough, but on the whole, the character of linguistic relationship and its degree are rather difficult to establish. Usually the lexical materials prevail, but their historical evaluation by the well-known means of linguistic comparison is often rather confused. It seems appropriate to look for the origin of some problematic linguistic families in the depth of the early periods of primitive tribal society.

7. As an example of an early desintegrated linguistic community we can adduce the genealogical unity of Altaic languages, which is often objected to. From the socio-historical point of view the Proto-altaic may be attributed to primitive hunting society, consisting of a number of cognate tribes, which had failed to attain the superior forms of social cohesion. Their early desintegration and dissemination over immense areas resulted to a great extent in a less of many inherited common features, especially in morphology, the general type of grammatical structure and part of ancient vocabulary being however preserved. That's why the common elements of the Protoaltaic language system may be probably reconstructed rather on the level of the oldest lavers of stem-building.

As to the Altaic language groups of later origin (the Turkic, the Mongolian, the Tungus-Manchurian), their emergence may be probably traced back to the so-



cial conditions of the relatively developed tribal systems. The internal unity of grammatical structure and the common bulk of vocabulary, inherent in each of those language families, could have been therefore supported und perseverantly maintained by the oral speech standards of the formal level, as characteristic of more advanced tribal organization.

Quite different must have been the history of the Indo-European linguistic community. In this case there prevailed a lasting stability of the inherited morphological systems and subsystems, preserved for a relatively long time, as well as of a large common vocabulary, retained and further developed. Such peculiar feature, rather favourable for the comparative study of cognate languages, could arise from the stability of oral standards, which played an important part in the more advanced periods of tribal society. This aspect of Indo-European linguistic history has been long ago touched upon by some Italian scientists. The problem of « Indoeuropean poetic language » has recently become a subject of special attention. It can be emphasized that not only the language of oral poetry, but all the types of speech standards connected with the cultural, ritual, and juridical institutions of tribal society must have contributed to the temporary stabilization of the superdialectal formal varieties of oral speech. Therefore they could exert their influence on the process of linguistic evolution, preserving for some periods the inherited affinity of cognate languages.

Two levels of reconstruction can be set up in Indo-European comparative linguistics: « near » and « distant ». Their correlation has its chronological and socio-historical aspects. « The near » level presupposes an investigation of the main bulk of Indo-European morphology, including first of all the paradigms of verbal and nominal inflection. It will be recalled that this category of inherited Indo-European evidence could never be reduced to a unity, to a system of a single parent language. This large est of linguistic data, which the main concern of K. Brugmann in his Comparative Grammar, can be attributed to the not yet quite desintegrated unity of many cognate tribes with similar, but not identical languages. From the socio-typological point of view those old Indo-European tribes could have attained some advanced degrees of evolution, and therefore in their society there must have been in use some kinds of formal languages, even on the scale of great tribal confederations.

« The distant » aspect of Indo-European comparative inquiry turned out to be rather attractive for modern linguistics. It presupposes the investigation of the oldest morphological strata detected by the analysis of stems and roots. Though the whole system of Proto-Indoeuropean cannot be reconstructed, the obtained data demonstrate an apparently higher degree of internal unity. It may point to a relatively smaller and at the same time to a closer cohesion of cognate tribes. In the socio-chronological aspect those oldest layers of Indo-European linguistic evidence can be attributed to the inferior scales of primitive tribal organization.

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# LANGUAGE IDENTITY OF A FRISIAN TOWN: SOCIAL COMMUNICATION, SYMBOL OR STEREOTYPE?

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*Abstract*

The correlation between perceived language distinctiveness and claims for cultural and national autonomy are too well known to bear comment in themselves. To further understanding of this social fact, this paper explores to what degree assumptions about how to identify « a language » are justified in the experience of a Frisian town, Hindeloopen, where claims for autonomy are partly based on the existence of its own distinctive « language ».

The interpretative schema which makes the most assumptions, albeit « common sense », ones, about the nature of language behaviour in relation to nationalism is that of K. Deutsch (*Nationalism & social communication*, MIT Press, 1953). Here language is seen as an instrument and a means to achieve « social mobilizazion » of a population. Language so-viewed is something learned systematically, and its persistence is related to its measurable « communicative effectiveness ». A causal interpretation is applied to language behaviour that stresses socio-economic or « ecological » factors, and planning would be possible, *e.g.*, the manipulation of language for the industrial development of a people. This view seems inadequate in the context of a study of the situation of the Frisian town, Hindeloopen.

A second interpretative schema makes fewer assumptions about language as a system of social communication. Rather meaning is approached connotatively, and language can be viewed causally as expressing an ideology. A label for this approach to language in relation to definition of culture exists in the so-called « Sapir-Whorf hypothesis » (*language, thought, & reality*, ed. J. B. Carroll, MIT Press, 1956). A language here is expected to have some semantic distinctiveness, *e.g.*, some metaphors of its own. This view also seems inadequate in the context of the Frisian town, Hindeloopen, although the hypothesis requires more extensive testing than was possible at the time the study was made.

A third interpretative schema makes no assumptions about language as a communicative system, involving neither « denotative » nor « connotative » messages, and from this viewpoint the assignement of « speakers » to « a language » is arbitrary and a matter of social classification for the population involved. Language identity, so viewed, does not exclude the possibility that speakers of the language may feel loyalty, as for a « totem » (C. Levi-Strauss, *Le totemisme aujourd'hui*, Presses Universitaires de France, 1962). However, language distinctiveness is causally viewed here as a social mnemonic device which marks « a people » within a larger social-historical context. It is this view which appears to most satisfactorily account for the relation between language behaviour and « nationalism » of the Frisian town, and it is further speculated that a similar phenomena may account for the concept of the « religious grouping » or *zuilen*, at the level of Netherlandic national society. Finally, it is speculated that the appearance of such social classificatory « emblems » may be related cross-culturally to the presence of « socially open » status-ranking, in opposition to « socially, closed » status-ranking of class and caste social stratification. Parallel cases in support of this hypothesis are cited from studies of the « linguistic factions » of Kachin tribals (E. R. Leach, Political systems of highland Burma, Boston, Beacon Press, 1965) and the situation of French-Canadian minorities.

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# APPELLATIVA - NOMINA PROPRIA

## Wie kann man mit einem begrenzten Vokabular über unbegrenzt viele Gegenstände sprechen?

OTMAR WERNER

### 1. ZUR FORSCHUNGSSITUATION

Einen Ausgangspunkt unserer Überlegungen bilden die Nomina propria, die Eigennamen (EN), die innerhalb der generativen Grammatik zwar formal eingebaut sind, dort aber eine bisher wenig erörterte, periphere Rolle spielen. So kann man im Anschluß an den frühen CHOMSKY feststellen, daß eine NP - hier stark vereinfacht - wahlweise aus einer Verbindung Determiner (Det) + Appellativum (App), einem EN oder einem Personalpronomen (PPron) bestehen kann:

$$NP \rightarrow \left\{ \begin{array}{l} \text{Det} + \text{App} \\ \text{EN} \quad \ldots \\ \text{PPron} \\ \ldots \end{array} \right\} \qquad \begin{array}{lll} \text{z. B.} & \textit{der Junge} & \\ & \textit{Hans} & \\ & \textit{er} & \text{oder } \textit{ich} \end{array}$$

Man hat diese Grammatik vielfach verändert, etwa indem man die Unterscheidung App - EN als Merkmalsopposition [± EN] ins Lexikon nimmt; dann vereinfachen sich die Konstituentenregeln. Die Parallelisierung der drei Einheiten veranschaulicht aber am deutlichsten unsere Problemstellung. Für eine ausführliche Diskussion, wie die EN einzubauen sind, besonders im Hinblick auf das Det, ist auf SEPPÄNEN 1971 zu verweisen, ohne daß wir uns seiner Argumentation anschließen wollen.

Die Frage, weshalb es in unseren (und vermutlich in allen) Sprachen für eine NP diese drei Möglichkeiten gibt und welches ihr besonderes Verhältnis zu einander ist, hat man in der generativen Grammatik aber erst allmählich zu erörten begonnen. Dabei ist man noch eher auf das Verhältnis zwischen Det + App und PPron III (3. Person) eingegangen als auf das zwischen Det + App und EN und PPron I/II.

Dabei gibt es verschiedene Forschungstraditionen, in denen die EN teilweise eine sehr wichtige Rolle spielen, ohne daß es aber zwischen diesen Arbeitsgebieten oder zur allgemeinen Linguistik-Diskussion besonders enge Verbindungen gegeben hat.

(a) Innerhalb der traditionellen historischen Sprachwissenschaft gibt es den Spezialzweig der Onomastik mit seinen besonderen Forschungserfolgen. Die Onomastik hat es aber gar nicht als ihre Aufgabe betrachtet, über die Sonderstellung der EN im System der Sprache und über die Gründe für ihre eigenen, besonderen Erkenntnismöglichkeiten zu theoretisieren. Man hat sich beim Verhältnis EN - App vorwiegend mit diachronen Übergängen beschäftigt und vor allem Schlüsse gezogen



zum sprach- und geschichtswissenschaftlichen Rekonstruieren. Die Forderung, diese Namenkunde aus ihrer Isolation zu lösen und auf theoretisch-linguistische Grundlagen zu stellen, wird aber seit einiger Zeit erhoben (z. B. von LEYS 1965) 1f.).

(b) Die Philosophie hat sich seit der Antike und zuletzt wieder in unserer Zeit intensiv um die Sprache angenommen [1]. Dabei haben die EN immer wieder eine Rolle gespielt, weil bei ihnen — offensichtlich — am klarsten der Zusammenhang zwischen dem lautlichen Ausdruck und dem gemeinten Gegenstand zu erkennen ist; und es wurde gefragt, ob nicht die ganze Sprache ein System solcher Namen darstellt und inwiefern eben nicht. Gerade das Verhältnis der Sprache zum Außersprachlichen, die Rolle der Sprache im Gesamtzusammenhang von Mensch und Welt ist es ja, was Philosophen an der Sprache interessiert. In einer sehr weit gefaßten « Semantik » hat die Philosophie, vor allem die Logik, Probleme behandelt, die ebenso gut zur Sprachwissenschaft gehören könnten, wenn sich nicht die international Linguistik der letzten Jahre aus diesen Problembereichen zurückgezogen hätte. Erst jetzt ist die Lingustik dabei, die dort gewonnenen Ergebnisse zu rezipieren und einzuarbeiten [2].

(c) Die strukturelle Linguistik hat, vor allem soweit sie vom Behaviorismus beeinflußt war, zunächst all das abzudecken versucht, was man als « Inhalt », als « Bedeutung » der sprachlichen Zeichen verstehen kann, und wollte schon gar nicht « die außersprachliche Welt » in ihre Beschreibung einbeziehen. Die sprachtheoretischen Beiträge zu den EN, die vom Strukturalismus herkommen, haben sich denn auch darauf konzentriert, die « Opposition » zwischen EN und App möglichst formal zu erfassen, Unterschiede in der Phonemik, in der Flexion, im Numerus- und Artikelgebrauch festzustellen [3]. Doch hat es daneben immer wieder einzelne linguistische Beiträge gegeben, die — ohne schulmäßige Einschränkungen — zu dem Gesamtproblem der EN und der Referenz auf außersprachliche Gegenstände Stellung nehmen, zuletzt vor allem COSERIU 1955, 1955-56 (mit dem wir uns innerhalb der linguistischen Literatur am stärksten berühren) [4].

(d) Noch eng mit dem strukturellen Distributionalismus verbunden, hat sich der frühe CHOMSKY 1957 mit dem Ziel der Sprachwissenschaft begnügt, einen Mechanismus zu Konstruieren, der alle zulässigen Sätze einer Sprache aufzählt und ihnen eine syntaktische Struktur zuordnet. Die EN waren dabei nur insofern aufgefallen, als sie eigene Verknüpfungsregeln zeigen. Die allein die Ausdrucksseite betreffende Frage lautete: Wie kann man mit einem begrenzten Inventar unbegrenzt viele zulässige Sätze erzeugen?

Erst als sich herausstellte, daß dieses Ziel nicht ohne Berücksichtigung « semantischer » Verhältnisse zu erreichen ist, daß nicht nur die lexemischen, sondern auch die syntaktischen Einheiten inhaltliche Entsprechungen haben, wurde die Semantik einbezogen und schließlich in einer « Generativen Semantik » zur Grundlage der linguistischen Beschreibung gemacht.

Dabei war auch diese Semantik zunächst rein sprachimmanent, aus rein distributionellen Verhältnissen abgeleitet; und es blieb ungeklärt, in welcher Weise solche Merkmale wie [± konkret], [± belebt], Markierungen wie die [haben]-

[1] Man vgl. z.B. den Bericht von Fahrenbach 1970-71.
[2] Das zeigt z.B. der Sammelband « Semantics » von Steinberg/Jakobovits 1971, in dem philosophische, linguistische und psychologische Beiträge — noch recht unverbunden — zusammengestellt sind.
[3] Man vgl. dazu z.B. Kuryłowicz 1956, Fleischer 1964, Leys 1966, Vater 1965.
[4] Herr Coseriu hat mir auch freundlicherweise Einblick gegeben in sein umfangreiches Manuskript « Teoría lingüística del nombre propio », Montevideo 1955.

oder [Teil-von]-Relation mit der (realen oder fiktiven) außersprachlichen Welt zusammenhängen.

Einen Vorstoß der Generativisten, die sprachlichen Zeichen — Wörter, Sätze, Texte, die aus Ausdruck und Inhalt bestehen — mit Außersprachlichem in Verbindung zu bringen, ohne zugleich die gewonnene methodische Exaktheit wieder zu verlieren, bot die Pragmatik im strengen Sinn, die Berücksichtigung der Sprechsituation (mit Sprecher, Angesprochenem, Sprechort, Sprechzeit) und der Deixis, die einzubeziehen sind, wenn man unzulässige Sätze wie **Ich bin jetzt dort.* begründet ausschließen will [5].

Zum anderen ist man zur Berücksichtigung des gemeinten Objekts, des Referentums gezwungen, wenn man ganz allgemein nach den semantischen Verträglichkeiten sucht [6], speziell wenn man die Regeln für die Anaphorik, für die Pronominalisierung erkundet, weil bei aller sprachlichen Variation die Identität des Referentums erkennbar sein muß [7].

Enge berührungen mit Fragen der Sprachphilosophie und Logik ergeben sich schließlich, wenn man die einzelnen semantischen Komponenten eines Lexems als Prädikationen abzulösen sucht; bei einem N bleibt dann ein x übrig, das man als Referentum auffassen kann [8]. Und die Generative Semantik muß, da sie sich in ihrer Basis von allen Besonderheiten der Einzelsprachen zu lösen versucht, eine logische Notation benützen. Schon von daher ist sie ganz allgemein in engen Kontakt zu den sprachtheoretischen Problemen der Philosophie gelangt, zu denen eben vor allem das Verhältnis zwischen sprachlichen Zeichen und Außersprachlichem gehört [9].

So hat die Linguistik immer mehr von ihren ehemaligen Einschränkungen aufgegeben, und man darf jetzt — CHOMSKY modifizierend — fragen: Wie ist es möglich, daß man in einer natürlichen Sprache mit ihrem begrenzten Vokabular über unbegrenzt viele Gegenstände sprechen kann? Wir haben doch nicht für jeden Gegenstand einen Namen. Damit sind wir wieder bei unserem Thema der EN angelangt, und wir sehen zugleich, daß wir zur Beantwortung dieser Frage den Bereich der EN überschreiten müssen.

Daß es tatsächlich — auch theoretisch — unbegrenzt (« unendlich ») viele Gegenstände sind und nicht nur unübersehbar viele, geht daraus hervor, daß die Gegenstände ja erst von uns abgegrenzt, unterteilt oder zusammengefaßt werden, je nachdem wie es uns wichtig erscheint: Es kann sich bei einem sprachlich bezeichneten « Gegenstand » um ein ganzes Gebäude handeln, um ein, Storkwerk, um die Fenster im ersten Stock auf der Straßenseite, um das Gebäude mit dem Vorgarten, um das Gebäude nebst Garten und Gehsteig, usw. Außerdem ist es den Menschen unbenommen, unbegrenzt viele neue Gegenstände herzustellen, zu malen — oder auch nur auszudenken. Gerade bei den fiktiven Dingen spielt ja die Sprache eine besondere Rolle, auf die wir nochmals zurückkommen müssen.

Damit soll nun nicht gesagt sein, daß es folglich die Aufgabe der Linguisten ist, über alle diese Gegenstände Aussagen zu machen. Es sollen nur die underschiedlichen Techniken beschrieben werden und deren Verhältnis zueinander, die es erlauben, mit begrenzten Mitteln unbegrenzt viele Gegenstände zu bezeichnen. Das System der Sprache hält ja diese genau angebbaren Mittel bereit, und zum Spracherwerb gehört es, zu lernen, diese Mittel zu beherrschen und zwischen ihnen wählen zu können. Die Beschreibung dieser Mittel ist also Sache der Grammatik, gehört mit

[5] Man vgl. z.B. Wunderlich 1971 oder auch Fillmore demn.
[6] Man vgl. dazu z.B. McCawley 1968.
[7] Man vgl. dazu z.B. Paducčeva 1970.
[8] Näheres dazu bei Bach 1968 und dazu Dahl 1971.
[9] Man vgl. z.B. Lakoff 1970 und die Einleitung von Abraham 1971 in der dt. Übers. oder auch einen — gar nicht explizit generativ-semantischen — Aufsatz wie Bierwisch 1970.



zur *langue*; eine Sache der *parole* ist es, anzugeben, wie in welchem Einzelfall eines der Mittel angewendet wird [10].

Da die Sprachphilosophie schon sehr viel zu diesen Dingen gesagt und eine Fülle von schwierigen Fragen aufgeworfen hat, ist es nicht ganz einfach, hier nochmals einen eigenen Durchblick zu geben. Viele bekannte Dinge muß ich aufgreifen und in ihren — teils noch strittigen — Details vereinfachen, um die hier zentralen Gesichtspunkte durchziehen zu können. Neu daran ist, soweit ich sehen kann, nur: die Art der Zusammenschau und die Einbettung in die Linguistik-Diskussion; die Akzentuierung der sprachökonomischen Gesichtspunkte; der Versuch, die EN aus ihrer isolierten, peripheren Stellung in der Sprachwissenschaft herauszuholen, sie also nicht nur, wie bisher, zu kontrastieren, sondern zu integrieren, ihre Rolle im Gesamtsystem einer Sprache deutlicher zu machen, als ich das bisher in der Literatur gefunden habe. Vielleicht könnte das zumindest mithelfen, die sprachphilosophische Ernte in die Linguistik einzubringen und hier wirksam werden zu lassen [11].

Erhebliche Schwierigkeiten ergeben sich allerdings bei einem solchen Vorhaben, weil hier sehr viele Arbeitsrichtungen zusammenlaufen mit einer jeweils unüberschaubar großen Literatur: Philosophie, Logik, Zeichentheorie, Grammatiktheorie (verschiedener Schulen), Text- und Pragmalinguistik, also teils traditionsreiche, teils erst in Entwicklung begriffene Forschungsrichtungen, alle mit offenen Fragen.

## 2. Die referentielle Gleichwertigkeit von EN, Pronomina und Kennzeichnungen

Auf die vielfach gestellte Frage nach dem Unterschied zwischen EN wie *Haus, Tübingen, die Schweiz* einerseits und App wie *Junge, Stadt, Land* andererseits kann man zunächst folgende Antwort geben:

Mit einem EN beichnen (nennen) wir jeweils genau einen Gegenstand (eine Person ...). Der EN dient dazu, einen Gegenstand nur zu identifizieren; mit ihm sagen wir über den Gegenstand noch nichts aus.

Ein App ist dagegen eine Bezeichnung für eine bestimmte Menge von Gegenständen, die durch einige gemeinsame Merkmale definiert wird; es ist ein Klassenname für unbegrenzt viele Gegenstände, wobei diese gemeinsamen Merkmale mitgennant werden. *Junge* gilt z.B. für alle Gegenstände mit den Merkmalen [+ menschlich, + männlich, — erwachsen]. Die App dienen dazu, eine unbegrenzte Anzahl von bestimmten Gegenständen zu charakterisieren.

Wir wollen uns hier nicht mit so vieldiskutierten speziellen Fragen abgeben wie: Den EN *Hans* haben doch viele Personen und seine Träger haben das gemeinsame Merkmal « männlich » (und « deutsch »). Die EN *Neckarsulm, Die Hohen Tauern* sagen doch etwas aus über die Lage, die relative Größe ihrer Gegenstände, usw. — Oder ein App wie *Zug* gilt doch für Gegenstände wie « Luftzug, Eisenbahnzug, Zug der Vögel, Zug um den Mundwinkel », die kaum gemeinsame Merkmale haben. Wir wollen vielmehr annehmen, daß dies nur zusätzliche, aber theoretisch auflösbare Komplikationen sind.

Bedeutet diese Gegenüberstellung, daß die EN, und nur sie, dazu dienen, um Einzelgegenstände zu benennen, die App, um — nur — über Mengen sprechen zu

[10] Insofern würde ich für diese Fälle noch nicht wie Coseriu 1955-56 von einer Linguistik der *parole* bzw. der Rede (« lingüística del hablar ») sprechen; doch sind das möglicherweise nur Definitionsfragen. — Daß die Fähigkeit, Sprache auf Gegenstände anzuwenden, über Chomsky hinausgehend zur sprachlichen Kompetenz gehört, stellt auch Cohen 1970 fest. Er beschäftigt sich jedoch mehr damit, wie das notwendige Wissen um die sozio-physikalischen Verhältnisse in eine Sprachtheorie einzubauen ist, nur pauschal mit den hier zentralen linguistischen Ausdrucksmechanismen.
[11] Persönlich bin ich erst beim Experimentieren mit EN auf die reiche sprachphilosophische Literatur voll aufmerksam geworden. Den Teilnehmern meines Seminars in Tübingen im WS 1971-72 habe ich für ihre Beiträge zu danken.

können? Daß wir nur über solche Einzelgegenstände sprechen können, für die wir EN haben? Keineswegs.

Die App werden doch im Satz zumeist so verwendet, daß gewisse Syntagmen mit App, genau wie die EN, ganz bestimmte Dinge der Außenwelt bezeichnen: *der Junge dort*; *der Mann, der gestern das Auto gebracht hat*; *kommst du heute mit in die Stadt?*; *ich bin schon lange in Ihrem Land.* Die Syntagmen *der Junge dort*; *der Mann, der gestern das Auto gebracht hat*; *die Stadt, Ihr Land* leisten doch dasselbe wie ein EN; sie identifizieren genau eine Person, einen Gegenstand der Außenwelt — falls wir wissen, in welcher Situation sie geäußert werden.

Diese Konstruktionen hat man in der Sprachphilosophie mit verschiedenen Termini bezeichnet, z.T. mit strittigen Abgrenzungen: entweder wurden sie generell unter « Namen » subsumiert, oder als « logische Eigennamen », als « Kennzeichnungen », als « definite Beschreibungen » bezeichnet [12]. Von der Linguistik herkommend spricht COSERIU 1955-56, ältere Vorschläge aufgreifend, vor allem von der « Aktualisierung » durch « nominale Determination ».

Und dasselbe gilt für *du*, *ich*, *Ihr* ..., also für PPron I/II und deren Ableitungen (z.B. PossPron); sie beziehen sich beim Sprechen immer auf bestimmte Personen, auf den jeweiligen Sprecher bzw. auf den Angesprochenen. Gleiche Verhältnisse haben wir bei den Bezeichnungen für den Sprechort und die Sprechzeit, dt. *hier* und *jetzt* (und deren Ableitungen *dort*, *dies*, *heute*, *früher*, *bald* ..., denen « hier »/« jetzt » mit anderen semantischen Elementen kombiniert zugrunde liegen). Alle diese Ausdrücke, denen in der Sprechsituation ein Gegenstand zugeordnet wird, bezeichnet man in der Philosophie vielfach als « Indikatoren ».

Mit den EN, den Indikatoren und den syntaktisch entsprechend ausgestatteten App, den Kennzeichnungen, haben wir somit drei Möglichkeiten, den Bezug zu außersprachlichen Gegenständen herzustellen. Sie entsprechen in etwa den drei eingangs genannten Möglichkeiten, eine NP zu ersetzen.

Dabei wäre allerdings in dem Det all das zusammengefaßt, was zu einem App hinzutreten muß, um den Bezug auf einen Gegenstand zu ermöglichen. Und das Verhältnis des lokalen und temporalen Indikators zur NP wäre noch genauer zu klären.

Während die EN und Indikatoren einfach gebaut und leicht zu beschreiben sind, ist es eine wesentlich schwierigere Aufgabe, die genaue syntaktisch-semantische Ausstattung der Kennzeichnungen zu studieren. Eine solche linguistisch fundierte und formalisierte Systematik steht, soweit ich sehe, noch aus; ja, ein Begriff « Kennzeichnung » hat in der neueren Linguistik m.W. gar keine Rolle gespielt. Dabei wäre wohl auch zu prüfen, wieweit linguistische Kategorien überhaupt zu einer Beschreibung genügen, wieweit pragmatisch-logische Präsuppositionen hinzugezogen werden müssen.

Wir sollten hier zunächst von zwei für unser Thema EN — App wichtigen Typen ausgehen und auf die anderen Möglichkeiten nur hinweisen.

Und wir beschränken uns im ganzen Folgenden auf solche Fälle, in denen es nur um jeweils einen Gegenstand, also um Ausdrücke im Singular, geht; die verschiedenen Quantoren und die Frage, wieweit wir es bei pluralischen Ausdrücken jeweils mit Kennzeichnungen zu tun haben, werfen nochmals eigene Probleme auf.

(a) Die eine Möglichkeit besteht darin, App mit solchen Morphemen zu verbinden, in denen Indikatoren semantisch enthalten sind:

[12] Man vgl. dazu z.B. die in Steinberg/Jakobovits 1971 abgedruckten philosophischen Aufsätze oder in dt. Sprache Kamlah/Lorenzen 1967, S. 103-109.



*m e i n e Wohnung*
*die Kollegin rechts neben d i r*
*das Buch h i e r / d i e s e s Buch* [13]
*die j e t z i g e Vorlesung*
*der Mann, der g e s t e r n d o r t bei e u c h war*

(b) Ähnlich ist die zweite Möglichkeit, bei der anstelle der Indikatoren EN erscheinen:

*die Mutter von H a n s*
*der Berater des a m e r i k a nischen Präsidenten in auswärtigen Angelegenheiten*
*die Autobahn zwischen M a i l a n d und B o l o g n a*

Der Mechanismus in diesen beiden parallelen Typen dürfte doch wohl der sein, der sich mit dem Vorgehen bei Ratespielen vergleichen läßt:

Durch das App im Sg. (*Wohnung*, *Autobahn*) wird zunächst ein Gegenstand x gesetzt. Und über diesen — unbekannten — Gegenstand werden nun verschiedene Aussagen gemacht: Einmal durch die semantischen Merkmale, die das App mit sich führt [14]. Sie reichen aber nicht aus, um den Gegenstand zu identifizieren; denn diese Merkmale gelten ja — für App definitionsgemäß — für eine ganze Menge von Gegenständen. Infolgedessen müssen noch weitere Informationen gegeben werden. Für unsere Fälle entscheidend ist, daß (zumindest) eine weitere Prädikation hinzukommt, die Bezug nimmt auf einen weiteren, bereits identifizierten Gegenstand, der durch einen Indikator oder EN genannt wird. Durch diesen einen bereits vorhandenen Fixpunkt in der Außenwelt gelingt es, einen weiteren Gegenstand zu identifizieren; z.B.

Ein x, das die Merkmale von *Wohnung* besitzt (das zur Menge der *Wohnungen* gehört) und das *ich*, der Sprecher, *habe*.

Ein x, das die Merkmale *Autobahn* besitzt und das zwischen *Mailand* und *Bologna* ist.

Daß diese Merkmale, die in *meine Wohnung* enthalten sind, für eine Kennzeichnung ausreichen, liegt daran, daß man von der Voraussetzung, der Präsupposition ausgehen darf, daß der Sprecher nur eine Wohnung hat. Andernfalls müßten weitere Prädikationen hinzukommen, die sprachlich sehr verschiedenartig realisiert werden können: durch ein anderes App mit mehr semantischen Merkmalen, durch ein Adj, Adv, einen Relativsatz usw., durch Relationen zu weiteren identifizierten Gegenständen: *mein Appartement*, *meine Ferienwohnung*, *meine kleinere Wohnung*, *meine hiesige Wohnung*, *meine Wohnung in Paris* usw.

Zu den bisher genannten Kennzeichnungen gehört also:

(a) ein App, das einen Gegenstand setzt,

(b) die semantischen Merkmale dieses App,

(c) möglicherweise weitere semantische Merkmale,

(d) ein (oder mehrere) Indikator(en)/EN; z.B. das [ich], das in *mein* enthalten ist,

(e) eine Funktion zwischen dem App und dem Indikator/EN, z.B. die [haben]-Relation bei *meine Wohnung*, die durch das PossPron ausgedrückt wird, die lokale [sein]-Relation bei dem *Autobahn*-Beispiel.

[13] Daß beides Paraphrasen sind, läßt sich auch an einem diachronen Beispiel zeigen: Im heutigen Schwedischen werden die alten DemPron heute umgangssprachlich ersetzt durch die Konstruktion Best. Artikel + Ortsadv + App; z.B. statt *denna boken — den här boken.*

[14] Wir berühren uns hier mit Bach 1968.

Die App mit ihren semantischen Merkmalen dienen also nicht nur dazu, Mengen zu nennen und zu charakterisieren (wie oft will man das schon?), sondern for allem, um mittels der Charakterisierung beizutragen, Gegenstände zu identifizieren.

Obwohl wir mit EN/Indikatoren und Kennzeichnungen gleichermaßen identifizieren können, so ergibt sich doch ein wichtiger Unterschied: Während man mit EN/Indikatoren das Referentum nur identifiziert (« nennt »), kommt man bei Kennzeichnungen nicht umhin, das Referentum auch zu charakterisieren. Und für den Sprecher besteht immer eine gewisse Wahlfreiheit, welche Charakterisierungen er dabei verwendet; und die Relation zu einem durch EN/Indikator identifizierten Gegenstand zählt dabei ja ebenfalls als Charakterisierung. Für das gleiche Referentum könnte man (in einem gewissen Fall) sagen: *meine Wohnung*; *mein Zuhause*; *der 3. Stock im Haus Brückenstraße 24*; *die Wohnung, die der Herr Meyer gestern vermietet hat*. Damit haben die Kennzeichnungen gegenüber den EN/Indikatoren immer etwas Subjektives, oft auch Wertendes — ein Gesichtspunkt, der vielfach stilistisch ausgenützt wird und von der kritischen Textanalyse zu beachten ist.

Bei der Wahl einer Kennzeichnung ist es natürlich auch möglich, über die zur Identifizierung minimal notwendige Merkmalsmenge hinauszugehen und weitere Aussagen über den Gegenstand zu machen. So kann man z.B. statt *Das Kind, das das Rad gestohlen hat*, sagen, *Der Junge, der ...* oder *Der Lausbub, der ...*. Hier wird die Kennzeichnung absichtlich nicht nur zum Nennen von Gegenständen eingesetzt, sondern schon zu Aussagen über Gegenstände.

DONNELLAN 1966 zeigt übrigens, daß nicht nur einzelne Prädikationen in einer Kennzeichnung zur Identifizierung u.U. unnötig sind, sondern daß « definite Beschreibungen » als Ganzes « attributiv », und nicht nur « referentiell », verwendet werden.

Die Fälle, in denen Kennzeichnungen aus den oben aufgeführten Elementen (a), (b), [(c)], (d), (e) gebaut werden, sind sicher die häufigsten. Es gibt aber Fälle, bei denen gewisse Elemente anders realisiert werden, fehlen oder ergänzt werden müssen.

In einem Fall wie *der(jenige), der gestern abend bei uns war ist* das unter (a) genannte App durch ein Pronomen ersetzt, das aber genauso einen Gegenstand x setzt und — nicht ganz problemfrei — das Merkmal [+ männlich] enthält.

In Fällen wie *der erste Mensch* oder *der Stern, der am hellsten leuchtet* kann zwar such ein Referentum eindeutig genannt sein; man kommt aber ohne (d), (e), ohne den Bezug auf einen anderen, identifizierten Gegenstand aus.

In einem Fall wie *jenes Buch/das Buch dort* muß normalerweise, um einen Gegenstand identifizieren zu können, noch eine Zeigegeste hinzukommen. Zu einer adäquaten linguistischen Beschreibung gehört hier also ein nicht-phonemisches Zeichen. Bei der Darstellung der Referenz geht es also nicht nur um außersprachliche Gegenstände, auf die sich die sprachlichen Einheiten beziehen; auch die Mittel, um die Gegenstände zu benennen, sind teilweise « außersprachlich » in einem engen Sinn.

Und in dem Extremfall *das da* ist die Zeigegeste ebenfalls obligatorisch, während zugleich statt des App ein DemPron steht, das aber immerhin das Merkmal [— belebt] trägt.

Eine sprachliche reine Deixis, die ganz frei anderen semantischen Merkmalen ist, gibt es im Dt. (und in vielen anderen Sprachen) offenbar nicht.

Alle diese Sonderfälle sollen aber hier nicht weiter analysiert werden. Wir kehren wieder zu unserem Hauptthema zurück.

Es gibt in unseren natürlichen Sprachen also drei Möglichkeiten, die Zuordnung von sprachlichen zeichen und Gegenständen herzustellen, wobei die EN und die Indikatoren sozusagen die Fenster zur (realen oder fiktiven) außersprachlichen



Welt darstellen:

(1) Indem man schon beim « Spracherwerb » zu einer phonologischen Kette mit einem bestimmten außersprachlichen Gegenstand konfrontiert wird, zumeist auch hier mit einer Zeigegeste: *Darf ich vorstellen, das ist Hans*. Die Koppelung Zeichen — Gegenstand besteht dann ein für allemal bereits in der Kompetenz.

Freilich gibt es auch indirektere Formen, EN zu lernen: Indem man anstelle des Gegenstandes nur mit einem Zeichen oder nur mit einer Kennzeichnung konfrontiert wird. So kann man anhand einer Landkarte lernen: *das ist Sambia*, oder man kann erfahren: *der derzeitige Bundespräsident heißt Gustav Heinemann*.

(2) Indem man Indikatoren verwendet, die zwar in der Kompetenz nur die Variablen wie « der Sprecher », « der Sprechort » enthalten; beim Sprechen, in der Performanz, werden diese Variablen automatisch jeweils bestimmten Gegenständen zugeordnet.

(3) Indem der Sprecher erst in der Performanz Kennzeichnungen schafft, einen Fixpunkt nach (1) oder (2) wählt, und von da aus mit Hilfe von semantischen Merkmalen den Gegenstand definit beschreibt. Anders als nach (1), (2) wird dabei notwendigerweise über den Gegenstand immer auch etwas ausgesagt; es wird also identifiziert und charakterisiert, u.U. sogar nur durch Charakterisierungen identifiziert.

Im Extremfall, wenn als Fixpunkt ein DemPron und anstelle eines App eine Zeigegeste tritt, wird die Konfrontation « phonetischer Ausdruck-Gegenstand », die bei den EN schon beim Spracherwerb vorausgegangen ist, sozusagen im letzten Augenblick, bei der Performanz, nachgeholt.

So gibt es also zusammengefaßt drei Wege, um zum gleichen Ziel, zu einem festen Bezug zu den außersprachlichen Gegenständen zu gelangen. Die zunächst rein syntaktisch-oberflächenorientierte Feststellung der generativen Grammatik, daß eine NP (zumindest) durch drei Kategorien zu ersetzen sei, bekommt also erst dann einen verstehbaren Sinn, wenn wir auch nach dem Zweck der Sprache, nach ihrem Verhältnis zur außersprachlichen Welt, fragen.

## 3. Das komplementäre Verhältnis zwischen EN, Indikatoren und Kennzeichnungen: Ökonomiefragen

Wenn drei Wege zum gleichen Ziel führen, dann muß man weiterfragen, weshalb es diese drei Wege gibt — und nicht nur einen — und in welchen Fällen man den einen oder den anderen Weg geht.

Zunächst können wir die an die Sprechsituation gebundenen Indikatoren abheben. Mit ihnen werden bei jedem Sprachgebrauch wichtige und häufig zu nennende Gegenstände bezeichnet. Da sich in der natürlichen Sprechsituation erkennen läßt, wer mit wem, wo, wann spricht, genügt es normalerweise, daß vom System her Variable zur Verfügung stehen; und es ist ökonomisch, daß diese häufig verwendeten Indikatoren bzw. Verbindungen mit Indikatoren durch kurze Phonemketten ausgedrückt werden: *ich*, *du*, *hier*, *jetzt* bzw. *wir*, *mein*, *dich*, *dort*, *bald* usw.

Immerhin besteht die Möglichkeit, auch in diesen Fällen die anderen Wege zu gehen. Anstelle von *ich* den eigenen EN zu sagen (*Peter mag nicht laufen*), wird von den Kindern allerdings schon bald aufgegeben. Den Angesprochenen kann man auch mit einer Kennzeichnung umschreiben: *Was sagt der Arzt dazu?* anstelle von: *Was sagen Sie als Arzt dazu?* oder durch den EN verdeutlichen *Sie, Herr Schmidt*; Höflichkeit oder die Notwendigkeit, jemanden aus einer größeren Menge eindeutig

zu identifizieren, sind darum der Grund, daß nicht der einfachste Weg gegangen wird.

Und in den besonderen Sprechsituationen, in denen der Sprecher, der Sprechort nicht zu identifizieren ist, etwa am Telefon, ist es ebenfalls notwendig, EN zu verwenden (*Hier Meyer, München*). Beim schriftlichen Sprachgebrauch ergibt sich auch nicht von selbst der Angesprochene und die Sprechzeit. Es ist deshalb sinnvoll, daß wir zunächst auf den Briefkopf mit EN den Absender, den Adressaten, den Ort und — als quasi-EN — das Datum schreiben. Erst dann können die Indikatoren funktionieren, und einem Text wie *Gestern bin ich hier bei Deinen Eltern angekommen* können Gegenstände zugeordnet werden.

Das wären übrigens die Fälle, in denen man die Indikatoren möglicherweise zu den Proformen rechnen könnte. Auf die Frage, wieweit die PPron I/II mit den PPron III etwas zu tun haben und inwiefern nicht, kann hier nicht eingegangen werden.

So ökonomisch Indikatoren sind, was die Gedächtnisleistung in der Kompetenz und den phonetischen Aufwand in der Performanz angeht, so funktionieren sie nur, wenn ihre Referenta erkennbar oder anderweitig genannt sind. Und vor allem kann man mit ihnen nur einen winzigen Bruchteil von den Gegenständen erreichen, über die man möglicherweise sprechen möchte.

Für alle anderen Gegenstände ist man auf EN und Kennzeichnungen angewiesen.

Wollten wir für alle, die unbegrenzt vielen Gegenstände, über die wir sprechen möchten, EN benützen, dann müßten wir auch unbegrenzt viele EN gelernt haben. Da unsere Lernzeit und unser Gedächtnis aber begrenzt sind, läßt sich von diesem Weg nur begrenzt Gebrauch machen.

Für die verbleibenden Fälle — für die überwiegende Mehrzahl — müssen wir uns mit Kennzeichnungen, also vor allem mit App-Konstruktionen, behelfen. Hier, wo nicht mit einzelnen Ausdrücken, sondern mit syntaktischen Kombinationen gearbeitet wird, haben wir die Möglichkeit, die begrenzten Einheiten des Lexikons unbegrenzt zu immer neuen Kombinationen zusammenzustellen — syntaktisch etwa durch Adjektiv-Attribute und (geschachtelte) Relativsätze — und damit unbegrenzt viele Gegenstände zu benennen.

Allerdings wäre es umgekehrt sehr umständlich, wenn wir für alle Gegenstände, über die wir reden, auch für solche, mit denen wir ständig zu tun haben, jedesmal eine Kennzeichnung selbst herstellen müßten. Außerdem kann es oft schwierig sein, z.B. eine abwesende Person so zu charakterisieren, daß sie für den Gesprächspartner eindeutig identifiziert ist. Man muß dann vielfach an Situationen anknüpfen, in denen die Identifizierung direkter möglich war (z.B. *der Junge, der damals, als wir gerade hier eingezogen waren, das Fahrrad mitgenommen hatte*). Sollte es notwendig sein, häufiger über diesen Jungen zu sprechen, dann wäre es wesentlich ökonomischer, seinen Namen zu wissen. In Fällen, in denen man den offiziellen Namen nicht erfährt, schafft sich die Sprechergemeinschaft häufig ad hoc einen EN. Im Ferienhotel wird man bald nicht mehr über *den Jungen am Tisch in der Ecke, der immer nicht essen will und schreit* sprechen, sondern kurz über *den Schreier*. Daß dies ein EN geworden ist, geht z.B. daraus hervor, daß man dann auch sagen kann: *Der Schreier schläft im Garten*; die lexemische Bedeutung ist unwichtig und der def. Artikel ist fest geworden wie in *die Schweiz*.

Die EN kann man somit als Abkürzungen für Kennzeichnungen, also als etwas Sekundäres verstehen [15]. Und von der Häufigkeit in der Performanz hängt es jewelils

[15] Das deckt sich übrigens mit den Erkenntnissen der Onomastik, daß alle EN letztlich auf appellativischen Wortschatz zurückgehen, und mit den Beobachtungen an der Kindersprache: Kleine Kinder interpretieren neu gelernte Ausdrücke zunächst immer als App. *Der Papa* wird für jeden Mann verwendet, ein Hofname *Schwärzloch* für alle Bauernhöfe, usw.



ab, wieweit EN geschaffen und gelernt werden und wieweit man sich mit Kennzeichnungen behelfen muß.

So wird es verständlich, daß die Zahl der EN bei ben verschiedenen Sprechern ein und derselben Sprache unterschiedlich groß sein kann und auch nach dem eigentlichen Spracherwerb in der Jugend zunehmen bzw. (durch Vergessen) wieder abnehmen kann; die Sprachkompetenz im engeren Sinn — die Fähigkeit, Deutsch zu sprechen — wird durch diesen Wechsel nicht berührt. Die Schaffung, Zuordnung und Kenntnis von EN (und ihren Referenta) ist vielfach nicht Sache der ganzen Sprachgemeinschaft, sondern kleinerer Sprechergruppen.

Dadurch wird begreiflich, daß dieselben EN mit verschiedenen Gegenständen verknüpft werden können. Erst wenn die Sprechergemeinschaften in Kontakt zu einander treten, sind Veränderungen, Zusätze and den EN nötig: *München — Mönchen (-Gladbach)*, *Frankfurt am Main — Frankfurt an der Oder*.

So hat man schon gesagt, daß die EN nicht zum System einer Sprache gehörten [16] oder einen peripheren Bereich bildeten. Andererseits sind EN vermutlich als ein Universale in allen natürlichen Sprachen vorhanden und sie sind, was wir gerade zu zeigen versuchen, eng in das Gesamtsystem integriert und wesentlich an einer Hauptfunktion der Sprache, auch über Abwesendes sprechen zu können, beteiligt. So wäre es wohl richtiger, eine abstrakte Einheit EN für jedes Sprachsystem anzusetzen, die Auffüllung dieser Variablen mit konkreten EN, ein Namenlexikon, aber nicht einzubeziehen.

Auf den Sonderfall, daß gewisse EN in verschiedenen Sprachen phonemisch verschieden sind (*Karl, Mailand, Aachen - Charles, Milano, Aix-la-Chapelle*) und bei Fremdsprachen mitgelernt werden müssen, soll hier nicht nochmals eingegangen werden.

EN und Kennzeichnungen wären damit also nur durch unterschiedliche Ökonomie verschieden: Die EN sind sparsam in der Kompetenz und erfordern keine Kreativität; sie erfordern aber eine besondere Belastung der Kompetenz; es fragt sich für die Sprechergemeinschaft, wieweit es sich lohnt, für einen einzelnen Gegenstand ein eigenes sprachliches Zeichen zu setzen. Die Kennzeichnungen sind in der Performanz (zumeist) aufwendiger; sie setzen aber verhältnismäßig wenig Einheiten in der Kompetenz voraus.

Darüber hinaus bieten die EN den Vorteil, daß man mit ihnen ohne Mühe auch über abwesende Gegenstände sprechen kann; die Konfrontation Zeichen-Gegenstand (oder deren Ersatz) beim Lernvorgang kann weit zurückliegen. Bei Kennzeichnungen muß man sich entweder auf etwas Anwesendes beziehen oder auf das Sachwissen rekurrieren (*das höchste Gebäude*) oder — EN als Fixpunkte einbeziehen. Da die meisten Kennzeichnungen entweder mit Indikatoren oder EN arbeiten und die Indikatoren jeweils nur wenige anwesende Gegenstände erreichen, darf man sogar sagen, daß in jeder Sprechergemeinschaft eine gewisse Mindestmenge von EN vorhanden sein muß, um in größerem Umfang über Abwesendes oder auch zeitlich Entferntes sprechen zu können.

Die EN dienen ja nicht nur dazu, um unmittelbar (einige) Gegenstände nennen zu können; sie sind auch bei den meisten Kennzeichnungen notwendig, um für sehr viel mehr Gegenstände quasi-Namen zu schaffen, für viel mehr Gegenstände als es allein die situationsgebundenen Indikatoren und die Prädikationen erlauben.

Die drei Mengen Indikatoren, EN und Kennzeichnungen überschneiden sich also, insofern als Indikatoren und EN Teile von Kennzeichnungen sein können.

[16] So z.B. Linsky 1967, 55.

Lassen wir aber die Kennzeichnungen unanalysiert, so ergibt sich ein teils starres, teils aber bewegliches, stets aber komplementäres Verhältnis zwischen Indikatoren, EN und Kennzeichnungen. Eine erste Grundmenge bilden die Indikatoren; was durch sie benannt werden kann, wird durch sie erledigt. Die zweite Grundmenge sind die EN. Soweit auch sie nicht ausreichen, wird mit Kennzeichnungen aufgefüllt. Und das Verhältnis zwischen EN und Kennzeichnungen wird nicht ein für allemal beim Spracherwerb in der Kindheit festgelegt, sondern verschiebt sich vielfach im Leben und je nach Gesprächspartner, da man immer auch Rücksicht auf dessen begrenzten, andersartigen Namen-Kode nehmen muß. Die Gesamtmenge, die unbegrenzt ist, bleibt jedoch konstant.

Indikatoren, EN und Kennzeichnungen sind also einerseits sich teilweise überschneidende, andererseits komplementäre Teilmengen einer großen Gesamtmenge sämtlicher Zeichen für die unbegrenzt vielen Gegenstände, über die gesprochen werden kann.

Im Zusammenhang mit diesen Überschneidungen kann man noch an den mehrfach behandelten umgekehrten Fall erinnern, daß sich auch EN in App überführen und als solche in Kennzeichnungen verwenden lassen, etwa in *das Rom Caesars, ein verschmutzter Rhein, wie man ihn hier häufig hat, kleine Albrecht Dürers*[17].

Dieses komplementäre, durch Ökonomie gesteuerte Verhältnis zwischen Indikatoren/EN und Kennzeichnungen ließe sich in Parallele und im Kontrast sehen zu zahlreichen anderen ökonomisch-komplementären Verhältnissen im System der Sprache. Als sprachliche Kürzel gibt es:

(a) Komposita anstelle von Syntagmen: z.B. *Last(kraft)wagen — motorgetriebener Wagen, mit dem man größere Lasten befördern kann.*

(b) Abkürzungen anstelle von Komposita: z.B. *LKW — Lastkraftwagen.*

(c) Lexeme anstelle von Syntagmen (Paraphrasen): z.B. *Gasse — von Häusern begrenzte, enge Straße.*

(d) Proformen anstelle von (im Text vorangegangenen) Syntagmen: z.B. *sie — die Frau dort.*

Und schließlich

(e) Indikatoren anstelle von EN, und EN anstelle von Kennzeichnungen.

Wie und auf welchen Ebenen diese verschiedenen Verkürzungen unterschiedlich operieren, kann hier aber nicht mehr ausgeführt werden.

## 4. App in anderer Verwendung

App spielen bei der Bildung von Kennzeichnungen eine wichtige Rolle, indem sie (a) einen Gegenstand x setzen und (b) mit ihren semantischen Merkmalen beitragen, den Gegenstand zu identifizieren; sie reichen aber nicht aus; (c) weitere Prädikationen (mit oder ohne EN/Indikatoren) müssen hinzutreten. Diese Elemente müssen aber (wie oben unter 2. gezeigt) nicht so gebündelt sein. Was das App gleichzeitig leistet, kann auch (weitgehend) durch getrennte Elemente zusammengesetzt werden. Das x kann auch durch ein Pron gesetzt werden, das fast keine

[17] Vgl. z.B. Leys 1965, 15.



semantischen Merkmale mitbringt, und die weiteren notwendigen Prädikationen können durch Adj, durch den Bezug auf EN/Indikatoren erfolgen.

Wir können aber nicht nur innerhalb dieser Bündelungen von Elementen die Rollen verschieden verteilen. Wir können auch eines dieser Elemente ganz weglassen; dann haben wir keine Kennzeichnungen mehr, sondern andere Verwendungsweisen von App.

(1) Wenn wir die weiteren Prädikationen (c) weglassen, so bleiben nur die Merkmale des App; und die umgrenzen eben eine ganze Menge und keinen einzelnen Gegenstand. Dann werden die App tatsächlich als Mengenbezeichnung verwendet. Für die vielen Elemente dieser Menge müssen wir dann entweder den Plural setzen:

*Kinder sind nun mal laut* d.h. « alle Kinder »

Oder die ganze Menge kann — wohl grammatisch-metaphorisch — durch das App im Singular bezeichnet werden:

*Der Mensch ist nie zufrieden* d.h. « alle Menschen »

Das Prädikat des Satzes trifft hier auf jedes Element der Menge zu.

(2) Wenn wir die weiteren Prädikationen (c) weglassen, bis auf die, daß es sich nur um einen Gegenstand handelt[18], dann haben wir ein Element aus der Menge, ohne es zu identifizieren. Im Dt. wird das durch den unbest. Artikel ausgedrückt.

*Eine Frau ging über die Straße* d.h. « eine bestimmte Frau »

In diesen Fällen kann der Gegenstand zwar für den Sprecher identifiziert sein; er macht darüber aber keine Aussage, und für den Hörer besteht keine Möglichkeit der Identifikation mit ihm bekannten (realen oder fiktiven) Gegenständen. Der Hörer wird nur aufgefordert, sich fiktiv einen Gegenstand aufzubauen, allein aufgrund der semantischen Merkmale des App und aller folgenden Prädikationen. (Möglicherweise wird er später noch für den Hörer identifiziert.)

Bezeichnend ist es jedenfalls, daß in der Anaphorik auch diese NP, die sich auf nicht-identifizierte Gegenstände beziehen, wie Ausdrücke für identifizierte weiterbehandelt werden: *Die Frau dort/Eine Frau — die Frau — sie.* Auch hieraus müßten noch genauere Schlüsse gezogen werden.

Im Fall

*Eine Frau hätte kaum so geantwortet* d.h. « irgendeine, jede Frau »[19]

besteht auch für den Sprecher keine Identifikation mit einem bestimmten Gegenstand, und der Hörer baut sich aus den semantischen Merkmalen einen fiktiven Gegenstand, der nicht identifiziert werden kann.

(3) App lassen sich aber auch so verwenden, daß das Setzen eines Gegenstandes x wegfällt und nur die semantischen Merkmale Verwendung finden, als Prädikationen für einen bereits genannten Gegenstand. Das geschieht, indem man sie in die VP, parallel zu V, Adj, Adv setzt.

[18] Zur Identifikation des unbest. Artikels mit dem Zahlwort vgl. man zuletzt Perlmutter 1970.

[19] Über diese doppelte Funktion des unbest. Artikels zuletzt Bierwisch 1970, 32.

$$VP \rightarrow \left\{\begin{matrix} V \ldots \\ Adj \\ Adv \\ App \end{matrix}\right\} \qquad \begin{matrix} \textit{Dieser Mann} & \textit{arbeitet} \\ & \textit{ist fleißig} \\ & \textit{ist fort} \\ & \textit{ist Schreiner} \end{matrix}$$

Dann leistet ein App wie *Schreiner* nicht mehr als ein Adj; es ist zu einem bloßen Träger von semantischen Merkmalen geworden.

Die Kopula in den drei letzten Fällen erscheint im Dt. automatisch (durch Transformationen), so daß das App tatsächlich parallel zum V zu sehen ist; und es gibt ja Versuche, zumindest V und Adj zu einer Kategorie zusammenzufassen [20].

Sinnvollerweise erscheinen in dieser Position in der VP normalerweise keine EN; Sonderfälle wie *der Sieger ist/heißt Fritz Meyer* sollen hier nicht diskutiert werden.

Von diesen unterschiedlichen Kombinationen und Verwendungsweisen her können wir die Frage zu beantworten suchen, was nun doch die App von allen anderen Wortklassen unterscheidet, von den Adj, mit denen sie das Tragen von semantischen gemeinsam haben, von den IndefPron (*jemand*, *etwas*), die ebenfalls einen Gegenstand x nennen. Die Antwort lautet: Eben, daß sie diese Möglichkeiten, die in anderen Wortklassen einzeln vorhanden sind, gebündelt besitzen. So ließe sich auch das Verhältnis der Wortklassen zueinander but mit einem Venn-Diagramm repräsentieren. Und damit haben wir es wiederum (nur?) mit einem Fall der Sprachökonomie zu tun. Ihre volle Funktion entwickeln die App in den Kennzeichnungen, wo sie nicht nur den zu definierenden Gegenstand setzen, sondern gleichzeitig einen Teil der notwendigen Prädikationen übernehmen [21].

*Tübingen*

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[20] Vgl. Rosenbaum 1967.

[21] Zu einer möglichen Distanzierung der App von den V, Adj ... und zur Parallelisierung mit den EN vgl. man auch Dahl 1971; darüber hinaus möchte ich jedoch die Janus-Funktion der App deutlich machen. Will man dagegen ein Adj in derselben Weise wie ein App innerhalb einer Kennzeichnung verwenden, so muß es eben erst substantiviert, in ein App moviert werden (*Das Dunkle dort in der Ecke*). Und auf die Sonderstellung der Abstrakta und ihrer Nähe zu den Adj, V kann hier nicht mehr eingegangen werden.




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# CONTRASTIVE HISTORICAL ANALYSIS AND THE CHRONOLOGICAL CLASSIFICATION OF ENGLISH

RODOLFO JACOBSON

*Abstract*

0. The Swedish linguist Bertil Malmberg suggested in 1967, in his plenary report to the Tenth International Congress of Linguists, that a diachronic study is « in principle a synchronic description applied to successive language states ». Malmberg's *synchrony in depth* seems significant in two ways. The choice of the topic as such indicates our renewed interest in contrastive historical analysis. Secondly, his notion suggests, almost graphically, that diachronic studies must be viewed in terms of an evolutionary history of systems. In other words, it is the confrontation of individual language states that will ultimately help us understand the historical development of a given language. Such synchronic descriptions of each language state are done most effectively by using the generative transformational model of linguistic description. It is therefore the purpose of this paper to discuss the appropriateness of the cited model for historical English studies and to propose, at the same time, a linguistically sound argument for a chronological reclassification of English.

1. The conventional classification into three periods suggests the erroneous conception that (1) Modern English is the direct descendant of West-Saxon and (2) the equally wrong view that *Old English*, *Middle English* and *Modern English* are all typologically distinct from one another. The philologists of the past proposing these conventional lables had no linguistic consideration in mind but based their terminology on time alone. In light of recent linguistic theories, matters of linguistic typology rather than considerations of time should determine the choice of appropriate classificational labels.

2. If various grammatical systems all belonging to the same geographical dialect can be shown to have existed such that each system is clearly recognizable as the direct discendant of the earlier one, then these linguistic analyses should provide us with the information needed to single out *that* grammatical system which, because of the nature of its typological innovations, best represents the breaking point between the old and the new. The geographical area that suggests itself for this inquiry is obviously the early London Dialect because it has long been identified as the precursor of the standard language. Within early London English four London English monuments emerge as sets of linguistic data of great significance in our query, i.e. the *Lambeth* and the *Trinity Homilies* (ca. 1200), the *Proclamations of Henry III* (1258) and *Adam Davy's Dreams about Edward III* (ca. 1307). It is my contention to show that it is precisely the Proclamation of Henry III which represents, better than any other London English document,



the transition from the old inflectional language to the new positional language. This argument may be sustained on the basis of the following facts:

a. some inflectional endigs characteristic of Old English had already disappeared as a result of phonological pressure;

b. other such endigs had been retained but were no longer functionally relevant; and

c. word order had become fixed to some extent because the functionally void endings were unable to fulfill their syntactic commitments.

3. The validity of this hypothesis could be proven by contrasting the rules of the earlier grammatical system with that of the Proclamation and by constructing extension rules showing the transition from one historical dialect to the next. If the later dialect can be shown to contain sufficient representative features of the imminent positional language, we may argue for a chronological reclassification of English, not on the basis of three historical but rather two typological periods: *Early English* and *New English*. As a corrolary, we will have confirmed, once more, the appropriateness of transformational grammar for historical research.

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# PROBLEMS OF DICTIONARY-MAKING IN MINOR LANGUAGES OF THE PACIFIC

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By 'minor languages of the Pacific' is meant a subset of the languages spoken roughly in the Pacific Basin area from about West Irian to Polynesia, as well as in Australia. Excluded are the languages such as Fijian, Pilipino, and Samoan, which are national languages, as well as those, such as Maori, which have a long history of study, and an extensive literate population of native speakers. I think we should also exclude the major pidgin languages of the area — New Guinea Pidgin, Solomon Islands Pidgin, and Bichelamar — as these have their own lexicographic problems.

Included in the definition are more than 1500 languages. Most are in Melanesia, which includes languages of both the Austronesian and Non-Austronesian (« Papuan ») groups; the remainder are Australian and Polynesian [1]. The dictionary samples cited in this paper are almost all from Melanesia [2].

The term « vernacular » is used as the cover term for any of these languages. In the same way, the term « English » is used as the cover term for the other language in bilingual dictionaries, since dictionary-making using other languages in the Pacific is negligible [3].

I am confining my remarks to bilingual [4] dictionaries. In communities with minimal or no literary, it is hard to see the justification for a monolingual dictionminimal or no literary, it is hard to see the justification for a monolingual dictionary — though of course the situation may change in the near future. In any case, there are no monolingual dictionaries to date of the Pacific languages dealt with here, although their possibility has been mooted (by e.g., Kilham (1971)). The basis of the bilingual dictionary of Lang (1973) is monolingual, but more as a linguistic experiment than as the result of need.

It is also a fact that the bilingual dictionaries hitherto published have rarely been conceived for the benefit of the indigenous population. Typically, they have been written by, and designed for, the missionary in the past, and for the linguist in the present (with a great deal of overlap between the two categories); however, dictionaries oriented to the indigenous user have been discussed by Kilham (1971), and in a manual by Robinson (1969), though to date the only one published for a Pacific language is that of McElhanon (1971).

There are, however, very good reasons — often taken for granted [5] for preparing extensive dictionaries solely for people other than the speakers of the vernacular. Linguists may not wish to *learn* the vernacular (and so do not necessarily require the kind of dictionary discussed by Irwin (1970)), but they want an extensive, preferably complete, listing of the lexicon of the vernacular, commented and cross-indixed, for purpses that may range from comparative grammar (the dictionary being need to understand and translate texts) an historical comparison (reconstruction being only possible with extensive lexical material) to semantic theory (especially in the areas of folk taxonomy). The other uses of such dictionaries, for those other than linguists and those wishing to learn the vernacular, can include the use of the dictionary to translate (and correct) older published material in the language (such as folklore texts), and extensive natural history listings that may be used by ethnobotanists and ethnozoologists. Finally, there is the value of a historical record of a language which, though it may not be heading rapidly for extinction, is certainly destined to undergo great changes in the next few decades.

Though these are legitimate uses of dictionaries, in the case of minor Pacific languages the audience is small. Nevertheless, it is worthwhile to point out that the enormous cost deterrents to the production of dictionaries in the past have largely been obviated by the introduction of the offset printing process, and of simple multi-font typewriters. With these technical aids we can expect the production of dictionaries to increase considerably.

But the special requirements mean that special dictionaries must be constructed [6]. Haas (1962) gives an 11-point list of essentials and desiderata for bilingual dictionaries which contain some items irrelevant to the kind of dictionaries we are discussing. Point 10, on suitability for machine translation, is obviously premature; point 7, on the importance of correct spelling, is for unwritten languages a linguistic rather than lexicographic problem; point 4, on the importance of indicating levels of usage, is perhaps not essential for the user who does not want to use the language actively — though this is arguable. And point 9 — that the dictionary ought to be equally oriented to speakers of both languages — would, even if thought essential, prevent for a long time the making of dictionaries of Pacific languages at all [7].

Typically, the dictionary of a Pacific language is conceived as one-way, whether or not it is published as a two-way dictionary. The basic direction is always vernacular-English [8], mainly as a result of the vast disproportion between data sizes for the two languages: the vernacular material, however large, is always finite, while the English data, to an English speaker, is at least potentially infinite, and even if a finite subset of the English language (such as a prepared dictionary list or the entries in some other dictionary) is taken, the data is still usually huge in proportion to the vernacular data.

The dictionary then starts with a data file, alphabetised vernacular-English. The edited version of this becomes the basic dictionary. If an English-vernacular dictionary is constructed, it is usually not created *a priori*, from an independent corpus of English data, but is simply a reversal of the data in the vernacular-English section. Translations are not offered for English words which do not occur in the

[1] The so-called « pagan » languages of the Philippines could well be included, as could Micronesian languages; but I have no direct experience of these.

[2] Lexicographic work in the Australian field has been admirably surveyed by O'Grady (1972). There is no comparable survey for other areas.

[3] Dictionaries in Dutch include van de Kold and Vertenten (1922), Geurtjens (1933), and van Hasselts (1947); dictionaries in French include Bataillon (1932) and Dordillion (1932). There are older wordlists in German for New Guinea, dictionaries in Spanish for the Philippines, not listed here; and perhaps in the future we can expect vernacular-Indonesian dictionaries (especially for languages of West Irian). But the bulk of the work has been in English.

[4] The only dictionary known to me in the area under discussion that uses *more* than two languages is the quadrilingual work of Doble (1960).

[5] E. g. Carroll (1966): « There can be no argument with the proposition that complete dictionaries for all of the yet unstudied Polynesian languages would be of immense value »

[6] Such special types of dictionary are nowhere considered by the speakers at the 1960 conference on problems in lexicography (Householder and Saporta 1962), though Householder (1962: 281) in his summing up does claim that « nearly all important topics were covered more or less thoroughly during the conference ».

[7] In any case, this can hardly be a desideratum for all bilingual dictionaries. Bilingual dictionaries are made, quite legitimately, in cases where one of the two languages has no native speakers: classical Latin, for example. Haas is however preparated to waive this requirement.

[8] An exception is Koschade (1955), where the *a priori* nature of the English list used is seen in the cross-references: « alligator - see crocodile », « steppe - see kunai ». (« Kunai » is New Guinea Pidgin for « grass », « grassland »). But here the purpose is probably different; Jabem is a widely-used lingua franca, and one which many missionaries learn.

vernacular-English section [9]. In some cases the English-vernacular section is reduced to being a mere index to the vernacular-English section. In such an index, the only problems are those of ensuring that the entries are those which an English user will consult first — a problem in taxonomy. Should one list, for instance, all birds under « bird (kind of) », or should there be entries (necessarily unsystematic, and perhaps additional) such as « hawk », « owl », and « parrot » (or « parrot (kind of) »)?

The major problems, however, arise in the vernacular-English section. I shall discuss only lexicographic problems, not the purely linguistic ones that need to be solved before a dictionary can be constructed at all — the phonology, the orthography, the word-classes, word-division, determination of roots and stems, and so on. Nor do I wish to deal with the nature of the corpus, except to say that, for the dictionaries we are considering, it will consist largely of recorded and transcribed text material, with informant commentaries, and of directly elicited material of varying kinds (e.g. computerised « dictionary drags », domain eliciting, and so on, for which see Carroll (1966); also Mathiot (1967)). The material is likely to be limited in space and time, though it may have some proportion of archaic and dialect material. To judge from the deficiencies of some published dictionaries, the corpus is also typically short on conversational data, and usages in a wide variety of social contexts. But, very significantly, whatever the corpus, the lexicographer is usually breaking new ground; he has no previous dictionaries of the language to plunder.

The first problem that arises is a relatively minor one: alphabetic ordering of an orthography that probably includes phonetic symbols, letters with diacritics, or digraphs for single phonemes. The usual preference and my own, is for strictly alphabetic ordering at all times, with special symbols and letters with diacritics following the letters they most closely resemble, the remaining special symbols being relegated to the end in an arbitrary order; but Kilham (1970: 38) appears to take for granted that digraphs representing single phonemes should be taken as one alphabetic unit.

The next major decision is on the amount of grammar, if any, to be included, and whether a grammatical introduction is desirable. For well-known languages (but not for Pacific languages), there are often already one or more grammars in existence (whatever their adequacy), so that, the lexicographer, if he wishes, can assume a certain amount of grammatical knowledge, or potential grammatical knowledge, on the part of the reader. The maker of a dictionary of a Pacific language can make no such assumption. If his dictionary were to fulfil the requirement that the user should be able to translate a text in the vernacular without prior knowledge — not a bad test of a bilingual dictionary — then the grammatical elements must be included in the body of the dictionary, or be clearly recognisable as such, so that the user will turn to the grammatical introduction. Minimally, the word-classes (and their subclasses) mus be marked; the problem comes with units smaller than the word (or root if roots are used as lexical entries) [10]. In suffixing languages, the problem is less acute than in the case of prefixing (and also infixing) languages; there may have to be many cross-references from prefixed to unprefixed stems, or at least a complete listing of all prefixes.

The inclusion or exclusion of such sub-word-level material can however make a great difference to the size of the dictionary. In the first draft of my Buin dictionary (Laycock 1973), all possible person/tense verb endings were included; the decision, finally, to omit these meant a saving of some 1500 entries, at the expense of some extra effort on the part of the user.

Irregular forms also give problem. The basic principle seems to be that all

[9] This is a considerable departure from the practice in other bilingual dictionaries, but is probably a necessary feature of the one-way dictionaries we are sondiering.

[10] In Buin (Laycock 1973) about 80 % of (verbal) roots also occur as independent nouns, a fact which makes the choices of dictionary entry easier.



irregular forms should be listed, if the irregularity is such as to move them away from the alphabetic location of the main entry. Thus, in Buin, the plural mainigo « old men » must be listed in addition to the singular maire « old man »; but there appears little point in listing maikunakene « dogs » immediately after maikuna « dog ».

The decision on what makes an entry is always a vexed lexicographic problem, especially in the case of real or supposed homonymy; in the absence of historical or comparative data, one can rarely (perhaps never) be sure that two distinct meanings given for a word are instances of homonymy and not polysemy. In Buin, for example, the word maikuna may be glossed as « dog », « praying mantis », and « shark ». Are these distinct meanings, or the terminal meanings of a word that means basically « (animal) predator », or are the last two meanings extensions of the meaning « dog »? Three separate entries, each labelled maikuna; or one entry with subdivisions; or one entry without subdivisions? As such questions can often not be answered on the basis of the vernacular language alone, it becomes necessary to base semantic subdivisions on criteria — related meanings, natural transition from one meaning to the next — that seem reasonable to the English user. A policy decision has to be made early in the dictionary making.

Another difficulty with the entries is the question of loanwords. The languages we are discussing are all exposed to the influence of a major prestige language, and most are exposed also to the influence of a relatively prestigious lingua franca. Most speakers of the language are bilingual in the lingua franca at least, so that it becomes difficult to decide when a word is being « quoted », as a foreign language word, and when it is being used as a loan-word. The degree of phonetic assimilation is sometimes a guide, but not when vernacular and lingua franca have similar phonologies. Apart from the question of frequency of occurrence, the only other rule I have been able to devise is: admit into the lexicon only those loanwords which take vernacular affixes and/or which do not have fairly exact vernacular equivalents. It is debatable whether, in a dictionary not specifically designed for the vernacular speaker, one should include, as Bingham (1908) does for Gilbertese, all the loanwords required in the translation of the Bible: e.g. o'mera « an omer ».

Similar problems are caused by names, which many lexicographers believe should be incorporated in the body of the dictionary. This causes little problem with traditional personal names of speakers of the vernacular, and with placenames in the region in which the vernacular is spoken; but a line must be drawn somewhere, to exclude Biblical names, introduced personal names such as Matthew, Ignatius, surnames of individuals (usually foreigners to the area), and remote geographical names, all of which may occur freely in vernacular material. If this is not done, then every dictionary will duplicate all the other main reference books of the world, such as nameglossaries and gazetteers. Here phonetic assimilation, or otherwise, cannot be the criterion, as the number of unacceptable names assimilated phonetically is still likely to be far too large. Somewhat different is the question of dialect forms and archaisms. If these are well-represented in the corpus from which the dictionary is being made, it goes against the grain to exclude them; but, included, their tratment is likely to be patchy. Such forms can differ in root-form, or by regular or irregular phonological change, or in grammatical structure, or any combination of these: and it is the exact specification of these factors that can give the most difficulty in the dictionary definition. Where possible, regular dialect and archaic features should be explained in the introduction, in the same way as regular grammatical features. In Buin, this device saves the double listing of many thousands of forms which in the central dialect have /r/ and in the north-east dialect have /n/ [11].

[11] /n/ and /r/ contrast in both dialects.

Finding the correct definition [12] is the next problem; and the definition should be both concise and precise. A typical overspecific definition is this from Brown (1968):

*kerora* ... a bird, a kind of parrot, green with red underneath; the Green-winged King Parrot (Alisterus chloropterus).

Here the English common name and Latin binomial fully identify the bird; all other descriptions of coloring, or habit, or the like, belong in a book on ornithology, not in a dictionary. Native *beliefs* about the creature's habits, or its use in the society, are of course a different matter, and about which I shall say more below.

At times the semantics of the vernacular language can almost defeat even « translation English ». Buin has, for example, a word for the strippable outer fibres of arecoid palms, a concept for which neither « bark » nor « skin » are good English equivalents. (Palms have no bark). Other difficulties are caused by verbs which express, to us, negative concepts: « (water) not flowing in directed fashion, as thru a pipe »; « to remove from a tree a rope used for climbing », and so on.

In these cases, and in many others, the need for « encyclopedic » definitions can become evident, though some writers (such as Malkiel (1962)) seem to regard most non-lexical matter in a dictionary as basically undersirable. (On the other hand, O'Grady (1971) quotes with approval the extensive encyclopedic data in Moore (1884)). Strictly speaking, perhaps, the place of such material is perhaps not in a dictionary, but in an account of the ethnography of the people, or in a separate paper on their domains or folk taxonomies. However, such accounts are in most cases destined never to be written, and the dictionary seems therefore a good place to store valuable data that might otherwise be lost. But such non-lexical data should be confined to what the speakers of the vernacular themselves think and do — in other words, to native intuition — so that the data has some relevance to the vernacular entry being defined, unlike the Brown example quoted above. The non-lexical matter should be set off clearly from the lexical; I doubt if a mere comma is enough, as in the following example (from Geerts (1971)):

*puru* ... a small shell fish, its shell is worn on legs and arms, or is attached to a canoe, as a protection against attacks of sharks and crocodiles ...

A further minor problem facing the compiler of a language spoken in the Western edge of the Pacific is that of the dialect of the defining language. Here British English, American English, and Australian English meet, and the differences can be considerable, especially in respect to flora and fauna names — in the meaning of *Ipomea batatas*, the following terms, in common use in different varieties of English, are synonymous: « sweet potato », « yam », « kumara », « kaukau ». But such difficulties can usually be overcome by judicious selection and compromise.

[12] I think it is useful, though sometimes difficult, to distinguish *gloss*, *definition*, and *translation*. *Gloss* is a short target-language equivalent for ready identification of the vernacular term. *Definition* is the part of a lexical entry which minimally characterises the vernacular item — this includes the information on word-class, usage, English equivalent, place in the taxonomy, and whatever else is relevant. *Translation* is any target-language form used to translate the vernacular, in any context. Thus for Buin maikuna the gloss is « dog »; the definition would specify that it is a noun, that it is applied to dogs, praying-mantises, and sharks (generic), that it can be qualified by kuruma « small native dog », but not by ŋkau « wild dog », and so on; while the translation might be « dog », « bitch », « hound », « praying mantis », « Shark », etc. The normal practice of bilingual dictionaries, and often an acceptable shorthand device, is to use translations for definitions. For an example of a full definition, based on taxonomy, see the Karam example yakt in Pawley (1970); also see Conklin (1962).



It will be seen, then, that many of the problems facing the maker of a dictionary of a language in the Pacific are common to those of lexicographers everywhere; but the problems do differ in the frequency with which they occur, and are compounded by the fact that one is dealing with languages with no tradition of writing and little known history. The languages also differ greatly in structure from the target language, and there is a great cultural divergence between the speakers of the vernacular and the target language — differences that give rise to lexicographic problems. On the other hand, some of the problems that arise in compiling grammars of well-known written languages — orthography, diglossia, « correct » grammar, and so on — hardly arise in the Pacific at all. But the Pacific experience may still turn out to be relevant in preparing dictionaries for other minority languages in other parts of the world, just as we in the Pacific can learn from developments elsewhere.

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# LE CALQUE LINGUISTIQUE DANS LA PERSPECTIVE DU RAPPORT ENTRE L'IMMANENT ET LE TRANSCENDANT DANS LA LANGUE

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1. En principe on comprend ici par calque toute modification de contenu (et non d'expression) réalisée sous une impulsion alloglotte dans le processus d'interférence de deux langues.

Dans un sens plus restreint, concernant le calque le plus commun, l'ainsi nommé calque lexical, nous désignerons par le terme en discussion toute transposition sur terrai propre d'un modèle alloglotte, dont on prélève, plus ou moins, la forme du contenu.

La stipulation expresse, dans la définition, de l'obligativité du modèle étranger ne semblerait pas plus qu'un truisme si, pour tous les cas où deux structures de langues différentes présentent des analogies, il y aurait la certitude que l'une se serait moulée sur l'autre. En fait le problème a souvent un autre aspect.

2. Nous citerons, à titre d'illustration, un intéressant parallélisme latino-russe, signalé en son temps par A. Meillet [1].

On sait que le latin *dicere* appartient à une grande famille de mots ayant le sens général de « montrer, indiquer », cf. gr. δείκνυμι, sanscr. *diçati*, v. h.-allem. *zeigōn*, allem. mod. *zeigen*. Dans le langage juridique — par exemple dans *ius dicere* « indiquer le droit » —, *dicere* a reçu le sens de « dire », qui s'est établi pour toujours dans le langage commun. Ce qui paraît curieux est le fait que la famille du mot slave qui sous rapport sémantique occupe précisement la place du radical **deik-* à savoir *kazati* « montrer », a fourni au russe le verbe *s-kazati*, qui signifie aujourd'hui « dire » [2], par différence de l'ancienne langue, où celui-ci cumulait encore tous les deux sens [3].

Comme on le voit, la ressemblance des voies d'évolution sémantique de ces deux mots est tellement frappante, qu'on pourrait incliner vers l'identification d'un calque russe d'après un modèle latin, s'il était admisible de croire que le latin a directement influencé le russe pendant la période historique donnée. Tenant compte qu'une telle supposition manque d'appui, nous sommes obligés de considérer les deux lignées de faits comme des phénomènes de polygénèse, apparus indépendamment l'un de l'autre dans le temps et dans l'espace. Il s'ensuit donc que, pour diagnostiquer un calque, on doit avoir égard non seulement à ce que les glossématiciens appellent facteurs immanents, qui dépendent en exclusivité de la structure interne du système donné, mais aussi des facteurs transcendants, qui se trouvent hors de la langue conçue en soi-même et pour soi-même. En effet, le calque, étant

[1] « Comment les mots changent de sens » (extrait de *L'Année sociologique*, 1905-1906), dans *Linguistique historique et linguistique générale*, Paris, 1948, p. 264 et suiv.
[2] Vers ce sens de base convergent toutes les valeurs du *skazat'* inrégistrées dans le *Slovar' sovremennogo russkogo literaturnogo jazyka*, Moscou-Léningrade, 1950-1965, t. XIII, s.v.
[3] Cf. les synonymes par lesquels explique *sŭkazati* I. I. Sreznevskij, dans *Materialy dlja slovarja drevnerusskogo jazyka*, Moscou, 1958 (édition nouvelle), t. III, s.v.

conditionné au plus haut degré par les circostances historiques et sociales qui favorisent ou par contre rendent difficile l'action réciproque entre différents idiomes, ne peut tenir seulement de l'aspect immanent de la langue. La considération des coordonnées extralinguistiques de la communication ne réduit fatalement le calque à la condition d'un problème de sociologie linguistique, mais démontre seulement que l'opposition entre l'immanent et le transcendant dans la langue ne peut être envisagée comme étant absolue. Il va sans dire qu'en ignorant les faits historiques concrets il serait difficile de supposer que, par exemple, le nom de Μέγας Κομνηνός, que les Comnènes de Trébizonde ont adopté en 1204, était inspiré du nom des empereurs allemands Hohenstaufen [4]. Cependant le calque ne représente pas seulement une création individuelle, éventuellement arbitraire et fortuite du point de vue intralinguistique, destinée de ne pas dépasser le niveau de la parole, mais, en fin de compte, une modalité du tout négligeable d'enrichissement du système de la langue.

3. D'autre part, ni la possibilité d'un contact entre deux languages, admissible sous rapport historique, ne constitue ipso facto une preuve péremptoire de l'influence d'une des langues sur l'autre, influence matérialisée en bonne mesure par le calque. Par exemple, le rus. *ploščad'*, v. sl. *ploštadĭ* « place » ont été souvent considérés comme dérivant avec le suffixe *-jadĭ* ou *-ědĭ* du *ploskŭ* « étendu, plat ». L'association de ces deux notions paraît naturelle et trouve des analogies aussi dans d'autres langues, cf. en grec πλατεῖα « place », la forme féminine de l'adjectif πλατύς « large, étendu ». Mais cette étymologie, comme il résulte de l'analyse entreprise par V. Pisani [5], n'est pas facile à soutenir. Etant donné que le mot n'est pas attesté dans aucune langue slave, excepté le vieux slave, il est à supposer qu'il y a question non d'un élément du fond lexical primitif du slave commun, mais d'un calque d'après le grec. S'il en est ainsi, il se pose le problème pourquoi ne pas avoir procédé du féminin de l'adjectif *ploskŭ* d'après le modèle du gr. πλατεῖα et pourquoi ne pas avoir fait recours à un suffixe plus indiqué et plus souvent utilisé que *-jadĭ* (*-ědĭ*). Pour ces raisons, *ploštadĭ* doit être considéré plutôt comme un emprunt du gr. πλατεῖα au nominatif pluriel πλατειὰ δες. Du vieux slave le mot a été ensuite emprunté par le russe [6].

4. Mais ni le contact, même très étroit à un moment donné, entre deux langues ne peut constituer l'unique explication plausible des notes communes que présentent les éléments du systèmes respectifs. Ainsi, le v. roum. *spure* (roum. mod. *spune* « dire ») est enregistré dans le *Glossaire roumain-slave* de l'édition de I.-A. Candrea du « Psautier de Schei comparé aux autres Psautiers des XVIe et XVIIe siècles traduits du slavon », vol. I-II, Bucarest, 1916 (publiée en roumain) tant avec les valeurs « a spune » « dire », « a povesti » « raconter » (cas où il traduit le sl. *vŭzvěstiti, povědĕti*), qu'aussi avec le sens de « a arăta » « montrer » (comme équivalent du sl. *sukazati*, *pokazati* « ostendere »). A son tour, *sŭkazati* est traduit, dans le *Glossaire slave-roumain* du même ouvrage, par « a arăta » « montrer », « a spune » « dire », de même *pokazati* (d'autres valeurs du dernier verbe suivent une ligne sémantique différente). Les premiers deux équivalents pour *a arăta*, proposés par I.-A. Candrea dans le *Glossaire roumain-slave*, sont « pokazati » et sŭkazati ».

De ce fait, on pourrait conclure que, dans les plus anciennes traductions roumaines du Psautier, *spure* a assimilé, par calque, de *sŭkazati*, *pokazati* le sens de

[4] B. Hemmerdinger, Μέγας Κομνηνός, calque de Hohenstaufen, dans *Byzantion*, t. XL, fasc. I, Bruxelles, 1971, pp. 33-35.

[5] *L'Etimologia. Storia - Questioni - Metodo*, 2-ème édition, Brescia, 1967, pp. 187-190. (Dans la version russe, Moscou, 1956, rédigée d'après la première édition, Milan, 1947, et signée par D. Ė. Rozental', pp. 167-170).

[6] Le point de vue de V. Pisani a été totalement accepté par N. M. Šanskij, V. V. Ivanov, T. V. Šanskaja, *Kratkij ètimologičeskij slovar' russkogo jazyka*, Moscou, 1961, s.v. *ploščad'*.



« montrer », sur la base de la signification « exprimer quelque chose », commune à tous. Ce fait paraît d'autant plus vraisemblable, que le rapprochement physique, spatiale, dans le cadre d'un texte bilingue à traduction interlinéaire, entre le mot slavon et son correspondant roumain est directement perceptible. Exemples:

*Pọti tvoọ gi skaži mi — căile tale, Doamne, spune-mi* « Tes voies, Seigneur, montre-les moi » (*Psautier* slavo-roumain imprimé par Coresi en 1577, ps. XXIV, 4, f. 40b, r. 4-5). Cf. le même passage dans le *Psautier Hurmuzaki*, manuscrit roumain du XVIe siècle de la Bibliothèque de l'Académie de la R. S. de Roumanie: *calea ta mi, Doamne, arată-mi-o* « Ta voie, Seigneur, montre-la moi » (f. 19b, r. 9-10).

*Skazaa pọti svoọ Moiseovi — spune căile sale lu Moisi* « montre Ses voies a Moïse » (*Psautier* slavo-roumain, ps. CII, 7, f. 196b, r. 5-6), respectivement *ară⟨tă⟩ ...* « montra » (*Le Psautier Hurmuzaki*, f. 85a, r. 7) etc.

Malgré une certaine variabilité des correspondances verbales slavo-romaines, on peut quand même affirmer que, lorsque *sŭkazati* est traduit dans le *Psautier* slavo-roumain par « spune », dans *Le Psautier Hurmuzaki* on trouve souvent *arreta*. Cette constance dans la sélection du correspondant indigène d'un mot étranger, pourrait, cette fois-ci, être facilement expliquée, en invoquant des facteurs transcedants, en l'espèce par la pression d'un modèle alloglotte, qui aurait imposé à la formation réceptrice sa propre structure sémantique. Néanmoins, le roumain *a spune* (< lat. *exponere*) n'a pas acquis, en réalité, le sens de « ostendere » grâce à une influence slavone, mais, au contraire, il l'a hérité purement et simplement du latin, à côté de celui de « dicere ». Il va de soi-même que là où la sémantique d'un mot peut être éclaircie par filiation directe, il n'est plus nécessaire de faire appel aux influences extérieures, même lorsqu'elles sont convergentes aux impulsions héritées.

Si à présent en dacoroumain le sens de « a arăta » du verbe *a spune* est estompé, dans le dialecte aroumain, en échange, cette signification est couramment utilisée, ce qui constitue, à la lumière de la théorie des aires latérales, un argument supplémentaire pour prouver que l'évolution sémantique du roum. *a spune* ne représente point le reflet de quelque mutation de sens qui s'est produite sur terrain slave. Ainsi donc, si séduisante que paraîtrait l'association entre *sŭkazati* et *spune* dans les textes bilingues slavo-roumains, elle n'est point basée sur un calque, mais elle peut seulement être évoquée en vertu des points communs qui marquent leur développement sémantique indépendant.

5. Un autre type de parallélisme slavo-roumain où il serait de même hasardé de voir un calque représentent les formations roumaines avec le préfixe négatif *ne-*, analogues comme sens et structure à celles du texte slave. Voilà quelques exemples d'adjectifs du même *Glossaire slavo-roumain: nezlobivŭ* « nemînios, nereu » « calme, bon », *nepovinŭnŭ* « nevinovat » « innocent », *nepravĭdĭnŭ* « nederept » « injuste », *nerazumĭlivŭ* « neînțelept » « dépourvu de sagesse », *nečestivŭ* « necurat » « impur ». La facilité avec laquelle le traducteur forge des adjectifs à valeur négative en ajoutant le *ne-*, dans les conditions d'une traduction d'un haut degré de fidélité par rapport à l'original, pourrait provoquer le soupçon que toutes les formations roumaines ou, au moins, un grand nombre d'elles sont des calques d'après le slave. Mais si on tient compte du fait que *ne-* est très actif en roumain, qu'il a en roumain les mêmes valeurs qu'en slave, qu'il représente l'homologue du lat. *in-*, qu'il a complètement remplacé en roumain [7], qu'il appartient aux éléments

[7] O. Densusianu, *Histoire de la langue roumaine*, t. I, Paris, 1901, p. 246.

communs des quatre dialects roumains [8], nous n'avons aucune raison pour douter que de pareilles formations ne puissent prendre naissance indépendamment, sur terrain roumain, par l'addition d'un élément de dérivation de grande productivité aux thèmes d'origines diverses. Il n'est point impossible, bien sûr, que dans un certain monument de langue telle ou telle formation avec *ne-* soit apparue par le calque du modèle slave. Mais, en principe, le *Dictionnaire de la langue roumaine* [9], dictionnaire général, historique et étymologique, procède bien lorsque, dans les cas considérés, il traite les adjectifs à structure morphologique analysable (c'est-à-dire ceux qui en roumain ont un sens autonome même sans *ne-*) comme formations roumaines obtenues en ajoutant le morphème de négation (cf. *nemînios* de *ne-* + *mînios*), tandis que celles non-analysables, comme des emprunts globaux (par exemple, même le mot *nezlobiv*, attesté comme tel dans une série d'anciens textes roumains, est rapporté entièrement au v. sl. « nezlobivŭ »).

6. De la discussion ci-dessus il résulte que, pour pouvoir parler de calques, les contacts entre deux langues et leur succédané, l'influence de l'une sur l'autre [10], ne doivent pas être seulement postulés en se basant sur de vagues similitudes de situations ou admis à priori comme hypothèse de travail, mais relevés pas à pas, dans leur hypostase de condition extralinguistique sine qua non du processus d'interpénétration des systèmes donnés.

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[8] S. Pușcariu, *Limba română*, I, Bucarest, 1940, p. 240.
[9] *Dicționarul limbii române*. Nouvelle série. Rédacteurs responsables: I. Iordan, A. Graur, I. Coteanu. T. VII, Première partie: Lettre N, Bucarest, 1971, s.v.
[10] Cf. aussi V. Ju. Rozencveig, « Vlijanie » ili « mechanizm kontaktov »?, dans les *Actes du Xe Congrès International des Linguistes*, I, Bucarest, 1969, pp. 243-245.



# VALEURS MODALES ET TEMPORELLES APPROXIMÉES À L'AIDE DE LA LOGIQUE POLYVALENTE

Emese Kis

Introduisons la notion d'archimode et d'architemps afin que nous puissions comparer les diverses structures modales et temporelles de plusieurs langues. Par archimode nous entendons un mode verbal qui au niveau de l'expression a des valeurs fonctionelles équivalentes [3,19] à celles qu'il présente au niveau du contenu. L'indicatif des verbes indoeuropéens ou ouraliens à un praesens perfectum ou à un praeteritum perfectum est l'archimode de l'indicatif. En revanche, l'indicatif présent qui exprime un ordre, comme l'allm. *Du kommst mit mir!*, le hongr. *Velem jösz!*, le roum. *Vii ou mine*! n'est pas un archimode, n'étant que formellement un indicatif. Comme contenu grammatical c'est un impératif. Il en est de même du subjonctif estimatif: fr. *C'est le meilleur concert que j'aie jamais entendu* qui, formellement, est un subjonctif, et fonctionellement indicatif, et n'est pas un archimode.

Par *architemps*, nous entendons toujours un temps verbal dont les valeurs fonctionelles sont équivalentes au niveau de l'expression et au niveau du contenu. Le présent général est un architemps, la présent historique ne l'est pas.

Les modes complémentaires des archimodes et les temps complémentaires des architemps, du point de vue de l'expression seront appellés pseudo-modes et pseudo-temps, et du point de vue du contenu, seront appellés quasimodes et quasitemps. L'indicatif présent à fonction d'impératif est un pseudo-indicatif et en même temps un quasimpératif. Au contraire: l'impératif dramatique ou narratif est un pseudo-impératif et un quasinidicatif. Le présent historique est un pseudoprésent et un quasiparfait. Le français [4, 7, 14, 17, 19, 28] se caractérise per l'abondance des pseudo-modes et des quasimodes, des pseudo-temps et quasitemps, le hongrois, et les langues ouraliens [5, 15] par le nombre réduit des pseudo- et des quasiformes. Le roumain [11, 12, 13, 21] excelle ce qui concerne l'existence et l'utilisation [18: 471-476] des archimodes et des architemps. Le mode qui dans la plupart des langues tend à devenir un quasimode — et qui en latin [22: 193] et en allemend [9: 96] en est deja devenu un est le conditionnel-optatif (considéré même comme un seul mode: le potentiel [12: 127]). La mode qui dans la plupart des langues indo-européennes [22: 192] s'achemine vers le pseudo est le subjonctif [4, 7, 17, 19, 24, 28], respecitvement conjonctif [2, 9, 10, 19, 24]. L'archimode par excellence est l'impératif. Le futur [6: 53-70] et [31: 69-84] tend à devenir le quasi-temps per excellence, ce que l'aoriste [26: 131] et l'imparfait font pour le pseudotemps.

Pour simplifier la terminologie, nous utiliserons dans ce qui suit les termes de mode et de temps au sens d'archimode et d'architemps. Dans cet exposé, première étape d'une approximation, il faut absolument faire abstraction du fait que les modes eux-mêmes sont des fonctions (applications) qui dépendent des temps [29, 10, 6: 53-70] et que les temps eux aussi dépendent des modes [10, 19, 24, 25]. Le temps et le mode à la fois peuvent dépendre d'un autre paramètre comme la voix

[26: 13-133 et 150-153] ou l'aspect [29]. Cette simplification des relations paradigmatiques permet de concevoir l'action désignée par le verbe comme un ensemble referentiel et la prédication verbale comme une fonction (application) définie dans cet ensemble referentiel avec les valeurs dans un ensemble actualisé. L'ensemble réferentiel contient deux sous-ensembles, les plus importants pour nous: celui du mode et celui du temps. L'ensemble actualisé contient des segments d'un degré supérieur à la proposition: les présupposées: la réponse pragmatique de l'interlocuteur [8] les valeurs logico-pragmatiques de l'énoncé [26: 25: 63].

Nous entendons par présupposées l'enseble qui satisfait aux quatres axiomes établis par Grigore C. Moisil [23(1971): 73]: AXIOME I: L'ensemble des suppositions concernant l'existence d'un *ego cogitans*. AXIOME II: l'ensemble des suppositions concernant l'existence de plusieurs sujets qui pensent et qui communiquent entre eux. AXIOME III: l'ensemble des suppositions concernant une réalité objective qui est connue par les différents sujets qui pensent et qui se communiquent les informations qu'ils reçoivent de cette réalité objective. AXIOME IV: l'ensemble des suppositions concernant le caractere matériel de cette réalité objective [23(1971): 71].

Le sous-ensemble le plus interéssant pour nous de cet ensemble serait celui de la valeur logique de l'énoncé qui dépend [14: 121-136] du reste de l'ensemble actualisé [3, 8, 9: 150-151]. Nous pouvons dire qu'elle dépend de son complémentaire, c'est à dire des présupposées, même de la réponse pragmatique, d'un contexte enfin au sens le plus large [8] de la phrase. On accordera la valeur logique vraie à l'énoncé s'il satisfait positivement les quatres axiomes et on accordera la valeur logique fausse si l'énoncé répond négativement aux axiomes III et IV.

Soit une phrase énonciative / sujet et verbe tout au plus / d'une lengue donnée, à l'indicatif. On a choisi l'indicatif parce que l'indicatif ne possède ni dans les langues ouraliennes [15: 71 et 5: 244-5], ni dans les langues indo-européennes [22: 191] un formant non-vide particulier. Nous fixons notre attention aussi sur le présent / notamment sur le présent de l'indicatif /, parce que dans les langues ouraliennes toujours, et dans les langues indo-européennes dans la plupart des cas, c'est le présent qui peut offrir la meilleure approximation d'une forme fléxionnelle privée de formants non-vides. Pour une telle phrase: allm. *ich lebe*, ang. *I live*, fr. *je vis*, hongr. *élek*, nyenyetz, *jile*, rom. *trăiesc*, rus. *ja živu selcoup, ila* sont valables les principes suivants: celui de la contradiction (la proposition ne peut être à la fois vraie et fausse), et celui de l'exclusion d'une troisième possibilité (chaque proposition est ou bien vraie, ou bien fausse). Selon nous l'axe des valeurs logiques se réduit à deux valeurs extrèmes. Cette polarisation des valeurs est valable pour le passé composé aussi, ce qui se réflete au plan de l'expression par l'emploi de l'auxiliaire être [15: 74] opérateur logique de l'existence et de l'auxiliaire *avoir* ou d'un substitut de verbe *avoir* [1: 184, 185] l'opérateur logique de l'appartenance.

Soit le contexte du verbe fixé où nous allons examiner si le changement de mode et de temps contribuent ou non a la modification de cette polarisation extrême /extrémisation/ de la valeur logique.

Considérons les variations des valeurs modales comprises entre les modes absolus: compatibles avec le contexte zéro, et varions le temps. Les verbes à un mode « in esse » et absolu mais à un temps « in fieri » du type fr. *Il pleuvra demain* peuvent avoir une valeur logique vraie, ou fausse, ou bien possible / probable, problématique /, c'est une logique lukasiewiczienne trivalente [23(1962)]. De même; fixons le temps et varions le mode. Les verbes à un temps « in esse » te absolu, mais à un mode « in fieri » peuvent avoir eux aussi des valeurs logique vraie, fausse ou problematique. C'est la toujours une logique lukasiewiczienne trivalente de l'impératif, de le ortatif présent, de l'optatif présent de type angl. *Long live he*, angl. *she should go with you now* hongr. *Éljen!*, hongr. *Most veletek menne*.



Le caractère probable, éventuel de l'action est exprimé d'une façon très suggestive en gr. Τι ἄν ποιήσασ σοι Χαρισαίμην « Comment pourrais-je t'être agrébale? (Comment faire pour t'etre agréable?) » [26: 132].

Jusqu'ici nous avons opéré avec des modes et des temps absolus. Dans ce qui suit il serait possible de fixer l'un d'eux et de relativiser l'autre. Nous pouvons fixer le mode /« in esse », absolu/ et relativiser le temps « in fieri », relatif: on arrivera au futur antérieur du type angl. *I shall have finished everyting by eight o'clock*. Fxons le temps / « in esse », absolu / et relativisons le mode / « in fieri », relatif /. On arrivera au conjonctif présent ou au conditionnel présent: angl. *I wish you where here*.

Il est à remarquer que la validité de l'action du verbe à un mode absolu, intersecté avec un temps relatif, ou bien l'action du verbe a un temps absolu intersecté avec un mode relatif dépend de la vérité de l'énoncé présupposé [8, 27]. La valeur vraie devient plus nuancée par cette relativisation [4: 13]: vrai nécessaire en fr. *Il avait besoin qu'elle m'aimât*, vraie contingente en fr. *Elle s'attendait a ce qu'il vint à Paris*, valeur problématique en fr. *Je doutais qu'Alphonse aimât les fleurs*, fausse contingente en fr. *J'ai pleuré sans que je sache pourquoi*, fausse nécessaire en fr. *Il n'y a personne ici qui sache cette langue*.

Le résultat de cette relativisation est l'induction d'une logique lukasiewiszienne pentavalente [23(1962): 17]. Si on y aoute la négation de la valeur problématique de type fr. *Je ne doutais pas qu'il aimât les fleurs* on a une logique hexavelente, mais bien différente de celle de D. A. Bocivar [23].

Les temps « in fuisse » de modes relatifs réduisent le domaine des valeurs logiques à la valeur fausse nécessaire, tout au plus à la valeur problématique et ils contribuent à nuancer ce domaine restraint. Des transitions apparaissent ainsi petit à petit entre les valeurs. On peut concevoir le domaine de le hortatif passé (l'expression d'un reproche présent relatif à un fait passé): hongr. *Mentél volna el*, roum. *Să te fi dus* comme l'assemblage d'une infinité de valeurs entre le faux nécessaire tout au moins et le faux contingent tout su plus. Le conditionnel passé a des valeurs infinimment nuancées entre le faux nécessaire et le problématique angl. *I would help him if he hed needed help*, roum. *L-as fi ajutat, dacă ar fi avut nevoie de ajutor, hongr. Segítettem volna, ha szüksége lett volna segítségre*. L'optatif passé déplace les valeurs logiques dans la direction de la valeur vraie contingente: *I should called him, you know*, hongr. *Hivtam volna, tudod*, roum. *L-aș fi chemat, știi*. Le mode présomptif [11; 11: 55 et 13: 222] a un rôle similaire dans la restriction: ce qui est explicable: le présomptif et l' admiratif [20: 88-90 et 30: 269-72] albanais sont des modes « in esse », plutôt « in fuisse ». Ils nuancent l'ensemble des valeurs dans un sens opposé: entre le problématique et le nécessaire. En roumain les valeurs logiques du présomptif constituent justement un complémentaire du conjonctif passé [18: 474-476].

*Conclusions*:

En partant d'une définition généralisée de l'archimode (mode) et de l'architemps (temps), par une analyse progressive et différenciée, il est possible de mettre en évidence le rapport très étroit qui existe entre les valeurs modales et temporelles du verbe prédicatif de l'énoncé, d'une part, et les valeurs logiques de la prédication verbale de l'autre.

Le caractère « in esse » et absolu des temps determine une polarisation nette des valeurs logiques. Le caractère « in fieri » vient compléter cette logique d'une nuance problématique. La relativisation d'un mode au d'un temps introduit des nuances de plus en plus fines. Le caractère « in fuisse » réduit l'ensemble actualisé des valeurs logiques et les nuances jusqu'à l'infini.

L'étude des quasimodes dépasse les limites de notre exposé, mais à la base des constatations ci dessus même nous pourrons conclure que les quesimodes équi-

valents à un mode (archimode), les quasitemps équivalents à un temps (architemps) ne quittent jamais la zone des valeurs logiques du mode (archimode), du temps (architemps) qu'ils approximent.

À côté des valeurs de l'enoncé prédicatif — catégories logiques universelles — les archimodes et architemps sont des catégories morphologiques universelles applicables à un très grand nombre de langues. Leurs distributions et leur interdépendance, leur approximation par des quasimodes spécifiques pour chaque langue, peuvent servir de critères typologiques.

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## THE STUDY OF THE SEMANTICS OF NATURAL LANGUAGE BY MEANS OF PARAPHRASES OF SENTENCES IN A LOGICAL NOTATION

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*Abstract*

In order to be able to paraphrase sentences of natural languages in a logical notation we clearly must decide on what notation. The big problem is on what grounds to make the choice, i.e. how to justify that the notation selected satisfies the given aim.

In the discussion of this question emphasis is placed on the relevance of typological feature of logical notations.

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# TRANSFORMATION ET PRÉSUPPOSITIONS

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Dans les discussions sur le rôle de la structure profonde dans le composant sémantique de la grammaire, la notion de présupposition joue un rôle très important. C'était en particulier le cas dans le premier défi à l'hypothèse que la structure profonde suffit entièrement à la description sémantique, défi émis par Kuroda en 1965 (Kuroda 1969). En effet le changement de signification que provoquent des transformations d'attachement (attachment transformations) introduites par Kuroda est d'ordre présuppositionnel. Ainsi les phrases obtenues à partir d'une phrase, aux différents constituants de laquelle on attache des mots comme *aussi* ou *même*, diffèrent seulement par leur présuppositions; elles gardent le même contenu posé. Par example (1) est le posé de (1a) et (1b), (2a) la présupposition de (1a) et (2b) celle de (1b):

(1) Albert danse

(1a) *Albert aussi* danse

(1b) Albert *danse aussi*

(2a) Quelqu'un (≠ Albert) danse

(2b) Albert fait quelque chose (≠ de danser)

C'est Egalement dans le même sens que vont les remarques plus récentes de Chomsky (Chomsky 1970). En se basant entre autres sur le travail de Kuroda, Chomsky montre que pour rendre compte de certains aspects de la signification il faut se référer nécessairement à certains phenomènes de la structure superficielle. Dans ses considérations, le rôle principal est jouè par la notion de présupposition et aussi par celle de focus (foyer); ces deux notions étant d'ailleurs corrélées. Il s'ensuit que la nécessité d'inclure dans la déscription sémantique d'une proposition toutes ses présuppositions pose quelques problèmes quant à la forme de base (au sens de la théorie standard).

En fait, si l'on généralise la notion de focus, on peut obtenir une classe particulière de présuppositions. Leur forme dépend par exemple de la question à laquelle répond la proposition. Ainsi (1) peut présupposer (3a) — en tant que la réponse à la question (1a) *Qui danse*?, ou (3b) — en tant que *la* réponse à la question (1b) *Que fait Albert*?:

(3a) Quelqu'un danse

(3b) Albert fait quelque chose



Il y a des langues qui marquent formellement le constituant indiquant à quelle question la proposition répond. La construction clivée (C'est ...) indiquera le nomà partir duquel la question peut être formée. (4) ne peut pas répondre à la question *Que fait Albert*? mais ce peut être la réponse à la question *Qui danse*? Si la phrase ne contient pas de tels marqueurs, elle est présuppositionellement ambiguë (cf. Zuber).

(4) C'est Albert qui danse

La même ambiguïté peut être obtenue, si l'on considère des diffèrentes négations possibles d'une proposition. Par exemple (1) a deux négations N(1a) et N(1b) qui ont comme présuppositions (3a) et (3b) respectivement:

N(1a) Ce n'est pas Albert qui danse

N(1b) Albert ne danse pas (mais *chante*)

Evidemment il n'est pas difficile de voir que chaque phrase déclarative est présuppositionnellement ambiguë: elle a exactement autant d'interprétations possibles que la négation ou la question générales. Le nombre de ces interprétations est égal *a priori* au nombre ce constituants qui peuvent être mis en focus.

Précisons maintenant la notion de présupposition qui nous intéresse ici. Les exemples plus haut suggèrent la définition suivante: étant donné une phrase S avec sa pleine description structurale, nous allons appeler présupposition de S chaque expression obtenue à partir de S par remplacement d'un constituant quelconque par une variable (appartenant à la même catégorie que le constituant remplacé) liée par le quantificateur existentiel (c'est une modification de la définition donnée dans Kubinski 1969). Par conséquent, si S est de la forme $S(C_1, \ldots C_i \ldots C_n)$ (ou $C_1 \ldots C_n$ sont les noueds de son arbre), alors toutes ses présuppositions sont données par les expressions

$\Sigma x S(C_1 \ldots x \ldots C_n)(1 \geqslant i \geqslant n)$

Le constituant C est dit présuppositionnellement marqué- (p.m.)

En ajoutant à cette définition la clause selon laquelle on considèrera aussi comme présuppositions de S toutes les implications des présuppositions de S, on obtient ainsi la plupart des présuppositions connues, non-lexisales.

Il y a évidemment différentes contraintes qui peuvent agir sur les constituants p.m. Ces contraintes sont sûrement liées aux contraintes qui s'appliquent aux transformations. Elles peuvent concerner aussi le nombre de constituants auquels on peut associer une marque présup. Je vais donner ici un exemple d'une telle contrainte. Pour la décrire j'ai besoin de la remarque suivants: si tous les constituants d'un constituant sont p.m. alors ce constituant l'est lui aussi. Cela veut dire que si $C \rightarrow C_1 \ldots C_k$ et $C_1 \ldots C_k$ sont p.m. alors C l'est aussi. Nous aurons alors la contrainte suivante: il n'est pas possible que S soit p.m.

Pour montrer cela, il souffit de montrer qu'il n'est pas possible de marquer présoppositionnellement le sujet et le prédicat à la fois (en effet si c'etait possible, alors, étant donné que S NP VP, S serait p.m.).

Je vais rappeler ici quelques arguments donnés dans Zuber 1970 sur ce point. Tout d'abord, les faits sont clairs dans les langues qui possèdent un marqueur formel marquant présuppositionnellement les constituants. Dans ce langues (le cantonais, par exemple) il n'est pas possible d'avoir le morphème en question attaché à la fois au NP sujet et au verbe. Il en est de même du marqueur de question (en turc, en armenien), qui ne peut être associé à la fois au NP sujet et au verbs d'une

proposition simple. Dans les langues slaves le sujet se marque prés. Par une construction clivée, et, si on change l'ordre des mots en mettant en tête de phrase un certain constituant, ce constituant se trouvera p.m. Mais il est impossible d'effectuer les deux operations à la fois; en polonais par exemple, (5) est agrammaticale:

(5) *Tanczy to Albert (Danse c'est Albert)

Examinons d'autres arguments. Nous avons vu que la question marque prés. S'il était possible de marquer tous les constituants à la fois, alors à partir de (1b) on pourrait avoir (7) et (8) par exemple:

(6) Albert a dansé hier dans l'ascençeur

(7) ²*Qui a fait quoi?

(8) *Qui a fait quoi (et) quand?

De même, alors qu'à la question q(1b) on peut répondre par (9)

(9) Probablement Albert,

et qu'à la question q(1a) on peut répondre par (10):

(10) Il danse peut-être,

il est impossible d'énoncer (11):

(11) *Probablement Albert danse peut-être.

En anglais la construction clivée marque p. un NB et le *do* emphatique marque le verbe et il est impossible d'avoir ainsi marqués le sujet et le prédicat d'une phrase simple:

(12) *It was Albert who did dance

Remarquons encore que les exemples de Kuroda peuvent nous servir:

(13) ²*Albert aussi a dansé également

(14) *Même Albert a même dansé.

Evidemment nous affirmons, non pas qu'il est impossible d'avoir plusieurs occurences de *même* ou d'*aussi* (ou d'une marque présuppositionelle), mais qu'on ne peut pas les attacher à tous les constituants à la fois. Cela veut dire qu'il serait difficile d'appliquer à notre problème de façon ad hoc le raisonnemment de Kuroda. En effet, d'après lui, étant donné que les mots comme *aussi* ou *même* sont limités à une seule occurence, celle-ci étant variable, ces mots doivent donc former un constituant de S et être attachés à un constituant particulier par une transformation d'attachement. Ces mots ne peuvent pas être introduits dans la base par les règles syntagmatiques, étant donné le caractère récursif de ces règles et par suite leur possibilité d'engendrer des phrases comportant plusieurs occurences de ces morphèmes, ce que l'on a supposé être inacceptable.



On sait actuellement qu'on peut recontrer plusieurs occurences de mots comme *aussi* ou *même*, bien qu'il semble évident que les constituants auquels ils s'appliquent ne puissent être étiquetés par le même noeud.

Il en ira probablement de même pour les marques présuppositionnelles en général. Il semble qu'on ne puisse pas marquer prés. deux constituants d'un même constituants. Cela est clair en cantonais où l'on doit exclure les phrases simples dans lesquelles le morphème-marquer apparaitrait deux fois. La situation dans les phrases complexes, en cantonais comme ailleurs, paraît beaucoup plus compliquée: l'acceptabilité des phrases qui comportent deux constituants p.m. dépend du verbe principal. Par exemple les phrases à verbes factifs sont beaucoup moins acceptables que celles à verbe non-factif:

(15) ²*C'est Albert qui { sait / regrette / a oublié que c'est Valérie qui est venue.

(16) C'est Albert qui { pense / a dit que c'est Valérie qui est venue.

Cela n'est pas trop étonnant, étant donné que présuppositions et verbes factifs sont fortement reliés.

Ainsi, bien qu'il semblea priori possible d'introduire les marques prés. par des règles de base, celles-ci seraient donc très compliquées.

Il y a encore d'aures raisons pour ne pas le faire. Remarquons qu'un constituant p.m. devient « intouchable » (aucune transformation ne pouvant alors s'appliquer à lui ou à ses constituants). Evidemment ce fait est très genant surtout pour les transformations facultatives.

Avant de parler des conséquences sémantiques introduites par la notion de marque p., remarquons encore que les contraintes régissant la possibilité d'attribution de ces marques peuvent être de natures très variées. Une série de telles contraintes sera par exemple fournie par la donnée des couples des questions possibles et des réponses appropriées correspondantes. Il est probable qu'on ne pourra pas former de questions à partir du verbe principal d'une phrase complexe (imbriquante); ainsi on ne peut pas répondre à la question q(1a) par:

Il { sait que / pense que / affirme / promet etc.

D'autre part, les articles, et plus généralement les pronoms, sont d'une grande importance dans le problème qui nous préoccupe ici.

(17) n'est pas acceptable (si l'article *un* est pris au sens non-spécifié)

(17) *Un chien n'aboie pas

De même, (18) n'est pas grammaticale si *un* est générique:

(18) *C'est un chien qui aboie

Ces exemples sont liés au cas plus général où le sujet logique ne peut pas être mis en focus (cf. Kuroda 1971).

De plus, dans beaucoup de constructions, les propriétés sémantiques lexicales déterminent également des contraintes. Par exemple, en russe, on constate que dans les syntagmes nominaux l'adjectif se trouve parfois antéposé, parfois postposé. La différence entre ces deux constructions AN et NA est d'ordre présuppositionnel. Si l'on cherche à nier le syntagme, la négation dans la première construction portera sur A et dans la seconde sur N. $N_1$ V $AN_2$ presuppose donc $N_1$ V $N_2$ et pose que N est A; N V NA présuppose $\Sigma X$( N V XA) et pose que X=N. Si, en outre, l'adjectif présuppose le nom qu'il modifie, la deuxième construction ne sera pas possible: étant donné que seules les femmes (femmelles) sont enceintes, on ne peut pas présupposer que N est enceinte et poser que N est une femme. Et précisement la construction correspondante n'est pas possible en russe.

Venons-en à une analyse plus détaillée de quelques problèmes sétantiques: y a-t'il une différence entre une phrase avec un constituant p.m. et la même phrase sans une telle marque? Certainement, c'est qu'il existe une présupposition associée au constituant p.m. et que celle-ci va influer sur l'interprétation sémantique de la phrase.

Essayons de préciser en quoi et dans quelle mésures? Pour cela, nous allons d'abord considérer la construction clivée que nous avons présentée antérieurement comme exemple de marque p. appliquée à un NP. Nous utilisons l'exemple suivant: Supposons que dans une certaine situation, Albert et Valérie dansent. Dans une telle situation la phrase (4) doit être considérée comme inacceptable. Si maintenant la situation est telle qu'en plus il est vraie qu'Albert danse et chante, la phrase (19) doit elle-aussi être considérée comme inacceptable (pour des raisons sémantiques, en fait elle est assez gauche syntaxiquement):

(19) Ce que fait Albert c'est de danser

Dans (4) le NP sujet est p.m., et dans (19) c'est le VP. Donc la marque p. implique l'unicité de la référence du constituant auquel cette marque s'applique.

Cela peut-être généralisé à d'autres constituants. Si Albert a dansé hier et avant-hier, il serait inapproprié de dire (20):

(20) C'est hier qu'Albert a dansé

De même, si Albert a dansé *dans* un ascenseur et *à côté* de cet ascenseur; il ne serait pas possible d'appliquer la marque p. à une des ces prépositions.

Considérons à présent la phrase (21) dans laquelle aucun constituant n'est p.m.

(21) Albert à dansé hier dans l'ascenseur

(21) n'exclut pas que d'autres personnes aient dansé, ni qu'Albert ait fait d'autres choses par ailleurs, ni qu'il ait dansé également à coté de l'ascenseur, etc. C'est dans ce sens qu'on peut dire que la structure profonde de (21) n'est pas la plus profonde.

Nous sont donc amaner à penser que la marque p. provoque un changement ou plutôt une précision de sens.

Essayons maintenant de voir ce qu'on obtient par application d'une transformation à une structure qui est déjà p.m. Pour cela rappelons d'abord les remarques de Geach (Geach 1962) concernant les structures sous-jacentes aux phrases comportant des pronoms réfléchis. Il a montré qu'il y a une différence de sense entre



(22a) et (22b):

(22a) Seul Albert se lave

(22b) Seul Albert lave Albert

Nous avons la même chose avec des mots comme *aussi* ou *même*:

(23a) Albert aussi se lave

(23b) Albert aussi lave Albert

Ceci dit, qu'en est-il pour le marques prés.? Comparons:

(24a) C'est Albert qui se lave

(24b) C'est Albert qui lave Albert

Il est clair que (24a) et (24b) ne sont pas équivalents logiquement.

Examinons maintenant comme autre exemple une transformation d'effacement on postule généralement que (25a) dérive de quelque chose comme (25b):

(25a) Albert veut partir

(25b) Albert veut qu'Albert parte

Notre opération de marquage prés. donnera ici aussi des résultats différents:

(26a) C'est Albert qui veut partir

26b) C'est Albert qui veut qu'Albert parte

Les deux exemples précedents nous montrent comment il est possible de généraliser nos considérations à toutes les transformations. En effet si les transformations sont des operations portant sur les indicateurs syntagmatiques (sur les arbres), alors chaque transformation modifie au moins un noeud d'arbre: elle peut l'effacer, le commuter, ajouter ou suprimer un de ses sous-noeuds etc. ... Cela signifie que l'ensemble de présuppositions qu'on peut associer à une phrase n'est pas le même que l'ensemble de présuppositions associées à cette phrase une fois qu'elle a été modifiée par une transformation. C'est dans cet ordre d'idées qu'on peut dire que toute transformation change le sens.

Pour finir, je voudrais faire deux remarques methologiques. Premièrement, on a souligné (Partee 1971) que, quand on parle de transformations qui peuvent changer le sens, il ne peut s'agir que de transformations facultatives; en effet c'est seulement dans ce cas qu'on peut *comprend* les phrases sur lequelles opèrent les transformations. Nous pensons néamainque, les transformations opèrent sur certaines structures abstraites décrites dans un métalangage, la compréhension de ce langage est par consequent la même à chaque niveau de dérivation.

La seconde remarque est liée à l'observation qui précède. On pourrait m'objecter que' dans beaucoup de cas mes considérations semblent très éloignées des intuitions de sens qu'on a d'habitude et qui permettent de porter des jugement sémantiques sur les phrases. En fait, ce que j'ai assayé de faire, c'est à propos de phénomenes linguistiques dont la réalité ne fait de doute pour personne, de suggerer un traitement qui soit de nature essentiellement formelle.

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# FOR A THEORY OF CONTEXTUAL DESIGN THE FUNCTION OF GOTHIC *ga-*

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0. This is the major portion of an outline of a theory, first adumbrated in a paper read at the Winter Meeting of the LSA in 1959, the Theory of Contextual Design which applies to the function of the preverbal and the non-preverbal *ga-*: It deals with the former of the two.

## The Preverbial *ga-*

1. Fundamental Assumption: It is to the effect that (a) verbal function underlies verbal form and (b) is itself the outcome of the interaction between basic verbal meaning and the contingent contextual setting.

2. Basic verbal meaning is here understood as membership in a specific set of criterial features which on interacting with contingent context in determinate modes of linkage are reconstituted as the features of a contextual matrix; the specific criterial sets are derived from an underlying G(eneral) C(riterial) M(atrix), { }, which represents all verbal meaning and comprises the binaries of Catenation, (±C), Agentiality, (±A), and Discriminacy which is either Inherent or non-Inherent, (±I):

(I) $$GCM \rightarrow \left\{ \begin{matrix} \pm C \\ \pm A \\ \pm I \end{matrix} \right\}$$

3. Minimum unit of verbal function: This is the verbal operant, VO — formally, any given verb form in the utterance — which is represented by its membership in a Matrix: criterial, ( ), in Matrices one and two, contextual, [ ], in Matrices three to six.

4. Feature Analysis and Matrix Derivation:

1. Catenation, (±C):

(+C) (short-hand for (+C) VO):

(a) It is in Catenation to a (−C), that is, in a type of linkage in which the two component VO's function as a single compound VO: (+C).(−C) → CVO:

1. as a Modulant to a complementary infinitive, e.g. *jabai wileis* (+C) (*mik gabrainjan*: Intrapolated Deletion), *magt* (+C) *mik gabrainjan* (−C) (M 8.2);

2. as a Temporant: Colligant to an infinitive or participle, e.g. ... *sa andbaths meins wisan* (− C) *habaiþ* (+ C) « *estai* » (J 12.26); *jus saurgandans* (− C) *wairþ iþ* (+ C) « lupēthésesthe » (J 16.20); *afdomiþs* (− C) *warþ* (+ C) « kékritai » (J 16. 11).

3. as an Articulator of a complementary/predicate, e.g. ... *silba wissa* (+ C) « eidei » *patei habaida taujan* (− C) « emellen poieîn » (J 6.6);

(b) It is associated with zero Agentiality and zero Discriminacy and a member along with them of of Matrix 1, which is thus a criterial matrix and an offshoot of the GCM—one of two, the other being the Base Matrix which underlies the remaining Matrices:

(II) $$\begin{Bmatrix} \pm C \\ \pm A \\ \pm I \end{Bmatrix} \rightarrow \begin{matrix} \begin{bmatrix} +C \\ \varnothing A \\ \varnothing I \end{bmatrix} \text{ (Matrix 1)} \\ \begin{Bmatrix} -C \\ \pm A \\ \pm I \end{Bmatrix} \text{ B(ase) M(atrix)} \end{matrix}$$

(−C): It is contextually in

(a) binary or zero Linkage, [± L/ØL];

(b) binary or zero Effectiveness, [± E/ØE];

(c) binary Effectiveness, which is either Extrinsic and paralleling plus Agentiality, (+A), or Intrinsic and paralleling minus Agentiality, (−A); and for any VO which is non-Inherently Discriminate (−I);

(d) zero Effectiveness for any VO is Inherently Discriminate (+ I):

(III) $$BM \rightarrow \begin{Bmatrix} -C \\ \pm A \\ \pm I \end{Bmatrix} \rightarrow \begin{matrix} \begin{Bmatrix} \pm L \\ \pm E \\ (-I) \end{Bmatrix} \\ \begin{bmatrix} \varnothing L \\ \varnothing E \\ (+I) \end{bmatrix} \text{ (Matrix 2)} \end{matrix}$$

Type VO
*usfilhan* « bury »
*andniman* « take »
*briggan* « bring »
*giban* « give »

2. Explanation of Symbols:

[± L], for the binary of Linkage which is the relation between a Discriminate VO and its contextual Discriminant (§ 6), [± L] symbolizing the presence, [ − L] the absence of Linkage; Ø L stands for its functional irrelevance.

[± E], for the binary of Effectiveness, the functional equivalent of Agentiality (± A) (§ 2).

(± I), for the binary of criterial Discriminacy, (+ I) symbolizing the feature of Inherent Discriminacy, (− I) being the stand-in symbol for the binary of the contextually Derived and hence non-Inherent feature of Discriminacy, [±D]:

$$\begin{Bmatrix} \begin{bmatrix} \pm L \\ \pm E \end{bmatrix} \\ (-I) \end{Bmatrix} \rightarrow \begin{Bmatrix} \begin{bmatrix} \pm L \\ \pm E \\ \pm D \end{bmatrix} \end{Bmatrix}$$



The re-write set in this juxtaposition may now be expanded into four functionally distinct Matrices, three to six, each with its typically illustrative VO's (§§ 2, 5, 6.4):

(IV) $$\begin{Bmatrix} \begin{bmatrix} \pm L \\ \pm E \\ \pm D \end{bmatrix} \end{Bmatrix} \rightarrow \begin{matrix} \begin{bmatrix} +L \\ +E \\ +D \end{bmatrix} \text{ (Matrix 3)} \\ \begin{bmatrix} -L \\ +E \\ -D \end{bmatrix} \text{ (Matrix 4)} \\ \begin{bmatrix} +L \\ -E \\ +D \end{bmatrix} \text{ (Matrix 5)} \\ \begin{bmatrix} -L \\ -E \\ -D \end{bmatrix} \text{ (Matrix 6)} \end{matrix}$$

Type VO
*gafilhan* « bury »
*filhan* « bury »
*ganiman* « take »
*niman* « take »

3. Summary:

A given VO is systematically represented in its specific Matrix. There are altogether six such Matrices. Two of them are Criterial and hence contextually un-linked. These are Matrices 1 and 2: the former for plus Catenates, + C) VO's, the latter for Inherent Discriminates, (+ I) VO's.

Matrices three to six are Contextual Matrices whose Discriminacy, which is criterially non-Inherent, is entirely functional and derived through Contextual Linkage: it is spoken of as Derived or non-Inherent Discriminacy, [± D]; in turn, Contextual Linkage varies in its direction of Effectiveness which is Extrinsic, [+ E], for plus Agentials, (+ A), Intrinsic, [− E], for minus Agentials, (− A).

5. Minimal Corpus: This consists of selected Citations that are arranged consecutively for each of the Matrices or their functionally unified groupings: Matrix 2; Groups: Matrices 3 and 4, and 5 and 6; Matrix 1 has already been dealt with (§ 4.1b):

Matrix 2: $\begin{bmatrix} \varnothing L \\ \varnothing E \\ (+I) \end{bmatrix}$

1. (M 10.40): *sa* andnimands *izwis mik andnimiþ* « ho dekhomenos ... dékhetai: He who receives ... receives ... »;

2. (L 9.10): ... *andnimands ins afiddja* ... « paralabôn ... hupekhorēsen: he took them and withdrew ... »; cf. (L 9.28): *ganimands Paitru jah Iakobu jah Iohannen usiddja* ... « paralabôn ... anébē ... »;

3. (Mk 12.15): *atbairiþ mis skatt* ... « phéretèmoi ...: bring me ... »;

4. (Mk 6.27): ... *anabauþ briggan haubiþ is* ... (.28): *jah atbar þata haubiþ is* « epétaksen enekhthenai ... (.28): ... enegken ...: gave orders to bring his head ... (.28): ... and brought his head »;

5. (Mk 9.19): ... *bairiþ ina du mis.* (.20): *jah brahtedun ina at imma* « ... phérete ... (.20): ... enegkan: ... Bring him to me. (.20): And they brougth ... ».

Matrix 3: $\begin{bmatrix} +\,L \\ +\,E \\ +\,D \end{bmatrix}$ Matrix 4: $\begin{bmatrix} -\,L \\ +\,E \\ -\,D \end{bmatrix}$

1. (M 8.21): *... uslaubei mis þrumist galeiþan jah gafilhan attan meinana* « ... apeltheîn kaì thápsai ...: go and bury ... » (M 3);

2. (M 8.22): *... laistei afar mis jah let dauþans filhan seinans dauþans* « ... akoloúthei moi ... aphes ... thápsai ...: Follow me ... leave ... bury ... » (M 4);

3. (Mk 10.23): *... bisaihands Iesus qaþ ... : ... haiwa agluba þai faihu gahabandans in þiudangardja gudis galeiþand* « ... khremata ekhontes ... eiseleúsontai: ... for the wealthy to enter ... » (M 3);

4. (L 18.24): *gasaihands ... ina Iesus gaurana waurþanana qaþ: haiwa agluba þai faihu habandans inngaleiþand* in *þiudangardja gudis* « ... khremata ekhontes eiseleúsontai ...: ... for the wealthy to enter ... » (M 4);

5. (K 9.24): *... swa rinnaiþ, ei garinnaiþ* « ... trékhete ... katalábēte: ... run to win » (M 3); cf. (K 14.26): *... samaþ garinnaiþ* « ... sunérkhēsthe: ... you come together » (M 5);

Matrix 5: $\begin{bmatrix} +\,L \\ -\,E \\ +\,D \end{bmatrix}$ Matrix 6: $\begin{bmatrix} -\,L \\ -\,E \\ -\,D \end{bmatrix}$

1. (K 15.50): *... leik jah bloþ þiudinassaus gudis ganiman ni magun, nih riurei unriureins arbjo wairþiþ* « ... klēronomesai ou dúnatai ... klēronomeî: cannot inherit ... does inherit » (M 5);

2. (G 4.30): *... ni nimiþ arbi sunus þiujos miþ sunau frijaizos* « ... mē kleronomésēi ...: shall not inherit ... » (M 6);

3. (L 1.31): *... ganimis in kilþein ...* « sullépsēi ...: you will conceive ... » (M 5);

4. (J 18.2): *... ufta gaïddja jainar miþ siponjam seinaim* « ... sunékhthē ...: met there with ... »;

5. (M 9.9): *... laistei afar mis, jah ... iddja afar imma* « ...ekoloúthēsen ...: ... followed ... »;

6. (Mk 4.30): *he galeikom þiudangardja gudis, aiþþau hileikai gajukon gabairam þo*? « ... homoiṓsōmen ... parabalei parabálōmen ...: ... shall we picture ... by what parable shall we describe it?: (M 5);

7. (K 15.49): *... swaswe berum manleikan þis airþeinins, bairaima jah frisaht þis himinakundins* « ... ephorésamen ... phorésōmen ...: have worn ... shall wear » (M 6);

8. (Ph 1.19): *... wait ei þatei mis gagaggiþ du ganistai þairh izwara bida ...* « ... apebésetai eis sōterían ...: ... will be my deliverance because of your prayer ... » (M 5);



9. (Mk 11.23): *... ak galaubjai þata, ei þatei qiþiþ gagaggiþ, wairþiþ imma þishah þei qiþiþ* « ... gínetai ... estai: ... is happening ... will be done ... » (M 5);

6. Linkage, — L: As already noted (§ 4.1), Linkage in either of its binary varieties is relevant only for VO's that are criterially (— I); it is functionally irrelevant, [Ø L] for VO's that are criterially (+ I) and for all plus Catenates, (+ C). It is this functional differentiation that underlies the separation of Matrices three to six, representing VO's whose Discriminacy is contextually Derived, from Matrices two and one—or, symbolically, the separation of VO's with a contextual [± D] (M 3 to 6) from the others with a criterial counterpart (+ I) (M 2) or (Ø I) (M 1): here along with (Ø A).

6.1. Linkage a bi-polar relation: As said earlier (§ 4.2.), Linkage is the relation between a Discriminate VO, [± D] and its contextual Discriminant: [ + D] in the presence of a Discriminant in the context, [— D] in its absence.

6.2. Delimitation of Discriminate and Discriminant: The Discriminate is the VO along with the rest of the verbal event of which it is a part; formally, the verb form and its correlates in the utterance.

The Discriminant is, in the case of Extrinsic Linkage, [ + E], another VO along with the rest of the verbal event of which it is a part; in the case of Intrinsic Linkage, [— E], the particular verbal correlate of the Discriminate VO (cf. below). The two termini, the Discriminate and the Discriminant, and the Link between them, constitute the verbal situation. A given VO has the feature [+ D] when it is one of the terms of a verbal situation—and only then; it has the feature of [— D] when it is not. The formal counterpart of a [+ D] VO is a *ga*-compound; a simplex is the counterpart of a [— D].

6.3. Nature of Linkage. This varies with the type of Linkage. When that is Extrinsic (or Agential), then the relation of Discriminant to Discriminate is (a) one of Cause to Effect (or of the Whole to its Parts, of Generalization to Instantiation—or of their converse) or (b) one of Contrast. When it is Intrinsic, then the relation is one of Adaptation of the Discriminate VO to its Discriminant correlate (cf. below).

6.4. Illustration of Linkage:

(a) Extrinsic Linkage:

1. Cause to Effect:

Matrices 3 and 4—Citations 3 and 4: *... qaþ ... : haiwa agluba þai faihu gahabandans in þiudangardja gudis galeiþand* vs *... qaþ: haiwa agluba þai faihu habandans inngaleiþand* ... In Cit. 3, the reference is to rich men who cannot enter the kingdom of God, as sequel to the observed disappearance of the particular rich man who would not abandon his wealth and follow Jesus. We thus have here an instance of a Cause and Effect situation or, which is just as likely, a relationship of a Generalization (about rich men) to an observed instantiation of it. In Cit. 4, this Linkage is missing: The rich man had grown sad when told to surrender his wealth and follow Jesus but did not leave; hence the remark which lacks the emphasis of a specific Effect or Generalization.

2. Contrast:

Matrices 3 and 4—Citations 1 and 2: ... *frumist galeiþan jah gafilhan attan meinana* vs ... *let dauþans filhan seinans dauþans.* There is a clear contrast between Cit. 1 and (M 8.19) where one scribe expresses the wish to follow Jesus wherever he might go: ... *ains bokareis qaþ du imma: laisarj, laistja þuk þishaduh þadei gaggis*; wilst there is no contrast whatever between Cit. 2 and this request. (For additional exemplification of Extrinsic Linkage, cf. the study by this author, The Preverbial Gothic ga-, included in the Festschrift in honor of Professor Hill).

(b) Intrinsic Linkage: Types of Adaptation:

(Matrices 5 and 6):

1. Inclusion: Citation 4: ... *gaiddja* ... *miþ siponjam seinaim.* Compare for non —- Inclusion Citation 5.

2. Implicit Target: Citation 1: ... *leik jah bloþ þiudinassaus gudis ganiman ni magun* ... Compare for Explicit (non-adaptative) Target, Cit. 2.

3. Particularized (Emphasized) Target: Citation 2 (Matrix 2): *ganimands Paitru jah Iakobu jah Iohannen* ... Compare for Generalized (Unemphasized) Target—and *andnimands*—the above citation.

4. Particularized Location: Citation 3: ... *ganimis in kilþein* ...

5. Replicate VO: Citation 6: ... *hileikai gajukon gabairam* ... — and its replicate that *precedes* it, *he galeikom;*

Citation 9: ... *þatei qiþiþ gagaggiþ* — and its replicate which *follows* it, *wairþiþ imma þishah þei qiþiþ.*

6. Particularized Means: Citation 8: ... *wait* ei *þatei mis gagaggiþ þairh izwara bida.*

(c) Non-Agentials used Agentially (Extrinsically):

Matrices 3 and 4: Citation 5: ... *swa rinnaiþ, ei garinnaiþ* « ... trékhete ... katalábēte: ... run to win. Compare for Matrix 5: (K 14.26): ... *sama garinnaiþ* » « ... sunérkhesthe: you come together ».

(d) Effective (Extrinsic) Irrelevance in Non-Agentials: Matrices 5 and 6:

Citation 5: ... *laistei afar mis, jah* ... *iddja afar imma* (= *galaistida afar imma*): the VO of *laistjan* has the criterial feature, (+ A), and, unlike *gaggan*, a non-Agential, (— A), Extrinsically Effective.

Citation 7: ... *swaswe berum* ... *bairaima* ... (= *gaþulaima* ..., which as a (+ A) would be in Contrastive Linkage to the Discriminant *swaswe berum* ... (or *þulaidedum*); unlike *bairaima*, a (—-A) and Extrinsically not Effective.

7. Linkage: Type Ø L:

Here belong the VO's of Matrix 2, all of them criterially (+ I) and, by definition, contextually un-linkable. The VO's of Matrix 1 are in a class by themselves (§ 4.1b). They are, formally, (1) Compositionally Discriminate as sequel to univerbation with preverb (Inseparable P- compounds), in either variety of Agentiality, or (2) non-Compositionally Discriminate that are only non-Agential. In the latter group one may tentatively distinguish three sub-varieties: (a) those which are criterial equivalents of Compositional Discriminates, e.g. *briggan* or *giban* « bring » or « give » vs. *atbairan* « bear to »; (b) Discriminate Extensions of non-



Discriminate non-Agentials, e.g. *bugjan* « buy » vs. *niman* « take » or *hliſan* or *stilan* « steal » vs. *niman* « take »; and (c) Definites, such a volitives or aspectants, e.g. *gaunon* « mourn », *frijon* « love », *wairþan* « become », *rodian* « talk ».

They are all contextually indepedent and, formally, invariant P-compounds whether in position of normal Discriminance or in that of the Discriminate; whether, that is, in position (1) of Discriminance or in position (2) of Discriminateness:

7.1. Compositional: Matrix 2:

Cit. 1: *sa andnimands izwis* (1) *mik andnimiþ* (2).
Cit. 2: ... *andnimands ins* (1) *afiddja* (2) ... Compare *ganimands Paitru* ... (L 9.28);
Cit. 3: *atbairiþ mis skatt* ... (1).
Cit. 4: *anabauþ briggan haubiþis* ... (1) ... *jah atbar* (2) ...

7.2. Non-compositional: Matrix 2:

Cit. 4: *anabauþ briggan haubiþis* ... (1) ...
Cit. 5: ... *bariþina du mis* (1) *jah brahtedun ina at imma* (2).

Conclusion.

The criterial features of (1) Catenation, (± C), (2) Agentiality, (± A), and (3) Discriminacy, (± I) function as follows:

(1) Catenation separates Catenate or (+ C) VO' from (— C) VO's — i.e., all the other VO's in the language; formally, colligant simplicia from other forms, simplicia or compounds (§ 4.1, II);

(2) Agentiality is criterial only within (— I) VO's and the basis there for the separation of Contextually Extrinsic Effesctiveness for (+ A) VO's from Contextually Intrinsic Effectiveness for (— A) VO's (§ 4.1, III); formally, the separation of (+ A) *ga-* compounds and their basic simplicia from (— A) *ga-* compounds and their basic simplicia;

(3) Discriminacy separates Inherently Discriminate VO's, which are represented in Matrix 2, from non-Inherently Discriminate VO's, which are represented in Matrices 3 and 4 for Extrinsic Effectives (above 2), and Matrices 5 and 6 for Intrinsic Effectives (above 2); formally, *ga-* compounds and their basic simplicia from invariant P-compounds.

It is also in the area of VO's represented in Matrices 3 to 6 — and there alone — that the contextual features of (1) Linkage, [± L], (2) Effectiveness, [± E], and (3) Contextual Discriminacy, [± D], operate:

(1) Linkage separates [+ D] VO's formally *ga-* compounds — from [— D], VO's — formally, simplicia: the former in the presence of a Discriminant context (§ 4.2, IV) or [+ L], the latter in the absence of a Discriminant context, [— L];

(2) Effectivenes separates the criterially Agential from the criterially non-Agential (above 2);

(3) Contextual Discriminacy: See Criterial 3 and Contextual 1 above.

And, as said earlier (§ 4.a), Discriminacy, while a feature of a specifically determined VO and marked formally by *ga-*, extends beyond the VO and its verbal form to the entire verbal event and its formal correlates in the utterance. In other words, not only is the VO specially underscored but also all its correlates in the event: not only the verbal form but also all the verbal correlates in the utterance (§ 6.2). Indeed, by substituting the term Emphasis for Discriminacy, so that the entire verbal event and with it the entire utterance be included, one may say that the function of *ga-* has been to emphasize a specific VO (§ 6.1.2) and with it the entire verbal event of which it is a part.

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# UNIVERSALS OF PREDICATION: THE BRANCHING STRUCTURE OF DISCOURSE

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Whether Tagmemics, Generative Semantics, Case Grammar, or whatever, modern syntactic theories agree (in practice if not in principle) that « sentences » are verb-centered. That is to say that the verb is the nuclear element in the sentence, with such elements as NP's functioning as satellites. This concept was hampered somewhat by the former belief in the primacy of the VP, but such notions as Fillmore's Modality + Proposition → Modality + Verb + Case (see Fillmore 1968b), McCawley's $\overline{\text{Proposition}}$ + indices (see McCawley 1970a), and Chafe's $\text{Verb}_{\text{subscript}} \rightarrow \text{Verb}_{\text{subscript}}\ \text{N}^{\text{superscript}}$ (see Chafe 1970, pp. 102-03 et passim) has removed that obstacle. Let me clarify this, briefly.

Since antiquity it has been recognized that noun phrases are independent of subject-predicate relations in two ways: (1) in that agent, instrument, direct object, etc. are more closely allied to the semantics of the sentence than are subject and predicate (e.g. Latin: *Caesar inimicos vicit, Inimici victi sunt a Caesare, Exercitus Caesaris inimicos vicit, Inimici ab exerciti Caesaris victi sunt*); (2) when what we now call topicalization demands that an NP of the VP be emphasized, as in *Wh* questions, the structure of the VP is sacrificed in order to relocate the NP (e.g. English: *I saw a water nymph, What did you see?*). Nevertheless, the fact that typical sentences in common Indo-European languages are divisible into the immediate constituents NP + VP (formerly identified as subject and predicate) has created a strong — almost superstitious — notion that the subject function of the NP must be given priority in classification over such categories as agent and direct object (or patient). Now it may be that this convinction is somehow representative of a deep-seated natural truth, but surely the opposite possibility merits consideration.

Once we consider the possibility that Verb Phrase is a mere surface reality, the way is clear to consider the verb not as simply one element of the VP — its nucleus or head — but as the central or « nuclear » element in the « sentence », in relation to which each NP present has an equally subordinate role, although distinct. If the verb is the center of the utterance (or the « contentive » of a proposition, as McCawley would have it), then the traditional convinction that the subject NP governs the verb is also laid to rest, as is the notion that the V is further restricted in the VP according to which NP cooccurrents are present. For example.

(1) The safe dropped ten stories,

versus

(2) Those movers dropped the safe ten stories,

would formerly have been analyzed from the standpoint that the primary elements were, respectively, *the safe dropped* (NP + V) and *those movers dropped* (NP + V), with the further acknowledgment that the verb of (2) is incomplete

in meaning if unaccompanied by an object NP. A more enlightened view, therefore, is the one that assumes that the verb is central in the « sentence » with a number of potential satellite NP's, for then the generality is preserved that the verb of (1) is identical to the verb of (2), with a mere change in staging (i.e. in the selection of dramatis personae to be on stage). In (1) the agent is off stage, which brings the patient NP to center stage, whereas in (2) the agents (the heroes of the drama) are on stage, taking their bows as the primary actors. The verb, however, is the drama itself—that without which the players (NP's) are a mere cluttering-up of the stage.

An astute reader will see a flaw in this argument, however. He will realize that an effort has been made to choose a verb which has both a « causative » and an « intransitive » function without change in its surface phonological representation, but what about all the other classes of verbs? Not only are there verbs like *set/sit*, where the « causative » function is represented by an unidentical (but clearly related) phonological form, but many which (if said to have underlying identity) must be said to be suppletive. For example, suppose in (1) the verb *fell* were to replace *dropped*. In my dialect of English there would be no perceptible change in meaning, even conjoined with (2) as

(3) Those movers dropped the safe an it fell ten stories.

On the other hand, *fall* has its own « causative », *fell* as in

(4) A lumberjack felled this tree.

Again based on my own dialect, there is a restriction on this « causative » that permits its occurrence only in the sense of « to cause a tall object to topple », never in the sense of « to let an object fall (i.e. "plummet") ». Many verbs have no « causative » at all, like *swim* (but note that *fly* developed a causative function with the advent of kites and aircraft, which illustrates the accidental status of such verbs). Others have no « intransitive » form (e.g. *love, hate, attack*) but do have a passive (*be loved, be hated, be attacked*). Any theory that seeks to centralize the verb must consider such lexical peculiarities to be surface-structure problems, in the same way that morphemics used to consider the plurals of *sheep, deer, child*, etc. to be allomorphic variants of the plural morpheme typified by / -Z/. If such a view is taken, then *buy* and *sell* are two suppletive lexical manifestations of a single underlying verb [1], where *sell* equals « cause to exchange hands for money », and intransitive *sell* (e.g. *This pen sells for $ 5.00*) equals « changes hands as a result of someone's selling », that is, an agent *sells* (causes a sale), a dative *buys* (receives the sale), and a patient *sells* (suffers the sale). Transitive *sell* is causative, *buy* is dative, and intransitive *sell* is patient. In all cases the verb asserts that goods are exchanged for money, which is the primary message, even though cooccurrence of a given NP or role class leads to a particular choice of suppletive lexical item.

One might further object, however, that *buy* is also a transitive verb and that

(5) Sam bought Mary a ring

has a dative of its own, *Mary*. Superficially, at least, this would seem to demonstrate the independence of *buy* from *sell*, thereby refuting our claim that *sell* and *buy* are surface manifestations of a single verb meaning « cause to change hands in exchange for money ». We should not be too quick in accepting this new evidence as valid, however, for although (5) has a surface structure identical to

(6) Sam gave Mary a ring.

[1] See Gruber (1967a, pp. 31 ff. et passim) or a different but related analysis of such pairs.



(5) is not a transformation [2] of

(7) *Sam bought a ring to Mary,

as (6) is of

(7) Sam gave a ring to Mary.

Rather, (5) is a transformation of

(8) Sam bought a ring for Mary.

It is equally the case that *sell* per se does not take a benefactive. That is, although

(9) Karl sold a watch for Mary

is well-formed in the sense of

(10) Karl acted as Mary's agent in the sale of a watch, it is ill-formed in the sense of

(11) Karl sold a watch destined for Mary.

The fact that sell does not take a benefactive and that buy rejects a dative would seem to support the notion that *sell* and *buy* are lexical alternants for different cooccurrence relations of an identical underlying verb. A realistic analysis must also concede, it should be added, that by virtue of surface lexicalization *sell* and *buy* (and all comparable « suppletive » sets) take on separate submeanings. For example, in

(12) Jake buys carefully,

*carefully* describes Jake's manner of performing in buying, not that of the agent of the causative *sell* in the underlying structure, whereas

(13) Horace sells recklessly

does not imply that Horace's customers buy recklessly. In short, that portion of the verb that reflects manner of performance is not centrally determined, but locally.

Another consideration in verbs is motion. For example,

(14) Harry was in the house

contrasts with

(15) Harry $\left\{\begin{matrix}\text{entered}\\\text{went in}\end{matrix}\right\}$ the house,

[2] Here I use the term « transformation of » as if adjunctive *to Mary, for Mary*, etc. were the source of dative and benefactive *Mary* in (5) and (6). Actually, as we shall see, this assumption is subject to question. If, as I attempt to prove below, adjuncts are reiterations of central (nuclear) categories, then (7) has to be a well-formed sentence in the deep structure of English, even though it is proscribed by surface rules.

and both contrast with

(16) I sent him in the house

or

(17) I put the furniture in the house.

It has been quite commonly observed of late that the verb in sentences like (14) plays a rather minor role, merely providing something to hang tense, person-number, mood, etc. on, the entire locative sense being contained in the preposition [3]. This has led some theorists to conclude that prepositions are verbs [4]. One might say that (14) is + Locative and − Motion, that (15) is + Locative and + Motion, and that (16) and (17) are + Causative, + Locative, and + Motion. However, there is something unsatisfying about combining such structurally distinct elements as prepositions (which belong to a closed set) with lexical verbs (members of an open set, except for *be*). Furthermore, prepositional phrases resemble conjoinings, and like the latter they represent widely varying grammatical functions, ranging from the locatives illustrated here to such nominalizations as *by rowing across the river ...* in

(18) The escaped prisoner got away by rowing across the river in a small boat that he stole;

to call them verbs is of little help in attempting to represent them in an insightful way. It is only the locatives, of course, that are associated with motion, so the question at hand is how to explain (14) and (15) if not to call the preposition a locative verb.

Suppose we take a different tack and consider the possibility that the preposition is not a verb (which is to say that it is not central to the sentence), but that it is also not a mere segmental surface manifestation of an NP feature. What then is it?

Suppose we heard a foreigner attempting to speak English say

(19) *I in the house

or

(20) *I into the house

We would definitely understand (19) as (14), and would perhaps get (15) out of (20). Why? Because *in* has a perfect aspect, while *into* has an imperfect aspect. *In* cannot be accompanied by motion (except in the sense of *into*), while *into* always implies incomplete action. Furthermore, there are sentences like

(21) Harry kissed Jenny in the house,

in which the prepositional phrase is obviously no part of the VP, being rather an adjunct to the sentence

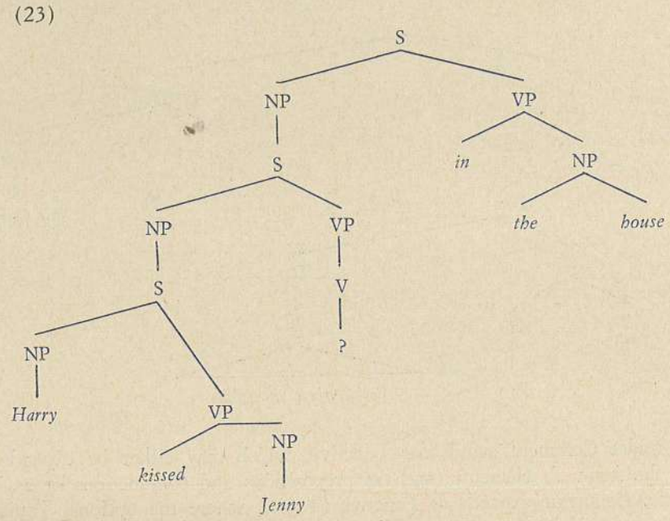
(12) Harry kissed Jenny.

[3] See, for example, Chafe (1970), pp. 158-66.
[4] See Becker and Arms (1969), Geis (1970), Chafe (1970, pp. 158-63), and Binnick (1968).



The question here, which is one of those raised by George Lakoff (1970a), is whether this superficial analysis is complete. Like Lakoff, I believe there is something missing, some verb-like element where the question mark occurs in

(23)




Whereas Lakoff wanted the preposition to replace a verb, however, it is apparent in (23) that I view the « prepositional phrase » as an adjunct from a higher node, as a sort of echo of the locative represented by the question mark. But there are faults in this representation that would have to be corrected before it could seriously be considered as a true characterization of a deep structure. First, to treat a prepositional phrase as a VP is in violation of phrase structure. Secondly, to have a sentence embedded under an NP without nominalization runs contrary to traditional generative procedure. Thirdly, the VP with the unknown verb is not a proper representation of the actual underlying structures. The need for a more characteristic notation is, therefore, apparent.

Let us consider Topic and Comment as the basic parts of Sentence. The adoption of these terms permits us to recognize a sentential subject that is not a nominal and a sentential predicate that is not a Verb Phrase. Thus, for example

(24) Billy was shot by Pat Garrett

contains the nuclear sentence

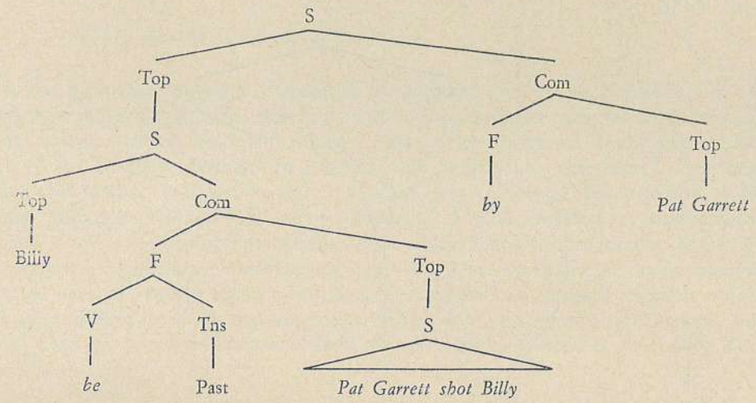
(25) Billy was shot

under its Topic and *by Pat Garrett* under its Comment, while the subsumed (25) has a nominal (*Billy*) and a verb (*was*) [5], which distinguishes it from the first type. Treating both nominals and subject sentences as Topics facilitates expression of the similarities between them without making the false statement that use of the constituent-category NP makes in (23). Likewise, if Comment covers both VP's and prepositional and conjunctive adjuncts, then we are spared the illogic of verb phra-

[5] I do not consider this as an auxiliary. *Shot* in this sentence is a lexicalization of the sentence *Pat Garrett shot Billy*, under Topic.

ses without verbs (or of calling members of the closed set of prepositions and conjunctions verbs). An abbreviated diagram of (24) would be

(26)

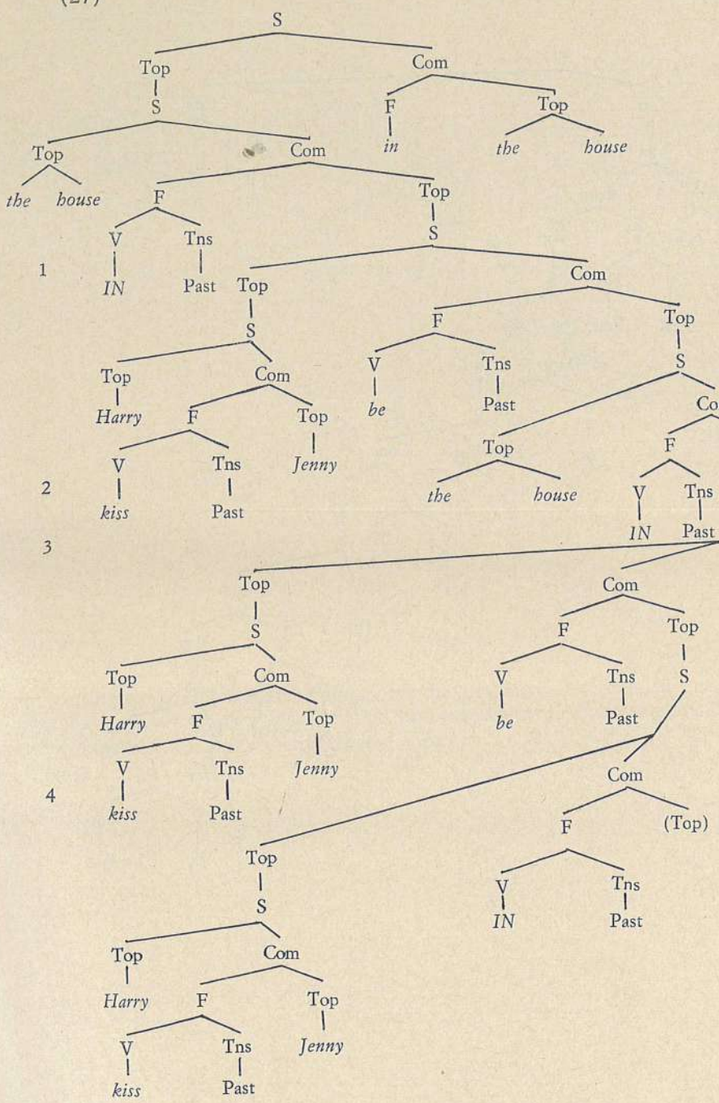



The F under Comment stands for Functive, which may either be expanded as one of the non-verb elements (such as prepositions and conjunctions or as Verb + Tense. Comment expands as Functive (Topic), where the optional Topic can be either a nominal or a non-nominalized sentence.



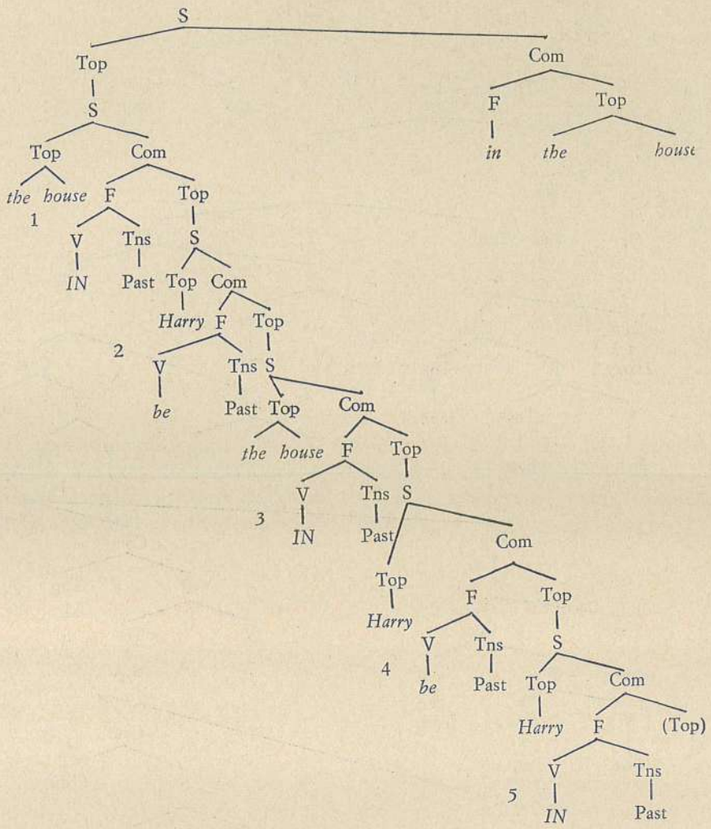
We may now replace (23) with

(27)



which is related to

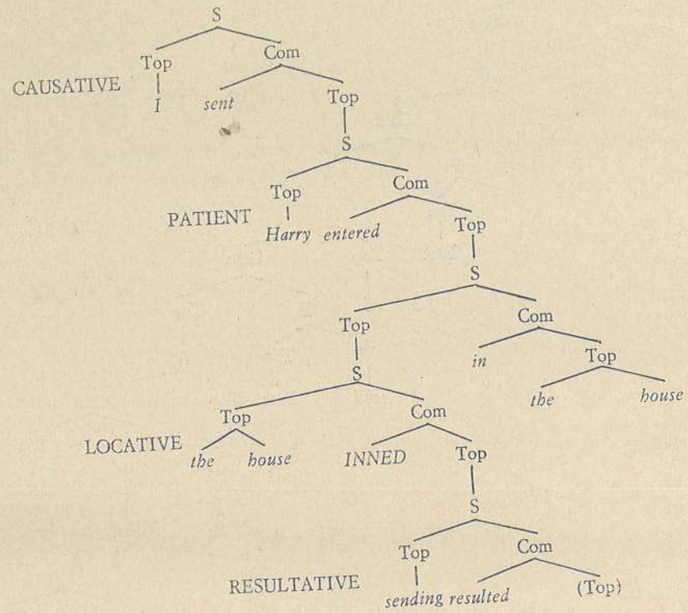
(28)





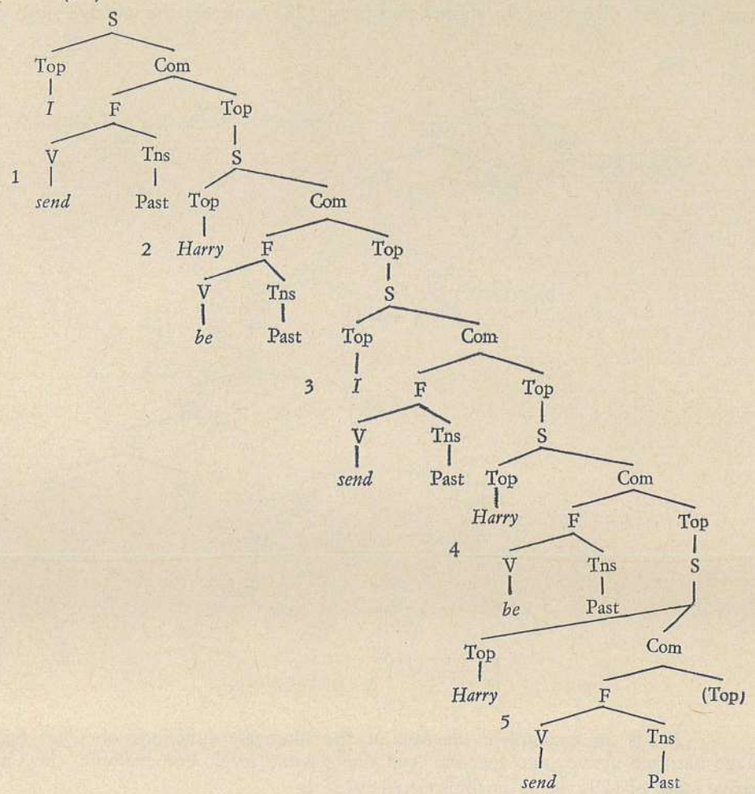

(27) and (28) represent the active and the inactive levels of the locative stage of a verb of motion. In abbreviated form, (28) is merely the locative stage of

(29)




(29) is an incomplete diagram of the discourse functions of *send*. Each stage has two active, two inactive, and one passive level. For example, the Causative stage of (29), in its unabbreviated form, is

(30)




Level 1 is active, level 2 is inactive, level 3 is active again, level 4 is inactive, and level 5 is passive (but level 5 will become the first active sentence of the next stage, the Patient). If level 1 it topicalized (i.e. singled out for a surface representation) the result is

(31) I sent Harry.

Level 2 topicalized equals

(32) Harry was sent,

in the sense that takes an optional agent *by me*, where *sent* is a lexicalization of the underlying sentence (31). Level 3 produces another instance of (31), although it is doubtful that it is ever topicalized, and level 4 produces (32) in the sense that does not take an agent. With the verb *send* there may be no occasion to topicalize level 4, but with a verb that changes state, like *shave*, level 4 would produce in the sense that his cheeks were smooth, that is, that he was in a state of having

(33) Harry was shaved



been shaved. Level 5 would probably not topicalize with the verb *send* either, but with *shave* we get

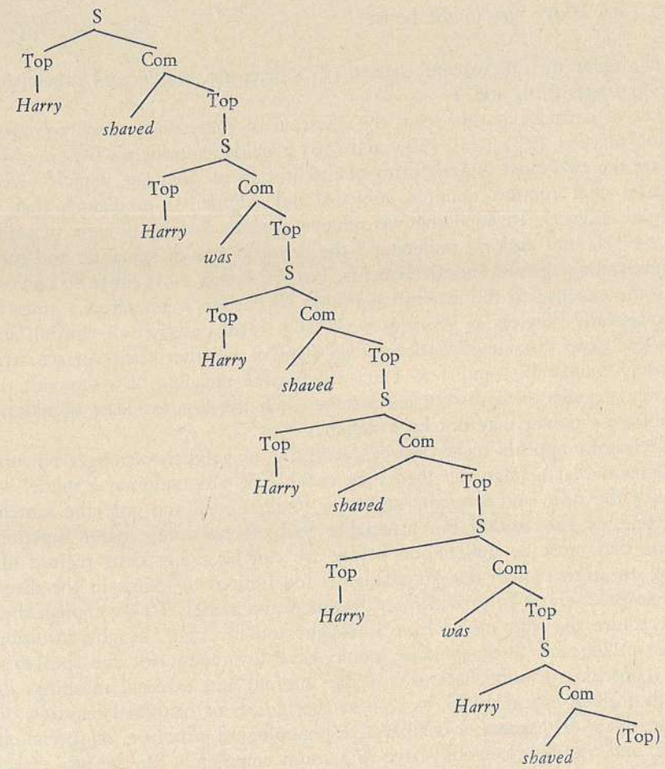
(34) Harry shaves (easily),

which is passive.

(35) Harry shaves skillfully

is not passive, however; it is active, combining the Causative of levels 1 and 3 with the Patient stage beginning at level 5, thusly

(36)



That is, Harry is both the agent and the patient in (36).

Now, in regard to (29), *send* is the lexical form of the verb that corresponds to the Causative stage, while something on the order of *enter* is the lexical form that corresponds to the Patient stage. At the Locative stage I hypothesize an underlying verb-like element, complete with tense, which is sometimes lexicalized as a verb (e.g. *contain, hold, support*), but is more frequently omitted from the nuclear sentence under topicalization, but reiterated in an adjunct to the right (*in the house*). Thus (14) derives from (28) by topicalizing level 4, which would produce

(37) Harry was *Topic*.

Where *Topic* represents the sentence of level 5. A transformation blocks a surface realization of (37), however, requiring the obligatory adjunction of *in the house* and deletion of the right-most Topic of (37), producing

(38) Harry was in the house.

(27) is similar to (28), except that in (27) an entire sentence is subsumed under Topic in stages 2, 4, and 5.

Let us consider at this point the question of *generative* versus *relational*. The notation of (26), (27), (28), (30), and (36) provides a principled means by which to relate the two most typical forms of predication in language, namely verb-phrase predicates that require nominal subjects and adjunctive predicates that require sentential subjects. In so doing we achieve a more insightful view of underlying discourse relations and we understand the *raison d'être* of semantic and functional relations among surface lexical elements, but we do so — it must be confessed — with some expense to the generative notion, since our « generative » rules are not as mechanically flawless as PS rules were. If it turns out that all natural languages have these deep discourse relations, regardless of whether their surface structures are closely comparable, and if as I am arguing the meaning of a sentence is accessible only through such discourse relations, then the loss (at least temporarily) of « generative » power may not be a deficit.

The choice appears to be between accepting as valid the stronger but unattainable demand that a linguistic theory be capable of programming a model step-by-step with the rules and elements necessary to iterate all and only the sentences of a language, or the weaker but attainable goal of explaining major functions and relations that must be understood before we can have any clear picture of what is going on, even though our knowledge is too limited to represent the diverse relations so precisely as to provide a truly generative model. To accomplish the latter would require that our model have hindsight and foresight, insight, intuition, and perhaps intelligence. Such a model would have to account for the speaker's awareness (conscious or subconscious), of the internal and external meanings associated with a given lexical token, as well as the indices of historical features, of figurative features, of features of comparative phonological structure, of special cultural features, and the like. It would have to account completely for the fact that speakers, would place, fork example, *chimney* in the set of objects constructed of bricks, exclude it from the set of independent edifices, include it in the set of all vertical objects, exclude it from the set of solid (non-hollow) objects, include it among the set of smokeemitting objects (along with peace pipes), exclude it from the set of portable things, and so on; but that is common sense, one might argue. What is important about the intuitive awareness of a speaker as to which of these sets a given objects fits into is (a) that his awareness is simultaneous and instantaneous, not a process of endless sorting and (b) that the language has processed these features of relationship in such a way as to provide multiple means of erecting con-



structs which transmit the same set of meanings. One of the ways language has of achieving the dual goals of (1) compressing as much meaning as possible into limited utterance time and (2) eliminating as much redundancy as possible is to assign internal structure on an equational basis. For example,

(39) The table was of wood

equals

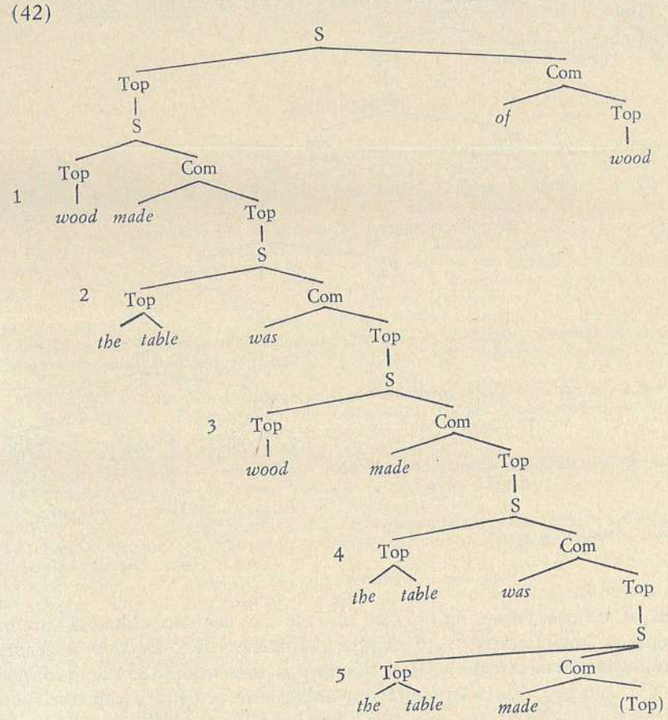
(40) The table was made of wood

and

(41) The table was wooden.

These sentences presuppose

(42)




where (39) is produced by topicalizing level 4 with the right-most Topic deleted and the adjunctive Comment to the higher sentence topicalized. (40) follows the procedure for (39) except that the right-most Topic of level 4 is lexicalized as *made* rather than deleted. In (41) the right-most Topic of level 4 is lexicalized as the [— Tense] *wooden*; since the lexical content of the Topic of level 5 is included in this lexicalization, there is no need to reiterate; therefore, the adjunctive Comment of the higher sentence is deleted. We see here, in an elementary way, how the adjunct recapitulates a lost element, providing a running equation. For

example, if we change the reference of our sentence to definite we get something like

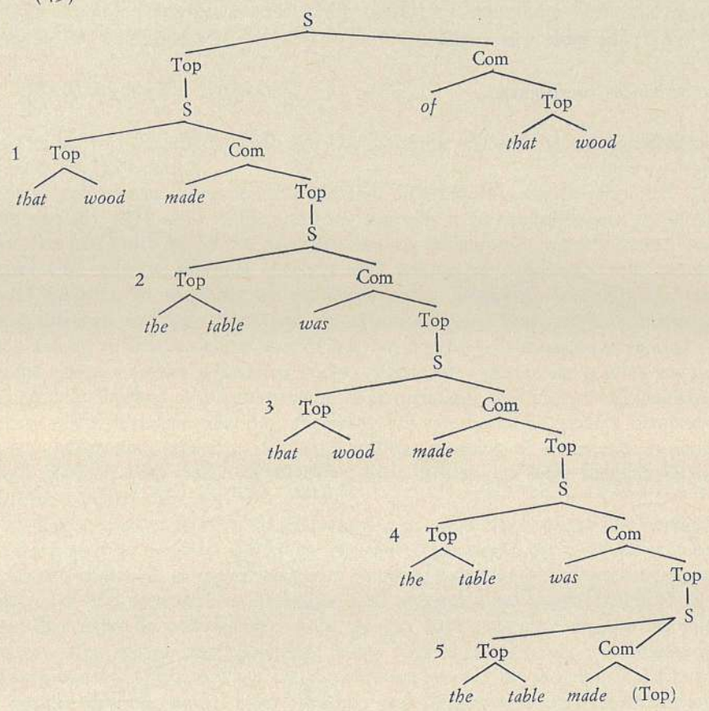
(43) The table was made of that wood,

wich can be paraphrased as

(44) That wood made the table,

with the following underlying structure:

(45)




Now, if we concentrate on (45) we observe that sentences like (41) are excluded because of their incapacity to express definiteness (i.e. *wooden* is generic or indefinite, rather than definite); what this says is that where (39) is ill-formed, so will be (41). But (43) has a structure resembling that of (40), except for the definite reference of (43). At any rate, the adjunct *of that wood* creates an equation with *that wood* as Topic in level 1, so that the topicalization of level 4

(46) The table was made

has the subject of its material cause reiterated by the superadjoined *of that wood*, where *of* merely reiterates the functions of a causative in reverse (sort of mirror image), and where the Topic of this super-junction could perhaps be expanded as a sentence exactly identical to that of levels 1 through 5 of (45).



## *Conclusions*

In this paper I have argued: (1) that any search for lexical universals must concentrate on lexical primes rather than on the lexical items as phonologically manifested, since these latter are extremely irregular both within and among languages; (2) that a truly generative theory is out of the question, given our present limited insight into the structure of language, whereas we can explain functional relations: this motivates *relational grammar*; (3) that predication is a necessary feature of natural language, consisting not only of verb-headed predicates but of non verb-headed predicates as well, which can be introduced under the same Comment symbol as the former; (4) that such functionally distinct sentences as those with causative verbs and those with patient (intransitive) verbs are not transformations of each other or of some underlying string, but generically related topicalizations of different portions of the discourse net; and (5) that so-called prepositional phrases, conjoined sentences, and similar adjuncts are reiterations of nucleare relations tacit in the surface manifestation. Since it is impossible in so little space to outline these theories adequately, my goal has been limited to introducing the subject, with a few examples. Numerous themes either omitted here or only perfunctorily covered are dealt with in Gulstad (1971), (1972), or forthcoming, but much remains to be done.

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# CARATTERE UNIVERSALE DELLE VALENZE LESSICO-SINTATTICHE E CLASSI DI VALENZA

NIKOLAJ D. ANDREYEV

L'interazione tra il lessico e la sintassi è rappresentata di regola in forma delle valenze lessico-sintattiche (VLS); ogni VLS costituisce una relazione della combinabilità selettiva tra una categoria lessica (o lessico-morfologica) limitata e una posizione sintattica (o sintattico-morfologica) lessicamente non limitata.

Come un esempio di VLS si potrebbe analizzare la combinabilità selettiva fra alcuni verbi e un infinito dipendente (o una forma inconiugabile equivalente a quest'ultimo): la lista dei verbi caratterizzati da questa VLS è lessicamente limitata (**кончил писать** = *I ceased to write*, **планирую съездить** = *I plan to travel*, **отказываюсь слелать** = *I refuse to do it*, **сходим посмотреть** = *let's come to see*). Allo stesso tempo la posizione di verbo dipendente può essere riempita praticamente da qualsiasi lessema verbale (**кончаю думать** = *I cease to think*, **кончаю плавить** = *I cease to melt*, **кончаю есть** = *I cease to eat*, **кончаю интегрировать** = *I cease to integrate*). Questa VLS, la nomineremo in esposizione ulteriore induttività.

Induttività come VLS esiste in tutte le lingue possedenti la categoria dell'infinito (o la forma inconiugabile equivalente): *il a commencé à écrire; he began to write*; Arabico *ja'ala yaktubu* « he began to write », Hindustani *wuh likhnē lagā* « he began to write ». Verbi induttivi delle diverse lingue si correlano in modo soddisfacente: **начинать, продолжать**, — *commencer, continuer, finir — to begin, to continue, to stop*; **решать, намереватся, пытаться** — *décider, se proposer, tenter — to decide, to intend, to roy*; **запрещать, отказываться, избегать** — *interdire, refuser, éviter — to forbid, to refuse, to avoid*. Quindi, la composizione lessica della classe di verbi induttivi è praticamente uguale in diverse lingue, e in questo senso è universale.

Come altro esempio della VLS possiamo analizzare la capacità dei verbi d'adgiuntarsi la proposizione subordinata, introdotta con congiunzione *che* (**что**, *que, that, daß*): **думаю, что ...** = *I think that ...*; **знаю, что ...** = *I know that ...*; **вижу, что ...** = *I see that ...*; **скажу, что ...** = *I'll say that ...*; **решил, что ...** = *I decided that ...*; **показал, что ...** = *I showed that ...*; **предположил, что ...** = *I supposed that ...* Bisogna notare che fanno parte di questi verbi (li nomineremo nel seguito commentabili) non solamente transitivi, ma anche intransitivi: **верно, что ...**; **надеюсь, что ...**; **намекнул, что ...**; **ответил, что ...**! Inglese *I hope that ...*, francese *je crois que ...*, tedesco *ich glaube daß ...* dimostrano che la incoincidenza della commentabilità e la transitività è assolutamente universale.

La commentabilità come universalia è caratterizzata dalle correlazioni regolari della valenza, fra le lingue: **знаю, что ...** — *so che ... — ich weiß daß ... je sais que ... — I know that ...*; **верю, что ...** — *credo che ... — ich glaube daß ... — je crois que ... — I believe that ...*; **решил, что ...** — *decisi che ... — ich beschloß daß ... — j'ai décidé que ... — I decided that ...*



Dette VLS non sono limitate dalla sfera del verbo: si ritrovano, mai in modo minore, dalle parti nominali. Esiste, ad esempio, tutta una fila di sostantivi commentabili: **вывод, что ...** (*the conclusion that ...*), **мысль, что ...** (*the thought that ...*), **факт, что ...** (*the fact that ...*), **нет сомнения, что ...** (*there is no doubt that ...*), **при условии, что ...** (*upon condition that ...*), **ходят слухи, что ...** (*there are rumours that ...*). A proposito, qui noi riceviamo ancora una prova del fatto che la commentabilità non è il caso particolare della transitività .

Esistono anche gli aggettivi e avverbi induttivi: **рад видеть** (*glad to see*), **склонен преувеличивать** (*prone to exaggerate*), **готов уйти** (*ready to go away*), **способен убить** (*able to kill*), **счастлив остаться** (*happy to stay*), **легко понять** (*easy to understand*), **трудно поверить** (*difficult to believe*), **невозможно забыть** (*impossible to forget*). Universalità di questa VLS è ugualmente evidente, come nei casi precedenti.

Secondo la misura categoriale della realizzazione nel linguaggio parlato, ogni VLS può costituire, come minimo, tre subclassi: 1) subclasse con misura alta della realizzazione nel linguaggio parlato (= regime forte); 2) opposto a lui, (la) subclasse con misura bassa della realizzazione; 3) subclasse, i cui elementi non differenziano in modo sostanziale — secondo la loro misura individuale della valenza — dalla misura media, caratteristica per tutta la classe come intero.

Risultati di questa divisione in subclassi sono, in maniera essenziale, simili per diverse lingue: cosí, l'aggettivo **способен** (*atto, fähig, capable, able*) fa parte ovunque della subclasse degli aggettivi con alta induttività; il verbo **предполагать** (*supporre, voraussetzen, supposer, to suppose*) appartiene, di regola, ai verbi con misura forte della commentabilità, ecc.

Quindi, confrontando in diverse lingue le VLS monotipiche — e le loro rispettive subclassi categoriali — noi troviamo, che come le liste degli elementi possedenti VSL considerate in queste lingue, tanto la loro divisione in subclassi, dimostrano il grado alto della similarità, formando così universalie linguistiche particolari.

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# CENTRE-PERIPHERY OPPOSITIONS AND LANGUAGE UNIVERSALS

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*Abstract*

The opposition of centre and periphery is related to universals in various ways. The opposition between these categories is a universal principle of linguistic organization (and is correspondingly reflected in all linguistic descriptions). It could further be transported to the sphere of speech activity in general insofar as one may speak about its various hierarchic types.

The opposition of centre and periphery may be interpreted differently, each interpretation being in its own way valid. A linguistic description always tacitly presupposes a « normal » speech activity on which it is based (usually not taking into consideration, say, cantoral or poetic speech). A linguist is always oriented on those linguistic elements which in his view are most typical (e.g. a rule may disregard some deviations in such classes that are not considered as typical, e.g. interjections or loan-words. It is significant that linguists who tend to be especially particular as regards exceptions usually pay attention to occasional exceptions rather than regular).

Linguists usually ignore as probably abnormal (a) speech activity connected with unusual speech situation (singing, whisper, shouting, conversations with children, and animals, poetic or ritual speech), (b) elements they regard as belonging to a different linguistic system (loan-words, interjections — e.g. when treating vowel reduction in the unstressed position in Russian these classes are excluded, cf. the unstressed /o/ in words *portšsés, ogó*), (c) elements which perform special functions in or in terms of communication (pronouns, vocatives, proper names, as in Estonian where distribution regularities for long and short vowels and consonants in the stressed syllable are treated disregarding the pronouns *kis, mis,* the Russian palatalized and non-palatalized consonants in the final position before consonants are thought to oppose only if the latter are labial, evidentiy paying no attention to vocatives (cf. *tank - Tan'k*). The type (a) periphery is *speech (parole) periphery* whereas types (b) and (c) periphery belongs to *language (langue) periphery*, type (b) being *non-systemic*, Type (c) - *sistemic.*

Language periphery is characterized by a tendency towards Structurally abnormal forms, i.e. those where regularities of the systemic centre do not hold. A closer consideration reveals that whereas for systemic periphery this tendency is optional it appears to be obbligatory for non-systemic periphery. The obligatoriness does not necessarily cover all the elements of the peripheral class rather it presupposes obligatory presence of an element in the class as a whole. The eventual universals may be formulated as: « For any language in a given (peripheral) class there exists a formally anomalous element ». Such classes presumably include interjections and nursery words (Lallwörter), with regard, mainly, to phonetic irregularities [cf. Russian consonantal clusters — interjections *tš, gm, tpru*, nursery words — *tprua* (to have a walk)].

On the other hand the following universal conclusions may be inferred. If a class consistently demonstrates formal anomalies in various languages it is (functionally) peripheral. If such anomalies are universal in a given class, the class belongs to non-systemic language periphery. The relation between periphery and anomaly is especially transparent in cases of functionally normal words becoming peripheral elements, e.g. interjections (cf. *tš* from *tiše* « silence » in Russian).

In its centrifugal tendency language periphery tends to form a system of its own. The systemic nature of periphery may be manifested in two aspects. On one hand periphery displays anomaly precisely with regards to the centre: one might say that it is organized as a mirror-like reflection of the centre. Thus, northen Russian, and Southern Russian dialects are opposed by the presence of occlusive /g/ vs fricative /γ/. Correspondingly in the dialects with the occlusive /g/ there are interjectional derivatives with the fricative /γ/, thus one and the same word would appear in the first case /γ/ *o* /γ/ *očet*, and in the second case as /g/ *o* /g/ *očet*. On the other hand certain anomalies characterize the periphery of a given language as a whole which makes it possible for peripheral regularities to be treated irrespective of the centre. In this connection one could postulate an overall influence of the peripheral system on the elements drawn within its orbit suggest a following (hypothetical) universal: loan-words retain only those formal anomalies which are present in other peripheral classes.

A general statement of an opposition between periphery and centre whould be that while the centre has a tendency towards economy (in terms of at least one participant of the communicative process), the periphery demonstrates an opposite tendency towards redundance. This is true both of speech activity and the language elements. Characteristically periphery makes more extensive use of marked members of the oppositions as compared to teh centre. Thus, in onomatopoemata in *-ot* in Upper Sorbian acute consonants practically do not occur in syllable final. Assuming that CV (a « Consonant-vowel » sequence) is non-marked (with respect to CC and VV) the marked members are found in mouch greater extent in the peripheral classes than in the centre. In this respect one more universal may be proposed: if the word is modified phonetically when it moves from a non-peripheral class to a peripheral one, the resulting phonetic form is more marked than the original. E.g. the so called expressive nazalization and palatalization (cf. Czech *dundat* from *dudat, chlamśtat* from *chlastat*, fr. *gnarguer* from *narguer*) or the use of emphatic consonants in Arabic for loan-words (while the corresponding non-marked could be used).

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## LA DOUBLE PERTINENCE SUR LE PLAN DU CONTENU

Louis Prieto

Dans l'acte de parole et, en général, dans l'acte de communication, l'un de ses acteurs, l'« émetteur », produit un object, appelé « signal », directement perceptible par l'autre acteur, le « récepteur », afin que celui-ci produisse à son tour un autre objet, appelé « sens », appartenant à une classe déterminée. L'acte de communication réussit, et l'on dit alors que le récepteur a « bien compris », lorsque le sens qu'il produit appartient effectivement à cette classe.

*Remarque 1*: Le but de l'acte de communication, dont l'iniciative revient bien entendu à l'émetteur, C'est d'amener le récepteur à produire un sens appartenant à une classe déterminée. Cette classe constitue donc, pour l'émetteur, le point de départ de l'acte de communication.

*Remarque 2*: On n'a fait guère de progrès quant à la détermination de la nature de cet objet appelé sens dont la production par le récepteur est le but de l'acte de communication. Certes, si vérification il y a de la « bonne compréhension » du récepteur, c'est-à-dire de l'appartenance du sens qu'il produit à la classe voulue par l'émetteur, cette vérification ne semble pouvoir se fonder que sur le comportement, verbal ou non, du récepteur, à la suite de l'acte de communication. Mais il me semble abusif de définir le but de l'acte de communication comme celui d'amener le récepteur à produire un comportement appartenant à une classe déterminée. Tout ce qu'à mon avis on est en droit d'affirmer c'est que, tandis que du fait que le comportement adopté par le récepteur à la suite de l'acte de communication appartient à certaines classes déterminées on ne peut rien conclure quant à s'il y a eu ou non « bonne compréhension », l'appartenance de ce comportement à d'autres classes déterminées permet au contraire, avec, cependant, un dose inévitable d'incertitude, de le vérifier. Il n'y aura pas pourtant d'inconvénient, à condition que l'on tienne compte de ce qui vient d'être dit, de parler du sens d'un acte de communication comme s'il était constitué par un comportement du récepteur lorsque cela peut contribuer à simplifier l'exposé.

Si le récepteur d'un acte de communication parvient, grâce au signal que produit l'émetteur, à connaître la classe à laquelle doit appartenir le sens qu'il produisse pour qu'il y ait « bonne compréhension », c'est qu'ils acceptent tout deux certaines conventions quant aux rapports entre signaux et sens, conventions dont l'ensemble s'identifie avec ce qu'on appelle un « code » (les langues constituant à mon avis, qui ne partage pas, par exemple, A. Martinet, un type particulier de codes): ils acceptent d'une part qu'un signal est produit par un émetteur pour amener un récepteur à produire à son tour un sens; et ils acceptent d'autre part que, du moment que le signal produit pas l'émetteur présente certains traits ou caractéristiques déterminées, le sens que produisse le récepteur doit nécessairement présenter à son tour certains traits ou caractéristiques déterminées.



Les traits dont la présence dans le signal rend nécessaire la présence dans le sens de certains traits déterminés sont ce qu'on appelle les traits « pertinents » du signal. Les traits dont la présence dans le sens devient nécessaire du moment que le signal présente certains traits déterminés sont à leur tour ce qu'on appelle les traits « pertinents » du sens.

*Remarque 3*: Les traits pertinents du signal sont donc les traits du signal qui ne peuvent pas changer sans changement consécutif des traits pertinents du sens, et les traits pertinents du sens les traits du sens qui ne peuvent pas changer sans changement consécutif des traits pertinents du signal. La circularité apparente de ces définitions recèle en fait quelque chose qui me semble fondamentale: les traits pertinents du signal ne sont tels que par rapport aux traits respectives aux traits pertinents du sens, et viceversa, c'est-à-dire que leurs pertinences respectives sont réciproquement dépendantes et ne sauraient par conséquent être vérifiées séparément. Les tentatives, auxquelles je me suis livré moi-même, d'établir au moyen de la commutation les traits pertinents de l'un des objets en question, signal et sens, en se référant à la « réalité concrète » de l'autre, reposant sur un mirage, sur l'illusion empiriste de pouvoir atteindre cette « réalité concrète ». Le sujet qui « découvre » un code, comme, par exemple, l'enfant qui apprend sa première langue, ne peut partir que d'hypothèses concernant des traits su signal et du sens qui se fourniraient réciproquement la pertinence, et des procédés de type commutatif ne peuvent venir qu'après ce hypothèses, pour les confirmer ou les invalider.

Toute caractéristique ou ensemble de caractéristiques que présente un objet définit la compréhension [1] d'une classe à laquelle cet objet appartient. Cela est bien entendu valable pour l'ensemble de caractéristiques du signal ou du sens que forment les traits pertinents respectifs: l'ensemble des traits pertinents du signal d'un acte de communication et l'ensemble des traits pertinents du sens correspondant définissent la compréhension d'une classe de signaux et d'une classe de sens dont le signal et le sens en question sont respectivement membres. Le rapport concernant les caractéristiques du signal et du sens d'un acte de communication sur lequel, nous l'avons vu, l'émetteur et le récepteur doivent être d'accord pour que le signal serve celui-ci à connaître la classe à laquelle doit appartenir le sens que celui-là l'amène à produire, peut par conséquent être défini en termes de classes: ce rapport consiste à ce que, du moment que le signal produit pas l'émetteur appartient à une classe déterminée, le sens que produisse le récepteur doit appartenir à son tour à une classe déterminée, ces classes étant bien entendu celles dont la compréhension définissent respectivement les traits pertinents du signal et les traits pertinents du sens. La classe dont la compréhension définissent les traits pertinents du signal produit par l'émetteur est dite le « signifiant » que ce signal « réalise ». La classe dont la compréhension définissent les traits pertinents du sens produit par le récepteur est appelée à son tour le « signifié », commun à ce signal-là et à tous les autres qui appartiennent au même signifiant, que ce sens « réalise ». A la suite d'E. Buyssens j'appelle « sème » l'entité que forment un signifiant et le signifié correspondant, c'est-à-dire un signifiant et le signifié commun à tous ses signaux. Dans le *Cours* de F. de Saussure on peut lire (4e éd., p. 144) qu'« une suite de sons n'est linguistique que si elle est support d'une idée », et que « des concepts [...] ne deviennent des entités linguistiques que par association avec des images acoustique ». Cela revient à dire que le signal et le sens d'un acte de parole ne sont des entités linguistiques qu'en tant que « réalisation » du signifiant et du

[1] Le double emploi du terme « compréhension », pour l'action d'un récepteur qui « comprend » ce qu'on lui communique et pour l'ensemble des caractéristiques qui définissent une classe, est certainement ennuyeux, mais je ne vois pas comment je pourrai l'éviter, les deux acceptions étant solidement établies. C'est vrai que grâce au contexte il ne saurait jamais y avoir de doute, mais cela implique une plus grande exigence à l'attention du lecteur.

signifié d'un sème, et que par conséquent seuls leurs traits pertinets respectifs déterminent ce qu'ils sont du point de vue de la langue.

Nous avons vu que l'acte de communication ne réussit qu'à condition que le sens que le récepteur produit appartienne à une classe déterminée. Or, cette classe n'est pas le signifié du signal produit pas l'émetteur. Certes, il y a des cas oú la classe qu'est le signifié du signal produit par l'émetteur et la classe à laquelle doit appartenir le sens produit par le récepteur pour que l'acte de communication réussisse coïncident. Mais y a aussi des cas où elles ne coïncident pas et qui montrent justement que, dans ces cas-là, il s'agit de deux classes coïncidentes et non pas d'une unique classe. Il est évident, par exemple, que dans un acte de communication dans lequel l'émetteur produit un signal appartenant au signifiant du sème (phrase) *Il arrive aujourd'hui*, il ne suffit pas, pour qu'il y ait « bonne compréhension » de la part du récepteur, qu'il produisse simplement un sens appartenant à la classe qu'est le signifié de ce sème, mais que ce sens doit appartenir, pour qu'il y ait « bonne compréhension », à une sous-classe déterminée de ce signifié.

L'acte de communication suppose donc que le sens dont la production par le récepteur constitue son but n'est pas soumis seulement à la pertinence qui résulte de son rapport avec le signal, c'est-à-dire, lorsqu'il s'agit d'un acte de parole, à la pertinence linguistique: les traits pertinents du sens dont il a été question jusqu'ici sont ceux dont la pertinence résulte de ce rapport; mais le sens est soumis aussi, dans l'acte de communication, à un autre classement, qui est celui qui détermine qu'il y ait ou non « bonne compréhension », et les traits qui sont pertinents pour ce classement, qui sont bien entendu ceux qui définissent la compréhension de la classe à laquelle le sens que produisse le récepteur doit appartenir pour qu'il y ait « bonne copréhension », ne sont pas nécessairement les mêmes. Toujours, lorsque le signifié ne coïncide avec la classe déterminant s'il y a ou non « bonne compréhension », il l'inclut. Tous les traits du sens, par conséquent, qui sont pertinents par rapport au signal, le sont aussi pour le classement déterminant s'il y a ou non « bonne compréhension »; mais il est possible que des traits qui sont pertinents pour ce classement ne le scient pas par rapport au signal.

Si l'on admet que le point de départ de l'acte de communication est pour l'émetteur la classe à laquelle le sens produit par le récepteur doit appartenir pour qu'il y ait « bonne compréhension », c'est-à-dire si l'on admet que l'émetteur choisit le signifié et le sème en fonction de cette classe et non pas le contraire, on conclura que des deux classement et des deux pertinences auxquels est soumis le sens dans l'acte de communication, ce sont le classement et la pertinence qui déterminent s'il y a ou non « bonne compréhension » qui sont logiquement premiers, et que le classement et la pertinence auxquels on soumet le sens en tenant compte de son rapport avec le signal, c'est-à-dire le classement et la pertinence que, lorsqu'il s'agit d'un acte de parole, on peut appeler linguistiques, ne viennent, du point de vue logique, qu'en seconde place.

Rien d'analogue à ce double classement et à cette double pertinence ne se retrouve, sur le plan de l'expression, à propos du signal: l'acte de communication ne suppose pas que l'on soumette le signal à un autre classement et à une autre pertinence que ceux qui résultent de son rapport avec le sens, c'est-à-dire qu'à un autre classement et à une autre pertinence que ceux que, lorsqu'il s'agit d'un acte de parole, on peut appeler linguistiques.

*Remarque 4*: Mainte péripétie de l'histoire de la linguistique ou, plus exactement, de la réflexion sur la langue, peut peut-être s'expliquer à partir de cette asymétrie entre les deux plans, le plan du contenu et le plan de l'expression. Le signal, qui n'est soumis dans l'acte de communication qu'à la pertinence qui résulte de son rapport avec le sens, a toujours été reconnu comme un objet linguistique. Il a fallu par contre du temps pour que les linguistes se rendent compte que le sens, soumis en premier lieu à la pertinence extra-linguistique qui détermine s'il y



a ou non « bonne compréhension », est soumis *aussi* à la pertinence linguistique qui résulte de son rapport avec le signal, et qu'il constitue par conséquent *lui aussi* un objet linguistique: ce n'est qu'avec le *Course* de Saussure, et dans la mesure où il a été connu, compris et admis, que cette idée est devenue courante parmi les linguistes. Une notion comme celle de « sous-entendu », l'idée, birarre, que le pronom « remplace » le nom, constituent des efforts faits par les pre-saussuriens pour combler, dans les cas les plus évidents et les plus simples, l'écart entre la pertinence linguistique et la pertinence extra-linguistique auxquelles est soumis le sens et pour escamoter ainsi la première en la réduisant à la dernière. Mais la linguistique moderne, en reconnaissant la pertinence linguistique à laquelle on soumet le sens et en admettant par conséquent que celui-ci constitue un objet linguistique, n'est-elle pas tombée dans l'erreur inverse, celle d'ignorer la pertinence extra-linguistique à laquelle le sens est également soumis dans l'acte de parole?

*Remarque 5*: Le classement du sens qui détermine s'il y a ou non « bonne compréhension » se fait certainement en tenant compte du rapport du sens avec quelque chose d'autre: ce n'est en effet qu'un tel rapport qui peut à mon avis conférer la pertinence aux traits définissant la compréhension des classes concernées dans un classement. Le problème que se sont posés les phonologues en se demandant le pourquoi de la pertinence des traits pertinents, et qu'ils ont résolu en tenant compte des rapports des sons avec les signifiés, n'est donc pas à mon avis un problème que pose en particulier la distribution des sons dans les classes que sont les phonème, mais un problème général, qui se pose à propos de tout classement. Or non est loin, dans le cas qui nous intéresse, de pouvoir dire par rapport à quoi est classé le sens dans la communication linguistique. Des codes non linguistiques peuvent cependant fournir une idée de ce qui se passe dans le cas des langues et montrer en même temps, de façon évidente, la double pertinence à laquelle est soumis le sens. Un exemple excellent en est le code, décrit par X. Cuny dans « L'approche psycho-sémiologique: Etude d'un code gestuel de traivail » [2], dont se servent les ouvriers changés des opérations de transport dans une usine déterminée. La « bonne compréhension » ou son absence se manifestant toujours, dans un acte de communication oú l'on emploie ce code, par un comportement du récepteur, on peut considérer ce comportement comme s'il était le sens et de dire en conséquence que le but d'un acte de communication où l'on se sert de ce code est la production, par le récepteur, d'un comportement appartenant à une classe déterminée. Or cette classe, à laquelle doit appartenir le comportement du récepteur pour qu'il ait « bonne compréhension », est sans doute déterminée par rapport à des classes d'opérations: « tirer », « refouler », « arrêter », etc., c'est-à-dire qu'il y a « bonne compréhension » lorsque le comportement du récepteur, à la suite de l'acte de communication, appartient à la classe des comportements servant à l'exécution d'une opération d'une classe déterminée. Ce comportement est classé aussi, bien entendu, par rapport au signal gestuel servant à le commander, mais c'est là un classement qui ne vient que logiquement après. Cette priorité logique n'empêche pas cependant que, dans une perspective « diachronique », le classement des comportements par rapport aux signaux exerce une influence sur leur classement par rapport aux opérations et par conséquent sur le classement des opérations elles-mêmes: il est concevable que la distinction de certaines opérations devienne superflue pour les besoins de l'usine, mais que l'on continue à distinguer ces opérations et les comportements servant à les exécuter du fait que les signaux gestuels servant à les commander continuent à être différents.

Il me paraît que la reconnaissance de la double pertinence à laquelle on soumet le sens dans l'acte de communication ouvre des possibilités nouvelles d'analyse de ce certains problèmes parmi les plus importants de la linguistique. Je pense, par exemple, au problème des rapports entre langue et culture. Il est évidemment impossible d'aborder ici une discussion globale de ce problème, mais je voudrais

[2] Publication ronéotypée du Laboratoire de Psychologie du traivail de l'Ecole pratique des hautes études, Paris, novembre 1971.

quand même en donner un aperçu qui justifie mon affirmation. La communication suppose certes un code commun à l'émetteur et au récepteur, mais il est évident qu'elle suppose aussi que l'émetteur et le récepteur sont d'accord quant à ce qu'est que de « dire la même chose » ou de « dire des choses distinctes »; c'est-à-dire quant aux classes dans lesquelles on distribue les sens et dont dépend qu'il y ait ou non « bonne compréhension ». Or la distribution des sens dans ces classes qui, nous l'avons vu, ne se confond pas avec la distribution des sens dans les classes que sont les signifiés, ressemble de près ce qu'on appelle une « culture » ou, en tout cas, fait partie sans doute de ce qu'on désigne de ce terme. La claire distinction des deux pertinences auxquelles on soumet le sens doit ainsi permettre de donner un sens plus précis à qualque chose qui a été sans doute signalée déjà, que la communication n'est possible qu'à condition que l'émetteur et le récepteur possèdent des cultures largement coïncidentes.

Un autre problème, apparenté d'ailleurs au précédent, sur lequel la distinction des deux pertinences en vigueur sur le plan du contenu peut, me paraît-il, jeter une clarté nouvelle, est celui de la traduction. Si la condition pour qu'une traduction soit bonne, c'est que le signifié du signal de traduction soit identique au signifié du signal original, la traduction au français d'une phrase italienne comme *Arriva oggi* serait impossible puisque, du fait du caractère obligatoire du « pronom sujet » en français, il n'y a dans cette langue aucune phrase dont le signifié coïncide avec celui de la phrase italienne. Il ne fait cependant pas de doute que, si en prononçant la phrase *Arriva oggi* l'émetteur se propose par example, d'informer son interlocuteur de l'arrivée de son frère, la phrase française *Il arrive aujourd'hui* en est une traduction parfaite, malgré la différence des signifiés. Cela montre que ce n'est pas la coïncidence des signifiés qui compte pour qu'une traduction soit bonne, mais la coïncidence quant à la classe à laquelle doit appartenir le sens produit par l'émetteur pour qu'il y ait « bonne compréhension ». C'est-à-dire qu'il faut et qu'il suffit, pour qu'une traduction soit bonne, qu'à partir du signifié du signal de traduction le récepteur, dans les circonstances dans lesquelles est produit le signal original, « comprenne la même chose » — c'est-à-dire soit amené à produire un sens appartenant à la même classe du système de classes déterminant la « bonne compréhension » — qu'il comprendrait, à partir du signifié du signal original, dans ces mêmes circonstances. La nécessité de coïncidence culturelle entre l'émetteur (qui produit le signal original) et le récepteur (qui « décode » le signal de traduction) ne se pose pas en principe, pour l'acte de communication traductif, de façon différente que pour l'acte de communication en général, même si, compte tenu de l'influence que, nous l'avons vu, peut exercer le code sur la distribution des sens dans les classes déterminant la « bonne compréhension », cette coïncidence devient plus aléatoire pour deux sujets qui se servent habituellement de codes différents — et surtout de langues différentes — que pour deux sujets qui se servent habituellement des mêmes codes.

Un dernier problème que je voudrais mettre en rapport avec la double pertinence à laquelle on soumet le sens dans l'acte de communication est celui de la connotation. Si « concevoir » un objet d'une certaine façon veut dire le reconnaître comme appartenant à l'extension d'un concept et de reconnaître un objet comme appartenant à l'extension d'un concept c'est le reconnaître comme membre d'une classe, le sens est alors, dans l'acte de communication, conçu deux fois, puisqu'il est reconnu d'une part comme membre de la classe qui détermine s'il y a ou non « bonne compréhension » et d'autre part comme membre de la classe qu'est le signifié du signal employé pour amener le récepteur à le produire. Or il me semble que ces deux conceptions que l'on a du sens dans tout acte de communication peuvent être désignées respectivement conception « dénotative » et conception « connotative » du sens, et que ce qu'on appelle « connotation » ce n'est que la façon de concevoir le sens qui résulte du choix du signal dont on se sert pour amener le récepteur à le produire.



*Remarque 6*: Le rapport qu'il y a entre le signal et le sens d'un acte de communication se retrouve de façon parfaitement analogue entre l'instrument dont on se sert pour exécuter une opération déterminée et cette opération: la présence, en effet, dans l'instrument employé pour exécuter une opération, de certaines caractéristiques déterminés, suppose la présence dans cette opération de certaines caractéristiques déterminées. Ces caractéristiques, qui, dans le sens dans lequel on parle en linguistique de traits pertinents du signal ou du sens, peuvent de plein droit être appelées les caractéristiques pertinentes de l'instrument et de l'opération en question, définissent la compréhension de classes auxquelles appartiennent respectivement cet instrument et cette opération. Ce qu'on appelle l'« utilité » d'un instrument n'est que la classe d'opérations dont la compréhension définissent les caractéristiques que, du moment qu'il présente certaines caractéristiques déterminées, devra à son tour présenter nécessairement l'opération que l'on exécute avec lui. L'utilité d'instrument, autrement dit, c'est la classe d'opérations dont la compréhension définissent les caractéristiques pertinentes d'une opération que l'on exécute avec lui. Elle est donc, par rapport à l'instrument, l'analogue parfait de ce qu'est le signifié par rapport au signal, et, tout comme l'on dit que le sens d'un acte de communication « réalise » le signifié du signal qui amène le récepteur à le produire, on peut dire qu'une opération « réalise » l'utilité de l'instrument dont on se sert pour l'exécuter. Quant à la classe d'instruments dont la compréhension définissent les caractéristiques pertinentes d'un instrument, classe qui est l'analogue du signifiant, elle peut être désignée du terme « opérant »[3]. Tout comme le signal par rapport au signifiat, chaque instrument constitue la « réalisation » de l'opérant dont la compréhension définissent ses caractéristiques pertinentes.

Or, ce qui est spécialement intéressant pour nous c'est que l'on retrouve aussi, dans l'exécution d'une opération et à propos de celle-ci, l'analogue de la double pertinence à laquelle, face à l'unique pertinence à laquelle on soumet le signal, on soumet le sens dans l'acte de communication. C'est-à-dire, que la seule pertinence à laquelle l'exécution d'une opération suppose que l'on soumette l'instrument y employé est celle qui résulte de son rapport avec l'opération en question, tandis que l'exécution d'une opération suppose que l'on soumette celle-ci non seulement à la pertinence qui résulte de son rapport avec l'instrument employé, mais à une autre pertinence encore, logiquement antérieure à celle-là. Une opération, en effet, que l'on se propose d'exécuter, n'est pas simplement une opération appartenant à la classe qu'est l'utilité de l'instrument employé, mais une opération appartenant à une classe qui peut coïncider mais peut également ne pas coïncider avec cette utilité. Ainsi dans l'utilité de l'instruments que constitue, par exemple, une clé déterminée, figurent comme membres tant l'opération de serrer un boulon déterminé que de le désserrer; mais il est évident que l'opération que l'on se propose d'exécuter avec la clé en question consiste soit à serrer le boulon en question, soit à le désserrer, mais jamais à le serrer ou à le desserrer indifféremment. C'est-à-dire que si bien les caractéristiques « positive » ou « négative » de l'opération de serrage que l'on se propose d'exécuter avec la clé ne sont pas pertinentes par rapport à celle-ci, elles le sont par rapport à quelque chose d'autre que l'on peut décrire comme le besoin que l'on se propose de satisfaire avec l'opération en question.

L'exécution d'une opération donc, tout comme l'acte de communication en ce qui concerne le sens, suppose que l'on conçoit deux fois cette opération, dont l'une du fait de l'instrument dont on se sert pour l'exécuter. Rien n'empêche de généraliser la notion de connotation et de dire qu'elle est la façon de concevoir une opération qui résulte du choix de l'instrument dont on se sert pour l'exécuter. Nos comportements pouvant être considérés comme des moyens pour obtenir des

[3] Ce terme m'a été suggéré par Armando Sercovich.

résultats déterminés, donc comme des instruments, chaque comportement que l'on adopte connote dans la mesure où son adoption détermine une façon de concevoir ce que l'on fait en se servant de lui, qui vient s'ajouter à la façon de le concevoir résultant du rapport avec le besoni qu'on essaie de satisfaire. Je suis tenté d'y voir le fondement, dépendant à son tour de la double pertinence à laquelle on soumet le sens ou son analogue, de ce que R. Barthes appelle la « sémantisation » des comportements: un comportement est avant tout un moyen de faire quelque chose que l'on conçoit déjà, par rapport à un besoin qu'on essaie de satisfaire, d'une certaine façon; mais ce comportement supposant à son tour une façon, qui ne se confond pas avec celle-là, de concevoir ce que l'on fait avec lui, de simple objet fonctionnel qu'il est à son origine il devient ce que Barthes appelle un « fonction-signe ».

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# АНАФОРИЧЕСКИЕ СВЯЗИ И ИХ РОЛЬ В СТРУКТУРЕ СЛОЖНОГО ПРЕДЛОЖЕНИЯ

**Е. В. Падучева**

1. В соответствии с наиболее распространенными представлениям, основу синтаксической организации предложения составляют подчинительные связи между словами. Однако если в простом предложении структура этих связей более или менее ясна, то для сложного предложения это не так. Можно полагать, что наше понимание структуры сложного предложения существенно углубится, если провести более четкую грань между чисто подчинительными связями и анафорическими, которые, как показали исследования последних лет, играют в сложном предложении принципиально иную роль, чем в простом (о роли анафорических связей в сложном предложении см. Грамматика современного русского литературного языка. М., 1970).

Термин « анафорическая связь » используется здесь приблизительно в том же понимании, что у Л. Теньера, и обозначает связь, содержанием которой является тождество объектов, фактов, свойств и т.д., о которых идет речь в предложении. Из двух анафорически связанных выражений обычно одно является местоимением, а другое — его антецедентом. Однако это не обязательно; например, оба выражения могут быть местоимениями, оба могут быть собственными именами, и т.д.

2. В простом предложении подчинительные связи, как правило, независимы от анафорических, т.е. анафорические связи не являются единственным средством соединения слов в связную структуру. Ср. предложение (1) (стрелки здесь и далее обозначают подчинение, пунктирные стрелки — анафорическую связь; направление пунктирной стрелки — от более полнозначного элемента к местоименному):



(1) **Я показал Пете его ошибку**.

В примерах (2)-(5) независимость собственно синтаксической структуры предложения от анафорических связей, однако, менее очевидна

(2) **Девочки — они аккуратно носят вещи;**

(3) **Приемы, которые когда-то полностью покоряли аудиторию, — эти приемы уже не вызывают сочувствия;**

(4) **Я знаю ее, эту тупую ноющую боль;**

(5) **Одну книгу он любил — книгу о вкусной и здоровой пище.**

Одна из интерпретаций синтаксической структуры этих фраз такова, что единственным средством включения выделенных слов в структуру предложения является анафорическая связь между этими словами и словами или словосочетаниями, которые непосредственно подчинены сказуемому. Возможна и другая интерпретация, которая состоит в том, что и само выделенное слово, и его местоименный «дублет» непосредственно подчинены сказуемому. При этом возникает, однако, следующая сложность. Как известно, актантные валентности сказуемого однократны, ср. неправильность предложения ***Я видел Петю Ваню.** Первая интерпретация не предполагает дублирования валентностей, а вторая предполагает, и чтобы объяснить это исключение, естественно обратиться к тому же понятию анафорической связи: поскольку ее содержанием является тождество объектов, свойств и т.д., то естественно, что два анафорически связанных актанта составляют как бы один (аналогичную роль играет сочинительная связь в предложениях с однородными членами). Таким образом, при обоих интерпретациях анафорическая связь оказывается неотделимой от собственно синтаксических.

Интерес представляют, кроме того, предложения типа (6):

(6) **Жизнь — это борьба.**

Из всех возможных интерпретаций предложений этого типа наиболее убедительной представляется следующая: подлежащим составного именного сказуемого является местоименный элемент **это** (ср. отсутствие тире в предложениях с подлежащим — местоимением типа **Он поэт**, в противоположность предложениям типа **Пушкин — поэт**), а связь межку **жизнь** и **это** — анафорическая.

3. Так или иначе, в простом предложении конструкции, где анафорические связи подменяют собой подчинительные, если и есть, то весьма редки. Между тем, в сложном предложении такая ситуация является, по-видимому, нормальной. Ниже приводятся примеры предложений этого типа с указанием их синтаксических структур. При некоторых стрелках указан тип синтаксической связи. Связи могут выражаться с помощью служебных слов — предлогов и союзов, причем при расстановке стрелок служебные слова игнорируются. Пунктирная стрелка, отходящая от данного слова, означает вхождение в анафорическую связь группы, состоящей из данного слова и всех слов, которые ему непосредственно или опосредствованно подчинены. Примеры:



субъектная объектная объектная

(7) **Петя начал с того, что побил Ваню;**

субъектная

определительная субъектная

(8) **Он так кричал, что дрожали стекла;**

объектная

определительная

(9) **Он сварил такую кашу, что ее нельзя есть;**

субъектная

(10) **Вывод таков, что работу следует ускорить.**

Среди конструкций, к которым применялось до сих пор понятие анафории, не было таких, где анафорическая связь выражалась бы словом; между тем, в предложениях (7)-(10) средством выражения анафорической связи естественно считать союз **что**. Однако союз может и опускаться — например, (10) ⇔ (10′) **Вывод таков: работу следует ускорить**; а предложение (10′) вполне близко по структуре, например, к предложениям (2)-(5),где наличие анафорической связи трудно отрицать.

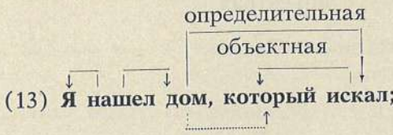
Подчеркнем, что в рамках предлагаемого анализа роль союза **что**, например, в предложениях (11) и (12) должна быть признана различной: в (11) он выражает подчинительную связь, а в (12) анафорическую. Ввиду десемантизированности союза **что** такая трактовка представляется вполне допустимой:

(11) **Я удивлен, что Петя побил Ваню;**

(12) **Я удивлен тем, что Петя побил Ваню.**

Вхождение местоименных элементов в предложениях (7)-(10) в анафорическую связь естественно объясняет синонимические соотношения (действующие в определенных контекстах) типа: **то, что ⇔ тот факт, что ⇔ то обстоятельство, что ⇔ то утверждение, что**, и т.д., которые оказываются вполне аналогичны синонимическим соотношениям, тоже контекстным, типа: **он ⇔ этот ученый ⇔ этот человек**, и т.д.

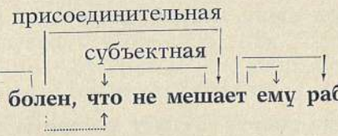
4. В некоторых сложных предложениях введение в рассмотрение анафорческих связей упрощает интерпретацию подчинительных, хотя анафорические связи и не являются в них средством соединения частей:




(13) **Я нашел дом, который искал;**




(14) **Тот, кто весел, смеется;**



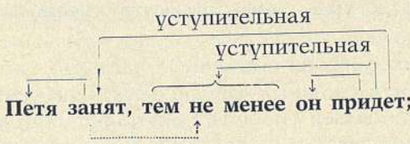

(15) **Петя болен, что не мешает ему работать.**

Значение слиова **который** состоит из двух компонентов. С одной стороны, это оператор, превращающий самостоятельное предложение в определение; с другой стороны, это местоимение, анафорически связанное со своим антецедентом. Таким образом, в предложении (13) подчинительной связью **который** связано только с **искал**, а его согласование в роде и числе со словом **дом** объясняется не подчинительной, а анафорической связью с этим словом (ср., например, согласование местоимения 3-го лица со своим антецедентом в роде и числе в примере (1)). Местоимение **кто** в примере (14) — это позиционный вариант слова **который**, возникающий в контексте определяемого **тот** (где **тот** ⇐ **тот человек** и является полнозначным элементом, т.е. антецедентом), и тоже ведет себя как анафорическое местоимение — с тем отличием от **который**, что оно не изменяется по родам и числам, хотя и имеет « скрытое » число, которое должно быть передано сказуемому, ср. допустимость сочетания **те, кто смеялись**). Местоимение **что** в примере (15) — это оператор, превращающий самостоятельное предложение в присоединенное, и одновременно местоимение, антецедентом которого является предложение.

Другие примеры сложных предложений, в которых анафорические связи являются существенным компонентом структуры:

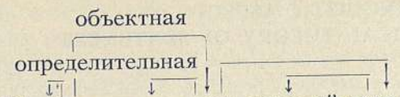



(16) **Если Петя придет, тогда (то) я останусь;**




(17) **Хотя Петя занят, тем не менее он придет;**






(18) **Я нашел тот дом, который искал.**

Представляется, что обычная трактовка предложений типа (16), (17) как содержащих парные союзы (**если ... то**, **хотя ... но**) обладает меньшей объяснительной силой: дублированные стрелки в этих предложениях, как и в предложениях (2)-(5), естественно объясняются тем, что они подходят к элементам предложения, анафорически связанным между собой; а большая понятность предложений (16), (17) по сравнению с такими, где местоименные элементы опущены, имеет то же происхождение, что в примере (3).

5. Можно предположить следующий естественный механизм возникновения предложений, в которых подчинительные связи заменяются анафорическими: если слово по смыслу должно подчинять себе некоторое выражение (например, заполнять этим выражением какую-то свою валентность), а по своим синтаксическим возможностям не в состоянии этого сделать, то в предложение вводится местоименный элемент и отношение подчинения переносится на этот элемент, а анафорическая связь связывает его с выражением, на которое подчинение должно было быть направлено по смыслу, предложения (7)-(10). Местоименный элемент может вводиться и по другим причинам — для упрощения синтаксической конструкции (уменьшения глубины, сокращения расстояния между синтаксически связанными словами), предложения (3), (16), (17), для варьирования логического акцента, предложение (12) и т.д.

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# TEXTLINGUISTIC ASPECT IN THE GRAMMATICAL THEORY OF SENTENCES

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0. Little more than fifteen years have gone by since Chomsky's *Syntactic Structures* have been published, and we are again witnesses of a new internal change within linguistics. This new process of change, just as it was in the case with the Chomskyan trend, refers to basic questions of the theory of grammar; however, it is even more complex.

One part of the attempts at change is directed towards the theory of the « sentence-grammar ». Here can be ranked not only those approaches, which aim at setting up a more effective grammar than that of the Chomsky-type one while maintaining the transformational framework (thus for example the representatives of the so-called generative semantics, the conceptions of Fillmore (1968), Seuren (1969), Žolkovskij and Mel'čuk (1967) etc.) but also those challenging the necessity of transformations (thus for example Stechow (1970), Brockhaus and Stechow (1971)).

The other part of these attempts inquire into an even deeper rooted problem, namely into the problem of the « natural domain » of grammar. The number of those papers is constantly increasing which consider the « text » as the *only* natural domain. However, the argumentation for the necessity of a « textgrammar » is of « multilevel » character: it ranges from the argumentation starting out of the insufficiency of the sentence-grammar to the argumentation on the basis of an all-embracing « communication-science » which involves the problems of all possible forms of communication. (See for example Brinker (1971), van Dijk (1971), Hartmann and Rieser (1972), Ihwe (1971), Petöfi (1971).)

With these widely-ramified problems in view, we intend to outline here a *sentence*-grammar which is sensitive and flexible enough to meet those claims which follow from the in our opinion most essential aspects of the problems hinted at above.

1. In the setting up of this sentence-grammatical conception we started out of the following meta-theoretical basic principles:

1.1. The natural domain of grammar is the text. (The term « text » will be used as a basic notion. It « interpretation » is always a function of the text-grammar considered.)

1.2. The task of a text-grammar is the description of the knowledge of the ideal speaker/listener concerning texts, in such a way, as to comply with the general basic requirements of the theory of science and, beyond this, to fulfill a special « simplicitly » — requirement which *simultaneously* considers « text-internal » (« co-textual ») and « text-external » (« con-textual ») aspects.



In order to make this second basic principle clearer, we want to make the following remarks:

By the « text-external » aspect of the special simplicity we wanted to signify that, on the one hand, we deem it necessary to elaborate the text-grammar as a « linguistic discipline » taken in a strict sense and, on the other hand, we also raise the claim towards the text-grammar, that the text-structure-description supplied by it be suitable for serving as the basis for carrying out different kinds of further interpretation-operations (such as the analysis of the text-creation and of the text-reception, the revealing of the symbolic meaning etc.).

By the « text-internal » aspect of the special simplicity we wanted to refer to the claim, that the structure-description should show a certain homogeneity; this means, that the description of the syntactico-semantic structure of the word, of the sentence and of the text (as a whole) be carried out on the same (or at least on similar) principles.

The claim of this double-aspect-simplicity has, of course, its consequence also concerning the choice of those science-theoretical requirements which should (and could) be taken into consideration, with respect to a linguistic theory conceived in this way, as « generally valid ».

2. The meta-theoretical basic principles specified in point 1. take effect in the actual elaboration of a sentence-grammar in that

2.1. a sentence-grammar can only be set up in the frames of a text-grammatical conception, and

2.2. all components of the sentence-grammar will directly or indirectly reflect those aspects of the text-structure which are relevant from the point of view of the given component.

It has also to be mentioned that, following from the science-historical situation of the development of linguistics, in the setting up of the different text-grammatical conceptions the sentence-grammatical conceptions conceived up to now play an essential role. (To this see Petöfi (1971).)

3. According to 2.1 we ought to begin our presentation of the sentence-grammar which is the subject of our lecture by outlining the text-grammar, of which this sentence-grammar is an organic part. However, we have to dispense with this method of proceeding — not at least of all for reasons of the extent of this lecture. Nevertheless, we think that, on the one hand, this fact does not preclude the possibility of demonstrating this sentence-grammatical conception and, on the other hand, through some basic traits of this sentence-grammar we also can give an idea of the text-grammatical conception building its framework, to a « here-and-now » necessary extent.

(Though we referred with the term « grammatical » to a complex consisting of a phonological, a syntactico-semantic and a lexicon component, for reasons of limiting further the subject to be discussed, we shall leave the problems of the phonological component out of consideration.)

4. The main characteristics of the sentence-grammar to be outlined are the following:

It is a) *transformational*, b) *generative* (its formation-rule-system works in a *twofold-bidirectional* way), and c) those *elementary structures* with which this grammar operates, are socalled « *predicate-functions* ».

All terms enumerated here refer to properties which stand in close connection with the criterion of simplicity interpreted above.

4.1. Let us consider first the characteristic mentioned last, which is at the same time determinative of the structure of the *lexicon*.

The term « predicate-function » denotes the relation of a « functor » and an « argument-configuration ». The « argument-configuration » is an *n*-tuple of different kinds of arguments which can occur simultaneously with the given functor. The nature of the arguments is indicated by argument-labels (abstract case-categories).

The following hypotheses underly the setting up of the lexicon:

*a*) in the lexical stock of each language can be marked off a basic set, by means of which the other elements of the lexical stock can be defined;

*b*) both the defining elements and those to be defined can be written in the form of predicate-functions.

In order to give an idea of this *form*, let us look at the following elements:

(1) *defining* elements

| | | | |
|---|---|---|---|
| HUMAN | o:*x* | | |
| CONCRETE | o:*x* | | |
| OBTAIN | e:*x* | go:*y* | |
| GIVE | a:*x* | go:*y* | o:*z* |

*defined* element

buy a:*x* go:*y* o:*z*

(The way of writting in capitals refers to elements of the basic set, while the defined elements are written with small letters. o(object), a(agent), e(experiencer) and go(goal-object) are argument-labels; the number of the different types of arguments is certainly finite, however, their exact determination is still a task to be solved. *x*, *y* and *z* are so-called « individual variables ». We want to emphasize once more that our intention was here only to indicate the *form*; we do not claim, that those elements enumerated in (1) as « defining elements », will be included among the definitive defining elements of a fully elaborated lexicon.)

This form of representation represents the single elements as elements *isolated* from each other, i.e. it only indicates the *structure of the single elements*.

However, if we insert into the argument-places of the single predicate-functions (in place of the meta-variables) those property- or relation-functors, of which the individuals (real individuals or sets), that can be inserted into the argument-place in question, have to dispose or in which they have to take part, then we actually structure the lexicon itself, since we correlate its elements with each other. According to this we can construct for example the following lexicon-units:

(2)

| | | | | | |
|---|---|---|---|---|---|
| OBTAIN | e:HUM | go:CON | | buy a:HUM | go:CON o:CON |
| GIVE | a:HUM | go:CON | o:CON | | |

(HUM=HUMAN, CON=CONCRETE)

The « depth » of the characterization of the single argument-places has to be determined *by definition*; no « natural motivation » can be found for this.



A lexicon built up in this way can, beyond fulfilling the requirements mentioned up to now, also make it possible that the grammar operating with this lexicon can immediately make use of (can build in) the results of the more and more intensive linguistic investigations by means of the methods of the modal logic.

Let us demonstrate this by a (basically important) example: by the problem of the « value-assignment » (with respect to a given modal-logic model):

« We begin by defining a T+BF-model. Such a model is an ordered quadruple ⟨W, R, D, V⟩, where W is a set of « words » (in the sense of Chapter 4), R is a reflexive relation over the members of W, D is a set(or domain) of individuals, and V is a value-assignment satisfying conditions which we shall now set out and explain.

We want any particular value-assignment, V, to enable us to calculate a value (1 or 0) for any wff of modal LPC in any given world. And just as in the propositional systems of Part I we allowed the propositional variables to take different values in different worlds, so here we want to allow atomic formulae to take different values in different worlds. We can achieve this as follows.

As in the case of non-modal LPC, we let V assign some member, *u*, of D to each individual-variable. (We again write « V(*x*)=*u* » for « V assigns *u* to *x* », and so forth.) This time, however, we cannot let the value of an *n*-adic predicate variable, Φ, be simply a set of ordered *n*-tuples of members of D, and then define the value of an atomic formula as before, since this would result in every atomic formula having the same value in every world. What we shall do instead is, for every *n*-adic Φ, to let V(Φ) be a set of ordered $(n+1)$-tuples, each of the form $\langle u_1, ..., u_n, w_i\rangle$, where each of $u_1, ..., u_n \in D$ and $w_i \in W$. Given $V(x_k)$ for every individual-variable $x_k$ and V(Φ) for every predicate variable Φ, we can then calculate $V(\alpha, w_i)$ for every wff α and every $w_i \in W$ by the following rules, which are obviously adaptations of those for propositional T and for LPC.

1. For atomic formulae: If Φ is any *n*-adic predicate variable, then

$$V(\Phi(x_1, ..., x_n), w_i)=1 \text{ if } \langle V(x_1), ..., V(x_n), w_i\rangle \in V(\Phi).$$

Otherwise $V(\Phi(x_1, ..., x_n), w_i)=0$.
... »(Hughes-Creswell (1968): p. 146).

(Some remarks:

LPC = Lower Predicate Calculus

wff = well-formed formula

The connection between the terms in the quoted paragraph and the terms used by us is the following:

| | in our terminology: |
|---|---|
| « predicate variable » | « functor » |
| « *n*-adic predicate variable » | « a functor with an argument-configuration consisting of *n* arguments » |
| « ordered *n*-tuples » | we speak, instead, simply of an « argument-configuration », in which the order of the arguments plays no role, since the argument-labels unambiguously indicate the character of the single arguments.) |

It is easy to see that the characterization of the argument-places in the lexicon means already a step towards the definition of a « world », that is, the lexicon

characterizes a « fragmental world » within the boundaries given by the set of the characteristics which has been built by definition.

We can only speak of a « fragmental world » because the « world » involves (or at least can involve) not only « individuals » that can be named by elements which necessarily occur also in the lexicon of a language (e.g. « house », « money » etc.) but also individuals that are named by a « proper name » (e.g. « Mr. Templar », « Oxford » etc.). (We do not want to touch upon the further « text-linguistic » consequences following from this fact.)

After having indicated the structure of the defining and defined elements — and after this short digression into the modal logic — let us consider now the structure of a definition: With respect to one of the *readings* manifested by the grapheme *buy* the following definition can be written (here we again lay stress on the *formal* demonstration of the definition only):

(3)
$$\left\langle \begin{array}{llll} \text{HUMAN} & \text{o}:x & & \\ \text{CONCRETE} & \text{o}:y & & \\ \text{CONCRETE} & \text{o}:z & & \\ \text{OBTAIN} & \text{e}:x & \text{go}:y & \\ \text{GIVE} & \text{a}:x & \text{go}:y & \text{o}:z \end{array} \right\rangle \text{Def}=\text{buy} \quad \text{a}:x \quad \text{go}:y \quad \text{o}:z$$

(Concerning this definition the following remark has to be made:

The « definiens » defines not only the *buy*-reading given here: it also defines an *exchange*-reading; to the grapheme *buy* can be assigned not only the reading given here but also other readings; the lexicon also has to reflect these relations (most probably in two different sectors).)

The « internal structure » of the « definiens » has to be strictly determined (« normalized »), and it is easy to see that this « normalized form » can be the form of representation not only of a lexical unit but at the same time also that of a sentence or a text. (We shall later return to this question.)

The definition of a « normalized form » (the determination of the order of the predicate-functions or of the predicates within the representation) is at the same time — beyond the linguistic-internal point of view of homogeneity — the first step towards further (not exclusively linguistic) interpretations of this representation. Namely the predicates in the normalized representation of a text become arranged into subsets according to the single individuals occurring in the text.

Let us turn now to some characteristic aspects of the *formation*-rule-system of this sentence-grammar.

4.2. We have already used the term « predicate », however, without having given yet an interpretation for it.

The term « predicate » indicates a « predicate-function-value », i.e. a « functor + argument-configuration »-relation, in which the single argument-places are already filled in by the names/descriptions — with a summarizing term: « reference-indices » — of the individuals corresponding to (or intentionally violateing) the characterization of the argument-place in question. Thus, the term « predicate » corresponds to the term « atomic formula » of the modal-logic paragraph quoted before.

The grammar — corresponding to the complexity of natural language — has to operate with predicates of different kinds and grades. Such predicates are for example the following:

verbal/adjectival functor ($\varphi$) mostly with the configuration of nominal arguments ($\mathfrak{A}$),

adverbial functor ($\varphi'$) with a verb- or adjective-argument ($\varphi$),

grade-adverb functor ($\varphi''$) with and adverb-argument ($\varphi'$),



local or temporal functor ($\varphi^{l}$ or $\varphi^{t}$), with a predicate-argument.

A so-called « sentence-kernel » (briefly: *kernel* ($\varkappa$)) can contain all of the predicate-types enumerated above. This can be formulated in the form of a « rule » as follows:

(4)
$$\varkappa :=: [(\varphi^{t}) \wedge (\varphi^{l})]\{[(([\varphi'']\varphi')\varphi]\{\mathfrak{A}\}\}$$

The parenthesis-combination [ ] { } indicates a « functor + argument (configuration) »-relation, while the parentheses ( ) refer to facultativity.

The term « kernel » indicates a relation which is indifferent with respect to grammatical tempus and modus. I we assign to this relation the functors determining the grammatical modus and tempus ($\varphi^{Mod}$, $\varphi^{Temp}$), there results a so-called « proposition » ($\pi$). The forming of a proposition can be expressed by means of the following rule:

(5)
$$\pi :=: [[\varphi^{Mod}]\varphi^{Temp}]\{\varkappa\}$$

Since the so-called simple propositions which we obtained by means of the above rule can be united to complex propositions ($\pi^{\square}$) by the aid of different kinds of connective functors ($\varphi^{Conn}$), we also need the following rule:

(6)
$$\pi :=: \left| \begin{matrix} \pi \\ [\varphi^{Conn}]\{\pi^{\square}, \pi^{\square}, \ldots, \pi^{\square}\} \end{matrix} \right|$$

The parentheses || indicate « excluding disjunction ».

The proposition represents a structure which is indifferent with respect to the so-called sentence-modality (assertive, interrogative, imperative, optative character).

If we assign to the simple or complex propositions the so-called « performative functor » ($\varphi^{Perf}$) which determines the sentence-modality, we obtain so-called simple constituents ($\Sigma$); out of the simple constituents — in a similar way as complex propositions are built — there can be formed complex constituents ($\Sigma^{\square}$). These possibilities are manifested in the following rules:

(7)
$$\Sigma :=: [\varphi^{Perf}]\{\text{a}:\text{Pers1} \quad \text{e}:\text{Pers2} \quad \text{o}:\pi^{\square}\}$$

(8)
$$\Sigma^{\square} :=: \left| \begin{matrix} \Sigma \\ [\varphi^{Conn}]\{\Sigma^{\square}, \Sigma^{\square}, \ldots, \Sigma^{\square}\} \end{matrix} \right|$$

(We want to remark, that because of the indifference towards modality, and since the grammatical modus can also be conjunctive and the grammatical tempus can also be future, the notion of « proposition » defined by us is not identical with the notion of proposition in logic).

The rules enumerated above are elements of the formation-rule-system of a sentence-grammar. In order to be able to discuss some of the basic characteristics of this rule-system, let us consider a representation that can be brought about by means of these rules. (In this representation $S_i$ indicates « constituents and $P_i$ « propositions »; they are « constants » corresponding to the variables $\Sigma$ and $\pi$, respectively. $p_i^{\diamond}$ refers to predicates containing a functor with a superscript $^{\diamond}$).

(9)

$$\left[\begin{array}{lll}
(S_1) & p_1^{Perf} & \equiv \text{ASS a:Pers}_1\ \text{e:Pers}_2\ \text{o:P}_1 \\
(S_2) & p_2^{Perf} & \equiv \text{ASS a:Pers}_1\ \text{e:Pers}_2\ \text{o:P}_2 \\
 & p_1^{Mod} & \equiv \text{IND } p_1 \\
 & p_2^{Mod} & \equiv \text{IND } p_2 \\
 & p_1^{Temp} & \equiv \text{PAST } p_1 \\
 & p_2^{Temp} & \equiv \text{PAST } p_2 \\
 & p_1^{1} & \equiv 1{:}R_2\ e{:}p_1 \\
 & p_1 & \equiv \text{OBTAIN e:R}_1\ \text{go:F}_1 \\
 & p_2 & \equiv \text{GIVE a:R}_1\ \text{go:F}_1\ \text{o:F}_2 \\
 & R_1 & \equiv \text{Mr. Templar} \\
 & R_2 & \equiv \text{Oxford} \\
 & F_1 & \equiv \text{ONE HOUSE} \\
 & F_2 & \equiv \text{MUCH MONEY}
\end{array}\right]$$

(We do not want to deal here with the problems of the state and the internal structure of the single reference-indices; these have to be determined by special rules. The elements of the left hand side of the sign ≡ serve as « identifiers » of the elements/constructions on the right hand side).

This representation — a normalized form, which is analogous to the representation of a lexical unit — does not determine unambiguously the linear manifestation that can be brought about from it. This manifestation can be a « simple sentence » e.g.: *Mr. Templar bought a house in Oxford for much money*) but it also can be a « text » (e.g.: *Mr. Templar obtained a house in Oxford. He gave much money for it*).

Such a representation can be generated in many different ways:

We can choose, for example, first the predicate-functions constituting $p_1$ and $p_2$ and on the basis of their argument-charasteristics determine the reference-indices which can fill in these argument-places; then we assign to the predicates $p_1$ and $p_2$ one by one all functors, which complement them to constituents.

We also can carry out the above sequence of operations by reversing the order of the first two operations.

We can, furthermore, generate this representation also by starting out from rule (7), then applying rule (5) and finally rule (4), thus proceeding towards the application of the lexicon-rule (the carrying out of the insertion).

These different possibilities of generation are a conseguence of *one type of directionality* implied in this formation-rule-system. (This arises partly from the unordered nature of the rule-system, partly from the fact, that none of the sides inside the single rules has a distinguished role).

*Another type of directionality* can also be built into this rule-system, through just the lexicon-rule. If we call the defined units of the lexicon « lexical representations » ($f_{LeR}$), and the defining units « semantic representations » ($f_{SeR}$), the following rule can be laid down:

(10)

$$\varphi_*^{\diamond} :=: \left|\begin{array}{l} f^{\diamond}_{LeRi} \\ f^{\diamond}_{SeRi} \end{array}\right|$$

($\varphi_*^{\diamond}$ means here a so-called « terminal element » (characterization of a functor-class), to which the lexicon-rule assigns a « lexicon-unit », or the other way round).

We also have to mention that the elementary $f_{SeRi}$ -s can one to one be rewritten into $f_{LeRi}$ -s, that is, for example:

*OBTAIN* e:*x* go:*y* ⇔ obtain e:*x* go:*y*



Rule (10) makes it possible for both defining and defined lexicon-elements to take part in the generating process.

Let us consider only the two homogeneous cases:

*a*) if the lexicon-rule inserts « defining elements », the generating process reflects the « knowledge concerning the bringing about of sentences (texts) ». (In this case it is necessary to have a transformational rule-system also capable of paraphrasing, in order to determine the linear manifestations which can be derived from the given representation; one representation — several possible linear manifestations: paraphrase, synonymity).

*b*) if the lexicon-rule inserts « defined elements », the generating process reflects the « knowledge concerning the reception/interpretation of sentences (texts) ». (In this case it is necessary to have an interpreting rule-system, which determines the representation that can be assigned to the given linear manifestation; one linear manifestation — several possible representations: homonymy).

The representation given in (9) is the result of a generation-process according to a). According to b) can, for example, be generated the following representation:

$$\left[\begin{array}{lll}
(S_1) & p_1^{Perf} & \equiv \text{ASS a:Pers}_1\ \text{e:Pers}_2\ \text{o:P}_1 \\
 & p_1^{Mod} & \equiv \text{IND } p_1 \\
 & p_1^{Temp} & \equiv \text{PAST } p_1 \\
 & p_1^{1} & \equiv 1{:}R_2\ e{:}p_1 \\
 & p_1 & \equiv \text{buy a:R}_1\ \text{go:F}_1\ \text{o:F}_2 \\
 & R_1 & \equiv \text{Mr. Templar} \\
 & R_2 & \equiv \text{Oxford} \\
 & F_1 & \equiv \text{one house} \\
 & F_2 & \equiv \text{much money}
\end{array}\right]$$

This representation can also be perceived as a text-representation; however, it is of quite different character than in the case before. (It can, for example, represent the following text: *Mr. Templar bought a house. In Oxford. For much money*).

A global remark to the question of directionality:

Concerning directionality, which is the subject of hot debates, we take the view — subscribing to the opinion of A. Zwicky (Zwicky (1971)) — that even if it makes no sense to speak of directionality from a certain given point of view, there can also be found points of view, with respect to which it is possible (or even necessary) to raise this problem. Such a point of view is, in our opinion, the different aspects of the knowledge of the speaker and the listener concerning the system of the language.

4.3 Let us consider finally the problem of *transformations*.

In point 4.2 we have spoken about « representations », without, however, having characterized their nature.

As we have seen, these representations can be parts of both sentence- and text-representations.

Let us suppose, that (9) is a part of a sentence-representation. Since we consider « sentences » only as « sentences » belonging to « texts », and a « text-sentence » is called by us a first-grade composition-unit(K), (9) is a part of a K-representation. Calling the « normalized form » which is, with respect to the linear manifestation, indifferent, a « semantic representation », (9) will be, complemented by a predicate « $p^{Conn}$ = AND $S_1$ $S_2$ », a K-Ser. (KSeR-s are, to use the terminology

introduced in 4.2, constituent-complexes). A KSeR can be given either in the form of a set of connected predicates — the connection is indicated by the parentheses themselves —, or in the form of a diagram. (The diagram-form is more fitted for carrying out the transformations which are necessary to bring about the linear manifestation. On the basis of the complete rule-system which contains the rules enumerated in 4.2, the diagram-form can unambiguously be determined).

If we want to determine *that* linear manifestation which has to be derived from the given KSeR, it is necessary to assign to this KSeR a « transformational information block » (KΩ). To the opening KSeR of a text (or independent text-part) has to be assigned *all* information relating to the linear manifestation (nominalization, pronominalization, scope of the single quantifiers, definiteness/indefiniteness of the single elements, the linear order of the single elements), while to the other KSeR-s only that information has to be assigned which does not follow unambiguously from the preceding linear manifestation (or manifestations). A KSeR furnished with the necessary information will be called K-basis, abbreviated KB. Thus, we can lay down the following rule:

(12) $$KB :=: K\Omega \S KSeR$$

The sign § indicates a special connection between two parts assigned to each other.

The KB, which we call the syntactico-semantic representation of the K, is a fully unambiguously determined structure. Through rule (12) (through this kind of interpretation of the KB) we hold the question eliminatable, whether the « surface structure » contributes by something to the semantic representation, and if so by what; at the same time we consider preservable such a representation-form (a KSeR) which represents what is « common » behind the different linear manifestations.

The basic theoretical question is here, whether it is possible to determine all transformation blocks (all KΩ-s) which can be assigned to a given KSeR on the basis of the structure-analysis of this given KSeR, and whether it is possible to « command » the generation of such a KSeR, upon which the transformations contained by the given KΩ can be carried out, by means of a KΩ given beforehand.

The definition of the KB involves an analogy with two directions.

One direction of the analogy points towards the « text ».

In analogy to the distinction made in the KB we also distinguish between TextSeR and TextΩ. The analogy between the TextSeR and the KSeR is close and evident enough. The TextΩ is, however, a much more complex structure than the KΩ.

The TextΩ has to contain, first of all, information that determines the « organizatorial communicative relations » of the given text. If we consider for example (9) as a TextSeR — i.e. if we do not complement it by a connective predicate AND $S_1$ $S_2$ —, to this TextSeR can be assigned the following communicative relations: (these relations will be represented by applying the abstract predicate-function COMMUNICATE a: ... e: ... o: ...)

*a*) COMMUNICATE a:A e:B o:$S_1 \wedge S_2$ ; or

*b*) COMMUNICATE a:A e:B o:$S_1$ ,
COMMUNICATE a:B e:A o:$S_2$ ; or

*c*) COMMUNICATE a:A e:C o:$S_1$ ,
COMMUNICATE a:B e:C o:$S_2$ .

(The sign « ∧ » betwee $S_i$-a indicates « textual » coherence).



*a*) is a « narrative » text, *b*) is a « dialogue »-text (« dramatized » for two persons) and *c*) is a text « dramatized » for three persons. The « cast » can be manifested in the linear manifestation in many different ways.

Furthermore, the TextΩ has to specify the order of the KB-s. For example, from (9) (especially in a communicative relation of the type c)) can be derived both $TextLiM_1$ and $TextLiM_2$ as linear manifestations:

$TextIiM_1$ : *Mr. Templar obtained a house in Oxford. He gave much money for it.*

$TextLiM_2$ : *Mr. Templar gave much money for the house. Mr. Templar obtained a house in Oxford.*

On the text-level it is also a basic theoretical question, whether it is possible tc determine unambiguously all TextΩ blocks that can be assigned to a given TextSeR (It is disputable, whether the question which derives from the conversion of this question can be put with respect to texts or not).

Necessarily emerges also the second direction of the analogy, which points towards the definitions in the lexicon. The following question arises here:

can such redundancy-rules be formulated, on the basis of which the « definiens »-part of a definition of the form presented in (3) can be regarded as *complete* (unambiguous)?

This question can, according to the analogy, be decomposed into the following two sub-questions:

*a*) Is the « definiens »-part of a representation of the form of (3) a complete DefSeR?

*b*) Is the assigning of a DefΩ to the DefSeR *ab ovo* irrelevant, or only redundant because a « normalized DefLiM » can be interpreted?

(If the correct answer to sub-question b) proves to be that there can be interpreted a « normalized DefLiM », this would entail that also the analogies of this must be looked for on the other levels).

5. To conclude, let us make some summarizing remarks:

1. In our present lecture we intended, by showing some aspects, first of all to point to the fact that the problems of the sentence-grammar are closely connected to those of the grammatical description of the « text ».

2. We consider the sentence-grammatical conception outlined suitable, on the one hand, to build an organic part of a text-grammar (which meets the requirements specified in 1.) and, on the other hand, to unite the different aspects of recent sentence-grammatical investigations (interpretive semantics, generative semantics, case-grammar, description of the structure of language by means of modal logic).

3. We are aware, that this grammatical conception raises several problems — in the first line of science-theoretical nature. However, it seems to us to offer a suitable framework for discussing the problems of grammar more comprehensively (i.e. from the problems of the word-meaning to the problem of the syntactico-semantic representation of the text) and more homogeneously (i.e. with a greater hope for the integratability of the widely-ramified part-researches).

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# SYNTAX IN THE PERSPECTIVE OF LANGUAGE PARTICULARS

JOHN W. M. VERHAAR

*Abstract*

Syntax is the grammatical ordering of meaning-carrying segments of a lexical nature. The semantics of this grammatical ordering cannot be adequately described if language-specific features are subordinated to language-universal features as appearing in items of standard terminology (grammatical functions and grammatical categories among them), in conceptions such as those of deep structure and of redundancy, and of comparable theoretical constructs. Syntax in language-specific perspective will fully reveal how thinking in natural language must adapt to natural language, without adapting, inversely, natural language to whatever is (no doubt) common to all languages epistemologically, and, therefore, non-linguistically.

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# GENERATIVE AND PHENOMENOLOGICAL SYNTAX

HERBERT GALTON

By the expression « phenomenological syntax » we mean a kind of syntax that does not pretend to investigate any « deep structures » such as allegedly precede and explain the surface output, but an arrangement which deliberately remains on the surface, that is the observable text and, by so doing, avoids the difficulty of having to make a decision as to where linguistic investigation ends - and any meaningful linguistic investigation is always concerned with some specific language or languages and not with the universal tongue of mankid — and where the realm of the universal make-up of the human soul begins.

Generative syntax, on the other hand, claims to descend precisely beyond that surface and to tell us something about the way the text is generated from some less articulated depths until it reaches the wonderful articulation which we admire in all languages. It would seem that there are several ways in which we can understand the term « generation ». On the face of it, the sentences are generated by the speaker or writer, but since his really creative rôle in this is as a rule rather slight, another possibility appears to be — with a certain amount of hypostatization — that the sentences have been generated by the language. The latter possibility seems at first sight rather strange, but I must confess that to me the assumption that the speaker has somewhere in his subconsciousness an empty framework *S* (Sentence) which he proceeds to develop by a number of successive ramifications does not appear to be in any way better proven.

On the other approach, the one proceeding from a hypostatized language, all basic types of sentences must be imagined as being stored somewhere (the matter of actual localization is rather irrelevant) and, of course, not in a random arrangement, but in some kind of hierarchy, some being more basic, while others are more derivative. The speaker's rôle then consists in advancing along this arrangement until he has hit upon the most suitable syntactic structure, and, mind you, in so doing he must advance in the direction from the sompler to the more complex sentences, adding the lexical content as he goes along. This direction is prescribed by the very concept of « generating » which must proceed from simpler to more complex units, if it is to explain anything. For instance, a passive sentence is « explained » as a transformation of an active one which is on all accounts simpler; we must believe that passivity is much more a matter of syntax than of mere morphology, though the degree to which this is the case will vary from language to language. If I am not mistaken, the active and passive constructions are not placed alongside each other in generative grammar, but at hierarchically different levels, so that the passive is founded on the active one, which is more basic.

If it should be difficult for anybody to conceive that the speaker actually proceeds in his building up of the sentence from the active to the passive type, as well as to concede the hierarchic relationship between the two, seeing that the two concepts are dialectically opposed so that one cannot exist without the other and



making the active the « foundation » of the passive seems to him like making day the foundation of night or vice versa — there is still a possibility left open of viewing things diachronically, that is to say, making the active construction precede the passive one chronologically.

Again we may follow the same dichotomy as above, of *parole* versus *langue*, and trace the relative chronology in the evolution of the speaker or in the development of the language. Now it is quite possible that in the individual's growing command of his native tongue, active constructions antedate the use of passive ones, but what exactly follows from this fact for the theory of syntax? Roman Jakobson has shown that in the child's acquisition of language, labial consonants quite generally precede dental and velar ones, and that the vowel /a/ is earlier than the others as well as being more resistant in aphasia — language itself follows the ascending line from the simpler to the more complex in the process of its acquisition. Yet it does not follow from this that in the actual functioning of language, dental consonants are in any way « based » on labial ones or that /e/ is derived from /a/. Rather, the various consonant and vowel phonemes enter into relationships completely divorced from the chronology of their individual genesis and their choice always depends on the meaning which we wish to express. Similarly, we may say that in discourse, the choice of say a passive construction versus an active one will depend on the context within which the sentence is placed — whether we have previously been speaking of the agent or of the object, whether we place an emphasis on either of these concepts, whether we wish to follow an unmarked or rather a marked order of words, in short on all the factors comprised under the Prague school's terms of « functional sentence perspective ». There is nothing to show that the speaker proceeds to his passive construction via an active one, but he decides in favor of the former from the very beginning of the relevant utterance.

If it can be shown, accordingly, that the relative chronology of the individual genesis of active and passive constructions — to remain with our example, an elementary one in every transformational grammar — is, even if it can be proved, irrelevant for the functioning of language, we should still look the possibility of a diachronic justification of such a priority. If the active construction of *la langue* can be shown to have antedated the development of the passive one, we might feel vindicated in constituting the former as the basis, the latter as derivative, so that the tree diagrams of the generative grammarians would at least reflect a certain historical order. But this is not the case. The Indo-European languages quite generally distinguish the two constructions, while some make more and some less use of the passive one; this, however, I would say, is determined primarily by the grammatical character of the language concerned — idioms distinguishing few or no cases like the modern West European ones resort more frequently to passive constructions because in them, the order of words, having a grammatical function to discharge, is alone inadequate to serve the needs of the functional sentence perspective. In most Slavic languages, on the other hand, the passive constructions is much less used because word order plays generally a lesser rôle in the distinction of grammatical function. Dependent on the above mentioned factors, a ready made active or passive pattern is chosen by the speaker and given its lexical content.

What, then, about the diachronic aspect? Well, as far as we can follow the history of the attested Indo-European languages back in time, they have always distinguished active and passive constructions, for all their modifications of detail. Nothing indicates a historical priority of the active voice.

Is this, then, at least one of those much sought-after language universals? I am afraid it is not, because there are, as you know, languages which make no such distinction; these are the languages with the so-called ergative construction like those of the Caucasian families, the Basque tongue and others. They have no passive construction, and since the existence of an active construction stands or fall with that of its dialectic counterpart, really no active one either, since in a sencente like

« the girl picks a flower » (why must the examples invariably refer to killing?), « a fower », being the object of a verbal action, stands in the absolute case which is the nearest approach those languages have to a nominative, while the « girl », being the expression of the agent, stands in the special ergative case; if, however, say the « girl sleeps », she is put in exactly the same case as the « flower » in the former sentence, sleeping being an activity which takes no direct object, and so the verb is intransitive. What is most interesting, however, is that some languages of those families may undergo a certain historical development and generate (here the term is justified) an active construction; this is the case notably in modern Georgian (Gruzinian); while ancient Georgian followed entirely the ergative type, the modern Kartwellian languages make a distinction — as A. S. Čikobava has shown — along the lines of tense and verb class sten, so that an active and a passive are distinguished in the present tense, whereas in the past tenses this depends on the verb stem, so that certain classes still display the old lack of differentiation of voice. Owing to the attested history of Georgian, this constitutes a development which we can survey, and we can see the active construction emerge — alongside the passive one. The one does not occur without the other, and the relationship between them is not one of one-sided dependence or implication, but of interdependence.

In what sense are we, then, to undestand the « generation » of a passive construction from an active one? Not, as we have seen, in the sense of a chronological priority, whether this refers to the history of the language or the history of the individual speaker; and not in the sense of a generation of one from the other in the process leading up to the act of speech. The only sense in which this « generation » seems to have any meaning to me is that of the arrangement of a grammar. And this is of no small value, since the facts of language should be presented in some hiarachical arrangement. But it is utterly misleading to say « passive constructions *are* derived from active ones ». This is not a matter of fact, but of our arrangement, and to such a one only one criterion, it seems to me, is applicable — its effectiveness in teaching and research. If generative grammar succeeds in achieving better results through the application of its derivative trees and ordered rules — good luck to it. But this can be no justification for presenting our working hypotheses as facts. Such a presentation is a characteristic of ideologies, which always pass off their own mental operations as merely reflecting the order of facts.

Any claims to exclusiveness on the part of the transformationalists should, therefore, be resisted, and it should be made clear that all they have is a method which must strictly be judged on its heuristic merits. Generative grammar must not be allowed to prevail to the exclusion of other approaches, which is the impression one has all too frequently these days. It fails to make allowance for a most important element in human speech, and that is precisely not the gradual generation of sentences, but on the contrary the ready-made character of patterns which speakers for the most part follow. And since linguistic development is decided on the whole by the many and not the few, and the many mostly follow ready-made patterns, great attention should be bestowed upon them. It is true that these patterns may change in time, but, alas, such change need not at all follow the lines of the tree diagrams.

There would seem to be a need, accordingly, for some sort of comprehensive pattern which represents a ready frame of reference for diverse syntactic structures, in which many slots are provided, ready to be filled in with their lexical contents, or to be left unoccupied, as the case may be. One advantage of such an approach seems to me to be that it pays much more attention to the automated as against the creative aspect of our speech acts, which — the latter — can be vastly exaggerated on the transformationalist approach; Eugenio Coseriu has drawn attention to the need to distinguish properly between the « creative » aspects of language. My purpose cannot be, of course, in any way to try to exorcize transformational grammar; I merely make a plea for placing other approaches beside it. The one I have



in mind particularly consists of a framework specially adapted for the so-called inflected languages, but can in my opinion also be used, pedagogically, in the presentation of ergative or of uninflected idioms. It can be used to show different historical stages of the same language, which may entail radical changes in grammatical structure, within the same framework; and since ideally it is three-dimensional, it may even give a batter idea of the arrangement of some linguistic facts than a two-dimensional one in which all elements are placed on the same surface. Moreover, a visibly contrastive treatment of languages is hardly possible with our generative schemes; an ideally three-dimensional model, however, does offer such an opportunity. And since we remain at the phenomenological level, contrasts between languages will emerge much more clearly than in some mysterious depth where the surface distinctions between the human tongues — which should be of the greatest importance to us *qua* linguistis — become blurred to such an extent that some people have even thought it possible to attribute grammatical cases to languages which have none. But for the presentation of a first rough idea of the thing I have in mind I neeed a blackboard and must crave your attention for a graphic sketch.

*University of Kansas*

# THE DOMAIN OF SINTAX *

John V. Hinds

Transformational-generative studies have consistantly claimed that the ultimate unit for study is the sentence. For instance, Chomsky (1965) states that a fully adequate grammar of a natural language must « assign to an infinite range of sentences a structural description indicating now this sentence is understood by the ideal speaker-hearer » [4-5] George Lakoff (1970) also maintains that a fully adequate grammar must « pair surface forms of sentences with their corresponding meanings, or logical forms ». [5] Despite these claims, evidence will be presented in this paper which demonstrates that the study of sentences, while providing an adequate starting point, should not be considered the end result of linguistic investigation. That is, even if a grammar were constructed which provided, to everyone's satisfaction, an adequate description and explanation of the ideal speaker-hearer's use of his language, the ideal grammar would still not have been constructed. The reason for this is that the ideal speaker-hearer has internalized more than the workings of the sentences of his language; he has internalized the way in which various components of his language fit together, or more simply, he has internalized the discourse structure of his language.

Although the mainstream of transformational-generative grammar has consistently refused to explicitly examine discourse structure, there has always been a [perhaps unconscious] recognition that certain phenomena can best be explained if seen within the framework of discourse structure. Two such attempts will be examined briefly.

Fist, the Fodor-Katz-Postal proposal maintains that the proper domain of a semantic theory is the isolated sentence, because the readings of a sentence in isolation form a proper subset of the readings of a sentence in a setting. They refine the notion of setting to distinguish between the non-linguistic context and the linguistic context, which is the spoken or written discourse of which the sentence is a part. It is the linguistic context, or discourse structure, which is of importance here. Fodor-Katz-Postal maintain that one function of a semantic theory is to disambiguate utterances. For example, they point out that the isolated sentence [I shot the man with a gun.] is ambiguous, but if this sentence is placed within a discourse, such as [I shot the man with a gun. If the man had had a gun too, he would have shot me first.] it is no longer ambiguous. Fodor-Katz-Postal maintain that a theory which includes discourse analysis of this type is not at all superior to a theory of semantic interpretation of sentences in isolation, since « except for a few types of cases, discourse can be treated as a single sentence in isolation by

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regarding sentence boundaries as sentential connectives ». [490] Moreover, they maintain, « for every discourse, there is a single sentence which consists of the sequence of *n*-sentences that comprises the discourse connected by the appropriate sentential connectives and which exhibits the same semantic relations exhibited in the discourse ». [491] This statement is simply not true. In fact, even Fodor-Katz-Postal recognize that often two sentences are not naturally connected, and elaborate devices for this unnatural connection are necessary. Moreover, many of the constraints which are imposed by discourse structure are significantly different from the constraints imposed by sentence structure. A strainghtforward example of this is pronominalization in Japanese. Without going into the details of the conditions under which pronominalization takes place, it can be shown quite simply that the consequences of pronominalization in the second of two sentences is significantly different from pronominalization in the second of two clauses.

(1) Taroo ga Ziroo o tasuketa. Sore kara kare mo Akiko o tasuketa.
sbj Jiro obj help-past And then he too obj help-past.
You know, Taro helped Jiro. And then he [Jiro] helped Akiko.

(2) *Taroo ga Ziroo o tasukete, kare mo Akiko o tasuketa.
sbj Jiro obj help-and he too obj help-past
Taro helped Jiro then he helped Akiko.

In (1), the first sentence has sentence final intonation and the second sentence begins with a sentence initial phrase *sore kara*. These occur to ensure that the two sentences are taken as separate sentences. Because there are two sentences, *kare* refers unambigously to Jiro. (2), on the other hand, is ungrammatical if *kare* is interpreted as coreferential with Jiro. The only possible interpretation is that some unspecified male, non-coreferential with either Taro or Jiro, is the antecedent of *kare*, demonstrating the difference in pronominalization between sentences and clauses.

The second proposal has been developed by George Lakoff. Lakoff, in a series of papers, has argued that presuppositions are necessary to the study of syntax, even though accepting this position entails expanding the area of syntactic investigation. Lakoff (1971b) quite accurately demonstrates that in order to account four certain phenomena which have traditionally been termed syntax, this expansion is absolutely necessary; otherwise the field of presupposition-free syntax « would no longer involve the study of the distribution of grammatical morphemes ». [337] For example, Lakoff points out that « the grammatical morpheme *who* cannot simply be determined by a syntactic feature like [+ HUMAN]; rather, the relative *who* requires, at least, that the person referred to either be presupposed to be alive at the time referrd to, or thought of as a human being ». [331] Unfortunately, Lakoff's (1971a) proposal also maintains that a sentence can be examined in isolation from its linguistic setting. He asserts, in establishing the domain of presuppositional syntax that « given a syntactic structure ($P_1$, $P_n$) we define the semantic representation SR of a sentence as SR = ($P_1$, PR, Top, F, ...), where PR is a conjunction of presuppositions, Top is an indication of the "topic" of the sentence, and F is the indication of the focus of the sentence ». [235] It can be demonstrated, however, that generative semantics suffers the same types of inadequacies as the presupposition-free syntax it attacks, since even a presuppositional analysis cannot account for the distribution of grammatical morphemes unless discourse phenomena are included in the analysis.

The examination of anaphoric demonstratives in Japanese require at least a presuppositional analysis to account for their distributions. For example, there is

a presuppositional distinction between *sono* (that) and *ano* (that over there); *ano* is used only when the speaker presupposes that the hearer, as well as the speaker himself, knows the referent of the anaphoric demonstrative. *Sono* is used either when the speaker knows the referent, but presupposes the hearer does not, or when the speaker does not know the referent.

(3) Kinoo Yamada-san ni hazimete aimasita. *Ano* (**sono*) hito, zuibun kawatta hito desu ne.
I met Mr. Yamada for the first time yesterday. That man is a very strange person, isn't he?

*Ano* is used to refer to Mr. Yamada because the speaker presupposes that the hearer knows Mr. Yamada. If the speaker does not have this presupposition, *sono* is appropriate [1].

To describe the distribution of *sono* and *ano* requires more than this, however. It also requires that discourse phenomena be taken into account. The first mention of a subject known to both the speaker and the hearer requires *ano*, as illustrated above. Repeated reference to this subject tends to condition a switch from *ano* to *sono* precisely because of its linguistic setting, or position in a discourse. Thus, examine (4):

(4) Kinoo Tookyoo de otomodati ni aimasita. *Ano* hito wa ima nihon-ginkoo ni tutomete-iru to iimasita.
[ *ano* / *sono* ] hito wa konogoro kibun ga you nai kara, otaku ni tomatte-imasu.
Tokorode, [ *ano* / *sono* ] hito wa ato de mo omosiroi monogatari o hanasimasu.
I met your friend yesterday in Tokio. He (i.e. that man) said he is working for The Bank of Japan now. Since he (i.e. that man) hasn't been feeling well lately, he's staying home. By the way, he (i.e. that man) still tells interesting stories.

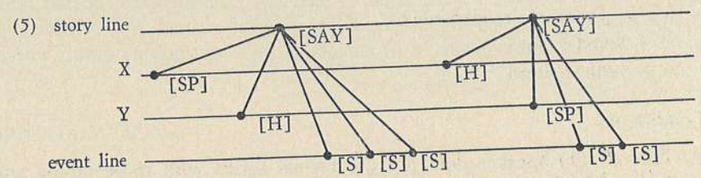
The first occurrence of the anaphoric demonstrative is *ano*, because the speaker is aware that the hearer knows the referent. The second and third occurrences of the demonstrative can be either *sono* or *ano*, because of the position of the demonstrative in the discourse and in spite of the presupposition involved in its original use.

Thus far, it has been maintained that previous approaches to linguistic description which do not incorporate discourse analysis are inadequate. Two examples from Japanese have been presented to indicate the failure of sentence grammars to account for syntactic phenomena. In each case it was shown that the effect of discourse is to constrain sentence structure in some way. Now, several more areas will be discussed, all of which have been incompletly described within the framework of sentence grammars. It will be shown that the only method of accounting for these facts is within a framework which accounts for discouse structure.

## GENERAL FRAMEWORK

The general framework in which sufficient bits of information can be incorporated is an analysis which captures the fact that in every speech act there is a speaker and a hearer. This analysis resembles in many respects the proposal advanced in Ross (1970) concerning performative verbs, although there are a few substantial differences between this proposal and his. First, Ross' analysis is designed for a grammar of sentences. As such, it is necessary to postulate a performative clause of the type [I SAY TO YOU S] as underlying each individual sentence. Since sentences occur sequentially in discourses such as narratives, and since these sentences have, under normal cirmustances, the same speaker and hearer(s), having to specify a performative clause in every sentence misses an important generalization and violates any criterion for simplicity. That is, if a performative clause is postulated for every sentence independently of all others, it emerges as a mere accident that the same speaker and hearer(s) are involved in a conversation. In an analysis which specifies, roughly, one performative clause per narrative, this fact becomes a part of the grammar. It will be pointed out below that it is necessary to capture this information not only for narratives, but for other types of discourses as well.

The actual form of such an analysis is presented in (5):

(5)



This abstract reticulum [following Taber (1966)] consists of two parallel lines, a *story line* and an *event line*. The story line indicates sequences of major text blocks such as paragraph, speaker alternation, etc., while the event line marks sequences of events, or sentence sequencing. The central lines marked X and Y indicate the participants involved in the conversation. The speaker is indicated with [SP], the hearer with [H], and the abstract verb of saying [SAY] is on the story line.

The reticulum provides a mechanism to show, for instance, conditions for extra-sentential pronominalization, deictic shifts in conversation, question-answer paradigms, conditions for ellipsis and topicallzation, as well as providing for honorific speech forms. There is not time to discuss all of these phenomena, nor enough time to discuss any of them sufficiently; however, two will be sketched in outline form to indicate the feasibility of such a proposal.

## HONORIFIC SPEECH

It is a well-known fact that certain languages of the world overtly mark the relationship of speaker to hearer in some way. In Japanese, this marking depends on the relationship which exists among the speaker, hearer(s) and subject of a sentence as this relationship is perceived by the speaker. This relationship may be defined along three axes: formal *vs.* non-formal forms; exalted *vs* non-exalted forms; and condescending *vs.* non-condescending forms [2]. The appropriate forms are presented in (6), while the conditions under which the appropriate forms are used are listed in (7):

[1] This observation and the example are due to Kuno (1970).

[2] The terms as well as significant insights for the formalization of these concepts are due to Harada (1970).

(6) A. *Formal vs. non-formal*

| | *Verbs* |
|---|---|
| Non-formal | tabe-ru<br>eat-pres |
| Formal | tabe-mas-u<br>eat-form-pres |

B. *Exaltation*

*Verbs* [yom-u « read-pres »]
o + yomi + ni + naru
o + yomi + ni + nar-are-ru
yom-are-ru

C. *Condescension*

*Verbs* [yom-u « read-pres »]
o + yomi + suru
o + yomi + itasu

(7) Conditions:

A. *Formal*: (1) Speaker does not use formal forms with those falling within a loosely defined group known as the in-group-this in-group includes close friends, family, etc. (2) Shift to formal style occurs when situation adds physical or psychological distance to speaker-hearer relationship (telephone, formal meeting, etc.). (3) Social superior to inferior does not use formal style; inferior to superior requires formal style.

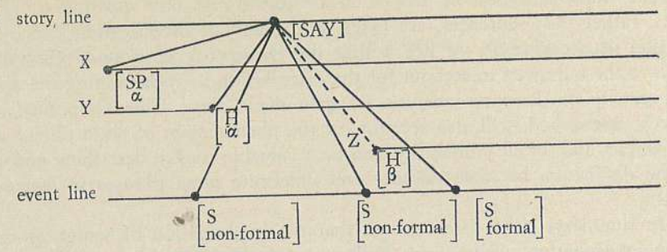
B. *Exaltation*: Speaker employs exalted expression to characterize action or state of some person if that person's social status is higher than that of speaker.

C. *Condescension*: The referent of the object (direct or indirect) of a sentence is superior to the subject of a sentence *and* the referent of the subject is superior or identical to the speaker.

To make use of this information, it is necessary to mark the relative social status of both the speaker and hearer(s) of an utterance as well as the subject and object. This is possible only if the model used for description allows a representation of the speaker and hearer(s) in the underlying structure. There are other facts in Japanese which support the establishement of a performative-type analysis, among these being male-female distinctions in particle usage and lexical selection; similarities between embedded quotations and declarative sentences; and the use of the reflexive pronoun as a first person marker. These facts are discussed in detail in Hinds (1971a). What is of interest here is the fact that it is possible to account for changes in honorific usage in the middle of a conversation if the performative type clause is posited for the entire discourse rather than for individual sentences. As an example, assume a speaker is talking with close friends, a situation in which non-formal speech is called for. This may be marked on the first occurrence of the participants in the performative clause. If, for some reason, such as a stranger entering the group, the level of formality of the situation changes. This change can be marked at the point of occurrence, and all other inrfomation about the situation remains constant. This is exemplified in (8), where [α] and [β] indicate similar and dissimilar degrees of intimacy, respectively; the convention being that similar degrees of intimacy produce non-formal [S]:



(8)




As can be seen from (5) and (8), it is possible to indicate not only shifts in speakers and formality switches; it is also possible to indicate pronominalization and definitization across sentence boundaries; a way for something like occurrences of first person pronouns in a sentence to be interpreted correctly by both speaker and hearer(s) in a conversation; and for pairs like *comego, here-there* to receive proposer interpretations by all participants in a conversation.

## TOPICALIZATION

One more area will be discussed briefly. Topicalization, or the process which isolates and marks one constituent of a sentence as containing old information, must be seen from the perspective of discourse structure. In Japanese, the post-positional particle *wa* indicates which noun phrase constituent of a sentence is the topic[3]. Ignoring many complexities which do not affect the matter under discussion, there are two constratints on the selection of a constituent for topicalizing. Either the noun phrase must be generic, or it must contain old information. In the case of generic noun phrases, it may be assumed that these noun phrases belong to a permanent registry which contains a list of those noun phrases which may freely be topicalized; for example, *tuki* (moon), *zoo* (elephant), etc. Thus, (9):

(9) Zoo wa hana ga nagai.
elephant nose long
The elephant has a long nose.

is an acceptable sentence, while (10):

(10) *Hito wa omosiroi desyoo?
man interesting tag
A man is interesting, isn't he?

is not, because *hito* (man) is not conceived of as a generic category in this instance. In addition to this permanent registry, a temporary registry must be established to allow for the topicalization of non-generic noun phrases which have been introduced into specific conversations. The second sentence in (11) is grammatical because the referent of the noun phrase had been entered in the temporary registry:

(11) Yamada-san ga tazunete kimasita. Ano hito wa omosiroi desyoo?
Mr. visiting came thate man interesting tag

Mr. Yamada visited me. He's interesting, isn't he?

[3] Other functions of *wa*, such as the contrastive use, are not considered here. For this see Kuno (1970, 1971).

The implementation of this kind of registry is only possible if discourse blocks, rather than sentences, are taken as the unit of investigation. Since the distribution of the particle *wa* lies within the framework of syntactic investigation, and since the only wey to account for the distribution is by examining the discourse, the necessity of discourse analysis is again made clear. This temporary registry, properly established, will also account for the phenomenon of noun phrase deletion in Japanese, and, in all probability, can be a valuable tool in describing and explaining the distinction between definite and indefinite noun phrases in language like English.

In summary, it has been shown that the investigation of sentences exclusive of the investigation of discourse will not provide acceptable results because the information obtained from such study is incomplete. In addition, a mechanism to indicate an abstract performative-type structure has been presented, with the suggestion that various phenomena can be accounted for with this device, Finally, specific unrelated problems have been examined, and it has been shown that the solution to each requires an analysis of discourse structure to explain the distribution of particular syntactic structures.

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# СИНТАКСИЧЕСКОЕ ЗНАЧЕНИЕ И СИНТАКСИЧЕСКИЙ СМЫСЛ

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1. В данной работе предпринята попытка, исходя из принципов системной лингвистики, развивающей бодуэновские идеи о психической сущности языковых единиц, восстановить самостоятельность нередко отождествляемых категорий значения и значимости и расщепить категорию значения на собственно значение и на смысл с целью усовершенствования средств описания синтаксического уровня языка.

2. Онтологической основой излагаемой концепции является представление о том, что денотаты (внешние объекты) отражаются в сознании в виде образов, структура которых мотивируется свойствами денотатов-прообразов, что классификация этих образов основывается на учете близости свойтсв прообразов в конкретных целесообразных видах деятельности субъекта, и что абстракция есть тоже образ, но несущий на себе только те черты, которые являются основой объединения конкретных образов в определенный деятельностный класс. Если это так, то становится очевидным тот факт, что все присущие субъекту типовые виды деятельности приводят к специфической классификации исходных конкретных образов и к выработке специфичных абстракций для каждого такого вида деятельности, и что все эти и конкретные, и абстрактные образы, являясь основой мышления, не имеют к языку прямого отношения. Но всякий раз, когда какой-либо из этих образов становится содержанием коммуникации, т.е. когда, например, говорящий желает возбудить в сознании собеседника вполне определенный мыслительный компонент, аналог которого уже возбужден в сознании говорящего как замысел, нуждающийся в подборе средств языкового выражения, такой компонент (конкретный или абстрактный образ) и следует называть с м ы с л о м использованных языковых знаков. Следовательно, смысл — категория не языковая, а собственно мыслительная, но она обязательно должна привлекаться к рассмотрению при анализе языковых семантических категорий, ибо даже в простейшем акте номинации реального или воображаемого денотата именно смысл (назовем этот смысл денотативным) является психическим означаемым использованных языковых знаков. Не следует упускать из виду, что смыслом могут быть как уникальные конкретные образы конкретных денотатов, так и образы любого уровня абстракции любого из видов типовой деятельности, не имеющие прямых прообразов на денотативном уровне.

3. Артикулируемые и слышимые единицы речевого потока будем называть *речевыми знаками*, а психические единицы, задающие команды на артикуляцию и распознавание речевых знаков — *языковыми знаками*. У членов одного языкового коллектива языковые знаки оказываются взаимно уподобленными в такой степени, что речевые знаки опознаются достаточно однозначно, несмотря на индивидуальные особенности артикуляционных и акустических органов говорящих. Выработка языковых знаков при этом осуществляется по тем же законам, по которым формируются абстрактные образы при любом ином виде типовой деятельности. Понимаемые так языковые знаки соответствуют соссюровским акустическим образам.

4. Смыслами в реальных ситуациях общения чаще всего являются уникальные конкретные образы конкретных явлений внешней действительности (денотатов). Следовательно, число этих образов принципиально безгранично и непосредственная ассоциация денотативных смыслов с языковыми (и через них — с речевыми) знаками в основной массе актов коммуникации невозможна. Мало что может дать и ситуативно обусловленная ассоциация по соходству, ибо языковые знаки отражают характеристики речевых знаков, а денотативные смыслы отражают либо конкретные черты своих прообразов-денотатов, либо «экстракт» из этих черт, важный для определенного вида деятельности, если смыслом является абстрактный образ. Следовательно, поскольку языковая коммуникация все-таки осуществляется, то должна существовать и специфическая деятельность по «подключению» языковых знаков к задуманным конкретным или абстрактным смыслам. По-видимому, именно она является основой коммуникатиной («речевой») деятельности. Но, становясь типовой, коммуникативная деятельность, как и любая иная, должна привести к классификации и конкретных, и абстрактных образов по некоторым новым, чисто коммуникативным основаниям.

5. Коммуникативная классификация и конкретных, и абстрактных образов может не иметь отношения к выделению ни существенных черт этих образов, ни значимых с точки зрения какой-либо некоммуникативной деятельности. Необходимо лишь, чтобы общие черты каждого коммуникативного класса были значимы именно коммуникативно, т.е. представляли собой наиболее броские *внешние отличия* образов одного класса от внешних отличий образов другого класса в типичных ситуациях коммуникации. Эти броские объединяющие черты также могут «экстрагироваться» и превращаться в самостоятельные абстракции, облегчающие типичную коммуникативную деятельность. И если любая такая абстракция вступает в узуально закрепленную ассоциацию с языковым знаком, то она превращается в *значение* этого знака. Сложное единство из языкового знака и его значения есть та «насквозь психичная» языковая сущность, которую целесообразно назвать *монемой* языка. Языковой знак по отношению к монеме, а также соответствующий ему речевой знак будем называть *морфемой*.

6. Так же, как и денотаты, конкретные и абстрактные образы этих денотатов могут вступать в объединения, превращаясь в еди-



ницы более высокого уровня. Одной из характерных черт этих укрупненных единиц является сеть (структура) связей и отношений между составляющими. А поскольку и укрупненные образы могут выступать в роли денотативных смыслов, то в число черт, на основании которых производится коммуникативная классификация образов, могут входить и структуры связей и отношений компонентов сложных образов. Следовательно, коммуникативная абстракция, превращаясь в значение, т.е. в означаемое монемы, может быть экстракцией не только броских черт каждого из образов некоторой совокупности, но и экстракцией броских особенностей способов связи компонентов сложных образов. Однако поскольку и укрупненные, и неукрупненные образы остаются в акте коммуникации самостоятельными представителями определенных коммуникативных классов, коммуникативная роль абстракций, олицетворяющих общие черты, присущие каждому представителю в границах того или иного класса, также остается неизменной, поэтому обе рассмотренные разновидности значений отличаются друг от друга лишь уровнем сложности денотатов, в коммуникативном же отношении (и, следовательно, в языковом) эти два вида значений и, соответственно, два вида монем и морфем тождественны и представляют собой одну категорию значений, которую можно назвать *номинативной*.

7. Любой конкретный или абстрактный образ, подлежащий языковому выражению хотя бы в акте называния, может вступить в ассоциацию с номинативной монемой, если в нем содержится такая броская черта, которая в достаточной степени подобна какому-либо из значений, т.е. обобщенному, абстрактному образу броских характеристик образов определенного коммуникативного класса. Возникшая в этом случае *актуальная* ассоциация по сходству между смыслом и одним из значений приводит к возбуждению второй, означающей части номинативной монемы, т.е. к возбуждению языкового знака, *узуально* ассоциированного с данным значением. Возбудившись, языковой знак подает команды на органы артикуляции, в результате чего появляется соответствующий речевой знак как актуальное означающее названного смысла. В сознании слушающего все процессы протекают в обратном направлении, и восприняв речевой знак, слушающий, через посредство номинативной монемы узнает, по ассоциации со значением, намек на тот смысл, который подразумевался говорящим.

8. Чем более детально желательно воспроизвести образ смысла в сознании слушателя, тем меньше шансов у говорящего подобрать такое единственное значение, восприняв которое, слушающий сможет воспользоваться им как намеком на смысл со всеми деталями, подразумевашимися говорящим. В подобных случаях возникает необходимость выбрать в называемом смысле не один, а несколько компонентов или фрагментов и для каждого из них подобрать отдельную наиболее подходящую номинативную монему. Тогда слушающий воспримет (через опознанные значения) намеки на несколько характерных узлов называемого смысла и сможет воссоздать в своем сознании образ, более полно соответствующий тому денотативному смыслу, который подразумевался говорящим.

9. Однако многомонемная номинация может соответствовать своему назначению лишь при условии, что слушающий не только правильно опознал все перечисленные номинативные значения, но и правильно соотнес роли этих значений как средств указания на фрагменты единого целостного денотативного смысла. Иными словами, слушаюощий должен правильно понять актуальную значимость каждого значения в любом конкретном акте многомонемной номинации, понять место этого значения в своеобразной структуре коммуникативных отношений употребленных монем. Следовательно, в процессе коммуникации может возникнуть потребность так или иначе помочь слушающему правильно понять эти особые, внешние по отношению к называемому денотативному смыслу, характеристики монем как членов единого целого — многомонемного имени, в котором каждая монема имеет свою долю номинативной функции, являестя когноминантом, т.е. сонаименователем заданного смысла. Так сами когноминативные отношения монем (к числу которых должны быть отнесены, например, атрибутивные отношения) могут стать объектом номинации, замыслом говорящего, т.е. особой разновидностью смысла, который можно назвать когноминативным синтаксическим смыслом.

10. Представляя собой структуру определенных отношений и значимостей монем-когноминантов, когноминативный синтаксический смысл, как и любой денотативный, имеет образную структурную природу. Поэтому, при необходимости языкового выражения когноминативного синтаксического смысла, всегда можно воспользоваться подобием между образом когноминативных структур и значимостей использованных номинативных монем и значением какой-либо иной номинативной монемы для того, чтобы назвать соответствующие когноминативные синтаксические характеристики любой монемы или их когноминативной совокупности с помощью номинативной морфемы. В этом случае языковой знак остается представителем номинативного значения, но употребленного для указания на когноминативный (например, атрибутивный) синтаксический смысл. Следовательно, коммуникативные амплуа монемы могут иногда не совпадать с ее коммуникативной ролью.

Если некоторые типовые когноминативные синтаксические образы экстрагируются из большого числа конкретных многомонемных номинаций, и, превратившись в самостоятельные абстрактные образы, вступают в узуальную ассоциацию со специализированными языковыми знаками, то в таком языке появятся — когноминативные синтаксические монемы со своими означаемыми — когноминативными синтаксическими значениями, и со своими означающими — формальными синтаксическими когноминативными морфемами, т.е. с морфемами, имеющими синтаксические амплуа, а не только роли.

11. С позиций излагаемой концепции механизма мыслительной деятельности акт познания может быть охарактеризован как акт смены образа реального или воображаемого денотата более точным, по мнению познающего, образом этого денотата, а коммуникативный акт, направленный не на простую номинацию, а на языковую передачу элемента знания говорящего слушающему сводится в конечном счете к номинации образа соответствующего денотата в



том виде, в каком он уже был зафиксирован ранее в сознании слушающего и к последующему возбуждению уточненного образа этого денотата. Для номинации нового образа может, например, понадобиться номинация старого с указанием на те черты, которыми новый образ отличается от старого. Рассмотренный переход от старого образа к новому, возникший в сознании слушающего под влиянием воспринятых речевых знаков, и следует, по-видимому, отнести к той разновидности языковой коммуникации, которую можно назвать предикацией. Последовательность языковых и речевых знаков, достаточных для акта предикации, назовем сообщением (но не предложением), а компоненты сообщения, называющие старый и новый образ — темой и ремой.

12. Ясно, что простейший акт предикации может быть основан на использовании такого сообщения, которое сводится к двум актам номинации: в первой из них смыслом является старый образ денотата, во второй — характеристики нового. Но последовательность монем, использованная в двух таких номинациях для выражения одного акта предикации, может оказаться такой, что для увеличения гарантии правильного понимания слушающим замысла говорящего со стороны последнего потребуются пояснения относительно того, какие монемы являются помпонентами темы, а какие — ремы, т.е. какова предикативная значимость использованных монем, какова предикативная структура сообщения. Эту разновидность структурных отношений между монемами в акте коммуникации назовем предикативным синтаксическим смыслом. Ясно, что, подобно когноминативному синтаксическому смыслу, предикативный смысл может не иметь специализированных монем, и тогда, в случае необходимости, предикативный смысл должен будет выражаться через номинативные или когноминативные (по своему амплуа) монемы. Но наиболее типичные предикативные структурные характеристики сообщений, т.е. предикативно значимые сети отношений последовательностей монем, могут быть и абстрагированы, стать узуальными единицами с закрепленными за ними специализированными языковыми знаками. Лишь в этом случае язык имеет предикативные значения и содержит предикативные монемы (и, следовательно, морфемы), для которых выражение, обозначение предикативных смыслов превращается в амплуа, т.е. которые превращаются в формальные выразители предикации.

13. Целесообразно называть предложениями лишь такие сообщения, которые обладают предикативным значением, т.е. целостность которых оформлена предикативными монемами. Естественно, что чаще всего такое оформление используется в тех случаях, когда и актуальная роль предикативных монем вызвана потребностью обозначения предикативного смысла. Монемы с амплуа выражения смысла темы превращают ядро темы в подлежащее, а монемы с амплуа выражения смысла ремы переводят ядро ремы в сказуемое. Группа темы и группа ремы превращаются при этом в группу подлежащего и группу сказуемого.

Однако если появляются монемы с определенным амплуа, то иногда возникает возможность использовать эти монемы и в таких ролях, которые этому амплуа не соответствуют. Как мы уже видели,

номинативные монемы могут оказаться актуальными выразителями когноминативных или предикативных синтаксических смыслов. Наличие предикативных монем делает возможным их использование « по совместительству » в роли выразителей непредикативного смысла: номинативного или когноминативного.

14. В зависимости от того, какие черты старого и нового образа предпочительно выражаются в реме сообщения в языке данного строя, типичные когноминативные смыслы в многомонемных темах и ремах могут быть различными. Если при этом для выражения и когноминативных, и предикативных смыслов в языке вырабатываются специальные монемы с соответствующими синтаксическими значениями, то в оформленных с их помощью сообщениях появляются *второстепенные* члены предложения, т.е. единицы, имеющие формально выраженные когноминативные отношения к подлежащему и сказуемому.

Выбор того, какие из синтаксических смыслов получат закреплние на уровне синтаксических *значений*, каков состав синтаксических и номинативных значений одной морфермы и т.д., определяется тем, каковы коммуникативные ограничения, наложенные на функционирование языка, т.е. какова *детерминанта* языка (сущность этого понятия излагалась автором на предшествующем конгрессе лингвистов), задающая направление адаптации языковой системы.

Очень многие сложные проблемы соотношения между *формальным и актуальным* синтаксисом получают свое разрешение с позиций изложенной концепции различения синтаксических смыслов и синтаксических значений.

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# TAXONOMY IN DEEP AND SURFACE GRAMMAR

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0. The purpose of this paper is to demonstrate the feasibility of an approach which combines taxonomic classification with the deep-surface insight developed within and without the context of transformational-generative grammar. It is hoped that the approach here envisioned will both simplify the task of the grammarian and at the same time make the results of grammatical research more significant for a variety of purposes: (1) better insight into the natural conceptual apparatus of the human mind — and hence the relation of language and thought; (2) better understanding of the process of translation from one language to another along with guidelines for translators; (3) a more adequate and concrete notion of « style » with more effective teaching of rethoric and composition within a given language. Thus a variety of concerns motivate the search for a better approach to grammar — concerns of the highest philosophical importance as well as some very practical matters of applied linguistics.

1. I sketch first the broad outlines of the approach here advocated.

1.1 Of special usefulness is a medium-depth deep structure which, while separating deep and surface constructions, does not dissolve deep structure into general semantics. Such a medium-depth deep structure is Fillmore's « case » (1968) and the other similar systems in and out TG grammar (as discussed in 2.1 below). The measure of the usefulness of such medium-depth deep structures can be judged from the intellectual excitement which case grammar has aroused. There is a basic simplicity about it all — in spite of severe problems which still remain. It must be noted here, however, that much of the simplicity and usefulness of case grammar has resulted from the fact that it is *taxonomic*, i.e. it labels and classifies medium-depth deep structures at the predication level. Furthermore, it is relevant to note that the categories of case grammar (Agentive, Objective, Dative, etc.) are not dissimilar in kind from such surface structure categories as Subject, Object, and Indirect Object; the former are more consistent and regularized version of the latter and are more on the situational than on the formal side.

1.2 Is case grammar adequate to light up all the dark corners of structure in the world's languages? This appears to be very dubious on several scores: (a) formal logic recognizes not merely the predicate calculus but the statement (or propositional) calculus. It says, in effect, that it is one thing to use a predicate with terms and something else to combine predications. Since case grammar, like the predicate calculus, confines itself to predications, it seems obviously unfitted to deal with matters such as conjunction, disjunction, and implication — not to mention many other interclausal relations found in natural languages. (b) Neither the predicate calculus nor the statement calculus can describe repartée, i.e. the structure

of dialogue. Here a further apparatus is needed. (c) In relation to the structure of narrative there has long existed the scheme of classic rethoric which articulates a plot into some such structure as the following (Thrall and others, 1961, pp. 156-158): Exposition, Inciting Moment, Rising Tension, Climax, Denouement, Final Suspense, and Conclusion. It seems to me very probable that this is the deep structure of climatic narrative which may also have (in a given language) a characteristic surface structure — involving a formally marked PEAK which correlates with deep structure Climax and/or Denouement. (d) There also exists ways to qualify verbs in respect to a variety of features: (1) Directional - especially *to* or *from* the speaker-hearer; (2) Time qualification (inception, duration, termination, repetition, perfection, and immediacy); (3) Modality (desire, intent, ability, factuality, obligation); (4) Positive-negative considerations (negation, quasi-negation, affirmation; (5) Introduction of further dramatis personae as causer, permitter, helper, etc. In that all these relations are expressed as verb affixes or auxiliary verbs in a great many languages it seems somewhat unnatural and forced to interpret them as deep structure predicates according to the predicate calculus.

What then? It seems obvious that we need an extensive universal apparatus of deep structure with ascending levels: (a) increments (in (5) above), (b) predications, (c) propositions, (d) repartée, and (e) plot. This universal deep structure apparatus should be taxonomic, i.e. it should label and classify on these various levels just as case grammar labels and classifies on the predication level. Carefully done, such a study would amount to the natural apparatus of human thought as reflected in the world's languages.

1.3 While it is necessary to develop such a universal and comprehensive scheme of deep structure, it is equally necessary to explore and describe in detail the surface structures of the various languages of the world. Here variety rather than uniformity is the order of the day. This is why years ago, Eugene Nida (1949, p. 1) stated that it would be well if the linguistic investigator could adopt « the man from Mar's attitude » towards the next language that he studies. This much-criticized remark of Nida's is simply a way of reminding us that the next language that we study reserves the right to present us with a few idiosyncracies that may have no real parallels in our previous experience. While the linguist should not degenerate into a mere collector of linguistic curios, it is nevertheless true that a proper part of his responsibility is to catalogue the range and fullness of surface structures found around the world. If this is formidable — so is the task of the entomologist who has probably catalogued only about 1/10 of all the world's insects.

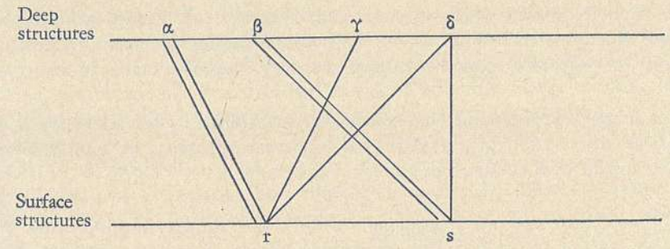
Surface structures are of further importance for the simple reason that all that may be said or written in a given language must be poured through them as molds. The speaker and writer are utterly shut-up to the surface structure of the language in which they operate.

Finally, surface structures are important because they superimpose meanings of their own upon the deep structures that they encode. This is self-evident in that it has long been claimed that any change of wording makes for at least some difference of sense. Constructional meanings are, however, powerful sorts of overriding meanings. Thus, in a language like Inibaloi (Philippines) there is a possibility of encoding deep structure chronological succession in a surface structure Simultaneous Sentence (for these and other Inibaloi data, see Ballard and others 1971a, 1971b). What sense results when surface structure Simultaneity is superimposed on deep structure Succession? The result is *close or immediate succession*. Therefore in such a situation of deep-surface tension, the conjunction *jey* which typically means « at the same time » or « while » comes to mean « about the time that » or « as soon as ». Likewise, in English, deep structure Contrast may be embedded in a Coordinate Sentence (instead of in an Antithetical Sentence, see below). The superimposition of Coordination on Contrast gives a meaning of *latent, de-emphasized contrast* (perhaps even understatement) as in « She's a queen and he's a bum » rather than « She's a queen but he's a bum ». Again, as we shall see below Negated Antonym Paraphrase with negation in the first base is in English encoded in an Antithetical Sentence. Here, where Antithesis is imposed over Paraphrase the resultant meaning is *focus on the antonyms*: « He's not dead, but on the contrary, he's quite alive » — where « not dead » and « alive » are equivalent but the surface structure antithesis focuses attention on the dead-alive contrast.



1.4 This view of deep and surface structure does not reduce either simply toto beginning point or end point in a chain of operations. Each is of intrinsic interest in its own right. It neither perpetuates the early structuralist and tagmemicist preoccupation with surface structure to the exclusion of deep sructure (or confusion of the latter with the former) nor does it equate « surface » with superficial and « deep » with more relevant — a built-in danger in the very use of the terms. Furthermore *choice* is preserved in the surface structure by insisting that the use of one such structure against another — when both may encode the same deep structure — is an *option* rather than simply a natural result of the deep structures involved. Apparently *choice* must be kept sight of if we are to account for style and for the greater effectiveness of one competent speaker as opposed to another. We do not therefore, for example, want to load the deep structure with dummy symbols so as to determine within the deep structure all choices of one surface structure against another.

1.5 One of the primary tasks of grammar will be, then, the formulation of rules concerning the relations of deep to surface structures. These rules will be essentially mapping rules of the following sort: Deep structure r primarily encodes in surface structure $\alpha$ but may also encode in $\gamma$ and $\delta$; Deep structure s encodes primarily in surface structure $\beta$ but may also encode in $\delta$. This information can be given graphically in a mapping diagram (where double line marks primary encoding):




Obviously, such a mapping (cf. Ballard and others 1971b, pp. 43-47) cannot be made without a taxonomy of both the depths and the surface. Otherwise, no points are plotted and no lines can be drawn. But if we have, e.g. identified deep structure Paraphrase (r in the diagram) and deep structure Contrast (s in the diagram) as well as surface structure Paraphrase Sentence, i.e. juxtaposed bases without conjunction ($\alpha$), Antithetical Sentence ($\beta$), Nucleus plus Cause Margin ($\gamma$) and Coordinate Sentence ($\delta$), then a mapping such as here given is possible: (1) deep structure Paraphrase primarily maps onto surface structure Paraphrase Sentence but may also map onto Nucleus plus Cause Margin and onto the Coordinate Sentence. (2) Contrast maps primarily onto the Antithetical Sentence but may map onto the Coordinate Sentence.

Such maps are language specific. Thus the above mapping is true (as far as it

goes) for the Inibaloi language of the Philippines where a deep structure paraphrase may occasionally encode as a Coordinate Sentence with medial *tan* « and ». It would probably not hold for English where there is apparently no encoding of paraphrase into a Coordinate Sentence.

1.6 Such a confrontation of deep and surface structures enables us to classify surface structures as to *relative elasticity*. Thus, in many languages there exists a Coordinate Sentence (with open-ended structure as to number of bases and with some sort of « and » conjunction) which is a *highy elastic* surface structure in the sense that is accommodates a variety of deep structures even if one such structure (usually Coupling — see below) is the reason for the existence of such a sentence type. Conversely, a Contrafactual surface structure sentence type typically is a very *rigid* or *non-elastic* surface structure which encodes only deep structure Contrafactuality. This knowledge of the degree to which a given surface structure may be stretched to cover various deep structures, as well as the knowledge as to the directions in which it may be so extended provides one check against producing an ungrammatical sentence: we may not encode within a given surface structure a deep structure which it will not accommodate. Typically such attempts at a *misalliance* of deep and surface features come about because of a carry-over of mapping rules from one language into another language where they are not applicable.

1.7 Actually, when we have formulated the rules for mapping deep onto surface structures and classified surface constructions as to their relative elasticity, we can begin to focus on more subtle and vital questions. We have associated choice of one surface structure versus another (to encode a given deep structure) with stylistic choice. Style, however, is a characteristic of discourse not of isolated sentences. Furthermore, one characteristic of good style is the achievement of artistic *unity* in a discourse. It is fair, therefore, to claim that sensitivity to the demands of context in the course of eliciting a given surface structure for a given encoding is a mark of good style. It is not simply that context dictates choice — this is an enormous over-simplification — but rather that context *delimits* the sphere of choice within which speakers and/or writers all of approximately the same level of competence must move. This whole matter of contextual constraints on choice of surface structure encoding deserves intensive investigation.

2. I now expand somewhat the matter mentioned in 1.2 above so as to better indicate the notion of the projected « natural apparatus of human thougt as reflected in the world's languages ».

2.1 Fillmore's « case » grammar (1968) and similar developments provide a natural starting point for the elaboration of the broader apparatus which is anticipated.

In the study of Philippine languages the tradition is now old (Miller, 1964; Pike, 1964; Forster and Barnard, 1968; Hall, 1969) that two sets of relations must be distinguished for these languages: (a) a set of « situational » categories — such as Actor, Causer, Goal, Site, and Instrument; and (b) a set of « grammatical » categories — typically Subject, Object, Referent, and Associative — that are indicated by the focus system within the verb morphology and often by preposed particles on noun phrases as well. It is simply impossible to analyze successfully even the morphology of a typical Philippine verb without taking account of the two sets of categories, one covert and the other overt. The similarity of the covert or « situational » categories to Fillmore's cases is such that we are undoubtedly dealing with the same concerns in both analytical traditions.

Fillmore's case system — originally distinguishing Agentive, Objective, Dative,



Benefactive, Instrumental, Factitive, Location, and a few more tentative additions — has in turn spawned a number of alternative but similar systems. In particular the term « case » itself has not proven too enduring. Thus, Langendoen (1970, pp. 59-100) distinguishes « roles », Chafe (1970) « relations of nouns to verbs » and Becker (1967) and Platt (1970) — both following Pike — talk of « grammatical meaning », as opposed to « grammatical form ». The variant catalogues of categories are different enough to alert us that more study is needed but similar enough to assure us that we are dealing with essentially the same set of relations.

Langendoen's set is in some ways the most divergent; he adds such further « roles » as Observation, Result, Cause, Partitive, Content, Source or Origin, Essive, Direction, and Movement to more familiar categories such as Patient, Agent, Instrument, and Location. One gets the impression that the set of « roles » is an open and growing one although Langendoen adds « Eventually, it will be necessary for linguistic theory to come up with a universal inventory of roles and a statement of how they may be combined into role structures, but at the moment we are nowhere near achieving such goals ». (p. 79). Chafe's set of « relations of noun to verb » is smaller, but he cautions « The suggestions below are hardly meant to be final or complete, but they may have some use as tentative hypotheses » [p. 144; here Chafe acknowledges in a footnote the stimulus of Fillmore, 1968]. Chafe's relations are: Agent, Patient, Experiencer, Beneficiary, Instrument, Complement (sang a *song*, fought a *war*), and Location. Within the tradition of tagmemics there have been various treatments besides those resulting from the study of Philippine languages. Walter Cook in a series of articles (1970, 1971a, 1971b, 1972) continue to call the relations involved « case » but says that they can serve as deep grammar for tagmemic analysis. Cook's inventory of cases is small; he apparentely, e.g. rejects *instrumental*. Pike-Becker-Platt have preferred to call the relations « grammatical meanings » of which Platt (1970) distinguishes: Agentive, Affective, Neutral (these two replace Fillmore's Objective), Inner Benefactive, Outer Benefactive, Far Outher Benefactive, Instrumental, Factitive, Inner Local, Outer Local, Far Outer Local, Participative, and Purposive. Platt's « grammatical meanings » are well worked out for English with identifying features of each one against the others. But Platt adds « There is a great temptation to restrict the number of Grammatical Meanings, and yet we may be forced to add some. An examination of Grammatical Meanings in other languages will certainly help us in assigning Grammatical Meanings in English, but this same examination will cause us to revise many tentative assignments of Grammatical Meanings » (p. 186 of ms copy).

Out of all this welter what emerges? (1) Certain deep structure relations crop up in all the lists — even if under divergent names. (2) Criteria — agreed on by various investigators — do not yet exist to guide us in setting up say seven « cases » in a given language or several dozen. (3) The difficulties are the typical ones that plague any taxonomic approach whether it be called transformational-generative grammar or tagmemics. (4) Perhaps we need to face the fact that any carefully thought out taxonomy will do provided we recognize that taxonomic classifications are not ends in themselves but are meant to be subservient to further concerns. (5) These further concerns are: mapping of deep onto surface structures; better understanding of the latter along with the meanings which result from superimposition of surface meanings on deep meanings; and the contextual constraints on choice of one structure versus another at the points where a choice is possible. In regard to the latter e.g. what contextual constraints dictate choice between the following at a given point in a narrative?

(1) The door opened silently.

(2) Someone silently opened the door.

(3) The door was opened by someone, although quite silently.
These are the broader concerns to which a viable taxonomy conduces us.

Situational categories, Cases, Roles, Relations of noun to verb or Grammatical Meaning — all these terms indicate deep structure relations which typically encode into clauses. A phrase, however, with or without overt nominalization may encode a deep structure predication: « his fear of her », « the normalization of relations », « John's coming », « experimentation ». Furthermore, a deep structure predication may encode as a surface structure sentence unit with two clauses. Thus in portions of West Africa (Pike, 1966, pp. 67-68) the only way to express instrumentality is in a close-knit two-clause unit: « he took the knife cut the bread » — which expresses not a sequence of actions but simply « he cut the bread with the knife ».

2.2 Just as clearly as we cross a threshhold in formal logic from the predicate calculus to the propositional or statement calculus so in linguistic structure we must distinguish predications from combinations of predications into larger units. Here a tentative taxonomy of interclausal relations is available (Ballard and others, 1971a, 1971b and Longacre, 1972a, Chap. 3) in two slightly differing versions (cf. also Bekman, 1970). The interclausal relations are, however, labelled as relations between poles rather than as labelled poles. Nevertheless, since the reason for labelling a noun as agentive is to trace its role relative to the verb the discrepancy in approach to predication and proposition is here more apparent than real.

The various deep structure interclausal relations have been classified into the following broad categories (Longacre, 1972a): Conjoining, Paraphrase, Temporal, Implication, Alternation, Deixis, Reporting, and Illustration. As broad categories these are not too meaningful in themselves. I therefore break them down into sub-categories and illustrate them below.

2.2.1 Conjoining is of two sorts: Coupling and Contrast. The latter turns on two-point oppositions that involve antonyms or sharply opposed situational factors; the former brings together predications without contrast, temporal relation, logical implication, or any of the other deep structures here catalogued. Typically, coupled predicates are from the same domain with same or different actors:

« She's big and she's tall »

« He paints and his wife collects postage stamps »

Parallel coupling occurs with the same predicate but systematic variation of one noun from base to base:

« All the men talk English: all the women talk English; all the children talk English »

« I spit on your coat; I spit on your hat; and I spit on your best dress »

Needless to say, English prefers here to delete repeated predicates and conjoin the relevant noun phrases — unless rethorical emphasis is desired. But in some other parts of the world, e.g. Philippines and New Guinea, such repetition is preferred.

Contrast, as we have said, is two-pointed and involves antonyms (or positive and negative values of the same predicate) and opposed situational factors:



« I went downtown but she didn't »

« I went downtown but she stayed home »

« I belong to the Establishment during the week but to the Counter-Culture over the weekend »

Here the oppositions are (a) « go downtown » versus « don't go downtown » and « I » versus « she »; (b) « go downtown » versus « stay home » and « I » versus « she »; (c) « Establishment » versus « Counter-culture » and « during the week » versus « the weekend ».

Coordinate surface structure sentences primarily encode Coupling — which is their *raison d'etre*. Contrast often encodes in some sort of surface structure Antithetical Sentence. When Contrast is encoded in a Coordinate Sentence the overall meaning — as stated above — is de-emphasized contrast or understatement.

One variety of Contrast, Exception, merits special mention here. Exception combines negative and positive values of the same predicate with peculiar first terms one of which is the universal set minus a given member and the other of which is only that member. Thus: « Everybody went to sleep except Grandfather » — where the contrast turns on « going to sleep » versus « not going to sleep » and the universal set minus grandfather versus grandfather himself. In English contrast typically encodes as a clause with an « except » adjunct rather than as a sentence.

2.2.2 Paraphrase may be considered to consist of seven sub-varieties. These varieties are needed if we are to account for the considerable variety of surface structure encoding of Paraphrase — since all varieties do not necessarily encode similarly in all languages. All varieties of Phraphrase have the same subject referent in both bases.

Equivalence Paraphrase uses synonymous expression and covers the same lexical ground twice:

« He's prejudiced; he's just plain bigoted »

« I'm fagged out; J've had it »

Negated Antonym Paraphrase uses a lexical item and its antonym but negates the antonym:

« It's not black; it's white »

« It's white; it's not black »

The position of the negated antonym is crucial to surface structure encoding in some languages. Thus in Eglish the first example is probably an Antithetical Sentence with deleted « but ». This is seen in the following two variants of the sentence:

« It's not black but white »

« It's not black but on the contrary it's white »

The rule here seems to be: when a full clause occurs in base two either delete « but » or strengthen it an in « but, on the contrary ». When the clause in the second base is deleted down to the antonym itself, « but » is retained. The second

sentence above, however, with negated antonym in base two does not tolerate « but » or any variety of it whether or not base two is deleted:

*« It's white but it's not black »

*« It's white but on the contrary it's not black »

*« It's white but not black »

It appears that Negated Antonym Paraphrase with negation in base two encodes in the English surface structure Paraphrase Sentence (Juxtaposition without conjunction).

Possibly the difference in surface structure encoding is due to a feeling that this variety of Paraphrase with negation in base one is essentially appropriate to refutation, i.e. « Someone asserts that it is black, but I assert that it is white » is the source of « It's not black [as someone claims] but white [as I claim] ». At any rate, it is plain that the surface structure of Contrast here overlays deep structure Paraphrase so that the resultant meaning is *focus on the antonyms*.

Generic-specific Paraphrase and Specific-generic Paraphrase use a more specific lexical item in one base than in the other. Both varieties of Paraphrase are needed in that they have different surface structure in some languages.

« He cooked it, he fried it in vegetable oil »

Here « fry in vegetable oil » is more specific than « cook ».

« They dug up Assyrian ruins; they did some excavation »

Here « dig up Assyrian ruins » is more specific than « do some excavation ».

Amplification and Contraction Paraphrase are similar to the two types of Paraphrase just described but depend on addition or subtraction of lexical items in the second base. Thus, for Amplification Paraphrase:

« He sang, he sang two songs »

« He was unconscious; Dabonay, a woman, had knocked him unconscious » (from Inibaloi)

For Contraction Paraphrase: « I won't go to see him, I just won't go »

Summary Paragraph uses a generic lexical term after a *series* of specifics:

« John had a hamburger, Susie had a hot dog, and Tommy a club sandwich — that's what they all ate »

Notice also the use of « that » and « they all » in summary here.

2.2.3 Temporal relations may be classified into Overlap and Succession.

2.2.3.1 Some varieties of Overlap are here briefly presented and illustrated:

(1) Coterminous:

« They weave hats as they walk along the trail »



(2) Punctiliar-Continuous:

« He glanced back as he walked on »

(3) Continuous-Punctiliar:

« While he was walking he stumbled »

(4) Punctiliar-Punctiliar:

« As I brought my head up she tossed the knife »

Here, as with Temporal Succession below, the Overlapping events may be encoded within two main clauses within a sentence nucleus or in a subordinate clause of the sentence periphery plus a main clause. Particular languages will differ as to division of functional load — or amount of functional duplication — at this point. At all events surface structures which encode Overlap tend to be binary structures — although a third base occasionally occurs.

2.2.3.2 Some varieties of Succession are:

(1) Span-Span (i.e. one prolonged activity followed by another):

« They played tennis for an hour then swam for another hour »

« After his seven year reign in Hebron he reigned 33 years in Jerusalem »

(2) Event-Span:

« He put wood in the stove then sat there for an hour »

(3) Span-Event:

« I was awake for most of the night and finally fell asleep at dawn »

(4) Event-Event(-Event):

« He sat down, took the book, and opened it »

The latter is especially common in languages which have some sort of surface structure Sequence Sentence. Often, however, such sentence types permit any sequence of Spans and Events within them provided that they are chronologically successive. Sentences which encode Succession are open-ended and may consist of any number of bases — although a binary structure, Temporal Margin plus Nucleus, often serves to encode Succession as well.

2.2.4 Implication here has three main sub-heads: Conditionality, Frustration, and Causation.

2.2.4.1 In turn, Conditionality embraces several distinct deep structures:

(*a*) Hypotheticality is a simple « if ... then » Implication with nothing implied except that the condition stated in the antecedent is essential to the consequent — whether or not the latter ever materializes.

« If she comes, I'll go »

« If she doesn't go, I won't either »

Here, again, there are varieties of surface patterning — from nuclear « if ... then » patterns with careful balancing of conjunctions to simpler arrangements which just attach a Conditional Margin (an « if » statement) to a nucleus.

(*b*) Contrafactuality is a variety of double talk. Both sides of the conditional statement are taken for the opposite of their stated positive-negative value, as in « Had he come, I would have gone » which implies that my going was contingent on his coming but he didn't come and I didn't go. It doesn't matter what the overt stated values are, the opposite is understood. Thus: « If he had come, I wouldn't have gone » tells us that the outcome was he didn't come and I did go.

Usually languages have a special surface sentence type to accomodate contrafactuality in the deep structure. Most New Guinea languages have sentence structures with elaborately distinct verb morphology at this point. English and many other languages rely mainly on use of past tense and a few devices reminiscent of interrogation or doubt. Trique (Mexico) does not have a well defined Contrafactual Surface structure for most speakers — although a few apparently use such a pattern.

(*c*) Warning presents one course of conduct as highly desirable or obligatory and predicts that the opposite course of action (same predicate with different positive-negative value) will lead to undesirable result. A full structure such as « We shouldn't let our tourches go out because if we let our torches go out we won't find our way home » is usually elided to something like the following surface structure:

« We shouldn't let our torches go out or [otherwise] we won't find our way home »

(*d*) With universal quantifier of Temporal or other term. Thus a sentence like « At any and all times that you come I'll be waiting » is commonly reduced in English to « Whenever you come, I'll be waiting ». In many Philippine languages a Concessive Margin (« even if » or « although » construction) is used with an interrogative to encode this deep structure in something like « Although when you come, I'll be waiting ».

Other terms than temporal may receive the Universal Quantifier:

« Whatever we did availed nothing »

« Everyone that went got lost »

« However we do it you criticize us »

(*e*) Still another type of Conditionality is *Contingency* in which succession or overlap involves an implication:

« I made sure he knew how to do it, then I let him work »

« You have to pay before you can occupy the room »

Here a prior event Conditions another. But the occurrence of an event may be conditioned by a certain time continuum or state of affairs during which it can take place:

« I'll marry when I have the means to support a wife »

2.2.4.2 Frustration involves Expectancy Reversal, Mistaken Idea, and Conflicting Premises — unless, indeed, the latter two eventually reduce to varieties of



the first (in which case Frustration will be equivalent to Expectancy Reversal).

(1) Expectancy Reversal is based on the breakdown of an EXPECTANCY CHAIN. The latter are varieties of customary collocations in which one predication leads us to expect the next. The basis of this expectancy may be: (*a*) a succession of actions which customarily follow each other (e.g. « set out, journey, arrive », « search, find », « waste away, die », « fall down, smash »), or (*b*) intention, obligation, or ability to act — which creates a presupposition that the action itself will ensue and (*c*) states, situations, or activities which normally imply a certain result.

All varieties of Expectancy Reversal have a common anatomy: (*a*) There are at least two links stated or implied in the expectancy chain; (*b*) There is a blocking circumstance; (*c*) There is a reversal of the positive-negative value in the second (or later) link in the clain; (*d*) There is a surrogate or substitute action. The full structure is rarely expressed but might run as follows: « I searched for it in the grass [with expectation of finding it] but my glasses broke and I couldn't find it, so I went home ». Here the expectancy chain is: « search, find »; the blocking circumstance is « my glasses broke »; the reversed value is « I couldn't find it »; and the surrogate action is « I went home ». Usually, however, some links are left out. Especially common is to find elements (*a*) and (*c*) — an expectancy chain begun with reversal of second value — encoded in an Antithetical Sentence:

« They started out for Paris but never arrived »

« I looked and looked but couldn't find it »

« I love her but I'm not going to marry her »

« It fell down but didn't break »

A blocking circumstance, when added to the above, usually is added after the « but »; the two latter clauses form an embedded Coordinate Sentence (or a Result Sentence with « so »).

« They started out for Paris but someone had slipped a time bomb into their car and/so they never arrived »

« It fell down but landed on a cushion and/so didn't break »

Sometimes, of course, the only element are (*a*) and (*b*) — the initiation of expectancy chain and the blocking circumstance:

« It fell down but landed on a cushion »

Other varieties of Expectancy Reversal have Intention to Act, Obligation to Act, or Ability to Act which set up a presumption that action will follow — only to have the action blocked and reversed:

« I intended to go, but didn t »

« I didn't intend to go, but went anyway »

« I should have gone, but didn't »

« I shouldn't have bought it, but I did anyway »

« I could have taken advantage of her, but didn't »

Still another variety of Expectancy Reversal is based on states or circumstances which imply certain consequents which do not ensue:

« He drives a car but doesn't watch the road »

« He's long-legged but doesn't run very fast »

« He has a nice family but has no concern for their welfare »

(2) Mistaken idea is essentially tripartite in structure: (*a*) it has a predicate which involves a mistaken idea regarding (*b*) the following predicate, and (*c*) that predicate with reversed value.

« I thought that the was stupid but he isn't »

« I thought that I could do it but I can't »

In some Philippine languages the verb « think » is used in the surface structure to express Mistaken Idea and the ensuing predicate with reversed value is left unexpressed. In such languages « I thought that he was stupid » implies « thought mistakenly ». In many New Guinea languages the verb « say » is used in a quotation structure which in some languages is direct speech:

« I said (mistakenly), He's stupid »

(3) Conflicting premises involves a structure in which base one implies a given consequent while base two implies the reversed value of the consequent; the two bases have incompatible consequents:

« You're big, but you're tough » — where the largeness of the animal makes the crocodile want to eat him but the toughness of the meat makes him not want to eat him.

Or a rather bizarre example from Siocon Subanon (Philippines): « She's attractive but she has no mother » — where a boy might consider marrying a girl because of her beauty can't seriously consider her unless he gains a mother-in-law in the bargain (granted a culture where the latter are appreciated).

2.2.4.3 Causation has, for our purposes three varieties: Efficient Cause, Final Cause, and Circumstance. The latter is a watered-down variety of causation that is found in many languages. Natural languages regularly distinguish Efficient Cause (which we commonly call « cause ») from Final Cause or *purpose*. Thus, in even a language like Ilianen Manobo (Philippines) (Shand, 1968) where one particle *su* serves to indicate both Efficient and Final Cause, the tense is different. Thus, in the first sentence below Efficient Cause is expressed and in the second, Final Cause:

« You came because (*su*) you were forced to »

« You came because (*su*) you were going to eat »

or more freely « You came in order to eat ».

Languages typically have a variety of ways to express Efficient Cause — both within the sentence and the paragraph. Final Cause or Purpose likewise varies



considerably as to surface encoding.

Circumstance is, as we have said, a watered-down variety of causation. It deserves a place in the catalog of deep structures simply because it crops up so often with distinctive surface structure encoding. Thus:

« In view of her delicate condition, we must be careful with her »

« In that he's doing his best, let's be patient with him »

2.2.5 Alternation of several sorts is distinguished in the world's languages.

Alternation with Excluded Middle (Exclusive Disjunction) may turn on positive and negative values of the same predicate or on a pair of antonyms.

« Either he'll come or he won't »

« Will he come or not? »

« I'll go if he comes; I'll stay if he doesn't »

« Are you going to go or stay? »

« Either he'll come right now or some other time »

Alternation without excluded middle includes more tha two terms and may hold out a variety of choices.

« Either John will come, or Mary will come, or Sue will come » — which is commonly reduced in English to: « Either John or Mary or Sue will come ».

« He'll come today, tomorrow, or next week »

In certain New Guinea languages a word such as « or » may be stated after the last base of an Alternative Sentence to imply further unstated options: « He'll come today or tomorrow or ... ».

2.2.6 Deixis was originally set up to include certain deep structures which are needed to accommodate two sentence types of Inibaloi. The Inibaloi Introduction Sentence encodes a deep structure which can be labelled Existence-Predication, i.e. we are told of the existence of someone or something and immediately given a predication concerning that person or thing:

« There was an old cow that died from the cold; we boiled and ate it »

« There was a man named Amkidit; he was the one who showed the Spaniards the way up here »

It would seem that this deep structure exists to introduce a new participant into a narrative. While this deep structure encodes as an Inibaloi sentence type, it is in many languages a common feature of discourse Stage (including Stage of embedded discourse) — where it is often developed as a paragraph in beginning a narrative.

The Inibaloi Identification Sentence encodes a deep structure which can be labelled « Predication-Equation », i.e. a predication is made and some term of the predication is equated with something else:

« The Spanish picked him up on their way, and he was the one who guided them to this place »

Again, this would seem to be a deep structure found early in discourse where it serves — possibly along with the Existence-Predication deep structure — to orient a hearer or reader to the coming narrative.

2.2.7 Reporting is of three varieties: Speech, Awareness, and Metalanguage.

Deep structure Speech most frequently encodes as either Direct or Indirect Quotation — which scarcely need exemplification. A verb of speech or thought (as inner speech) occurs in some sort of preposed and/or postposed Quotation Formula.

Awareness encodes in surface-structure sentences that use verbs of perception, recollection, and sensation in an Awareness Formula:

« I knew that ... », « I felt that ... », « I remembered that ... », « I saw that ... », « I heard that ... »

In many languages Indirect Quotation and Awareness encode in the same surface structure pattern. In some languages e.g. Agta, Philippines, (Mayfield, 1967) there are no Indirect Quotation Sentences which report Speech, only those that report Awareness. In such languages all reporting of Speech is in surface structure Direct Quotation Sentences.

Metalanguage is a variety of Reporting in which we explain a new word to someone who is either uninitiated to the universe of discourse where this word occurs or who is learning another language of which this is a vocabulary item:

> « A linguistic form which bears no partial phonetic-semantic resemblance to any other linguistic form is called a morpheme »

In some languages metalanguage is encoded in surface structure constructions that are very similar to quotations:

> « When you encounter a linguistic form such that ... you say "Morpheme". »

These varieties of Reporting — especially Speech — most commonly encode in sentence structures. Such structures are essentially bipartite: + Quotation Formula + Quotation (unless there be also an end of Quotation marker). There is a superficial resemblance of such structures to single clauses with the Quotation patterning as the object of the verb of speech. I say superficial because: (*a*) the Quotation formula coheres over against the Quotation in an immediate constituent break that is not usual in clause structure (subject + predicate versus object); (*b*) the Quotation Formula itself may be very specialized and may permute linearly in ways not characteristic of internal permutations within a clause; and (*c*) the Quotation itself is much longer and more complex than structures which normally expound clause-level object. Nevertheless, in some languages (e.g. certain of New Guinea) morphological features of nouns and verbs clearly establish that Quotation constructions are surface structure clauses. Indirect Quotations and structures which report Awareness and Metalanguage are more likely to be surface structure clauses than are Direct Quotation.

2.2.8 Illustration includes comparison and Exemplification.

Deep structure Comparison applies a common predicate to items that are not generally alike but may be considered to share a common feature: « As does A, so does B »; « As appears A so appears B ». In English we do not commonly



repeat the predicate: « She is like a rose [is] »; « She's acting like a baby [acts] ». In some languages, e.g. Trique (Mexico) the predicate must be repeated and the surface structure of comparison is very exacting, i.e. unless a surface structure predicate may be found that is applicable to both items which are being compared then no comparison may be expressed.

Exemplification makes a predication about a Universal set, then selects one member for attention:

> « Take any common garden vegetable, e.g. spinach »

> « Nations which loose the instinct of self-preservation perish. Take for example Carthage which ... »

Both Comparison and Exemplification encode on either the sentence or the paragraph level. In some languages peculiar surface features are involved in the encoding of either or both of these deep structures.

2.3 Obviously, if deep grammar concepts are to give insight into the structures of the world's languages they must developed in scope and detail. As I have tried to indicate above, work is under way in developing the deep structures at the levels of the predication and the proposition. Time and space fail to indicate further deep structure levels such as increment, repartée, and plot.

As for increment, I have indicated broadly what this term includes in section 1.2. It is not unlike what Chafe terms « inflection ». I have not, however, provided for any deep structures to accommodate what Chafe calls « derivation ». At this point, possibly we begin to involve ourself more properly in the meanings of particular lexemes. As a common sort of increment, *directionals* are worth mentioning. In many languages affixes on the verb indicate whether in addition to the lexical meaning of the stem the activity involves motion towards speaker-hearer or motion away from speaker-hearer. In other languages auxiliary verbs meaning « come » and « go » function similarly« Or « come » and « go » may be used in the surface structure as independent verbs: « Come and see » Go and tell him ». What is suggested here is that regardless of surface structure encoding — as affix, auxiliary, or full verb — these directional elements belong to a level in which they are added as *increments* to the verb of a predication. Adequate working out of the increment level of deep structure in both verbs and nouns should result in a useful taxonomy on this level.

Space fails here to consider the structure of Repartée vis-a-vis surface structure dialogue. I refer the interested reader to my presentation of this in Longacre, 1968, Vol. I, pp. 160-188. In that this study is now several years old I alert the reader that « lexical structure » in the older presentation should be read « deep grammar » or « deep structure » according to the present outlook.

I likewise refrain here from discussing *plot* as a deep level vis-a-vis the surface structure of Narrative Discourse. Again I refer the reader to a further study: Longacre, 1972b.

3. A taxonomic analysis and labelling of the deep structures found in the world's languages can and should be carried out — in spite of the many problems even in so worked over a field as case grammar. Bits and pieces of such a « universal apparatus of human thought » exist here and there in isolation in grammatical and theoretical works of varying persuasions. It is not premature or out of question to attempt a general synthesis. A useful apparatus can be compiled without making unrealistic claims as to its finality and definitiveness.

Once such an apparatus is compiled it should have considerable explanatory value relative to surface structures of languages and should help us understand the

subtle distinctions that arise from imposition of surface meanings on deep meanings. We should, furthermore, be prepared as never before to understand the structure of large *wholes*, such as paragraphs and discourses, and how they influence the structure of parts. We will be able to tell a student approaching an as yet unstudied language: « Here is what the people are saying. Now find out *how* they say it — and if possible *why* they say it that way ». The job of the translator should be simplified as well by the resultant separation of both source language and target language into deep and surface structures which are adequately systematized and related. Likewise the teaching or rhetoric and composition should be made more effective as surface structures in interplay with deep structures are understood, classified, and labelled all the way from morpheme to discourse. The greatest gain, however, will be insight into language as an index of man.

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# ZUM PROBLEM DER SYNTAKTISCHEN FORM UND BEDEUTUNG

V. J. Bisenjiek

Wenn man die grammatischen Einheiten in ihrer Bilateralität — als Einheit von Inhalt und Ausdruck — erforscht, so muß die Syntax als Satzlehre im Sprachbau eine besondere Ebene darstellen, weil die Grundeinheit der Syntax — der Satz — sich wesentlich von allen tieferliegenden sprachlichen Gebilden dadurch unterscheidet, daß er eine Mitteilungseinheit ist. Diese äußerst wichtige Tatsache wird in den syntaktischen Forschungen oft ignoriert: als satzbildende Formeinheiten figurieren in der Regel die morphologischen Formen in ihren Korrelationen und Verbindungsmöglichkeiten, und unter der Bedeutung wird oft eine abstrakte lexikalische Bedeutung verstanden. Solche Betrachtungsweise führt in vielen Fällen zu einer Diskrepanz zwischen Form und Bedeutung.

Die syntaktische Form als Ausdruckseinheit und die syntaktische Bedeutung als Inhaltseinheit auf der syntaktischen Ebene stehen in völliger Übereinstimmung, wenn man bei der syntaktischen Analyse vom Satz als Mitteilungseinheit ausgeht. Die Kommunikativität des Satzes realisiert sich als Prädikativität, die das spezifische Kennzeichen eines jeden Satzes ist, unabhängig daovn, ob im Satz ein Verb vorhanden ist oder nicht. Die Prädikativität wird ausgedrückt durch das Prädikat, das die jeweilige lexikalische Bedeutung in die allgemeine syntaktische Bedeutung eines Seins oder Geschehens einbettet.

Die relevanten syntaktischen Formmittel sind in erster Linie die positionellen und intonationellen Merkmale. Ihre Relevanz offenbart sich in den Satzgrundformen. Als Satzgrundformen (SGF) betrachten wir Satzmodelle, die situationsfreie, stilistisch neutrale, nur aus notwendigen Gliedern mit voller lexikalischer Bedeutung bestehende Aussagesätze repräsentieren.

Als situationsfrei erachten wir Sätze, deren jedes Element die Mitteilung des Neuen enthält und in denen keine Gegenüberstellung von Begriffen stattfindet.

Die Notwendigkeit eines Satzglieds wird durch die obligatorische Valenz des Verbs als des organisierenden Zentrums des Satzes bestimmt. Die obligatorische Valenz findet ihre Ausdrucksform in den Akzentformen situationsfreier Sätze: das verbgebundene notwendige Satzglied trägt immer die Hauptbetonung. So stellt der Satz || 'Vater | arbeitet im "Garten || eine SGF dar, dagegen der Satz || 'Vater | "arbeitet im Garten || geht auf die SGF des Typs || 'Vater | "arbeitet || zurück: « im Garten » ist ein entbehrliches Element, ein « freies Glied ». Diesem Unterschied in der syntaktischen Form entspricht auch ein Unterschied in der syntaktischen Bedeutung: im ersten Fall bildet das Verb zusammen mit dem abhängigen Glied eine unteilbare semantische Einheit — es handelt sich um eine Arbeit, die sich auf den Garten bezieht; im zweiten Fall ist « im Garten » eine Ortsbestimmung im vollen Sinne des Wortes — die Arbeit, die im Garten verrichtet wird, kann jede beliebige Arbeit sein.

Es gibt aber außer den freien Gliedern entbehrliche Ergänzungen, die am Satzende die Hauptbetonung tragen und also in ihrer Akzentform mit den notwendigen Gliedern zusammenfallen, z. B.: || Er arbeitet « gut ||. Um das notwendige Glied von der entbehrlichen Ergänzung zu unterscheiden, muß man den Satz derart umgestalten, daß das Verb oder das verbale Element ans Satzende tritt. In solchem Fall zeugt die Hauptbetonung auf dem verbgebundenen Glied von der obligatorischen Valenz, die Hauptbetonung auf dem Verb dagegen von der fakultativen: || ... wenn er im "Garten arbeitet || ... wenn er gut « arbeitet ||

Das hauptbetonte Glied in der SGF betrachten wir als prädikatives Glied und bestimmen die Satzteile (nächst höherliegende Einheiten als Satzglieder) aufgrund der intonationell-syntagmatischen Teilung der SGF, wodurch eine vollkommene Einheit der syntaktischen Form und Bedeutung erreicht wird. Es ergeben sich auf solche Weise ein-, zwei-, drei- und (verhältnismäßig selten) vierteilige SGF.

Die einteiligen SGF stellen Feststellungssätze dar; sie bestehen nur aus Prädikat:

(1) Es « taut ||

(2) Es ist schönes « Wetter || / Schönes « Wetter ||

(3) Der « Frühling kommt ||

(4) Es ist ein « Unglück geschehen ||

(5) Es gibt Skan"dal ||

Die zweiteiligen SGF bilden:

*a*) Subjekt-Prädikat-Sätze, in denen das Subjekt den Träger des Seins oder Geschehens bezeichnet:

(6) 'Vater | "schläft ||

(7) Das 'Stadttheater | führt den "Hamlet auf ||

(8) 'Peter | ist mein bester "Freund ||

(9) Mein Freund 'Peter | lebt in "Leipzig ||

(10) Mein Onkel 'Karl | besitzt ein "Sommerhaus ||

(11) Meinem Onkel 'Karl | gehört ein "Sommerhaus ||

*b*) Feststellungssätze, die aus notwendiger Umstandsbestimmung und Prädikat bestehen:

(12) In 'Leipzig | lebt mein Freund "Peter ||

Die dreiteiligen SGF bestehen aus Subjekt, affiziertem Objekt und Prädikat. Das affizierte Objekt bezeichnet den Träger, das Subjekt — gewöhnlich den Verwirklicher des Seins oder Geschehens:

(13) Der So 'wjetstaat | hat das Privateigentum an den Produk'tionsmitteln | "abgeschafft ||

(14) Mein Freund 'Peter | hat meiner 'Mutter | "Blumen geschenkt ||

(15) ... daß die Kollek'tivwirtschaften | ihre 'Felder | mit Ma"schinen bearbeiten ||

(16) Der Ingenieur 'Schulz | kann seine 'Aufgabe | als er"ledigt betrachten ||

(17) Der Be'trieb | schickt einen Inge'nieur | nach "Moskau ||

Die vierteiligen SGF enthalten zwei affizierte Objekte, von denen das zweite gewöhnlich eine präzisierende Bedeutung hat. Solche SGF kommen praktisch kaum in « reiner Form » vor; im folgenden Beispiel ist das erste affizierte Objekt durch ein Pronomen vertreten, weshalb der Satz aus drei Sprechtakten besteht:

Ein einziger Blick ihrer'Tochter | hatte sie ... über mein

'Einverständnis | be"ruhigt || (St. Zweig).

In allen SFG kann das Prädikat durch ein Element erweitert werden, das wir Syndetikon nennen. Den Begriff « Syndetikon » hat K. Boost eingeführt [1], doch wir gebrauchen ihn in einem weiteren Sinne: unter Syndetikon verstehen wir ein Element, das zusammen mit dem Verb ein Äquivalent des Verbs darstellt. In seiner Intonationsform fällt es vollkommen mit dem trennbaren Verbalpräfix zusammen:

Die 'Mutter | stellte das "Mittagessen auf den Tisch || (Vgl.: Die 'Mutter | trug das "Mittagessen auf ||)

/illiam 'Coax | war "Makler von Beruf || (B. Brecht)

'Elsbeth | rannte zu "Hilfe || (E. Strittmatter).

'Peter | ist seinem "Vater ähnlich ||

'Peter | ist sich seiner 'Aufgabe | be"wuBt ||

Das Syndetikon kann kein selbständiges Satzglied sein. Davon zeugt die Tatsache, daß es kein Proelement des Syndetikons gibt (das Syndetikon kann z. B. nicht « erfragt » werden).

Wenn man die primäre Segmentierung des Satzes in einer SGF auf seinen Intonationsmerkmalen basiert, wird der Begriff des Subjekts und Prädikats bedeutend erweitert und präzisiert. Diese syntaktischen Kategorien sollen nicht durch ihre morphologische Charakteristik vorausbestimmt werden. Das Subjekt kann nicht nur im Nominativ erscheinen, sondern auch in anderen Kasusformen (11). Die Koordination zwischen dem Nominativglied und dem Verb kann nicht nur eine Subjekt-Prädikat-Beziehung kennzeichnen, sondern auch eine innerprädikative. Das Prädikat kann verbal (1) (6) (13) oder nominal sein. Das nominale Prädikativglied trägt immer die Hauptbetonung. Es erscheint als Prädikativ: subjektbezogenes (8) oder objektbezogenes (16), als prädikatives Nominativglied (2) (3) (4) (11) (12), als prädikatives Objekt (5) (7) (10) (14) (15) oder als prädikatives Adverbiale (9) (17). Die Unterscheidung eines prädikativen Nominativ-gliedes wird durch das Koordinationsverhältnis zwischen ihm und dem Verb bedingt; die Opposition des prädikativen Objekts und Adverbiales äußert sich in der Opposition von Rektion und Anschließung (bei Rektion wird die morphologische Form des untergeordneten Gliedes vom Verb enfordert, bei Anschließung — durch das Denotat bedingt).

Das prädikative Nominalglied bildet mit dem Verb eine feste Einheit, die sich

[1] K. Boost, *Neue Untersuchungen zum Wesen und zur Struktur des deutschen Satzes, Satz als Spannungsfeld*, Berlin 1955, S. 44.



sowohl im Inhalts- als auch im Ausdrucksplan offenbart. In dieser Hinsicht unterscheidet sich das prädikative Objekt wesentlich vom affizierten. Die Verbindung des letzteren mit dem Verb ist gekennzeichnet durch syntagmatische Absonderung, die bei der Endstellung des Verbs bzw. des verbalen Elements zutage tritt. In dieser Position — es ist die « starke », d. h. die formunterscheidende Position für die Opposition prädikatives/affiziertes Objekt — trägt beim Vorhandensein eines affizierten Objekts das verb bzw. das verbale Element die Hauptbetonung, während es nach einem prädikativen Objekt immer unbetont bleibt. Somit fällt das affizierte Objekt in seiner Akzentform mit der entbehrlichen Ergänzung zusammen. Die obligatorische Valenz des Verbs bezüglich des affizierten Objekts offenbart sich lediglich in der Nichteliminierbarkeit des letzteren.

Das affizierte Objekt steht sowol seiner Intonationsform als auch seiner syntaktischen Bedeutung und Funktion nach dem Subjekt nah. Das wird besonders anschaulich, wenn man zwei Sätze vergleicht, von denen der eine eine dreiteilige, der andere eine zweiteilige SFG darstellt und die beide ein und denselben Sachverhalt widerspiegeln:

Peter hat meiner Mutter Blumen geschenkt.

Meine Mutter hat Blumen geschenkt bekommen.

Bei einer Passivtransformation der SGF wird das affizierte Objekt zum Subjekt:

(13') Das Privateigentum an den Produk'tionsmitteln | ist "abgeschafft worden ||

(14') Meiner 'Mutter | sind "Blumen geschenkt worden ||

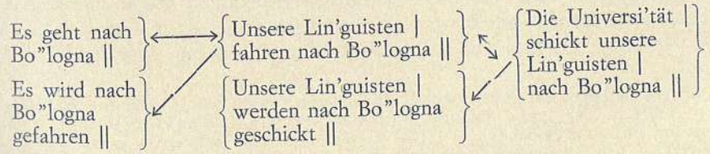
(17') Ein Inge'nieur | wird nach "Moskau geschickt ||

(In diesen Transformen wird die die handelnde Person bezeichnende entbehrliche Ergänzung weggelassen, da sie nicht in eine SGF gehört).

Das prädikative Objekt dagegen, zum Unterschied vom affizierten, bleibt in der Passivtransform ein Prädikativglied; es ändert lediglich seine morphologische Form und tritt in Koordination mit dem Verb:

(7') Es wird der "Hamlet aufgeführt ||

Somit ist die Passivtransformation im Bereich der SGF ein grammatisches Mittel der Reduzierung der SGF durch Eliminierung des Subjekts. Der entgegengesetzte Prozeß — die Entfaltung der SGF — geschieht durch Kausativtransformation, die in der Infinitivkonstruktion mit « lassen » bzw. « machen » grammatisiert ist. Beide Vorgänge stellen zwei Seiten einer Erscheinung dar, die als Derivation der SGF bezeichnet werden kann. Die Derivation der SGF kann sowohl grammatisch als auch lexikalisch sein. Die lexikalische Derivation der SGF ist ein doppelseitiger Prozeß, die grammatische dagegen — ein einseitiger, der sich als Reduzierung (bei Passivderivation) oder als Entfaltung (bei Kausativderivation) der SGF äußert:




Das Derivationsverhältnis verbindet alle SGF in ein einheitliches syntaktisches System, dessen verallgemeinertes Modell durch folgende Formel ausgedrückt wer-

den kann:

$$SGF = \{[(S_3)S_2]S_1\}P(Synd)$$

P - Prädikat, $S_1$ Subjekt einer zweiteiligen SGF oder affiziertes Objekt einer dreiteiligen SGF, $S_2$ - Subjekt einer dreiteiligen SGF oder affiziertes Objekt einer vierteiligen SGF, $S_3$ - Subjekt einer vierteiligen SGF, Synd - Syndetikon oder notwendige Umstandsbestimmung in subjektloser SGF.

Durch schrittweise Weglassung der Klammern erhalten wir die verschiedenen SGF mit oder ohne Syndetikon.

Durch Erweiterung und Situationsbezogenheit des Satzes, durch die subjektive Stellungnahme des sprechenden sowie durch den Zwang verschiedener grammatischer Formen erfahren die SGF Transformationen, in denen die positionellen und intonationellen Merkmale der Satzglieder neutralisiert werden. Deshalb sind bei der Satzanalyse solcherart transformierte Sätze auf ihre SGF zurückzuführen. Solche Analyse ermöglicht, die verschiedenen Strukturveränderungen, die sich in einem Satz unter der Einwirkung der genannten Faktoren vollziehen, als bestimmte Transformationstypen zu charakterisieren; die Kasusformen üben dabei eine distinktive Funktion aus. Z.B. im Satz « Er stellte den Gast dem Direktor vor » sind die Kasusformen die einzigen distinktiven Einheiten, die das als Thema erscheinende prädikative Objekt von dem als Rhema erscheinenden affizierten unterscheiden und den Satz als einen situationsbezogenen kennzeichnen, wo infolge des Thema-Rhema-Verhältnisses ein Platzwechsel zwischen beiden Objekten stattgefunden hat. Eine distinktive Eigenschaft besitzen die Kasusformen nur in ihrer Korrelation innerhalb syntaktischer Einheiten. Es besteht ein Korrelationsgesetz, nach welchem die Kombinationen der Kasusformen in einer SGF nur in folgender Reihenfolge möglich sind: Nominativ - Dativ - Akkusativ - Genitiv bzw. Präpositionalkasus - Nominativ. Die Kasusformen können keine syntaktischen Invarianten bilden (z.B. der Unterschied zwischen Dativ und Akkusativ in Sätzen wie « Ich danke dir/Ich rufe dich » ist vollkommen bedeutungs- und funktionslos).

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# ELEMENTARY SYNTACTIC UNITS

Anatolij M. Muchin

The question of the elementary syntactic units (syntactic microunits) is a part of the general problem of language levels which has been widely discussed of late. The solution of this general problem is connected with the establishment of the corresponding units — constructions (macrounits) within which elementary units are studied [1]. This means that the elementary units of a certain language level cannot be established without taking into account the nature of linguistic junctions (bonds, links) which exist between them within the corresponding units-constructions. To understand the syntactic junctions on the basis of which elementary syntactic units are established, it is extremely important to distinguish them from government (both prepositional and preposionless) as a lexical junction which exists between a transitive verb (verbal lexeme) and another lexeme (a complement) and is reflected in dictionaries. Government and transitivity predetermine each other: it means that transitivity is a lexical-semantic feature which should be treated within a lexical construction (phrase). Such lexical constructions as for instance *to look at the girl*, *to wait for the girl*, *to rely on the girl* are but « raw material » for clauses. Unlike them a clauses as syntactic units-constructions [2] are formally characterized by intonation and as a rule by the presence of a finite form of the verb. It is within a clause on the basis of corresponding syntactic junctions that all elementary syntactic units are established. We are going to speak about them later on.

In the structure of a most typical clause it is not difficult to establish a syntactic junction which forms the nucleus (the structural basis) of a clause. The components of the nucleus can form clause by themselves, i.e. a syntactic unit of the same kind as the whole construction. Thus, in the clauses like *she looked at the girl*, *she waited for the girl*, *she slept with the girl*, the nucleus of the clause which remains when the last component is removed, will be: *she looked*, *she waited*, *she slept*, respectively. The syntactic junction existing between the two nuclear components may be characterized firstly as nuclear (as it is established in the nucleus of the clause) and secondly as sociative (as it exists between the two components which presuppose each other). As to the third, non-nuclear component it is joined to the preceding one by means of the subordinative junction which is a unilateral syntactic junction (unlike the first syntactic junction). It is

[1] Compare for instance the remark made by P. Diderichsen in his report at the 8th International congress of linguists about the necessity to establish a unit (say: syllable, word) within which the occurrences of phonemes may be stated: P. Diderichsen. « The Importance of Distribution versus Other Criteria in Linguistic Analysis », *Proceedings of the Eighth International Congress of Linguists*, Oslo, 1958, p. 175.

[2] Clauses here correspond to constructions which are described by H. Gleason in the terms of « clause patterns »: H. A. Gleason. Jr., *Linguistics and English Grammar*, New York a.o., 1965, p. 299 ff.

just this unilateral nature of this junction that allows to remove the corresponding component (the third one in the given examples). It is especially vividly seen in the cases when an intransitive verb is used in a clause (cf. *she slept*). The effect of the experiment of removing the last component is less obvious when a transitive verb is used (one should note a different effect with different transitive verbs). Transitivity, however, cannot be considered a relevant feature on the syntactic level of language (compare what has been said earlier about transitivity as a lexical-semantic property studied within lexical constructions formed on the basis of government). The two syntactic junctions, nuclear sociative and subordinative, are reflected in the following junctional model which is the same for the three clauses given above, and forms the basis for the subsequent study of the elementary syntactic units in the structure of these clauses:



Elementary syntactic units form two layers of clause structure which may be called the surface and the deep structure of clauses. The elementary syntactic units that form the surface structure of clauses are called clause components. They are characterized by distinctive (differential) *syntactic* features which are established in the system of contrasts on the basis of syntactic junctions within each particular clause, i.e. on the syntagmatic plane. Thus, as a result of the contrast on the basis of the nuclear sociative junction in the clause *she looked at the girl* the two nuclear (N) components are characterized as predicated ($P_1$) and predicating ($P_2$), respectively .This kind of contrast is an equipollent one, as both of its members are marked (nuclear predicated - nuclear predicating). Quite a different contrast is established on the basis of the subordinative junction. It is called privative as only the non-nuclear ($\overline{N}$) component *at the girl* is marked in accordance with the unilateral character of the subordinative junction. The non-nuclear component *at the girl* is characterized as dependent (D) (as to the preceding nuclear component is is characterized on the basis of the nuclear sociative junction, i. e. with respect to the first nuclear component). The same contrasts, equipollent and privative, are found between the components of the other two clauses as well [3]. It should be pointed out that on the lexical level a preposition is only a means of expressing the government between a transitive lexeme and another lexeme and, consequently, does not belong to either of them. Yet it forms a part of an elementary unit (*at the girl*, *for the girl*) on the syntactic level. It is also worth mentioning that the transitivity of a verbal lexeme governing another lexeme (a complement) with or without a preposition, does not influence the nature of clause components which are elementary units of another (syntactic, not lexical) language level.

In accordance with what has been stated, we can construct the following componental model in which the signs show the distinctive syntactic features of the components of the three clauses given above: $NP_1 \cdot NP_2 \cdot \overline{N}D$.

The elementary syntactic units of the other kind, which are called *syntaxemes*, form the deep structure of clauses. They are characterized by distinctive syntactic-semantic features, which form their content, i. e. by the semantic features that are established on the basis of the syntactic junctions in the system of oppositions within different clauses, which are not given simultaneously in speech. To put it in a different way, these syntactic-semantic features

[3] For detailed analysis of the contrasts occurring between clause components v.: А. М. Мухин, **Структура предложений и их модели.** (The Structure of Clauses and Their Models). Ленинград, 1968, p. 108 ff.



are established on the paradigmatic plane. Syntaxemes appear in the positions of clause components (this fact predetermines close interrelation between the two stages of clause-structure analysis, i. e. between the componental and the syntaxemic analysis). Thus, comparing the syntaxemes in the position of the first, nuclear predicated component (the subject) in the three above given clauses, it is possible to come to the conclusion that all of them are substantial (Sb) syntaxemes, because they denote substances, or things. In the first and second clauses, however, the syntaxeme is agentive (Ag), denoting the doer (agent), while in the third clause the syntaxeme in the corresponding position denotes the carrier of state (*St*). Now if we compare in the similar way the syntaxemes in the position of the second, nuclear predicating component (the predicate), it is evident, that all of them are processive (Pr), i. e. they denote processes (and not substances). But in the first two clauses the syntaxeme is active (Act), denoting action, while in the third clause the syntaxeme in the same position (*slept*) is stative (St), denoting state. Finally, when comparing the syntaxemes in the position of the third, non-nuclear dependent component, it becomes evident that all of them are substantial, like the syntaxemes in the position of the first component. The difference between these syntaxemes lies in the fact that in the first and second clauses the substantial syntaxeme in the position of the dependent component is objective (Obj), denoting object, while in the third clause the corresponding syntaxeme (*with the girl*) is sociative (Sc). Furthermore, the analysis of the syntaxemes in the clauses given above shows that one of them, namely, the substantial objective syntaxeme, is represented by two variants — by a noun with the preposition *at* (*at the girl*) and by a noun with the preposition *for* (*for the girl*). The use of the prepositional variants like these two is predetermined by the lexical environment (by the lexemes *looked*, *waited*). It means that they are lexical-conditioned variants of the same invariant (of the substantial objective syntaxeme)[4]. It is worth while mentioning the importance of distribution in syntaxemic analysis, because the distribution of a syntaxeme presents its formal characteristics[5]. Thus, the agentive syntaxeme occurs together with an active syntaxeme in the first two clauses, the syntaxeme of the carrier of state occurs together with a stative syntaxeme in the third clause, the active syntaxeme occurs together with an objective syntaxeme in the first two clauses. This is reflected in the following syntaxemic models, one of them referring to the first two clauses, and the other to the third clause: SbAg. PrAct. SbObj; Sb*St*. PrSt. SbSc.

The syntaxemic models of the clauses given above testify to the fact that the notion of the syntaxeme helps to differentiate clauses more thoroughly than that of the clause component: the three clauses have the same componental model whereas the syntaxemic models are different for the first two clauses and the third one. To put it in a different way, clauses with the same surface structure may have different deep structures. In the analysis of the deep structure of clauses the transformational method is widely used. Thus, the difference between the processive active and the processive stative syntaxemes is revealed in the different transformational possibilities of the clauses or their nuclei: compare, on the one hand, the transformation of nominalization *she looked* → *her look*, *she waited* → *her waiting*; and, on the other hand, the transformations of nominalization and adjectivization *she slept* → *her sleep*, *she slept* → *she was asleep*. A clause (or its nucleus) with the processive stative syntaxeme has more transformational possibilities than a clause with the processive active syntaxeme. Such transformations are based on the fact that the initial construction (the nucleus of a clause) and

[4] On the other possible variants of a syntaxeme (syntactic-semantic invariant) v.: А. М. Мухин, **Функциональный анализ синтаксических элементов** (Functional Analysis of Syntactic Elements). Москва-Ленинград, 1964, p. 257 ff.

[5] On the syntagmatic properties of syntaxemes v. ibid., p. 272 ff.

the transform have a similar syntaxemic composition. Thus, if the initial construction *she slept* contains the processive stative syntaxeme (*slept*), in the constructions-transform *her sleep* and *she was asleep* we deal with the substantial stative (*sleep*) and the qualificative stative (*was asleep*) syntaxemes. It means that the second syntaxeme in all these three constructions has the same feature of stativeness. Something of this kind can be found in the other transformations given above: the initial constructions *she looked*, *she waited* contain the processive active syntaxeme (*looked*, *waited*), while in the constructions-transforms *her look*, *her waiting* the substantial active syntaxeme is present (*look*, *waiting*). It means that in this case the second syntaxeme in all the constructions has also a common syntactic-semantic feature (the designation of action). One can judge about the presence of the stative syntaxemes (one of which is processive, the other substantial and the third one qualificative) and also about the presence of the active syntaxemes (one processive and the other substantial) in the initial constructions and the transforms by the distribution of these syntaxemes: the stative syntaxemes are combined with the syntaxemes of the carrier of state (*she slept*, *her sleep*, *she was asleep*), while the active syntaxemes are combined with the agentive syntaxemes (*she waited*, *her waiting*, etc.) and with the objective syntaxeme as well. The latter syntaxeme would be present both in the initial constructions and the transforms if the whole clauses (not their nuclei) were transformed, cf.: *she looked at the girl* → *her look at the girl, she waited for the girl* → *her waiting or the girl*.

In conclusion, one should note that the use of transformations as a m e t h o d of e x p e r i m e n t in the study of elementary syntactic units, syntaxemes in particular, does not presuppose such an interpretation of initial constructions and transforms as is characteristic of the generative transformational grammar (cf. « kernel sentences », which are supposed to generate all other sentences). Theoretically any construction can be initial if its transformation allows to emphasize the specific distinctive features of a certain elementary syntactic unit in its structure (in comparison with other elementary unites in the structure of other syntactic constructions).

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# ПОВЕРХНОСТНЫЕ И ГЛУБИННЫЕ СТРУКТУРЫ В МОРФОЛОГИЧЕСКОМ АНАЛИЗЕ

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*Abstract*

Противопоставление « поверхностной » и « глубинной » морфологической структуры, из которых первая имеет отношение к непосредственно данным фактам, а вторая — к некоторым конструктам, стоящим, по предположению за наблюдаемыми явлениями, основано на различении реальных языковых данных и возможных способов их представления в лингвистическом описании. Обнаружение глубинной морфологической структуры сводится к стремлению найти такие последовательности абстрактных морфем, из которых путем применения серии морфонологических и трансформационных правил удается вывести реально встречающиеся словоформы наиболее простым и экономным образом. Хотя понятие « простоты описания » еще нельзя считать вполне определенным, становится все более очевидным, что поиски максимально простого из возможных морфологических решений являются оправданными лишь в том случае, если « простота » оценивается с точки зрения степени обобщенности предлагаемого анализа (т.е. если решение считается тем более простым, чем более общий характер оно носит). В конкретных случаях « более сложное », на первый взгляд, описание (например, постулирование правил, требующих для перехода от глубинной морфологической структуры к поверхностной большего числа « шагов », чем это необходимо при альтернативном морфологическом анализе) может оказаться предпочтительным, если такое описание вскрывает общие закономерности данной морфологической системы и, таким образом, имеет большую « объяснительную силу ». Так, например, в поверхностной структуре словоизменительных форм некоторых литовских глаголов наблюдается совпадение реального вида основы, выступающей в формах наст. времени, с реальным видом инфинитивной основы, в то время как в формах прош. времени фигурирует другой альтернант (это, по-видимому, является причиной иногда встречающихся общих формулировок относительно противопоставления основ « прошедшести » и « непрошедшести » в литовском спряжении). Так, в инфинитивной и презентной формах может фигурировать твердая основа в противоположность мягкой претеритной (ср. *nešti, nešu - nešiau* и под.); краткому вокализму презентных и инфинитивных дорм может противостоять долгий вокализм претеритных форм (ср. *karti, karia - kore* и под.); « презентно-инфини-

тивная » и претеритная основы могут различаться наличием/отсутствием метатезы конечных согласных (ср. *trokšti, trokštu - troškau*) и т.д. Наиболее простой анализ примеров подобного рода (если рассматривать их в изоляции от всей системы глагольного словоизменения) состоит в признании грамматической альтернации, зависящей от того, присутствует ли в заданном грамматическом значении элемент « прош. время », и в установлении соответствующего правила, перекодирующего исходную основу в другой грамматический альтернант. Однако с точки зрения общих морфологических и морфонологических закономерностей литовского спряжения оказывается целесообразным противопоставлять презентную основу основам остальных глагольных форм, а « инфинитивную » и « претеритную » основы (если они различаются) рассматривать как предконсонантный и предвокалический варианты единого « непрезентного » альтернанта основы (хотя такое решение и предусматривает введение « лишнего » морфонологического правила, позволяющего осуществить переход от одного из этих вариантов к другому).

В настоящем сообщении вопрос о соотношении поверхностных и глубинных морфологических структур рассматривается на примере модели литовского глагольного словоизменения (в рамках предлагаемой модели удается синтезировать реальные глагольные словоформы путем регулярных преобразований глубинных морфологических структур, получаемых применением правила, по которому заданной совокупности значений ставится в соответствие определенная цепочка « идеальных » морфем; необходимое на уровне « поверхностной » морфологии условие заданности минимум двух форм (инфинитива и 3 л. наст. вр.), а для значительного числа так наз. « неправильных » глаголов и условие заданности списком, заменяется при этом условием заданности одной исходной основы; индивидуальным для каждого времени (а внутри каждого времени — для разных типов спряжения) наборам лично-временных флексий соответствует в предлагаемой модели единый для « всех времен и спряжений » набор личных окончаний и набор стандартных временных морфем, набор личных окончаний и набор стандартных временных морфем, ной основы).

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# RAPPORTS LEXICOMORPHOLOGIQUES

Pier Eringa

## I. Accord

En grec attique le cardinal « hén » comporte le trait lexical désignant « un », trait opposé à celui que les autres cardinaux ont en commun et qui désigne « plus d'un ». De l'autre côté le singulier y est un trait désignant également « un » par opposition au pluriel désignant « plus d'un ». Le duel n'est qu'une espèce du pluriel. Or le trait lexical d'unité se construit avec le trait flexionnel d'unité à l'exclusion du trait de pluralité. Voilà un cas d'accord lexicomorphologique. De même dans l'idiome néohellénique il s'agit d'un accord de deux traits d'unité dans « éna ». Comparez avec « una castra » en latin, « these ones » en anglais, « die Einen » en allemand, « les uns » dans la graphie française. Dans les idiomes anglais et néerlandais un chiffre tel que « 1 », « 2 » etc. présente tant le pluriel que le singulier: « 1's », « enen » à côté de « 1 », « één ». Mais le cardinal néerlandais « één » s'accorde avec le singulier à l'exclusion du pluriel de même qu'en grec.

Nous dirons qu'un trait *b* s'accorde avec le même trait *b*, si *b* se construit avec *b* à l'exclusion du trait opposé *bêta* ou de *zéro* trait.

Quant à la syntaxe les deux traits lexical et flexionnel propres au grec « hén » s'accordent avec le singulier des noms et des verbes. Le grec a lexicomorphologisé un accord d'unité, d'origine syntaxique tel que « un cent » dans « hekatón ». D'une part « he » désigne lexicalement l'unité, d'autre part « katon » est mis au singulier comme en latin le sont « centum » et « mille », singulier qui désigne l'unité flexionnellement.

En français « on » est un pronom personnel. Il désigne une personne et, à part son cas sujet, il se met au singulier. Voilà encore l'accord lexicomorphologique d'unité. Ce qui compte pour cet accord c'est l'unité de l'ensemble, il nie aucune pluralité de parties et de participants. De même « autrui » désignant emphatiquement l'autre personne, accentuation solennelle qui manque à « l'autre »/« les autres ». Mais ce n'est pas tout: « l'on » et « autrui » ont en commun que deux traits identiques désignent l'indication, que la personne est indiquée par un geste du sujet parlant. Le trait dictique s'y construit avec le même trait dictique à l'exclusion de zéro, bref il s'agit d'un accord dictique. C'est d'origine un accord syntaxique d'unité, à savoir de singulier et un accord d'indication que « l'on » a pronominalisé et morphologisé. Comparez avec « l'homme »/« les hommes ». Et encore en allemand « man » avec « der Mann »/« die Männer », « den Mann » etc. « Man ist », « on est ».

Dans l'anglais « woman-teacher » nous avons affaire d'un côté à une lexicalisation d'un accord syntaxique de deux traits lexicaux désignant une personne de même que dans « femme docteur », « bourgeois-gentilhomme » etc., de l'autre côté

à une morphologisation d'un accord syntaxique de deux traits flexionnels d'unité, de deux singuliers. Mais dans la graphie française de « toujours » un accord syntaxique d'un trait lexical de pluralité et un même trait flexionnel se sont lexicalisés: l'anglais « always » présente le même accord lexical de pluralité. A part l'accord lexical de personne dans « women-teachers », il s'agit ici d'un accord syntaxique de deux pluriels, accord de traits flexionnels de pluralité morphologisé. Un même accord s'est lexicalisé dans le verbe « zyeuter » en français.

Dans « plusieurs » il est question d'un double accord lexicomorphologique. Commençons par signaler les deux traits lexicaux identiques: « plusieurs » et « plupart » ont en commun le trait de priorité, ici priorité arithmétique, statistique, ce qui implique pluralité. Mais ce même trait lexical est commun à « plusieurs », « supérieur », « meilleur », « plus bon ». En somme « plusieurs » comporte une réduplication du trait lexical de priorité, ici d'ordre arithmetique, bref de pluralité. Continuons par noter la réduplication du pluriel. C'est qu'un phonotype fricatif, indifférent à l'opposition de labialité/dorsalité de /f/ et /v/ d'un côté, de l'autre /š/ et /ž/ et sonore par opposition à /s/, /f/, /š/, bref /z/ sert dans une foule de positions autres que dans « pay/z/an », « pai/z/ible », « un mauvai/z/ élève » etc. à exposer le pluriel ou à compléter l'exposition. Or, comme cet exposant de pluralité, d'origine flexionnelle est devenu exposant de pluralité dans /z/yeuter, il l'est devenu dans « deu/z/ième », « troi/z/ième », dans « si/z/ième », « di/z/ième », dans « on/z/ième ... sei/z/ième ». Mais les procédés morphonologiques sont différents. D'un côté l'accord de pluralité est constamment exposé dans « on/z/e », « on/z/ième » etc. sans qu'il soit question de liaison, de l'autre il n'est pas exposé par la substitution de la sonorité de la fricative labiale /v/ à la sourdité de /f/ dans « neu/f/ », « neu/v/ième ». En revanche la substitution de /z/ à /s/ ou à zéro et qui sert à exposer la pluralité flexionnelle et à révéler l'accord lexicomorphologique est un cas spécial de liaison. Dans les signifiants de « deux », « trois », « quatre » il remplace zéro, dans ceux de « six » et de « dix » il se substitue tant à /s/ qu'à zéro: « si/-/ », « si/s/ », « si/z/ » etc. De même, enfin, « plu/-/ », « plu/s/ », « plu/z/ » dans « plupart », « surplus », « plu/z/ieurs ». C'est la syntaxe qui conformément aux procédés de liaison révèle l'accord lexicomorphologique de pluralité caché par la graphie et notamment par l'ordinal « quatrième ». Tel « quatre/z/ enfants », et encore « plu/z/ieur/z/' enfants » où deux fois la priorité quantitative, le trait lexical de pluralité et deux fois le trait flexionnel également de pluralité et leur accord sont exposés. — Notons qu'en grec, « prôtaton » en comparaison de « prôton », ainsi que « prôtiston » et aussi « arísteron » en comparaison de « áriston » répètent lexicalement le trait de priorité. Comparons encore en latin « minus » et « minister », « magis » et « magister ».

On vient d'observer qu'en anglais et en néerlandais les chiffres se mettent au singulier et au pluriel: « one 1 », « één één »/« two 1's », « twee énen », « one 7 », « één zeven »/« two 7's », « twee zevens ». En néerlandais le pluriel d'un cardinal tel que « zevenen », pluriel de « zeven » s'oppose à celui du chiffre « zeven », à savoir « zevens ». Mais il ne s'agit que de constructions syntaxiques préfabriquées: dans « in zevenen » il est question de parties, dans « met zyn zevenen » de participants. Ici donc accord lexicomorphologique de pluralité à l'exclusion du singulier et qui s'oppose à un même accord d'unité dans « in zyn ééntje » où le diminutif du cardinal « één » est obligatoire. En revanche le latin oppose constamment l'accord de pluralité de « duo », « tria » à la pluralité purement lexicale de « quattuor » etc. tandis que le grec oppose ce même accord dans « tría » et « téttara » en attique ou « tésera » en grec contemporain à « pénte » etc. sans pluriel flexionnel: « tésera pedhjá » c'est « quatre/z/ enfants ». Passons sous silence les cardinaux latins et grecs qui comptent plus d'une centaine et qui, à l'exception de « mille », présentent cet accord par opposition aux cardinaux indéclinables quant à genre, nombre et cas, comptant les dizaines. Et encore les milliers comptés en grec. Ce n'est donc



pas l'unité d'un ensemble de centaines ou de milliers qui compte, ce sont les unités réparties sur des dizaines de dizaines, bref centaines dont la pluralité compte pour l'accord lexicomorphologique de pluralité et syntaxiquement les deux traits de pluralité s'accordent avec le pluriel des noms et des verbes. Autrement que le grec, le latin possède ses noms de nombre distributifs. Or, tous les distributifs ont le même accord que « duo », « tria », « ducenta » etc. et en surplus « pleraque », non seulement « bina », « terna », « quaterna » mais avant tout « singula ». Ils désignent un « multiple » de « un » ou de « plus d'un ». C'est ce « multiple » impliquant la pluralité qui s'accorde avec le pluriel et syntaxiquement ces deux traits lexical et flexionnel s'accordent avec le trait flexionnel de noms et de verbes mis au pluriel.

Dans les idiomes des anciens Grecs il est question d'un accord lexicomorphologique de dualité, espèce déterminant la pluralité, cela à l'exclusion de tous les autres traits cardinaux, à savoir dans « dúo » ou « dúō ». De même « ámphō » se met au duel tandis que le latin « ambo » se met au pluriel tout court ainsi que le latin « duo » faute de duel flexionnel. Il est clair que l'accord syntaxique exclut aucun singulier du verbe ou du nom. D'autre part nous venons d'avancer qu'un accord de deux traits lexical et flexionnel, accord d'origine syntaxique s'est lexicomorphologisé dans le grec « hekatón », « un cent ». Or, c'est un accord syntaxique de deux traits flexionnels de dualité dont l'un s'accordait déjà avec un trait lexical de dualité que le latin « viginti » et le grec « eíkosi » ont complètement lexicalisé, c'est pour ainsi dire « deux dizaines » mis au duel, tant « deux » que « dizaines ».

L'interpénétration diasynchronique d'idiomes, apparentés ou non quant à leur(s) genéalogie(s), rend difficile, sinon impossible une délimitation de telle ou telle structure idiomatique. Au point de vue sociographique (plutôt que « géographique ») les oppositions idiomatiques se répartissent d'une façon, disons, capricieuse sur les structures respectives et notamment sur les individus qui les portent avant tout mentalement. Idiomatique implique à la fois sur-individuel d'un côté, de l'autre non-universel. Or c'est en général l'idiome donné qui décide ce qui relève de sa propre structure, ce qui la constitue. Et ce sont les constructions telles que l'accord, le désaccord, les catégories de rection de termes opposés qui pourront révéler les oppositions mêmes. Quoi qu'il en soit, ici il suffit d'accentuer que c'est l'idiome donné qui décide si l'unité de l'ensemble compte ou bien si c'est la pluralité des parties qui le fait. (Thème analogue à celui de mon livre « Het phonologische quantiteitsbegrip », éd. E. J. Brill, Leiden, Pays-Bas, où il s'agit de la quantité idiomatique d'ordre phonologique.)

Dans le grec « pân » l'unité de l'ensemble s'accorde avec le singulier, dans « pánta » la pluralité des parties s'accorde avec le pluriel. Dans « ámphō », duel lexical et duel flexionnel de « pánta » c'est la dualité des parties, qui compte de même que dans l'anglais « both », mais non pas l'unité de l'ensemble. De là accord lexicomorphologique de nombre dans « pân », « pánta », « ámphō », constructions qui révèlent les oppositions idiomatiques des traits d'unité de l'ensemble, de pluralité des parties, de dualité des deux parties. Les duels lexical et flexionnel manquent aux numéraux indéfinis, disons, pronoms de nombre « póson » et « pósa »: l'unité de l'ensemble mesuré, bref celle de la dimension compte pour l'accord d'unité dans « póson », la pluralité des parties compte pour l'accord opposé dans « pósa ». A « pân » s'opposent tant les deux opposés « pâs » et « pâsa » que les deux paires d'opposés parallèles « pâs » et « pánta »//« pâsa » et « pâsan » d'un côté, de l'autre parallèlement « pánta »/« pántes » et « pâsai »/« pántes » et « pántas »//« pâsai » et « pásas » tandis que « ámphō » est indifférent à « pántes » et « pántas »//« pâsai » et « pásas » de même que « pánta », mais avant tout à l'opposition de « pántes » ou « pántas » et « pâsai » ou « pásas » à « pánta ». Le paradigme décide que c'est la pluralité que la désinence en /-a/ expose dans « pósa » et dans « pánta », ce qui mène à l'accord lexicomorphologique de pluralité: l'idiome

a choisi la pluralité des parties dans « pánta » et « pósa » par opposition à l'unité de l'ensemble dans « pân » et « póson », cela malgré les idiomes préhistoriques et malgré le désaccord syntaxique où les traits lexical et flexionnel de pluralité propres à « panta » et à « pósa » et en général ce même trait flexionnel du neutre mis au cas direct se construisent avec le sujet du verbe mis au singulier, notamment dans « pánta rrhê ». De même que « pâs » s'oppose à « pántes », de même l'idiome français oppose l'accord de « tout le monde » et celui de « tous ». Autres exemples. Le titre grec « vasiléfs » est actuellement le privilège du Roi des Grecs, l'état néohellénique c'est Lui, de là l'accord d'unité, mais le pluriel « Vasilís » désigne la Famille Royale de la Grèce, dont le nombre des Membres compte pour l'accord de pluralité. Comparez avec « vasiljás »/« vasiljádhes », « roi(s) » en général mis au singulier et au pluriel. En grec épique c'est l'unité du peuple entier qui compte pour l'accord d'unité dans « lāós » et c'est l'unité de la cavalerie prise dans son ensemble dans l'attique « híppos ». Mais dans le pluriel « lāoí » ce sont les gens qui participent au peuple qui comptent pour l'accord de pluralité de même que les chevaux et specialement les deux chevaux qui respectivement participent à l'équipage dans « híppoi » et spécialement dans le duel « híppō ». A vrai dire, il s'agit dans « híppos » ainsi que dans « kámēlos » d'une vue proche d'une partie. L'idiome omet les caliers. De même « híppoi » et « hippō » qui omettent la voiture et par conséquence le chevalier et son automédon. Et autrement que le latin « bigae » ils ne comportent pas le trait lexical de dualité en dépit du duel flexionnel de « híppō ». Comparez avec « ósse » où la paire des yeux s'accorde avec la dualité flexionnelle à l'exclusion du pluriel tout court. En revanche ni le trait lexical ni le trait flexionnel de dualité ne s'accordent syntaxiquement avec le duel du nom ou du verbe. C'est tantôt le duel, tantôt le pluriel mais à l'exclusion du singulier. Cela montre que la dualité n'est qu'une espèce de pluralité. Même « dúo » et « ámphō » s'accordent syntaxiquement avec le pluriel du nom ou du verbe, pluriel tout court ou bien déterminé par le duel facultatif. Cependant le grec a tout simplement « híppos », « híppoi », « hippō », « cheval », « chevaux », « deux chevaux ». En latin « bigae » et « quadrigae » présentent un accord lexicomorphologique de pluralité quant aux deux ou quatre chevaux qui participent aux attelages. Ici l'idiome n'omet pas les traits lexicaux cardinaux « deux » et « quatre ». Dans « plēiádes » et dans « huádes » même accord, mais sans que les déesses qui participent aux constellations soient dénombrées par « sept » ou « trois ». En revanche dans « septemtriones » les sept étoiles participant à la constellation représentant une charrue tirée par deux boeufs de labour sont dénombrées mais la charrue et le nombre de cinq étoiles sont niés ainsi que la dualité commune aux deux autres et aux boeufs. La surface de l'idiome ne réflète pas toutes les profondeurs célestes. Mais voilà un accord de deux traits lexicaux de pluralité et un trait flexionnel de pluralité. L'idiome latin a décidé que c'est la pluralité des parties (non pas l'ensemble des boeufs et son unité) qui comptent pour l'accord. En revanche c'est l'accord de l'unité flexionnelle et celle du sacrifice d'une centaine de boeufs dans « ekatónbē » en grec épique.

Ce n'est pas moins vrai des traits lexicaux désignant une classe en général, non pas subdivisée en sous-classes spéciales. Tels les substanfis « hunting » etc. en anglais, « Wandern » etc. en allemand, qui ont emprunté un trait verbal lexical tout court sans aucune détermination, bref des substantifs verbaux. Tels ceux qui ont emprunté un trait de qualité, trait lexical propre à un adjectif: « to euthù », le droit » et « to strongùlon », « le rond » en attique, et encore « to hòsion », « le sacré ». Tandis que les Grecs contemporains mettent leur langue au pluriel « eleniká », les anglais et les allemand la mettent au singular, « Greek », « Griechisch »: là accord de pluralité grâce au nombre des éléments, ici accord d'unité grâce à l'unité de l'ensemble. En anglais « coffee » présente l'accord d'unité. C'est l'unité de la classe. De même « wine », vin en général. Mais dans « wines » c'est la pluralité



des sous-classes, parties de l'ensemble. Comparez « métal » et « métaux ». La diagnose d'une maladie telle que la pétite vérole n'est pas toujours identique: en anglais c'est « small-pox », en allemand ce sont « Blattern » ou bien « Pochen ». Accord d'unité en anglais, de pluralité en allemand. Mais accord d'unité dans l'allemand « Gehirn », accord de pluralité dans la néerlandais « hersenen » ou « hersens ». Ici la pluralité des parties cérébrales, là l'unité de l'ensemble cérébral. En italien c'est le nombre des parties du corps vivant qui compte pour l'accord de pluralité dans « membra », « corna », « ciglia », « labbra », « braccia », « ginocchia », « ossa ». Comparer avec « membro »/« membri » etc. « osso »/« ossi ». Autres examples: en latin « artūs », « fauces », « cervices », « viscera », « praecordia », « renes ». Dans l'italien « suola », et dans « exta », « exuviae », « arma », « spolia » en latin il s'agit d'une expansion du corps vivant ainsi que dans « housers », « knicherbockers », « spectales » en anglais. Nous venons de citer le grec « ósse », un des rares cas oú la dualité lexicale et la dualité flexionnelle s'accordent, donc la pluralité dont la dualité n'est qu'une espèce. Or il est aussi question de paires, c'est-à-dire chaque fois deux parties d'un ensemble, dans « spectacles », « trousers », « scissors », « tongs », « pincers », « nutcrackers », dans « suola », « ginocchia », « braccia », « labbra », « ciglia », « corna »; dans « bigae », « triones », « quadrigaegae », « valvae », « renes ». L'attique a tant « allélōs » que « allélō ». Dans les deux cas l'accord de pluralité due à la mutualité des uns et des autres et de l'un et de l'autre exclut le singulier, le duel étant facultatif de même que dans « híppoi » et « híppō ». Or c'est encore la mutualité qui compte pour l'accord de pluralité dans des relations bilatérales ou multilatérales désignées par « epulae », « nuptiae » « inimicitiae », « indutiae », « insidiae », « vigilae », « comitia » en latin; par « Geschwister », « Gebrüder »,« Wirren »,« Kriegs — und Friedensläufte » en allemand; par « politics » en anglais et peut-être par « thanks ».

Dans l'idiome latin le trait du vocatif est un trait flexionnel qui désigne que le sujet parlant s'adresse à une personne masculine. Alors le trait lexical de personne masculine et le trait flexionnel d'une personne masculine interpellée s'accordent en partie, ainsi dans « Dive! », « domine! », « amice! » etc. Voilà un accord lexicomorphologique de personne masculine. Comparez avec « he-man », où un même accord syntaxique s'est lexicalisé. Autrement qu'en latine le vocatif du grec classique n'exclut pas la personne féminine; il dit que le sujet parlant s'adresse à une personne: tels « páter! », « mêter! », « thúgater! », « thrūé! ». L'accord de personne participe à la construction d'une personne interpellée, trait flexionnel avec le trait lexical de personne. Comparez avec « woman-teacher » ou « women-teachers » et avec boy-friend(s) où l'accord syntaxique s'est lexicalisé et encore avec « she-goat » et « he-goat » et leurs pluriels. En revanche l'idiome commun, démotique du grec contemporain a le même accord lexicomorphologique que le latin: tel « aghapité kírie pétro! ».

Encore dans l'idiome latin les lexèmes de « ubi », « quo », « unde » ont en commun un trait local, désignant, disons, un point P, trait lexical. Leurs désinences exposent respectivement un rapport du point Q à P, à savoir mouvement zéro, bref repos de Q par rapport à P, exposé par /bĭ/; mouvement plus, autrement dit direction de Q vers P, exposé par /ŏ/; mouvement moins, autrement dit éloignement de Q par rapport à P, exposé par /ndĕ/. Donc dans les trois cas accord partiel de lieu lexical et de lieu flexionnel. De même au point de vue purement lexicomorphologique dans les trois cas « domi », « domum », « domo » ainsi que dans ceux-ci: « Romae », « Romam », « Romā ». Ces trois cas et le cas vocatif ont en commun que l'accord exclut zéro trait, ici zéro trait personnel, là zéro trait local.

Quant à l'infinitif latin « facere » nous avons affaire à un accord lexicomorphologique d'activité auquel s'oppose un même accord de passivité dans « pati » et dans « fieri » ainsi que dans « nasci » d'un côté, dans « mori » de l'autre.

La plupart des verbes grecs opposent encore actuellement les deux traits fle-

xionnels d'« une fois pour toutes » et de « plusieurs fois ». Mais « tréme! » se traduit « tremble plusieurs fois! » Voilà un accord lexicomorphologique des traits de « plusieurs fois », accord partiel et à l'exclusion du trait opposé d'une fois pour toutes ».

## II. Désaccord

Nous dirons que *b* et *béta* sont en désaccord si le trait *b* se construit avec le trait opposé *bêta* à l'exclusion d'un autre trait *b* ou avec *zéro* trait.

En anglais « linguistics » et « United States » sont mis au pluriel à l'exclusion du singulier d'un côte. Mais quant aux traits lexicaux l'idiome a préféré l'unité de l'ensemble à la pluralité. Donc désaccord lexicomorphologique d'unité-pluralité. Syntaxiquement l'unité lexicale s'accorde avec le singulier du verbe. De même dans l'idiome latin il est question d'un tel désaccord dans « castra », dans « aedes », dans « litterae ». Mais au point de vue syntaxique leurs pluriels s'accordent avec le pluriel des noms et des verbes, notamment dans « una castra », « unae aedes », « unae litterai » où les deux traits lexicaux d'unité du cardinal et du substantif s'accordent de même que le font les deux traits flexionnels de pluralité. Dans « linguistics is » désaccord flexionnel syntaxique, dans « castra sunt » désaccord syntaque d'unité lexicale et pluralité flexionnelle.

Encore en anglais « clergy », « people », « police », « horse », « foot », « cattle » ont en commun le trait flexionnel d'unité, mais syntaxiquement leur trait lexical s'accorde avec le pluriel du verbe. Donc à l'intérieur de « people » etc. désaccord lexicomorphologique de pluralité-unité. En latin « centum » et « mille » sont mis au singulier, mais ce sont les unités réparties sur les dizaines et leur pluralité lexicale qui s'accordent avec les noms et les verbes mis au pluriel. Le grec « hekatón », présente le même désaccord. Mais il y a plus: l'unité est exposée deux fois, d'un côté c'est le trait lexical d'unité exposé par le commencement, de l'autre le même trait flexionnel est exposé par la désinence. Malgré cet accord lexicomorphologique, tous les deux traits lexical et flexionnel et le trait lexical de pluralité sont en désaccord. En revanche dans le latin « milia » non seulement la pluralité des milliers et la pluralité flexionnelle s'accordent à l'intérieur, mais la pluralité des unités ultérieures, trait lexical que « mille » et « milia » ont en commun s'accorde avec le pluriel d'un nom mis en cas de « milia » au génitif: « mille passus »/« milia passuum ». De même que « milia » le latin « multitudo » se construit avec le pluriel du nom: « multitudo hominum ». Comparez « la plupart des hommes ». Cela montre un désaccord lexicomorphologique de pluralité-unité à l'intérieur tant de « multitudo » que de « la plupart », tous les deux mis au singulier: de même l'anglais « crew ». Mais dans les trois cas il s'agit de deux accords avec le verbe. Tantôt le verbe se met au pluriel: alors c'est le trait lexical de pluralité du substantif qui s'accorde avec le trait flexionnel de pluralité propre au verbe à l'exclusion de celui d'unité. Tantôt c'est le trait flexionnel d'unité propre au substantif qui s'accorde avec celui du verbe à l'exclusion du pluriel.

En grec classique le verbe « páskhō », « je souffre » comporte d'une part le trait lexical de passivité, d'autre part le trait flexionnel d'activité. Donc désaccord de passivité-activité, désaccord lexicomorphologique.

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# PRINCIPLES OF MORPHOLOGICAL ANALYSIS

James Foley

*Abstract*

Arguments and examples are given for the following principles of morphological analysis:

1) Uniform composition of morphemes. Unless evidence to the contrary can be adduced, morphemes are assumed to have the same underlying composition in all their occurrences.

2) Uniform distribution of morphemes. Unless evidence to the contrary can be adduced, morphemes are assumed to occur in the underlying forms of all cases of a morphological category.

3) Base forms are established so as to allow prediction of phonetic forms by use of natural phonological rules. Base forms are not determined by statistical frequency of allomorphs.

4) The phonological rules used in a morphological analysis must not be ad hoc, but rather belong to the set of universal phonological rules.

5) Analogy as an explanatory mechanism is not allowed.

6) Given two solutions meeting the above requirements, the one with the greater heuristic power will be preferred.

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# STRUCTURES PARADIGMATIQUES ISOSÉMANTIQUES ET ISOMORPHIQUES

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*Résumé*

La structure morphologique est constituée de nombreux systèmes et subsystèmes grands et moins grands, importants et moins importants. C'est l'ordre paradigmatique de la structure morphologique. L'ordre paradigmatique peut être isosémantique en axe verticale ou horizontale.

Dans notre subconscience les catégories isosémantiques sont étroitement liées (associations). C'est purquoi elles sont de nature convertible, c'est-à-dire dans certaines circonstances elles sont interchangeables en axe horizontale.

Un cas spécifique de la structure morphologique est l'isomorphisme paradigmatique. Dans l'ordre paradigmatique sont isomorphes, mais non isosémantiques, des cas comme, p. ex., le datif et l'ablatif singulier et pluriel des thèmes en *-o-* en latin (*amīcō*, *amīcīs*), le datif et l'ablatif pluriel des thèmes consonantiques et ceux en *-i-* en latin (*rēgibus*), etc.

Bien qu'ils soient hétérosémantiques, dans notre subconscience de tels cas constituent des modèles déterminés qui sont convertibles dans l'évolution de la langue. Voici un exemple: En latin le datif singulier des thèmes en *-u-* a deux formes *-uī* et *-ū* (*fructuī* et *fructū*). L'origine de la première forme est claire (i.e. *-ew-ey*), tandis que celle de la seconde n'est pas éclaircie. Or, c'est l'isomorphisme paradigmatique qui est la cause de l'apparition du datif en *-ū*. Etant donné que le datif et l'ablatif singulier et pluriel de thèmes en *-o-* et que le datif et l'ablatif pluriel de toutes les déclinaisons sont isomorphes, cet isomorphisme paradigmatique est réalisé, de même, auprès des thèmes en *-u-*. C'est la fréquence qui détermine si la terminaison de l'ablatif (24.7%) ou celle du datif (4.2%) doit être transférée. De tels faits nous donnent la possibilité de comprendre le fonctionnement de lois morphologiques.

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# STRUCTURES MORPHOLOGIQUES HÉTÉROGLOTTES FONCTIONS MORPHOLOGIQUES SPÉCIFIQUES

MIRCEA GHEORGHIU

1. Au XVII-ème siècle déjà, la Grammaire de Port-Royal, rédigée par C. Lancelot et A. Arnault, affirmait l'universalité du langage, la langue étant considérée comme un ensemble abstrait de toutes les langues [1], une totalité de mots, catégories, règles etc., dont l'organisation reflète une certaine conception de la réalité, qui en détermine l'interprétation et la structure. La diversité des idiomes est accidentelle, leur unité est essentielle, ayant à sa base, premièrement, une substance identique qui est, en fait, le mecanisme universel de la pensée, et secondement, la signification référentielle, c'est-à-dire le monde environnant, avec son caractère unitaire, mais contradictoire [2]. Tout ce qui peut exprimer une langue peut être exprimé aussi par une autre langue [3].

Pourtant l'investigation à base d'une conception moderne des universaux de langage (constantes, invariantes typologiques pouvant être décelées dans une série d'idiomes, structures logiques général-humaines, généralisations des faits de langue, tendances communes à tous les sujets parlants) cette investigation donc devient un problème central, aussi bien que vivement controversé de la linguistique contemporaine [4], seulement dans ces dernières années.

Les universaux linguistiques résultent, par conséquent de la détermination de corrélations concrètes [5] entre les caractères systématologiques du langage en général et leur réalisation matérielle concrète [6]. Ils représentent, d'une certaine

[1] E. Benveniste considère les langues naturelles comme des réalités particulières, par lesquelles s'actualise la faculté générale nommée langage (*Problèmes de linguistique générale*, Paris, 1966, p. 19).

[2] Voir H. Wald, *Realitate şi limbaj*, Bucarest, 1968, p. 118; *Tratat de lingvistică generală*, Ed. de l'Académie de la République Socialiste de Roumanie, Bucarest, 1971, p. 156, 495; Sorin Stati, *Interferenţe lingvistice*, Bucarest, 1971, p. 103.

Voir L. Bloomfield, *Language*, Londres, 1955 (édition russe, Jazyk, Moscou, 1968, p. 307).

[4] Cf. les réponses fournies par la plupart des participants au VI-ème Congrès International des Linguistes (Paris, 1948) au problème mettant en cause l'existence de catégories communes à toutes les langues; voir aussi *Universals of Language*, ed. by J. H. Greenberg, Cambridge Mass., 1963; B. A. Uspenskij, *Strukturnaja tipologija jazykov*, Moscou, 1965; Noam Chomsky, Morris Halle, *The Sound pattern of English*, New York - Londres, 1968, p. 326, 329; *Semiotika i vostočnye jazyki*, Moscou, 1967; A. Martinet, « Reflexions sur les universaux du langage », *Folia linguistica*, 1 ,1967, 3-4; Luigi Rosiello, *Linguistica illuminista*, Bologna, 1967, p. 14; Emmon Bach, Robert Harms eds., *Universals in linguistic theory*, New York, 1968.

[5] Ces derniers temps, un nombre toujours croissant d'auteurs considèrent comme but des recherches typologiques non pas tant la recherche des nouvelles classifications, ou de caractères universels permettant de telles classifications, mais plutôt l'étude et la confrontation de certaines structures hétéroglottes. Cf. C. E. Bazel, *Linguistic tipology*, Londres, 1958; *Linguističeskaja tipologija i vostočnye jazyki*, Moscou, 1965; Émile Benveniste, « Convergences typologiques », *L'Homme*, VI, 2, 1966, p. 5; V. N. Jarceva, « Principy tipologičeskogo issledovanija rodstvennych i nerodstvennych jazykov », *Actes du Xe Congrès International des Linguistes*, III, Bucarest, 1970, p. 495.

[6] Cf. J. V. Rožděstvenskij, *Tipologija slova*, Moscou, 1969, p. 30; A. Ljudskanov, « Meždujazykovoj i meždujarusnyj perevod », *Actes du Xe Congrès International des Linguistes*, IV, Bucarest, 1970, pp. 1060-1067; V. Z. Panfilov, *Grammar and Logic*, La Haye - Paris, 1968, pp. 100-106; V. Z. Panfilov, *Vzaimootnošenie jazyka i myšlenija*, Moscou, 1971, p. 74.

manière, une « unité dans la variété » [7].

Ainsi, certaines catégories linguistiques se trouvent en corrélation avec certaines classes d'objets réels. Notre monde environnant est constitué d'objets, d'actions, de caractères, de relations qui peuvent se trouver en corrélation avec diverses classes grammaticales.

2. On peut remarquer souvent des structures morphologiques [8] à un degré élevé de similitudine, sinon d'entière identité formelle, surtout dans les langues rapprochées du point de vue génétique ou typologique.

Par exemple, on peut indiquer les caractères de certains « objets » par référence à un autre objet, en réalisant ainsi des structures morphologiques spéciales: adjectifs de relation, dits « de relation » [9], « de rapport » [10] de même que des « locutions adjectives » [11], substantifs au génitif ou au nominatif.

| | | |
|---|---|---|
| russe | *komnata* | ⟶ *komnatnyj* |
| roumain | *bărbat* | ⟶ *bărbătesc* |
| français | *coton* | ⟶ *cotonnier* |
| allemand | *Sommer* | ⟶ *sommerlich* |
| anglais | *wood* | ⟶ *wooden* |
| italien | *Dante* | ⟶ *dantesco* |

La structure des adjectifs exprime un rapport entre le signifié commun (ou très rapproché) et le signifiant représenté par les divers complexes sonores. Chaque sujet parlant emploie la « variante » de sa langue maternelle.

Les faits de langue qui avèrent l'actualisation [12] dans des langues différentes de l'invariante sémantique (du déterminant) de détermination d'un objet par référence à un autre objet nous permettent de supposer que ce trait propre à beaucoup de langues n'est pas seulement un « quasiuniversel » (*near universals* [13]), mais constitue effectivement un « universel » [14].

Il nous reste à voir, par conséquent, la manière dont le même contenu s'exprime par des structures morphologiques hétéroglottes [15] et quelle est la fonction de

[7] Cf. Tatiana Cazacu, « Le principe de l'adaptation au contexte », *Revue de linguistique*, I (1956), pp. 93-96.

[8] La structure de la langue est l'ensemble des phénomènes existant d'une manière réelle à un moment donné, dans une langue. Dans l'acception intéressant le présent ouvrage, la structure représente un élément au niveau morphologique du système compris dans une substance réelle et ayant un schéma concret de relations d'interdépendance. Voir E. Coseriu, *Sincronia, diacronia e historia. El problema del cambio lingüistico*, Montevideo, 1958; éd. russe « Sinchronija, diachronija i istorija », *Novoe v lingvistike*, fasc. 3, Moscou, 1963, p. 175; A. A. Reformatskij, *Vvedenie v jazykoznanie*, Moscou, 1960, pp. 18-24; Em. Vasiliu, *Fonologia limbii române*, Bucarest, 1965, pp. 39-48; É. Benveniste, *Problèmes* ..., p. 21.

[9] Ch. Bally parle de « l'adjectif dit "de relation" » en française, (*Linguistique générale et linguistique française*, Berne, 1950, p. 97).

[10] Lucien Tesnière nomme les mêmes structures « adjectifs de rapport » (*Eléments de syntaxe structurale*, Paris, 1959, pp. 68-71).

[11] M. Cohen propose qu'on nomme « locutions adjectives » les constructions prépositionnelles à fonctions attributives (*Nouveaux regards sur la langue française*, Paris, 1963, pp. 20, 45).

[12] Voir Ch. Bally, *op. cit.*, § 110, où la catégorie de l'actualisation est conçue comme un mécanisme de passage de la langue en parole.

[13] Voir Roman Jakobson, « Typological studies and their contribution to historical comparative linguistics », *Proceedings of the Eight International Congress of Linguists*, Oslo, 1958, pp. 17-25.

[14] Cf. le titre de l'ouvrage de M. Bierwisch, « Some Semantic Universals of German Adjectivals, *Foundations of Language*, t. 3, No. 1, 1967.

[15] Ceci est un problème d'onomasiologie, telle qu'elle est conçue par J. Marouzeau (*Lexique de la terminologie linguistique*, Paris, 1951). Voir dans ce sens l'ouvrage de synthèse B. Quadri, *Aufgaben und Methoden der Onomasiologischen Forschung. Eine Entwicklungsgeschichtliche Darstellung*, « Romanica Helvetica », 37, Berne, 1952.



ces structures dans diverses langues.

En russe, les suffixes *-n*, *-ov*, *-sk*, etc. n'ayant pas de valeur lexicale, ont le rôle de *formants adjectivaux* [16], car ils transposent [17] des thèmes substantivaux (verbaux ou adverbiaux) en thèmes adjectivaux avec le sens de « relativement a ... » [18].

En russe, comme dans les autres langues slaves, on peut former — en principe — un adjectif de relation de n'importe quel substantif, même si les termes empruntés s'intégrent dans le système flexionnel russe et forment aisément des adjectifs de relation correspondants (*kemping* → *kempingovyj*).

Du point de vue stylistique, de telles structures sont de marque neutre. Leur fonction morphologique [19] pourrait être nommée *référentielle* e i d é t i q u e, car elle consiste à rapporter ces structures à la réalité concrète, au désigné.

Souvent des constructions corrélatives peuvent exprimer l'invariante sémantique d'un syntagme nominal dans lequel le déterminant (adjectif ou préposition + substantif) détermine un déterminé par rapport à un autre objet:

*studenčeskoe obščežitie - obščežitie d'la studentov vesennij mesjac - mesjac vesny*

La corrélation « adjectif de relation » - « substantif au cas oblique » n'est possible que dans les conditions où la valeur de variété, espèce est commune aux deux syntagmes: principal — dans le cadre du sytagme avec adjectif de relation [20] (l'adjectif de relation exprime non seulement une relation face à l'objet, mais aussi une caractérisation de l'objet, indiquant ses caractères typiques permanents) et secondaire — pour le syntagme de type substantif en cas oblique. Ansi

*konfetnaja korobka* = *šinel' oficera*
*oficerskaja šinel'* = *korobka dlja konfet*

mais

*čaška oficera* ≠ *oficerskaja čaška*
*avtomobil's flagom* ≠ *flažnyi avtomobil'*

Il y a un type, une espèce de capote d'officer, de même des boîtes de bonbons, mais il n'y a pas une espèce de tasses « d'officiers » et non plus de type d'automobile à pavillon (bannière). Dans ces deux derniers cas, la corrélation avec les

[16] Voir G. Bourquin, qui nomme ces affixes « adjectivateurs » (*Le groupe nominal en anglais écrit*, Nancy, 1964, p. 38) et K. Togeby, qui plaide pour une sémantique des morphèmes grammaticaux (« Grammaire, lexicologie et sémantique », *Cahiers de lexicologie*, VI (1965), 1, pp. 3-7).

[17] Ch. Bally nomme ce phénomène - « translation », M. J. Fourquet - « transfert », L. Hjelmslev - « fonction secondaire » (*Principes de grammaire générale*, Copenhague, 1928, p. 331), Jerzy Kuriłowicz - « dérivation syntaxique » (« Dérivation lexicale et dérivation syntaxique », *Readings in Linguistics*, II, Chicago - Londres [1966], p. 44).

[18] On pourrait indiquer une certaine spécialisation des suffixes, par exemple, *-an* (*-jan*) « fait en ». Environ 70 adjectifs de relation formés avec ce suffixe expriment la valeur signalée: *berestjanoj, derevjannyj, šerstjanoj*. Mais en plus, les adjectifs en cause peuvent acquésir une série d'autres valeurs.

[19] Par fonction morphologique nous comprenons la destination, le rôle d'une structure morphologique dans le système et dans la communication. Cf. aussi J. Marouzeau, *Lexique* ...; O. Akhmanova, *Slovar' lingvističeskich terminov*, Moscou, 1969.

[20] Ce type de syntagmes est défini par Andreas Blinkenberg « des conglomérats dans lesquels entrent en jeu ensemble les trois facteurs *forme - fonction - sens* par une sorte de participation dans l'élaboration conceptuelle » (« Remarques sur les substantifs à détermination double hétéromorphe », *Studia Neophilologica*, Upsala, XXXIX (1967), p. 77; voir aussi V.I. Cuglov, *Sootnositel'nost' substantivnych slovosočetanij s zavisinym kosvennym padežom (ili narečiem) i otnositel'nym prilagatel'nym v russkom literaturnom jazyke sovetskogo vremeni*. Rés. thèse doct., Moscou, 1967.

adjectifs de relation n'est plus possible.

Le roumain, le français, de même que les autres langues romanes ont à leur disposition un nombre réduit de structures morphologiques capables de remplir la fonction référentielle eidétique susmentionnée des adjectifs de relation de la langue russe [21].

Dans ces langues la plupart des substantifs sont éludées par les structures citées. On ne peut former l'adjectifs ni des noms d'objets, ni des adverbes de temps, de lieu, ni des noms de personnes. Voir à ce sujet, l'impossibilité de former des adjectifs de substantifs comme *pain* (*pîine*), *blé* (*grîu*), *maison* (*casă*) etc.

En roumain, le suffixe *-esc* ajouté de règle aux substantifs animés, et *ean* — aux toponymes forment des structures similaires aux adjectifs de relation russes:

*bărbat* ⟶ *bărbătesc* *Arges* ⟶ *argeşan*
*domn* ⟶ *domnesc* *Olt* ⟶ *oltean*

En français, on trouve, aussi bien, des structures avec les suffixes *-al*, *-aire*, *-ien*, *-ique*, *-iste*;

*adjectif* ⟶ *adjectival* *relation* ⟶ *relationnel*
*vocale* ⟶ *vocalique* *poste* ⟶ *postal*
*Proust* ⟶ *proustien* *ligne* ⟶ *linéaire.*

Ainsi, l'opposition binaire [22] d'alternance dérivationnelle qui peut être décelée dans tout le système morphologique de la langue russe, du type

*otec* ⟶ otcovskij
*moloko* ⟶ moločnyj

ne trouve — mutatis mutandis — qu'un nombre extrêmement réduit de réalisations dans le système des langues romanes.

Il importe de mentionner aussi l'allemand et l'anglais, oú les structures morphologiques adjectivales corrélatives occupent une place moins importante:

allem. *Kirche* ⟶ *kirclich* angl. *wood* ⟶ *wooden*
*Mönche* ⟶ *mönchisch* *slang* ⟶ *slangy*
*atom* ⟶ *atomic*

En règle générale, de telles valeurs référentielles sont exprimées en français et en roumain par:

1. Substantif introduit le plus souvent par le démarcatif (translatif) *de*:

*tenue de soirée* roum. *ţinută de seară*
*chemise de nuit* *cămaşa de noapte*
*voiture d'enfant* *cărucior de copil*

[21] Voir Mircea Gheorghiu, « Corrélations entre catégories hétéroglottes (un problème de stylistique comparée), *Actele celui de-al XII-lea Congres Internaţional de lingvistică şi filologie romanică*, II, Bucarest, 1971, pp. 433-438; voir D. Möhle, *Das neufranzösische Adjektiv*, Münich, 1968, pp. 150-170.

[22] N. Troubetskoy soulignait déjà que le système des oppositions ne se résume pas seulement à la phonologie (*Principes de phonologie*, Paris, 1949, p. 68 passim).



Cf. ital. *sala di proiezione* *campi di giocco*
*machina da proiezione* *carte da giocco* [23]

En roumain, par exemple, certaine calculs statistiques, effectués sur des textes littéraires, jorunalistiques et scientifiques nous ont permis de constater que, dans les textes littéraires, les adjectifs de relation russes ont comme correspondants roumains des adjectifs seulement en proportion de 22% tandis que 54% sont exprimés par préposition + substantif.

Ainsi en allemand la plus grande partie des déterminations eidétiques se fait par les substantifs composés [24] et en anglais par la coordination paratactique [25], les substantifs devenant des « morphèmes adjectivaux », des déterminatifs, des affixes:

| | | |
|---|---|---|
| angl. | spring flower | night-dress |
| allem. | Frühlingsblume | Nachthemd |
| roum. | floare de primăvară | cămaşă de noapte |
| fr. | fleur de printemps | chemise de nuit |
| russe. | vesennij cvetok | nočnaja rubacha |

2. Substantif au cas nominatif:

fr. *un dîner monstre* roum. *chef monstru*
*une fusée signal* *armă rachetă*
*un navire hôpital* *post cheie*

mais. rus. *ključeye posty*
*raketnoe oružie*

3. Le substantif au génitif est employé lorsque le déterminant exprime tout simplement l'appartenance, la possession — mais comme étant quelque chose de passager, de momentané;

roum. *razele soarelui*
fr. *conférence des femmes*
cf. russe *zemlja krest'jan*

[23] Cf. Lennart Carlson, « Notule sur la concurrence *di* : *da* en italien », *Studia morphologica*, Stockholm, XVII, 2, 1970, p. 433.

[24] Certains chercheurs considèrent, à juste titre, les ainsi-nommés « mots composés » comme mots seulement par la forme, car ils correspondent en réalité aux plus simples éléments du langage - les syntagmes. La plupart de ces mots composés sont créés dans le processus du langage et ne sont pas inclus dans le répertoire de la langue comme système. Cf. M. Bréal, *Essais de sémantique*, Paris, 1897, pp. 178-180; L. V. Ščerba, *Očerednye problemy jazykoznaija*, L. V. Ščerba, *Izbrannye raboty po jazykoznaniju i fonetike*, I, Léningrad, 1958; p. 9; E. Benveniste, « Fondements syntaxiques de la composition nominale », *Bulletin de la Société linguistique de* Paris, LXII (1967), f. 1, p. 32; André Martinet, *Eléments de linguistique générale*, Paris, 1967 (éd. roumaine, *Elemente de lingvistică generală*, traduction et adaptation par Paul Miclau, Bucarest, 1970, pp. 176-177).

[25] Cf. les ouvrages de Hans Marchand (*The Categories and Types of Present-day English Word-Formation*, Wiesbaden, 1960 et « Expansion, transposition and derivation », *La linguistique*, 1, 1967, pp. 13-26) où il essaie de définir des composés anglais suivant des critères formels qui permettent de les « isoler » des groupes syntaxiques. Voir aussi Nicol C. W. Spence, « Composé nominal, locution et syntagme libre », *La linguistique*, 2, 1969, p. 5-26.

Aux XIX-ème et XXème siècles, et spécialement dans les dernières décennies, grâce à l'explosion informationnelle et au progrès vertigineux de la science et de la technique, un grand nombre d'adjectifs néologiques [26] pénètrent dans la langue par l'intermèdiaire de la presse, le plus fidèle enregistreur de la langue de l'époque.

Ces adjectifs présentent les caractéristiques suivantes:

— ils ne sont pas généralement formés de substantifs autochtones.

— ils sont des emprunts prim du latin (du français aussi, quant au romain) parfois avec des modifications d'adaptation [27];

| | | | | | |
|---|---|---|---|---|---|
| fr. | *ville* | —— *urbain* | roum. | *lapte* | —— *lactat* |
| | *école* | —— *scolaire* | | *noapte* | —— *nocturn* |
| | *semaine* | —— *hebdomadaire* | | *gură* | —— *bucal* |

— le caractère de ces adjectifs est souvent livresque, d'une technicité expressive, leur sens beaucoup plus restreint que, par exemple, dans le syntagme corrélatif alloglotte russe.

Ainsi en roumain *lemnos* qui est tout à fait autre chose que le russe *derevjannyj; matinal* « devreme » et non pas « în cursul dimineții »; cămașa *de noapte* ≠ cămașa *nocturnă*, ținută *de seară* ≠ ținuta *serală*.

— ils n'ont pas d'indices grammaticaux propres par rapport à d'autres adjectifs. Certaines particularités grammaticales qui les caractérisent, l'absence de degrés de comparaison, l'incapacité d'être déterminés par des adverbes etc.) proviennent de leur nature sémantique, tandis qu'en russe elles sont générées par leur nature dérixationnelle, par leur appartenance à une catégorie lexico-sémantique distincte.

[2] ils ne peuvent constituer, en général, des paires d'antonymes. Mais dans ce cas aussi le facteur lexico-sémantique est décisif, par exemple: un livre peut être politique (se rapportant à la politique) ou *a*politique.

Nous considérons donc que des langues comme le roumain, le français (et, par ailleurs, d'autres langues romanes aussi) ne disposent pas d'une catégorie grammaticale des adjectifs dits « de relation » comme entité taxonomique majeure. Ces adjectifs se différencient de la masse des autres adjectifs par leur condition lexico-sémantique.

Le critère dérivationnel est le facteur principal qui offre la possibilité de délimiter, dans le cadre d'une certaine langue, un groupe de structures morphologiques (adjectifs) comme une catégorie indépendante.

Dans ce domaine, le roumain, le français ne possèdent pas un système dérivationnel unitaire et productif. Le caractère *binaire* de ce système au niveau de l'adjectif fait ressortir le spécifique des langues romanes:

1. Un système dérivationnel qui fonctionne dans les limites du lexique fondamental de chaque langue [28].

[26] Cf. Angelica Kalik, « L'expression des rapports de déterminé à déterminant », *Actele celui de al XII-lea Congres Internațional de lingvistică și filologie romanică*, I, Bucarest, 1970, pp. 463-467.

[27] Entre les éléments de l'opposition « indérivative » semble s'être creusé « un véritable abîme » (W. v. Wartburg, *Einführung in Problematik und Methodik der Sprachwissenschaft*, Tübingen, 1962, p. 190. Cf. aussi, Stephen Ullmann, « Descriptive Semantics and Linguistic Theory », *Word*, 9, 1953, 3, p. 225 passim.

[28] Les possibilités réduites de fonctionnement de ce système ont été signalées par R. A.



2. Un second système qui fonctionne à base des éléments alloglottes (en particulier latins) ou à base d'emprunts intégraux.

Le français, le roumain semblent présenter de nos jours une tendance de plus en plus accentuée — visible aussi dans d'autres idiomes — d'imprégner la communication avec une série de structures morphologiques adjectivales à caractère néologique, appartenant au nommé lexique international. Ces adjectifs [29] sont « le fruit » linguistique du processus de révolution industrielle et scientifique et paraîssent avoir toutes les chances de pénétrer dans le lexique de base de la langue en question.

Nos calculs statistiques démontrent que, dans le langage de la presse, 85,5% des adjectifs de relation russes trouvent leurs équivalents dans les adjectifs roumains (notamment dans les adjectifs néologiques), tandis que dans les textes scientifiques la proportion s'accroît à 91,5%. En français, la situation se présente d'une manière similaire. En allemand, le langage journalistique, scientifique et technique s'avère aussi imprégné de structures morphologiques adjectivales: *bakteriologisch, philologisch, kosmisch.*

Le groupe d'adjectifs mentionnés commence à constituer le fond le plus nombreux de structures morphologiques équivalents du point de vue structurel au type d'adjectifs de relation des langues slaves, dont il se distingue pourtant par sa fonction morphologique.

On sait que *le virtuel* s'oppose à *l'actualisé*, au réel [30]. La structure morphologique adjectivale française *cartésien*, par exemple, n'exprime pas un attribut de la substance et n'actualise qu'implicitement un vide virtuel dans le sens qu'elle ne provient pas d'un substantif attesté comme tel en français. C'est donc une formation impossible à interpréter référentiellement [31] et nous pensons qu'il s'agit d'une fonction non référentielle syncatégorématique [32]; que nous pourrions nommer d é t e r m i n a t i v e.

On constate qu'un certain nombre d'adjectifs commencent à perdre ou ont déja perdu leur fonction référentielle, parfois déterminative (celle d'indiquer « une qualité propre à ») et acquièrent une fonction q u a l i f i c a t i v e (celle d'indiquer « une appréciation »), comme conséquence d'un déplacement sémantico-fonctionnel:

*révolte populaire* - fonction eidétique

*danse populaire* - fonction eidétique (danse du peuple) coexistant avec la fonction qualificative ,danse connue)

*chanteur populaire* (« connu ») — fonction qualificative

Ou chez Rimbaud: silence *astral*, des boissons *pollaires*, des bandes *atmosphèriques*.

Le même phénomène peut être décelé dans d'autres langues aussi: angl. *wooden* = en bois ⟶ rigide, lourd; allem. *kindlich* = puéril, d'enfant ⟶ naïf.

Un fait intéressant qui doit être mentionné est le suivant: beaucoup de structures morphologiques russes n'ont comme correspondant aucun équivalent structurel alloglotte dans leur fonction eidétique « rapporée à l'objet en cause », sinon dans

Budagov, *Etjudy po sintaksisu rumynskogo jazyka*, Moscou, 1958; V. G. Gak, *Besedy o francuzskom slove*, Moscou, 1966, p. 52; Compte-rendu de S. Vaimberg sur V. Vascenco, *Mic dictionar român-rus*, Bucarest, 1966, dans *Romanoslavica*, XIV, 1967, p. 496.

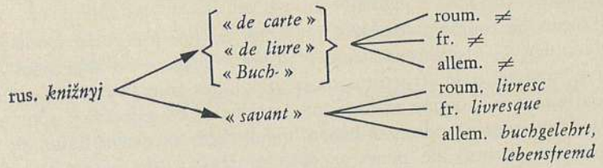
[29] Voir Al. Graur, *Tendințele actuale ale limbii române*, Bucarest, 1968, p. 290.

[30] Voir Ch. Bally, « La pensée et la langue », *Bulletin de la Societé de linguistique de Paris* 70, 1922, p. 177 passim.

[31] C'est peut-être à juste raison que J. Marouzeau (*Aspects du français*, Paris, 1963, p. 277) souligne le caractère artificiel des formations adjectivales savantes. La langue populaire fait de *poumon → poulmonique* et non pas *pulmonaire* et d'*ordre → ordré* à la place d'*ordonné*. Voir aussi H. Frei, *La grammaire des fautes*, Paris, 1929, p. 96.

[32] C'est-à-dire dénué de sens lexical propre, par analogie aux mots auxiliaires. Cf. *Tratat de lingvistică generală*, Bucarest, 1971, p. 73.

la fonction qualificative et alors seulement au sens figuré, métaphorique [33]:




3. La recherche sur des structures morphologiques hétéroglottes nous permet quelques constatations.

La détermination d'un objet par référence à un autre objet réprésente de nos jours un modèle de grande envergure en diverses langues. En russe, par exemple, sa diffusion se fonde sur l'existence de procédés dérivationnels de haute productivité dans la sphère de l'adjectif, de même que sur le niveau élevé d'abstractisation des formations qui en résultent. Dans d'autres langues, qui disposent d'un petit nombre de modèles dérivationnels propres, l'attestation de structures morphologiques adjectivales comparables aux adjectifs de relation de la langue russe peut s'expliquer, de même, par leur densité sémantique.

Dans ces conditions, nous sommes d'avis qu'on peut parler d'un « universel » des adjectifs qui détermine un objet par référence à un autre objet. Il faut reconnaître qu'il y a de nombreuses langues où cet « universel » se manifeste seulement comme une tendance, surtout dans le domaine de la terminologie technico-scientifique; dans le cas du romain et du français, il constitue une puissante source de relationisation [34] du vocabulaire.

La spécificité des structures hétéroglottes, dont dépend pourtant la spécificité des fonctions morphologiques, est conditionnée, par conséquent, non pas tant par leur valeur et leurs dimensions intrinsèques, mais notamment par la position occupée dans le système envers les autres structures dans le cadre des universaux.

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[33] Voir Mircea Gheorghiu, « K voprosu o perevodimosti morphologičeskich kategorij », *Revue roumaine de linguistique*, XVI, 1971, 2, p. 159.

[34] Voir Iorgu Iordan, *Lexicul limbii române*, Bucarest, 1964, p. 35; G. Gougenheim, « La relatinisation du vocabulaire français », *Annales de l'Université de Paris*, Janvier-mars, 1959, pp. 1-17.



# НЕКОТОРЫЕ ОСОБЕННОСТИ СТРОЕНИЯ ПОВТОРОВ

**Ю. А. Горгониев**

Повторы, т.е. слова, образованные полной или частичной редупликацией корня, основы или целого слова без изменения его звукового состава или с его частичным изменением, видимо встречаются во всех языках, однако роль их различна. В ряде языков (особенно восточных и африканских) изучение повторов составляет не периферийную проблему, но является одной из центральных задач. Постепенное все более ясное осознание важности этой задачи находит свое отражение в возрастающем количестве специальных исследований по повторам. Между тем в общем языкознании до сих пор не только не обобщены достаточно глубоко результаты описания конкретных способов образования повторов, но и самый вопрос о том, на какой, собственно, основе происходит редупликация, не получил сколько-либо удовлетворительного разрешения. Известные описания и определения повторов и не содержат попыток найти какую-либо **общую** основу. При этом очевидно подразумевается, что поскольку редупликация прежде всего осуществляется на морфологическом уровне (это обычно либо грамматическое словообразование, либо формообразование), поскольку и основа ее является морфемной [1]. Между тем такое предположение требует специального обоснования, и уже то определение повтора, которое дано в начале сообщения и может рассматриваться как достаточно широко признанное, вызывает ряд серьезных вопросов. Например, если редупликация осуществляется путем частичного повторения (не простой) основы или слова, членящегося на отдельные морфемы, то что получится в результате названного процесса — нечленимая структура или нечто членимое, и если членимое, то по каким параметрам?

На наш взгляд, разработка вопроса о структуре повторов существенна в общетеоретическом плане, так как ее решение может пополнить и расширить наши представления о языковых структурах вообще, а также важна для конкретных исследований, в первую очередь тех языков, где проблема редупликации входит в число центральных проблем.

В настоящем сообщении мы коснемся некоторых общих вопросов, возникающих в связи с членением повторов, особенно в тех случаях, когда повтор образуется путем частичной редупликации какого-либо звукового комплекса — морфемы, слова, фонемы, группы

1 В синтаксических и стилистическиэ повторах участвуют единицы, которые всегда могут быть рассмотрены на морфемном уровне.

фонем, т.е. путем варьирования определенных составляющих морфемы или группы морфем, при котором редупликант (исходная форма) и редупликатор (компонент повтора, образованный редупликацией и присоединяемый к редупликанту) фонетически не совпадают. Сообщение построено на материале китайского языка, и ряда языков ЮВА; тем не менее общие выводы, несомненно, должны представлять интерес и в плане оценки структур данного типа вообще. Поскольку обобщения, сделанные на указанном материале, не противоречат известным нам фактам других языков, постольку может быть поставлен вопрос об универсальности этих обобщений.

Если обратиться к данному выше определению повтора, то уже из этого определения можно сделать выводы: 1) все редуплицированные слова могут быть объединены в некоторый единый класс повторов потому, что у них действительно есть нечто общее: обязательное наличие повторенной части (точно так же, как все аффиксальные слова могут быть объединены в класс дериватов по наличию в них аффикса); 2) повторенные части (редупликаторы) как будто весьма неоднородны по своему составу (в отличие, например, от тех же аффиксов, которые могут быть сколь угодно различными по своим значениям и частным характеристикам, но которые однородны с точки зрения их общих свойств). Однако если отвлечься от состава редупликаторов и обратиться к первому, общему, свойству повторов, то можно придти к заключению, что во всех случаях (независимо от конкретного морфемного состава) образование повтора состоит в редупликации определенного фонетического комплекса с возможной заменой одного фонетического компонента другим. Если определить отсутствие изменения в полных повторах как нулевое изменение, то редупликация во всех случаях окажется связанной со способностью редупликанта и редупликатора распадаться на две части: а) общую для редупликанта и редупликатора (назовем ее стабильной базой — СБ) и б) разную для редупликанта и редупликатора, т.е. собственно варьирующуюся часть (назовем ее дивергентной базой — ДБ). В полных повторах КБ равна нулю, в частичных — нет. Процесс частичной редупликации как раз в том и состоит, что сохраняется некоторая СБ и происходит замена одной ДБ другой. В терминах СБ и ДБ мы можем описать любые конкретные типы повторов. Соотношение редупликанта и редупликатора также перестает быть неопределенным и неоднородным, но получает некоторое общее определение. Преобразование одних ДБ в другие даже в пределах одного языка может отличаться большим разнообразием, однако в любом случае общее число СБ и ДБ строго ограничено. Например, в кхмерском языке всего три структурных формулы СБ (**ГФ**, **ИГ**, **И**, где: **Г** - слогообразующий гласный, **Ф** - конечнослоговой согласный, **И** - инициаль, представленная одним согласным, группой из двух согласных или так наз. слабым слогом в сочетании с начальным согласным сильного слога) и четыре структурных формулы ДБ (**И**, **Г**, **Ф**, **ГФ**).

Фиксированная фонетическая структура СБ и ДБ, как видно, может отчасти совпадать (**И**, **ГФ** в кхмерском - и СБ, и ДБ), отчасти быть дифференцированной (**ИГ** - только СБ; **Г**, **Ф** - только ДБ). Следовательно, можно говорить о СБ и ДБ как разных специфических структурах, которые определяются конкретными свойствами того или иного языка.



Поскольку рассматриваемая нами редупликация служит средством словообразования и формообразования, то языковым уровнем, к которому относится описываемое явление, должен быть признан морфологический (в значении: относящийся к внутреннему строению слова). Принято считать, что морфологический уровень относится к компетенции морфологии, которая может быть определена как « раздел языкознания, изучающий разнообразные аспекты строения слова с точки зрения **зависимости его значения от составляющих его морфем** »[2] (Курсив наш. - **Ю.Г.**). Если мы попробуем взглянуть на повторы с точки зрения зависимости их значений от составляющих их морфем, то окажется, что перед нами возникнут трудности, которые плохо поддаются разрешению на собственно морфемном уровне, но легко устраняются, если ограничиться лишь преобразованиями в терминах СБ и ДБ.

В отличие от деривации, при которой производится присоединение или изъятие какого-либо аффикса, сами принципы преобразования при редупликации иные: происходит повторение какого-то элемента с возможной подстановкой одного элемента вместо другого. Таким образом здесь действуют два принципа: а) редупликация (редупликационное преобразование) и б) дивергенция (подстановка одного элемента вместо другого, или дивергентное преобразование).

При редупликационно-дивергентных преобразованиях возможны четыре характерные случая соотношения морфемы с СБ:

1) СБ = целой морфеме (целым морфемам), например, бирм. **каун-таун** « очень хороший » (СБ - **каун** « хороший »); кит. **сюебайбай** « белоснежный » (СБ - **бай** « белый );

2) СБ < морфемы, например, бахнар **го-гех** « напрасно ждать » (СБ **г** < исходной морфемы **го** « ждать »; вьет. đồ đạc « вещи » (СБ - đ < исходной морфемы đồ « вещь »);

3) СБ > морфемы, например, кхмер. **тьамнэй-тьамнок** « пища » (СБ **тьамн** содержит часть корневой морфемы **ть** и инфикс **-амн-**), **мхо:п - мха:** « пища » (СБ **мх** содержит часть корневой морфемы **х** и префикс **м-**).

4) СБ в условиях отсутствия исходной морфемы (морфем), например, палаунг **кре:-кре:** « очень дешевый » (**кре:** отдельно не употребляется), мон **тао-рао** « направлять к кому-либо » (СБ-**ао**; ни **тао**, ни **рао** отдельно не употребляются).

В первом случае с точки зрения морфемного членения ДБ или равны нулю, или могут квалифицироваться как алломорфы. Во втором случае редупликант и редупликатор могут рассматриваться как алломорфы. В третьем и четвертом случаях вообще не просто определить морфемную основу редупликации. Таким образом, с точки зрения морфемного членения перед нами четыре совершенно разных случая. Между тем с **точки зрения самой редупликации все четыре указанных случая абсолютно однородны**. Это говорит о том, что хотя редупликация относится к одному из возможных способов преобра-

2 О. С. Ахманова, **Словарь лингвистических терминов**, Москва, 1966, стр. 243.

зования слова, и, следовательно, в повторах мы имеем дело со строением слова, тем не менее редупликация безразлична к морфемному членению того языкового материала, которым она оперирует. При этом неважно, имеем ли мы в повторе одно слово или два — исходное и производное, т.е. будем ли мы рассматривать в каких-то конкретных случаях редупликант и редупликатор как отдельные слова или нет: во всех таких случаях редупликатор образуется от редупликанта независимо от морфемного строения первого. Поэтому морфемное членение не может быть той общей основой, на которой происходит редупликация. Такой общей основой редупликации следует считать способность слов и морфем распадаться на СБ и ДБ с последующим повторением СБ и дивергентным преобразованием ДБ. Нам представляется целесообразным выделить редупликационно-дивергентные преобразования в особый тип преобразований, также непосредственно связанных со строением слова, но отличных от разного рода аффиксальных преобразований, происходящих на базе членения слова на корневые и аффиксальные морфемы.

Следует отметить, что редупликационно-дивергентные преобразования служат не только для создания повторов: нередко таким путем образуются самостоятельные слова, объединяющиеся в гнезда родственных слов, но не на базе общности корня, а на основе общности СБ при определенной близости значения[3]. Например, кхмер. **снгап** « тихий », **снгат** « спокойный », **снгием** « молчаливый » (общая СБ **снг**, выражающая « значение » тишины, спокойствия, безмолвия; ДБ, как и всегда, здесь индивидуальны).

Из сказанного следует, что при редупликационно-дивергентных преобразованиях морфемная структура утрачивает свою значимость; поэтому если слово, выступающее в роли редупликанта, мы можем в определенных условиях рассматривать и с точки зрения морфемного строения, то в отношении редупликатора мы этого не можем сделать. Например, кхмер. **тьамраэн** « развиваться », выступающее в роли редупликанта в **тьамронг-тьамраэн** « успешно развиваться », мы можем рассматривать как структуру, содержащую две морфемы: корневую **тьраэн** « много » и аффиксальную **-ам-**; в то же время редупликатор **тьамронг** в морфемном отношении неделим, так как хотя фонетический комплекс **ам** здесь ничем не отличается от инфикса **-ам-**, мы не можем его вычленить в силу отсутствия морфемы **тьронг.** На практике встречаются и более сложные случаи, когда не имеющий самостоятельного употребления редупликатор все же членим на морфемы, но членение это особого рода. Возможность морфемного анализа редупликатора возникает тогда, когда деривационное преобразование происходит в повторе, причем компонент, не имеющий самостоятельного употребления, имитирует структуру своего « хозяина » — значимого компонента. Например, кхмер. **скэанг-ско:м** « очень худой, тощий » (**ско:м** « худой » — редупликант) — **самкэанг-самко:м** « совсем худой ». Деривацию такого рода, видимо, следует охарактеризовать как имитационную, т.е. такую, при которой играет роль лишь принцип гомогенности структуры в обеих частях повтора, а грамматическое значение аффикса в редупликаторе утрачивается.

3 Структура таких слов уже привлекала внимание исследователей, правда лишь в связи с установлением соотношения между звучанием и значением в описательных словах, в частности в идеофонах (как в повторах, так и не повторах). В работах, посвященных этой проблеме, содержались попытки определить природу той части фонетической оболочки слова, которая связана с определенным « значением », но не подходит под обычные определения морфемы и морфы.



Морфемы в составе редупликатора носят явно индуцируемый характер.

Выделение особого типа редупликационно-дивергентных преобразований, происходящих не на морфемной основе, требует проведения в языках, где редупликационно-дивергентные преобразования широко распространены, двойного анализа — морфемного и базового. Результаты того или другого могут быть единственно позитивными (если в каком-то конкретном случае возможен лишь один из двух названных типов преобразований, а второй исключается), а иногда и взаимно дополняют друг друга. Так, широко распространенные в языках ЮВА ложные повторы, т.е. организованные по способу повторов сложные слова, в каждом из указанных параметров получают самостоятельную характеристику, которая свидетельствует о двойной природе такого рода слов: с точки зрения морфемного членения это — сложные слова, а с точки зрения базового — повторы.

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# A FUNCTIONAL W P (WORD-PARADIGM) MODEL OF GRAMMATICAL DESCRIPTION

IRENE B. KHLEBNIKOVA

The development of linguistics within the last two decades is characterized by the proclamation of uniqueness of some model of linguistic description. Still, it seems very doubtful that a single model, however powerful it might be, could cover the whole of the multilateral structure of language (L) which contains different levels with units each possessing peculiar distinctive features (DF); besides, linguistic forms hold a reflection of thought which they serve to express (though this reflection is not direct): this fact also calls for special modelling.

It is often ignored that the framework of any L is presented by paradigmatically related units, the associative ties between which are different for every L (as well as the units themselves). The combination of grammatical or lexical units in a linear, syntagmatic structure is conditioned not only by the laws of compatibility of their lexical (semantic) meaning, which are more or less universal, but also by certain inherent grammatical laws that differ from L to L. These laws are to a great extent conditioned by the paradigmatic structure of the two word-classes — noun (N) and verb (V) that constitute the main blocks of the lexicon.

For instance, the word-order in English and Russian sentences, the structure of sentences and phrases, are largely different in both languages, and this is the direct outcome of paradigmatic, categorial properties of N and V in those languages, the morphological structure of other nominal word-classes being conditioned by the paradigm of the noun. In view of all this the necessity for grammatical categorization is evident: by it we understand the identification of grammatical forms and categorial, associative ties between them (existing in a particular L) of the nominal parts of speech (word-classes) and the verb on the basis of previously established inventory of the classes themselves and their properties in a L.

However, in recent years the process of grammatical categorization (which should precede any syntactic analysis, since the direction of mutual influence is word → sentence and not vice versa) has been ignored, especially in American linguistics, and the WP model discarded as old-fashioned.

Indeed, the non-structural, so-called traditional WP model is mostly limited to the enumeration and collection into paradigmatic sets (PS) of existing grammatical forms (GF); besides their identification has been mostly intuitive without any definite criteria or principles of the identification. The outcome of such an approach is a vast diversity of views even on the inventory, and especially the categorial meanings of grammatical forms, the fact that a GF is a bilateral unit with both expression and content being far from always taken into account. Among other things the specific character of grammatical abstraction as compared to the lexical one is more often than not ignored, and chance units with a narrow scope are often proclaimed grammatical, as, e.g., in English: *keep doing* is taken for continuous, *get lost* for passive, *am going to* for future, *must* or *can speak* for mood, etc.



Lack of criteria of demarcation between morphological, lexical and syntactic facts called forth the indiscriminate inclusion of lexical and syntactic facts into morphological: e.g., the lexical meaning of some verbs (*begin, continue, finish,* etc) can be taken for grammatical — aspectual, the meaning of modal verbs is often interpreted as the grammatical meaning of subjunctive mood, of- or to-phrases as case, etc.

Our main concern here is to suggest a model for the identification of GF and their meanings contained within word-classes capable of formal (morphological) expression of grammatical categories (GC). The WP model for grammatical categorization may be called structural and functional according to the principles it is based upon, in which it differs largely from the non-structural model.

The main underlying principles of the functional WP model are:

1) The form-meaning correlation, which means that every GF is a carrier of some invariant, abstract grammatical meaning (GM) (of a certain case, tense, mood, etc.), and vice versa, every GM has some constant formal exponent (FE) recurrent in parallel paradigmatic sets. E.g., the synthetic FE in Russian *-ov, -ej* (*les / ov, druz / ej*) express the genitive plural, that is, in the arbitrary signs *-ov, -ej* three DF are marked, which stand for three GG — number, case, gender. In an analytical exponent of the type (English) *be* + *being* + *-en* (*is being done*) 3 DF standing for 3 GC are marked: duration (aspect), present (tense), passive (voice).

2) The identification of GF according to the degree of abstraction characteristic for grammar. This means that GF which do not cover the whole of the word-class the WP model of which is built up (with but a few context or subclass restrictions), cannot be members of a PS. E.g., the Russian grammemes *čaja, čaju, v lesu, v lese* do not present separate case-forms [1], as the differenciation between the two concerns only a few concrete lexical units in certain context conditions; they are but morphological variants within one case, united by the same categorial meaning. Such phrases as *become engaged, get enraged,* R. *načal pisát'* are not GF, since they do not meet the requirement of the range of occurrence and abstract value of a grammeme in that they are unable to form all tense or mood sets existing in the verb system of that L.

3) Am important item of WP set-up for the verb is the analytical form (AF) which plays an important part in verbal PS in many languages. The absence of established criteria of AF leads to constant confusion of morphological and syntactic facts. An AF is a morphological unit, though it may contain up to 4 separate words, because it is equivalent to a synthetic (inflectional) form in expressing, as a whole, some grammatical meaning: cf. Russian *napisál*, English *has written*. In an AF the components preceding the notional verb are devoid of any lexical meaning and serve as marked exponents of grammatical DF which may as well be expressed in a synthetic formant in another L. AF are possible only within abstract verbal categories (in Indo-European languages). Case cannot be analytical, neither can person and number in verbs. In these syntagmatically conditioned categories the following or preceding word (preposition or a pronoun/noun as subject of the verb) always has a concrete meaning, which fact is at variance with the maximal degree of abstraction inherent to a GC. Besides, the formal (not only semantic) structure of AF, as member of a PS, must be constant, and not variable.

[1] Cf. a different viewpoint in R. Jakobson, *Morfologičeskije nabljudenija nad slavjanskim sklonenijem*, 's-Gravenhague, Mouton, 1958.

The application of those criteria does not allow the inclusion into the inventory of AF of phrases like *can do, might go, get lost*, Russian *stanu govorit'*, and the like.

As the AF as a whole expresses some GC, understood as a single notion, it necessarily enters some morphological opposition.

4) The identification of grammatical categories and grammatical meanings contained in GC is based on oppositions, on the correlation of grammatical DF, since it is logical to postulate that associative ties between different grammatical notions are not chaotic but exhibit a definite pattern of relations; each of these DF expresses a single GM (of a certain case, time, mood, etc.).

The GC in nominal word-classes are those of case, number, gender (person); the existence of each of them can be admitted only if there is an inflected exponent of them (mostly a joint one) in a language. If exponents are differenciated, number comes first (cf. *men's*). Within the GC of case there are as many GM as there are cases, the same in number, tense, etc. In verbs the GC which enter oppositions are abstract ones, those of tense (time), aspect, voice, mood; they correlate in inter- and intraparadigmatic oppositions between paradigmatic sets. Their exponents may be both synthetic and analytical. Person-number can have only synthetic FE, and they form oppositions only *within one* paradigm, whereas oppositions in abstract GC exist *between* PS [2].

Every PS presents a cluster of DF in different combinations. GF possessing an identical cluster of DF do not exist, neither do isolated GF, outside oppositions. GF, uniting in their meaning various DF may enter privative, equipollent and gradual oppositions.

5) The inventory of grammatical meanings reflected in corresponding FE is determined for every particular L, in accordance with the actually existing PS in that L, and is not universal.

6) In view of necessary form-meaning correlation between DF and their FE in opposed members of PS, *homonymous forms* must be taken into account, if different clusters of DF manifest themselves in an identical material structure. Criteria for the identification of homonymous grammemes are based on syntagmatic factors, since the kind of DF contained in such units is revealed only in the context (e.g., in the grammemes *would come, go: he said he would come — he says he would* come; *Go! we go, it is necessary he go at once*). Homonymous grammemes cannot exist outside opposition in GC.

7) An essential feature of the WP model is that it comprises two stages of description. 1.a) The grouping of homogeneous words into classes (parts of speech) and subclasses on the basis of their semantic properties and their ability to express certain GC; b) the grouping of homogeneous GF into PS according to their associative relations in the morphological system and to the inventory of GC finding formal expression in a particular L. Both these operations deal with directly unobservable facts. 2. The analysis of the units of the environment (in linear syntactic structures) which influence the realization or neutralization of the DF contained in the paradigmatically determined GF and sets.

[2] On item 4 see: I. B. Khlebnikova, « Distinctive Features on the Morphological Level », *Actes du Xe Congrès international des linguistes* (Bucarest, 28 août - 2 septembre 1967), Bucarest, 1970, 403-407.



The two stages represent, respectively, the paradigmatic and syntagmatic morphology of a L (a kind of « deep structure » versus « surface structure » on the morphological level). Some English illustrations to item 2: *He is coming tomorrow* — the DF of future is contained in the syntagmatically active adverbial and is therefore neutralized in the GF itself. *He is still writing* — the adverbial enhances the DF of duration in the GF. *I'll make your bed directly I've fed the baby.* (D. H. Lawrence). — the DF of future is neutralized in the adverbial clause after certain conjunctions. *I feel happy, I see you well* — cases of a constant, lexically conditioned neutralization of duration. *They looked at each other for a long moment.* (A. Cronin). — the presence of the adverbial suspends the DF of duration in the opposition Past Indefinite-Past Continuous.

Syntagmatic morphology gives rules of syntagmatic environment in defining types of contextual units which serve as realizers or neutralizers of oppositions. It finds out the context restrictions concerning sublasses of parts of speech (such as, e.g., nouns of material, verbs of perception, demonstrative pronouns, etc.), the paradigms of which become reduced due to such restrictions. Close study of the environment becomes still more indispensable with homonymous grammmes. The DF of a grammeme may vary under the influence of dissimilar units arranged in linear order alongside with it. DF may be neutralized, some shades of meaning may be added to the grammatical invariant due to contact with contextually active units.

It follows from the above that the WP model provides the material on the morphological structure of a L; the units constituting it come within the province of morphology as that part of grammar which studies the morphology of a L. The model gives scientifically determined data on linguistic competence, showing the framework of L. It also illustrates the performance of the paradigmatically established units in linear structures.

The WP model differs from various existing models of grammatical description in that it deals, in its first stage, with directly unobservable, associative correlations of linguistic units determined by means of some elements of deduction. These units serve as building material for units larger than the word-phrase, sentence utterance. Besides, the principles underlying the WP model as well as its stages can be applied to units other than morphological. They are suitable for syntactic description as well. However, syntactic units, especially larger ones, admit the application of a great variety of models due to the intricate interrelation of thought and L as reflected in the interrelations of form and meaning in various syntactic structures.

It is only several models, each suitable for a certain purpose, that can cover the whole of the complex structure of L. Still, embarking on syntactic analysis one should start with the data provided by the functional WP model discussed above.

A few conclusive words on the *methods* applicable for the analysis of morphological and syntactic units: unobservable, paradigmatic facts call for oppositional and semantic methods in morphology and modelling in syntax. Syntagmatic relations present a wide field for distributional analysis, first of all in syntagmatic morphology. For syntactic structures distributional, IC and transformational methods hold good, T being suitable for logical syntax as well. Lack of space does not allow for commenting on the methods mentioned.

*Moskva*

# ON THE ASSOCIATIVE STRUCTURE OF WORDS

EMANUEL SHUBIN

1. The drawbacks of the morpheme theory (MT) of word structure have been pointed out by many. However, they have never been fully assessed.

*a*) So far nobody has suggested a satisfactory procedure of cutting up words or utterances into morphemes [1]. The original method of singling out morphemes by « comparing » two or more words (or utterances) is wholly intuitive, as the procedure of comparison has remained unformalized. The distribution methodology is more precise, but it specifically ignores the semantic aspect of the word which is undoubtedly the main factor determining the communicational structuring of words.

*b*) The MT tries to create a centaur: the morpheme is assigned simultaneously an *absolute* meaning (being defined as the smallest meaningful language unit) and a *differential* meaning (which is purely relational), thus combining the fundamental properties of language *signs* (words) and *elements* (phonemes, graphemes). At the same time some morphemes (such as — at in « that ») are defined as purely « relational », not differing perceptibly from any other string of phonemes or a single phoneme that serve to distinguish (formally) two language signs.

*c*) In defining both the morpheme and the word as « the smallest meaningful language unit », the MT makes no clear distinction between them in the semantic plane. But at the same time the morpheme is regarded as subordinate to the word in the language hierarchy.

No difference is also made in this respect between « root morphemes » and « affixal morphemes ».

But in fact the word is the *simplest* language unit in the plane of content, since the concept is the elementary unit of thought. On the other land, a concept cannot be said to *contain* other concepts, it can only be *correlated* with them. Hence the idea of cutting up a word into a chain (or a hierarchy as in the analysis) of « meaningful units » is basically wrong. It inevitably leads to the absurd conception of words existing within words, where the levels of words and syntagms are hopelesely confused.

As to « affixal morphemes », they cannot be assigned even correlational (associative) meanings as they function only as markers of word classes.

2. The fundamental defects of the MT are manifested in the results of the MT-analysis which in many cases offends our linguistic common sense.

[1] In this paper the word is regarded as a single lexeme, without considering its grammatical (paradigmatic) markers and variants.



*a*) The distributional approach suggests such cuttings as « re-ceive » or « pro-gress » which are not corroborated by language carriers.

*b*) The concept of « differential morphemes » amounts to the assignment of the morpheme status to virtually *any* string of phonemes.

*c*) The belief that a word must be wholly divisible into morphemes amounts to the recognition of the so-called « one-morpheme » words like « boy » in which the difference between the morpheme and the word is completely obliterated, the assignment of the morpheme status to such segments as cran-in « cran berry » which ing the « morphemes » [h ʌri] and [Kein] in « hurricane ».

*d*) The lack of a satisfactory methodology of the MT-analysis often induces the analyst to rely more on the derivational (historic) segmentation than on modern synchronic approach, finding « root morphemes » in such words as « fiddlesticks » or « mooncalf », a prefiixal morpheme in « depend » etc. The irrelevancy of such divisions, sometimes reaching beyond the sphere of one language, must be obvious. There is only one step from such cuttings to the pure « charade-analysis », like finding the « morphemes » [λκνι] and [Kein] in « hurricane ».

*e*) While locating various « pseudo-morphemic » segments, the morpheme theory fails to recognize word components the relevancy of which is intuitively felt by language carriers. They are first immediate constituents of words which are not their ultimate constituents. Thus, the MT finds no place for the segment « useless » in the word « uselessness », cutting it down to the « morphemes » use-, and less-.

The IC analysis can in this respect be regarded as an improvement upon the MT. However, it retains all the above mentioned defects of the latter and even adds some new ones, since different « levels » of the IC tree may actually represent different periods in the history of the language, often separated by hundreds of years.

3. The associative approach to word structuring is based on the following main principles.

*a*) A word can possess an inner structure only insofar as it forms associations with other words (vocabulary items). Therefore the structure of a word is wholly based on the structure of the vocabulary, that is on the network of associative relations existing between the vocabulary items. The intuitive procedures of the morpheme analysis can give communicationally relevent results only insofar as they may be ultimately based on the « feeling » of such relations.

*b*) There are three main types of associative relations between words: formal (based only on the similarity of form), semantic (based only on the similarity of meanings) and formal-semantic (based on the similarity of form and meaning). Word segmentation wholly results from a certain variety of formal-semantic (FS) association in which a partial similarity of form and meaning is observed between the given word (W) and some other word or words (Wa, word-associant). A partial similarity of form is the identity of a part of the phonemic (graphemic) content of W and Wa. A partial similarity of meaning is the presence of a common seme in the meanings of W and Wa.

*c*) FS - associations can be concrete or diffuse. A concrete association links W with the definite Wa (e.g. $driver_n \rightarrow drive_v$). A diffuse association exists between

*pression*) *element function*-which only rarely and to a rather insignificant extent can be found to exist between genetically unrelated languages. In addition to tradionally established language types (based, to be sure, on a range of increasingly sophisticated parameters from a variety of domains of linguistic structure), others, suggested by heretofore overlooked or insufficiently noticed criteria, may be ascertained; cf., e.g., the distinction between « have » and « be » languages, recently explored in great detail and with much perceptiveness by Isačenko (forthcoming). Yet the exact number and nature of linguistic standards qualifying as a measure and means for further typological classification continue to be a most point.

While the integration of DS as a whole into the expanded semantic component of language renders immaterial any attempts at semantic interpretation on the basis of properties and cues found in SS (as advocated by Chomsky, 1970; cf. also Birnbaum, 1970, 62-70), the proposed stratificational view of DS seems to eliminate or at least substantially reduce the problem of alleged loss at the-uniform-DS level of semantic features and categories represented in the SS, a claim which, among other things, has led some of the semantically oriented generativists to question at one point the possibility or at any rate the necessity of positing DS altogether (cf., e.g., Lakoff & Ross, 1967; Lakoff, 1968 a; McCawley, 1968 b). Thus, some of these semantic features and categories, irretrievable or, rather, indiscernible in universal DS, can be ascertained in typological DS of varying « depth » and generality and/or in « shallow » « infrastructure ». The virtual identification until recently of all-undifferentiated-DS with universal DS (i.e., « profound structure », in the terminology adopted here) seems to stem, to some extent at least, from insufficient and inadequate elaboration of the DS aspect of languages other than Indo-European and, in particular, other than English, German, or Russian, some highly commendable first attempts at exploring DS aspects of non-Indo-European languages (e.g., Hetzron, 1970 a and b and 1971, for Hungarian and Amharic) notwithstanding.

5. Obviously, the remarks just made call for some further qualifying comments. Thus, it could be argued that any definition of language-specific « infrastructure » in terms of surface syntactic synonymy (i.e., suggesting, as it were, one semantic projection of all synonymus sentences of a given language) suffers from the weakness of largely ignoring the fact that true paraphrases in the sense of two or more SS expressions reflecting a single semantic DS are relatively rare (as was recently, again, pointed out by Chafe, 1971) since most sentences usually considered equivalent substitutes for some other sentence actually do modify the overall meaning of the original sentence in one way or another. To give just a few crude examples, such passivizations (passive transformations) as:

(1) *Mary loves Peter* ⇒ *Peter is loved by Mary*
(2) *John hit the ball* ⇒ *The ball was hit by John*
(3) *The Americans lost the war* ⇒ *The war was lost by the Americans*

while essentially conveying the same message, restable also as:

(1a) *Mary's love for Peter* (+ Pres)
(2a) *John's hitting the ball* (+ Past)
(3a) *The Americans' losing the war* (+ Past),

differ precisely in those less tangible aspects (focus, emphasis, point of view, etc.) which determine the preference for one or the other of two (or more) sets of near-synonymous sentences (here, active vs. passive; cf. also further discussion in Fillmore, 1968, 58-60, on « ergative » languages). Yet it seems that the semantic DS underlying both the relatively infrequent instances of fully synonymous SS expressions and the by definition largely (but not entirely) common content of near-synonymous sentences of one language must be more richly differentiated and subtly organized than the more generalized (« depleted ») DS which is shared by all language of a particular structural type and, especially, the one which lies at the base of all languages and hence is truly universal.

A yardstick for the inclusion of structural relations and semantic categories at the most « depleted » stratum of DS, here termed « profound structure », is provided by the universality requirement, legitimate at this, and only at this, level underlying all natural language. While we are still far from being able to even tentatively suggest en exhaustive list of such semantic categories as would qualify for this deepest level of semantic structure, the total number of universals on a list of this kind must be assumed to be fairly restricted. Yet it must be vastly larger than the total set of distinctive features of Jakobsonian (and modified post-Jakobsonian) phonological theory, thus rendering any occasionally claimed quantitative parallelism between semantic and phonological universals of language fairly illusory. Among semantic items and relations found at the universal level would presumably be categories such as PREDICATION (roughly equivalent to the subject-predicate relation of some languages) generally held to be the major criterion specifying isolated word forms and, more often, well-formed word strings as constituting sentences (as opposed to other conceivable well-formed word strings whire are non-predicative but merely « naming », e.g., in headings or titles). Also at the « profound structure » level one may find such subclassifications of the general PREDICATION category as those into ACTION vs. STATE and possibly also into COORDINATION vs. SUBORDINATION (although the various formal, semantically determined means of achieving these « grammatical meanings » clearly belong to typological DS or partly even to « shallow » « infrastructure »; cf. below). Further candidates for the « profound structure » list would be such global semantic categories as AGENT (or ACTOR) vs. PATIENT (related at typological DS strata to such notions as « subject », « [grammatical] agent », and « object », at least in non-« ergative » languages), ANIMATE vs. INANIMATE (with the further gender specification, in part matching natural sex, again, belonging to less deep strata of semantic structure), TIME (or TEMPORALITY, possibly with a first bisection into PAST vs. NONPAST also having unversal validity), MODALITY (perhaps subdividable even at this level into REAL vs. NONREAL), NUMBER (possibly with an initial, « profound » distinction of SINGULAR vs. NONSINGULAR, a further subdivision of the latter into such categories as DUAL vs. PLURAL, known from many languages, clearly being a secondary matter of typological or even language-specific « shallow » DS). The above, naturally, represents but a small sampling of the kind of semantic categories presumably ascertainable at the « profound » structural level of language universals.

6. Clearly, most significant are the implications of the suggested stratification of DS for the various, as yet insufficiently defined layers of typological DS and, generally, for typological linguistics (cf. esp. Birnbaum, 1970, 34-48; for some thoughts along similar lines, see also Fillmore, 1968, 51-60).

(1) As was mentioned, the COORDINATION/SUBORDINATION dichotomy as such possibly belongs to the stratum of « profound structure ». Its realization, however, within the limits of one-complex-sentence in terms of distinguishing between main and subordinate clauses (or subordinate clauses of different rank), differently developed in different languages (implying formal parataxis vs. hypotaxis), is no doubt a phenomenon of structural typology. Moreover, subordination within one sentence can be expressed also by other formal means. Thus, for example, in some Indo-European languages, particularly in their early attestation or archaic

form, subordination can also be rendered by so-called absolute case constructions (say, genitive absolute in Ancient Greek, ablative absolute in Latin, absolute dative constructions in Old Germanic, represented by Gothic, Early Slavic, typified by Old Church Slavic as well as to some extent by Early East Slavic, Baltic as represented by Lithuanian; cf. further the residual nominative absolute of Modern English). It may indeed be argued, therefore, that while the absolute case construction as such, being a means of expressing subordination, is generally characteristic of the (Ancient) Indo-European language type (for, as was indicated above, genetically related language groups form specific language types as well), the choice of a particular case form in such constructions, motivated largely by the overall semantic structure of the case system of individual languages or language subgroups, has its correlate at a more « shallow » level of more narrowly confined typological DS or even of language-specific « infrastructure ». For some additional details and concrete examples, see Birnbaum, 1970, 43-45, with nn., and references (esp. to the work by Andersen).

(iia) Hungarian, an agglutinative language of vastly different type compared to any of the Indo-European languages, while capable of formally indicating the (subject-)verb-object relation (belonging, it seems, to DS of a broad, considerably generalized language type, if not even to universal « profound structure ») will in certain instances express the object (complement) or some of its characteristics (definite vs. indefinite) not by an independent word alone but either merely by, or in conjunction with, an agglutinative affix of the verb; cf.:

| | |
|---|---|
| Szeret*lek* | « *I* love *you* » |
| Sajnál*lak* | « *I* pity *you* » |
| Szeret*ek egy* magyar leányt | « *I* love *a* (certain) Hungarian girl » |
| Sajnál*ok egy* magyar léányt | « *I* pity *a* (certain) Hungarian girl » |
| Magyar leányt szeret*ek* | « *I* love *a* Hungarian (not a French, etc.) girl » |
| Magyar leányt sajnál*ok* | « *I* pity *a* Hungarian (not a French, etc.) girl » |
| Szeret*em a* magyar leányt | « *I* love *the* Hungarian girl » |
| Sajnál*om a* magyar leányt | « *I* pity *the* Hungarian girl » |

(iib) Graammatical number is indicated in Hungarian with much greater restriction (avoinding redundancy) than, for example, in the West European languages; formal agreement is limited to the noun and the verb (either both in the singular = zero affix, or both in the plural = marked by affix):

| | |
|---|---|
| *Öt/Sok* kutya ugat | « *Five/Many* dogs bark » |
| (A) kuty*ak* ugat*nak* | « (The dog*s* bark » |
| *Száz* katona harcol | « A *hundred* soldiers fight » |
| (A) katon*ák* harcol*nak* | « (The) soldier*s* fight » |

(iic) Gender in the personal pronouns (whether used as subject or object) is not distinguished in Hungarian (but at best implied by the broader context); moreover, the pronoun is frequently only implicit:

| | |
|---|---|
| Lát | « *He/She/It* sees (*me, us, you*; or with indef. obj.) » |
| Lát*ja* | « *He/She/It* sees *him/her/it* (or with def. obj.) » |
| Szeret | « *He/She/It* loves (*me, us, you*; or with indef. obj.; or with inf.) » |
| Szeret*i* | « *He/She/It* loves *him/her/it* (or with def. obj.) » |



(iii) The valid typological distinction between « have » and « be » languages, recently, as was mentioned, with great insight and on the basis of a rich body of factual material reexamined by Isačenko (forthcoming), and cutting across traditional-genetic-language groupings such as Baltic, where Lithuanian became a « have » language while Latvian remained a « be » language, or Slavic, with Russian largely retaining its statut of « be » language (type: *U tebja dom* « You have a house », here, as in Latvian, partly probably due to the influence of an underlying Finno-Ugric model; cf. Kiparsky, 1969, 15-16, 27) whereas other member languages, especially Czech and Slovak, decidedly shifted to « have » languages (type: Cz. *Máš dům*), primarily under the impact of German, constitutes another instance where a particularly deep-seated semantic category-here, the STATE subclass of PREDICATION, undoubtedly a linguistic universal, is refashioned at a less generalized DS level in such a way as to yield a significant criterion for typological classification.

On an attempt at devising an abstract metalinguistic model (« étalon language », representing essentially typological DS of one range or another) as a standard for measuring degrees of typological deviation from an « ideal » language type (e.g., that of the Balkan convergence area), undertaken some years ago by Soviet linguists (notably Uspenskij, who developed the theoretical framework, and Civ'jan, who applied it to a segment of Balkan linguistic structure), see Birnbaum, 1970, 48-57, with a brief discussion also of a modified generative approach to the Balkan language type suggested by Kazazis.

7. It should be pointed out in closing that the « depth » dimension of DS can in principle at least, be conceived in more than one way. For example, if DS as a whole is equated simply with semantic structure (as was proposed, in effect, in Chafe, 1970) so that, strictly speaking, the very notion of DS is rendered superfluous, the gradual shaping of semantic structure (starting out from semantic features and simple semantic units, proceeding to more complex units and their relational configuration, and ending up by the final restructuring as a result of « post-semantic processes »), this, too, could indeed be viewed as a series of steps evolving along a « depth » dimension. Also the more orthodox generativists, who (mistakenly, we believe, and in contradistinction to, e.g., Chafe) reject the concept of directionality as determining the relationship between major components as well as separate levels of linguistic structure, occasionally refer to such ill-defined notions as « very deep structure », « more deep-seated properties » (presumably as compared to some other covert, though less deeply « buried » categories), « deeper levels », and the like without, however, clearly indicating the criteria by which these allegedly different degrees of « depth » can be arrived at or, for that matter, how this difference in degree of « depth » is considered consistent with the-explicit or implicit-universality claim made for DS. The tripartition of DS into three strata (or, rather, three sets of layers), viz., (i) language-specific « infrastructure », (ii) typological DS (including, to be sure, a variety of DS strata corresponding to particular language types, the specifics of which largely remain to be defined), and (iii) universal « profound structure », briefly sketched here, is thought to remedy, at least to some extent, this lack of definitional rigor. It may be added that while the non-universal layers of DS suggested here (i.e., « infrastructure » and typological DS) were vaguely prefigured by some aspects of the Sapir-Whorf hypothesis of linguistic relativity, suggesting that linguistic structure leaves its imprint, as it were, on the individual's perception and conception of the world, the truly universal DS stratum of « profound structure » is roughly analogous with Koschmieder's aforementioned noetic concept of *das Gemeinte*, defined as being « interlingually constant » and opposed to *das Bezeichnete*, variable from language to language and/or language type to language type.

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# THE LOGICAL STATUS OF DEEP STRUCTURES *
# (LOGICAL CONSTRAINTS ON SYNTACTIC PROCESSES)

EDWARD KEENAN

In Part I we propose a certain property that the logical form of restrictive relative clauses should have in order to correctly determine the logical properties of such relative clauses. In Part II we present syntactic evidence from universal grammar that the deep structure of relative clauses has the property proposed in I, and that languages differ with respect to how much of the logical structure of relative clauses is presented in surface. In Part III we present some language universal generalizations relating logical structure and surface structure. Specifically we argue that the more a syntactic process, such as relative clause formation, preserves logical structure, the greater variety of contexts in which it applies and the more « difficult » the positions it applies to. In this respect then some languages are argued to be logically more expressive than others.

Sentences (1) and (2) are logically distinct in that they are not necessarily true in exactly the same circumstances.

(1) Every student was surprised that he passed the exam

(2) Every student was surprised that every student passed the exam

Imagine for example the following plausible situation: Each student takes and passes the exam; each student is confident of passing, but knows that it is usual for a fixed percentage of the people taking any exam to be failed. In such a situation (1) might easily be false but (2) true.

Similary, the restrictive clauses (3) and (4) are logically distinct in that they specify different sets.

(3) Every student who was surprised that he passed the exam

(4) Every student who was surprised that every student passed the exam

(3) specifies a set of students about whom (1) is true, whereas (4) specifies a set about whom (2) is true, and the truth conditions of (1) and (2) are different. Thus the *difference* in logical form of (3) and (4) is essentially that same as that between (1) and (2). Note that it is the fact that (3) and (4) specify different sets which accounts for the difference in truth conditions of (5) and (6).

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(5) Every student who was surprised that he passed the exam was tired

(6) Every student who was surprised that every student passed the exam was tired

Notice that the choice of determiner used in the quantified noun phrase « every student » is immaterial in establishing the logical differences cited above. Thus if « every student » is everywhere replaced in (1) and (2) by « some student who was drunk », « many students » or even « the student who studied the least » the resulting pairs of sentences are still under somewhat different conditions and thus logically distinct.

In the formal languages whose logical properties are represented in standard predicate logic, the sort of meaning difference we have been discussing exists and is represented by the use of quantifiers. Thus, in the language of elementary arithmetic, the logical form of the *a*- sentences below is represented by their corresponding *b*- sentences.

(7) a. Every number is either even or not even
b. (every x) (x is even or x is not even)

(8) a. Every number is even or every number is not even
b. ((every x) (x is even) or (every y) (y is not even))

Of course in a normal mathematical language the objects we use the language to talk about are agreed upon ahead of time and so need not be specified in the formal sentences. That is, in (7b) for example, it is understood that we are talking about numbers. But in ordinary language we may talk about many different sorts of things, so it is usually necessary to specify this information in the sentence. Thus our logical representation of (7a) would be (7c):

(7) c. (every number, x) (x is even or x is not even)

It is a trivial matter to modify the syntax of standard logic to accomodate sentences of the form (7c) rather than (7b). And it is basically this modification which we adopt to represent the logical form of (1) and (2), given as (9) and (10) below:

(9) (every student, x) (x was surprised (x passed the exam))

(10) (every student, x) (x was surprised ((every student, y) (y passed the exam)))

In Keenan (1972) we have rigourously specified the logical form of sentences such as (1) and (2) and defined the notion « true in an arbitrary state of affairs (model) » in such a way that the difference in truth condition of (1) and (2) is represented, as is consequently the difference in the sets specified by (3) and (4).

Syntactically (9) consists of two parts: a quantified noun phrase and the sentence quantified into. The quantified noun phrase consists of a determiner, « every », a common noun which represents the domain of things talked about, and a variable or pronominal index, « x ». The sentence quantified into, considered in isolation, is one in which the pronominal index x occurs free and marks the positions quantified into by the quantified noun phrase. In the logical forms we have proposed, sentences such as (9) are recursively nominalized, forming complex quantified noun phrases — those which represent the logical form of restrictive relative clauses — and can be used to quantify into further sentences, as illustrated in (5). (And these sentences can further be nominalized, etc.). When a complex sentence

like (9) is nominalized and used to quantify into other sentences it must carry a variable or prnominal index as in the case of simple quantified noun phrases. Thus the logical structure we propose for (3) would be essentially (11).

(11) ((every student, x) (x was surprised (x passed the exam)), y)

The pronominal index y above is used only as the reference point for some sentence that (11) might be used to quantify into. It plays no role in determining the set of objects specified by (11). Noting this then, we can say that the essential logical form of relative clauses consists of two parts: a *head noun phrase* which carries a pronominal index, and a *subordinate sentence* in which the pronominal index occurs and identifies the positions relativized into by the head noun phrase. The set specified by a restrictive relative clause then will consist of just those objects specified by the head noun phrase which the subordinate sentence is true of.

This proposal does not differ greatly from many current in generative grammar, except that it requires that the subordinate sentence not contain a repetition of the head noun phrase but only of its pronominal index (repetition of the full noun phrase would lose the distinction between (3) and (4).

## II.

Any language which has relative clauses must provide some stategy to identify the role that the head noun phrase plays in the subordinate sentence, or else the relative clauses would be intolerably ambiguous—we would not be able to distinguish the referents of « the girl that John loves » and « the girl that loves John ». We stress that identifying the position relativized into by the head noun is logically important, for only if the position is known can we clearly determine the sentence which must be true of the objects specified by the head noun, and thus understand the reference of the entire relative clause.

Logically we have solved this problem marking the positions relativized into with pronouns that match the index on the head noun phrase. It does not appear however that natural languages avail themselves of exactly this solution. Some languages, e.g. Czech [1], Hadza [2], do present sentences containing full noun phrases together with coreferential pronouns with wich they form a constituent. But we know of no language which regularly retains these indexical pronouns on noun phrases which occur as head noun phrases of relative clauses.

Coreference in natural language is not generally indicated by matching pronouns with pronominal indices of nouns. But coreference is normally indicated by matching pronouns with the noun class and subclass of noun phrases. Such referencing power varies considerably across languages. Some, e.g. Malagasy, possess essentially only one third person subject pronoun. Others such as English possess a few, *he, she, it, they*.

And some Bantu languages may possess upwards of 10 to 15, as weak pronouns may agree in noun class and number with the head noun. Luganda for example has 16 distinct weak subject-pro-forms.

One quite general solution to the strategy problem for relative clauses then is illustrated by languages which retain a personal pronoun in the position of the subordinate sentence relativized into. Our current research indicates that languages in which pronoun retention is a major strategy (used in relativization in major noun phrase positions in simplex sentences) fall naturally into two groups: a *strong* group which includes modern Hebrew, modern Arabic, Welsh, Persian [3] and to some extent Batak [4], and a weak group which includes Romanian, Luganda, Swahili and Yoruba.

The strong group typically does not distiguish both a strong and weak form of the personal pronoun for given grammatical cases, (although there may be emphatic forms of the personal pronoun). Typically the relative clause complementizer (hereafter *Rel*) is a generalized subordination marker which may introduce other sorts of subordinate sentence and which is often not marked for case [5].

Usually in these languages it is difficult or impossible to retain subject pronouns in relative clauses [6]; direct object pronouns are somewhat easier (e.g. not usually retained in Welsh, optionally retained in Hebrew, normally retained in Arabic (Colloquial Egyptian)); and oblique case pronouns are usually obligatorily retained.

Hebrew is a representative example of this group. In the relative clause (12), the subordinate marker *še* is invariable in form—not marked for gender, number, or case. It also serves to introduce sentence complements as in (13).

(12) Yon makir et ha- iš še ha- iša hikta oto
John knows the man that the woman hit him

(13) Miriam amra še ha- iš hika et ha- iša
Miriam said that the man hit the woman

The direct object pronoun *oto* agrees in gender and number with the head noun ha-iš. It may be optionally omitted from (12). And most important, the subordinate clause following *še* in (12) has the surface structure of a sentence. If a man had already been identified one might say (14) as a complete sentence:

(14) Ha-iša hikta oto (The woman hit him)

Clearly then Hebrew preserves in surface the sentential status of the subordinate part of the relative clause. On the other hand English and many European languages do not preserve the sentential status of the subordinate clause in surface. That part of the relative clause following the optional « that » in (15) is not a surface structure sentence in English.

(15) the girl (that) John kissed

As the subordinate clause is a sentence in logical structure, we are justified in saying that the strong pronoun retaining languages preserve in surface more of the logical structure of relative clauses than do languages like English.

The weak pronoun retaining languages usually distinguish strong and weak form of the personal pronoun (and may have yet another form for emphatic pronouns). It is generally the weak form that is retained in the subordinate position of relative clauses. Typically the weak form is affixed to the verb. Frequently it also occurs in simple sentences when the full noun phrase it refers to is present.

[1] See Vanek, A. (1960).
[2] I am indebted to Dr. James Woodburn for the Hadza data.
[3] I am indebted to John Paine for both the Welsh and Persion data mentioned here and later.
[4] Batak has two major relative clause strategies They are discussed below, and in detail in Keenan (1972b).
[5] In spoken Egyptian Arabic it is common to use an invariable *Rel*-marker *ille*. But in written, newspaper, Arabic the *Rel*-marker agrees with the head noun in gender — masculine and feminine — and in number — singular, dual, and plural. In the dual forms a distinction is made between nominative and non-nominative case marking.
[6] A possible exception is Iai, a Melanesian language presented in Tyron (1968) in which apparently a third person subject pronoun is retained both in relative clauses and in simplex sentences cooccurring with a coreferential NP. No distinction appears to be made between strong and weak forms of the pronoun. Too few examples of the appropriate sort of relative clause are given for us to be able to consider this strategy in Iai.

The full noun phrase may be the stressed form of the pronoun. Typically weak pronouns only occur in subject, direct object, and indirect object positions and usually not in all of these (e.g. Yoruba has only weak subject pronouns, Luganda weak subject and object pronouns, and Romanian weak object and indirect object pronouns but no weak subject pronouns). Frequently *Rel* does mark the grammatical case the head noun would have in the subordinate sentence. (Luganda marks subject and object cases, Romanian marks subject, object, indirect object, and genitive. But Yoruba does not mark case, having an invariable *Rel*). (16), (17), and (18), from Yoruba, Luganda, and Romanian respectively illustrate the diversity of relative clause formation in the weak group.

(16) omodé t'ó (= tí + ó) rí okùnrin nye
child that he saw man the
((the) child who say the man)

(17) omukazi e- ye- basse
(the) woman who she is sleeping

(18) barbatul pe care femeia l- a lovit
the man whom the woman him hit

The weak pronoun retaining languages also appear more structure preserving than e.g. English, for the subordinate clause following the *Rel* marker in (16) - (18) above has the surface structure of a sentence. But these languages seem somewhat less structure preserving overall than the strong group. In the first place weak pronouns occur in relatively few positions — subject, object, indirect object — which include the easiest positions to relativize into regardless of the syntactic strategy used in relativization (the notion of « easiest » will be explicated shortly). The typically enclitic nature of the pronouns further restricts their freedom of occurrence in that, for example, they cannot be conjoined to form a noun phrase of the form « he and she » — ony the strong forms could be used here. In the second place, the fact that the *Rel* marker is marked for case indicates that presence of the weak pronoun is not sufficient to mark the function of the head noun in the subordinate clause. Thus in Romanian and Luganda the *Rel* marker codes as many or more grammatical cases than can be represented by weak pronouns. Notice too that within Bantu languages the *Rel* marker frequently occurs within rather than preceding the subordinate sentence. Thus when non-subjects are relativized on in Luganda the *Rel* marker usually follows the subject of the subordinate sentence, as in (19) where *gwe* is the object *Rel* marker agreeing in number and noun class with the head noun *omuggo*.

(19) Fred yalaba omuggo John gwe yakubisa embwa
Fred saw stick John that hit-with dog
(Fred saw the stick that John hit the dog with)

We conclude this section with two remarks: 1) the existence om many languages, from diverse language families, which present pronouns in the subordinate sentence referring to the head noun phrase constitutes evidence in favor of using the logical structures proposed in I. as the underlying syntactic sources of relative clauses. What differs primarily across languages in this approach then is the specification of the environments in which deletion of the subordinate pronoun is optional and obligatory — and this sort of variation is already known to be natural akross languages. 2) The pronoun retaining languages present in surface more of



the logical structure of relative clauses than languages which do not retain the subordinate pronoun.

## III.

Since the communicating function of natural language depends in part on how clearly semantic information is coded in the syntactic structures of the language we might expect that a syntactic strategy that preserved more logical structure than some other would, in some sense, be the more successful. The following principle is one way of making this intuition explicit.

### Conservation of Logical Structure (CLS)

The more a syntactic process preserves logical structure the greater the range of such structures expressible in surface.

We present two major pieces of evidence in support of CLS:

1. *Pronoun retaining languages permit relative clause formation in a greater variety of contexts than non-pronoun retaining ones.*

In the strong pronoun retaining languages it is not unusual to find that relativization is possible into sentence complements of nouns, as in Hebrew, (20), into single members of conjoined noun phrases, as in Arabic (21), and even into relative clauses themselves, as in the Welsh (22).

(20) Ani roa et ha- iš še Sally ma'amina la-šmo'a še
I see the man that Sally believes the rumour that
Miriam hikta oto
Mary hit him

(21) Ra'ayt alrajul allathi hua wa ibnahu thahabu ille N.Y.
(I) saw the man that he and son his went to New York

(22) Dymar'r het y gwn y dyn a'- i gadewodd ar y ford
Here-is the hat that I-know the man who it left on the table
(Here is the hat that I know the man who left (it) on the table)

Table I compares relativization possibilities of the five strong languages with two non-pronoun retaining ones, English and Malagasy. The key to the headings is: *co-S*: one member of coordinate sentences. *co-NP*: one member of coordinate noun phrases. *S-cmp-NP*: sentence complement of noun phrase, as in « the rumour that Mary left John ». *Emb-Q*: embedded question, as in « I dont know *who hit John* ». *Rel-Cl*: relative clause. *O-Prep*: object of a preposition. *Conj*: occurring in different grammatical cases in each of two conjuncted sentences, as in « *The boy* came early and Mary loves *the boy* ». *Poss-Np*: possessor noun phrase as in « *John's* car ».

TABLE I. *Relativization is Possible into:*

| | *co-S* | *co-NP* | *S-cmp-NP* | *Emb-Q* | *RelCI* | *O-Prep* | *Conj* | *Poss-NP* |
|---|---|---|---|---|---|---|---|---|
| Hebrew | no | yes | yes | yes | yes | yes | yes | yes |
| Arabic | no | yes | no | yes | yes | yes | yes | yes |
| Welsh | no | no | yes | yes | yes | yes | — | — |
| Persian | no | yes | — | yes | yes | yes | — | — |
| Batak | no | yes | no | no | no | yes | yes | yes |
| English | no | no | no | no? | no | yes | yes | yes |
| Malagasy | no | no | no | no | no | no | no | no |

The questioned entry under English embedded questions is due to the fact that typically they are ungrammatical when formed in the usual way, but are frequently accepted if a pronoun is retained in the position relativized into. Compare:

(23) *This is the road which I don't know where goes

(24) This is the road which I don't know where it goes

Although our table has a few blanks, it overwhelmingly supports the claim that pronoun retention extends the domain of relativization. Whenever it indicates that relativization by pronoun deletion is possible in English or Malagasy it is also possible (ignoring the few blanks) in *all* the pronoun retaining languages. But the converse fails badly.

The somewhat poor showing of Batak in this respect is explained as follows: The principle relativization strategy in Batak is a pronoun deleting strategy. But as with many W. Malayo-Polynesian languages[7] only subjects may be relativized with this strategy. As Batak has but two voices, active and passive, this means that from the point of view of underlying structures only subjects and objects can be relativized. So a morphologically more complex strategy is used for many constituents that cannot be made a subject — and this strategy permits retention of non-subject pronouns.

Note also the difference between Eglish and Malagasy. Of the pronoun deleting languages English is one of the most liberal we have looked at from the point of view of relativization. The use of a relative pronoun which carries case markers and full prepositions appears responsible for this. Thus in « the table on which Fred put the Money » the phrase « on which » codes quite explicitly the role that « table » plays in the subordinate clause. In Malagasy the coding is much less explicit, since the *Rel*-marker is invariable in form. As with Batak basically only subjects can be relativized. Malagasy however has three voices, an active, a passive, and a catch-all voice that will make almost any major constituent of an active sentence the subject. But in making it the subject no preposition is retained marking the underlying function of the NP. Consequently the semantic role of the head noun of a relative clase whose subordinate verb is in the third voice may play any function in that clause except that of underlying subject or object. It is impossible to distinguish in surface for example between « the table under which Fred put the money » and « the table on top of which Fred put the money ». The best we can do is *ny latabatra izay nametrehan'i Fred ny vola* « the table where Fred put the money ».

Since English can discriminate very many particular functions that head nouns play in subordinate clauses whereas Malagasy can only discriminate three explicitly,

[7] See Keenan (1972b), for a detailed discussion of this strategy.



it is not unreasonable to think that English explicitly preserves more of the logical structure of relative clauses than Malagasy, given that they both preserve less than the strong pronoun retaining languages which in addition to preserving function of head noun also preserve the sentential status of the subordinate clause. That English can for more relative clauses than Malagasy then conforms to CLS, but we do not pursue further here the differential relativizing power of languages with invariable Rel-markers and those with case marked ones.

A final remark on Table I. Note that none of the strong pronoun retaining languages admits that relative clauses may naturally be formed into only one member of a coordinate sentence. Similarly relativizing twice into the same relative clause e.g. « This is the book which I saw the girl that you know the man who gave it to her » was not generally accepted, although it could be puzzled out. Consequently retaining subordinate pronouns in relative clauses does not give us unrestricted relativizing power, it merely enlarges the class of relative clauses by comparison with non-pronoun retaining languages, but both sets of languages share some impressive common restrictions on relative clause formation.

Table II below compares three weak pronoun retaining languages with English and Malagasy.

TABLE II. *Relativization is Possible into:*

| | *co-S* | *co-NP* | *S-cmp-NP* | *Emb-Q* | *RelCI* | *O-Prep* | *Conj* | *Poss-NP* |
|---|---|---|---|---|---|---|---|---|
| Romanian | no | no | no | yes | no | yes | yes | yes |
| Luganda | no | no | no | yes | yes | no? | yes | yes |
| Yoruba | no | no | no | no | no | yes | * | yes |
| English | no | no | no | no? | no | yes | yes | yes |
| Malagasy | no | no | no | no | no | no | no | no |

The * in the Yoruba row indicates that while relativization was not judged natural in conjoined sentences the difficulty seemed to pertain more to the difficulty in conjoining sentences rather than the difficulty in relativization. Conjoining sentences in Yoruba by overt coordinate conjunction was not judged natural. Noun phrases could be overtly conjoined, but sentences were merely said one after the other. The problem of relativizing into conjuncts then does not arise in a natural way.

The questioned *no* in the Luganda row is of more interest. One cannot relativize on the object of a preposition, either stranding the preposition or attaching it to the *Rel*-marker. Basically the Lugandan relativization strategy works on subjects and objects (including many things one might want to call indirect objects), providing distinct series of subject and object *Rel*-markers which agree in number and noun class with the head noun. Rather than permitting relativization on oblique case constituents such as instrumentals however, Luganda provides a way of systematically modifying the simple active verb to form a « prepositional » verb whose direct object would be the oblique case constituent of the simple verb. It then can form relative clauses on these constituents as direct objects. (25) and (26) illustrate this formation. No relative clause can be formed on *olutti* « stick » from (25) but only from (26) as illustrated in (27).

(25) John ya-sima lumonde n'olutti
John he dug up a potato with a stick

(26) John lumonde ya-mu-simisa lutti
John a potato he it dug up-with a stick

27 Fred yalabu olutti John lwe- ya-sim*i*sa lumonde
Fred saw (the) stick that he dug up-*with* a potato

So inability to form relative clauses directly on oblique case constituents in Luganda does not result in a loss of expressibility. It suffices to convert the verb to a « prepositional » form making the oblique case NP a direct object, whence it can be relativized. Note the similarity of this strategy to the use of the voice system in Malagasy and other W. Malayo-Polynesian languages (including Kalagan [8], Batak, and Ivatan [9]).

The information in Table II basically supports CLS but the evidence is not nearly so striking as that presented in Table I. Relativization in Yoruba in fact seems slightly more constrained than in English, though still more general than in Malagasy. This is not surprising since Yoruba retains only subject pronouns in the subordinate clause and its *Rel*-marker, being invariable, does not code the function of the head noun in the subordinate clause.

Romanian and Luganda do have a slight edge over English and Malagasy with respect to freedom of relativization, but both are clearly more restricted than the strong pronoun retaining languages. This confirms our intuition that weak pronoun retention is less preserving of logical structure than strong pronoun retention.

2. *Across languages, the use of pronoun retaining strategies for given noun phrase positions is proportional to the inaccessibility of the noun phrase as determined by its position in the (independently motivated) Noun Phrase Accessibility Hierarchy.*

In the course of our comparative work on relativization in different languages it has become quite apparent that the relativizability of certain positions is not independent of others. These *dependencies* are largely independent of the syntactic stategy a given language may use in relativization. Furthermore the same dependencies appear to hold for a variety of syntactic processes whose effect is to make a noun phrase occurring in a sentence the head of that sentence such that the sentence becomes, in some sense subordinate to the noun phrase that was originally an undistinguished part of it. Such processes in English include REL-CL, QUEST (e.g. Which girl did John kiss?), EMB-QUEST (e.g. Fred knows *which girl John kissed*), CLEFT (e.g. It was Mary who John kissed), STRONG-TOP (e.g. As for Mary, noone likes her anymore), EXIST (e.g. There was a young girl who John thought could play the part), and WHAT-CL (e.g.) *Whoever Mary looks at* will turn to stone).

Basically we are claiming that whenever the difficulty in applying one of these processes to some noun phrase x is greater than or equal to the difficulty in applying the process to y, then the difficulty in applying any other one of the processes to x will be greater than or equal to applying that process to y. In other words, some NP positions are inherently less easy than others to make dominant with respect to the entire sentence they occur in.

Our formulation allows that the absolute ease of applying two different processes to the same NP might be very different. In Malagasy for example it is possible to apply QUEST and CLEFT to object of true prepositions — positions which hare not relativizable. And in English there are cases where REL-CL operates on an NP occurring in different cases across conjunctions but where QUEST doesn't — presumably because the structure preserving property of repetition of the relative pronoun is not part the syntactic strategy of QUEST.

[8] See Collins, G. (1971).
[9] See Reid, L. (1966).



(28) The man who Mary kissed and who called the police

(29) *Which man did Mary kiss and called the police?

A full statement of the Accessibility Hierarchy would go well beyond our data and the bounds of this paper. Still, we give two principles of the hierarchy in order to justify our claim in 2. above. We use « ⩾ » to mean « greater than or equal to in accessibility ».

(A) major NP ⩾ minor NP

(A major NP of a sentence S is an NP which functions as a major constituent of the main verb of S, such as « subject », « direct object », etc.)

(B) For major NP, we have that Subj NP ⩾ Dir-Obj NP ⩾ Ind-Obj NP ⩾ other oblique case NP ⩾ object of comparison

Specifically then (A) predicts that it will generally be harder to relativize on minor NP than on major NP (Note that the comparison in Tables I and II is almost entirely on minor NP). (B) claims that whenever a language permits one to relativize on objects of comparative constructions then you can also do so on objects of true prepositions. And if these work, then direct objects and then indirect objects can be relativized. Finally, the easiest of all to relativize on are subject NP. The converse of these statements in general fail.

The evidence in support of the Hierarchy is of two sorts. The first is direct Informants simply judge that questions, relative clauses, etc. formed on NP fall down the hierarchy are less well formed than those formed on NP highly placed on the hierarchy. The second is indirect. Namely, the principle of accessibility allows us to explain the existence of certain syntactic phenomena across languages, thereby increasing the generality of our linguistic descriptions.

We saw earlier that Malagasy and several other W. M-P languages permit REL-CL to work only on subjects. We can now point out that the function of the multiplicity of verb voices in these languages (e.g. 3 in Malagasy, 4 in Kalagan) [10] is to move noun phrases from inaccessible positions to accessible ones. Nor is it any accident that if only one position is to be accessible it is the subject position. It is easy for a non-speaker of these languages, even one who has read carefully their grammars, to get the impression that the principle function of the large number of voices is simply to allow people to say basically the same thing in different ways and with a slightly different emphasis, just as actives and passives in English differ in emphasis but presumably have the same propositional content. But this analysis completely overlooks the major function of the voice: to make noun phrase accessible for questioning, relativizing, etc.

Similarly, the function of the various prepositional forms of verbs in Luganda (and plausibly many other Bantu languages) [11] is to move oblique case NP into an accessible position — the direct object position. And as with the M-P languages referred to above, it is natural to wonder why a language would provide a systematic way of saying « hit-with », « planting-with » given that we already can say « hit », « plant », etc. The Accessibility Hierarchy provides the basis of the answer. It also enables us to see that two apparently rather unrelated phenomena — the verb voices in W. M-P and the prepositional verbs in Bantu — function in very similar ways: Namely, to make inaccessible NP accessible.

Returning now to the second generalization in support of CLS we note that across languages the likelihood of using a pronoun retaining stategy in REL-CL

[10] See Collins, G. (1971).
[11] See for example Perrott, D. V. (1957).

increases as we move down the Accessibility Hierarchy. For the languages we have considered in which pronoun retention is a major relativization strategy the evidence in favor of this generalization is striking. In Batak for example, the primary strategy is a deletion one, but it only works on underlying subjects and objects — those NP which can be made subjects in surface. The second strategy, a pronoun retaining one, allows relativization into sentence complements of verbs as well as in the positions indicated in Table I. Thus we have:

(30) Ndang huberang boru-boru i, ima na dirippu s si Bissar na
Not seen-by-me woman the that thought by Bissar that
manussi abit {ibana / *Ø}
was-washing clothes she

The *Rel*-marker *ima na* is different in this strategy than in the deletion one in which it is merely *na*. A similar phenomenon occurs in Welsh. In the pronoun deleting stategy, which works principally on just subjects and objects, the subordinate clause is, in affirmative sentences, introduced by *a*, referred to in grammars [12] as a relative pronoun. In the pronoun retaining strategy, which allows relativization to occur in the various difficult position in Table I, the subordinate sentence is introduced by a « relative particle » *y*.

Even Hebrew and Arabic, which cannot be said to have morphologically distinct strategies, still support our generalization. Thus in Hebrew subject pronouns of full verbs are not usually retained in relativization, but if the subject position is low on the Hierarchy the pronoun may be retained, sometimes obligatorily. Thus:

(31) Ani roa et ha- iš še {hu / *Ø} ve-ovno halxo le New York
I see the man that he and his son went to New York

Similarly it is preferred to retain direct object pronouns in difficult positions even though retention is optional when relativizing on direct objects of simplex sentences. Clearly these apparent anomalies in the retention of pronouns in Hebrew are simply further instances of a broader generalization, given the Accessibility Hierarchy.

The evidence from Arabic (Colloquial Egyptian) is even more striking. In the respects that concern us there are basically two types of personal pronoun: independent pronouns which function as subjects, and dependent pronouns which normally occur either suffixed to verbs or prepositions, functioning as objects of these, or else suffixed to nouns and functioning as genitives. It is only the dependent pronouns — the ones representing the less accessible positions — that are normally retained in relativization. However if we attempt to relativize into certain inaccessible subject positions we find that dependent pronouns are occasionally used as subjects!

(32) ra'ayt alrajul allathi Mona farihat an- {hu / *Ø}daraba Ahmed
(I) saw the man that Mona was pleased that he hit Ahmed

[12] See Bowen, J. and T. J. Rhys Jones (1960).



In other cases of inaccessible positions it sometimes happens that the independent form of the pronoun is retained even though it functions more as an accusative rather than a nominative.

(33) ra'ayt alrajul allathi {hua / *Ø}wa ibnahu thahabu ille New York
(I) saw the man that he and son-his went to New York

(34) ra'ayt alrajul allathi Mona ta'rafu-hu {hua / *Ø}wa zawgati-hi
(I) saw the man that Mona knows him he and wife his

Again CLS and the Accessibility principle provide a basic explanation for these apparent anomalies: given that the position relativized into is inherently rather inaccessible we must present in surface the logical structure of the sentence relativized into in order that the logical structure of the entire relative clause be clear. Extending the usages of so called subject and object pronouns is simply the natural way in Arabic of preserving logical structure in surface.

Further evidence in support of our generalization comes from languages in which pronoun retention is not a major relativization strategy. It happens frequently that such languages do admit of pronoun retention in certain relatively inaccessible positions, specifically possessor-NP and NP occurring in different cases akross conjunctions. We have documented examples of genitive pronouns retained in relative clauses in Norwegian, Icelandic, Turkish, and Malay.

(35) (Malay): lelaki yang Ali telah menchuri ayam- nya
man that Ali stole chicken-his

Even in English certain speakers show a preference for « Here comes the man that I can never remember his name » rather than « ... whose name I can never remember ».

Similarly in Ancient Greek (Goodwin, p. 222), Latin (Gildersleeve, p. 407) and Serbo-Croat, (36) examples [13] can be found in which a pronoun is retained in second conjuncts when the NP position is of a different grammatical case than in the first conjunct.

(36) zemlja o kajoj znamo vrlo malo a smatramo je vaznom
land about which we-know very little and we-consider it important

Another anomaly explainable in term of CLS and the Accessibility principle is that in all languages we have considered it is difficult, and usually impossible (see Table I), to directly relativize into a sentence complement of a lexical NP, e.g. « the country » in (37).

(37) John believes the prediction that the country will fall.

But many of these languages (e.g. English, French, Romanian, Arabic) do present a relative clause which is semantically equivalent to the one we would expect to get by relativizing directly into the complement sentence. Thus (38a) is ill formed in English but has the same meaning essentially as the well formed (38b).

[13] I am indebted to Bernard Comrie, personal communication, for these examples. The Serbo-Croat example is due originally to Wayles Brown.

(38) a. *the country that John believes the prediction that will fall
b. the country about which John believes prediction that it will fall

(38b) clearly appears to be formed by relativizing into a position directly governed by the main verb of the sentence rather than of the complement sentence. Thus the relativization has taken place on a more accessible NP in (38b) than (38a), which given our principles is not surprising. But what is most interesting here is that in general the apparent underlying source for the acceptable relative clause is less acceptable than the direct underlying source for the unacceptable relative clause. Thus (39) below is less acceptable in English than (37).

(39) ?John believes about the country the prediction that it will fall

It would appear then the relative clause formation does not, in this case, preserve the relative acceptability ordering of sentence — a surprising fact since it usually does. And again CLS together with the Accessibility principle explain the greater acceptability of (38b) than (38a). Accepting that (37) and (39) have essentially equivalent logical structures (something that may not be true for all sentence pairs differing in this way) it is easy to see that the surface structure of the acceptable relative clause (38b) preserves the structure of (37) in fact following the *Rel*-marker « about which ». Its greater acceptability then is due to its logical transparency.

A final piece of evidence supporting our major generalization is that even in languages where pronoun retention is not a norm, a relative clause formed on an inaccessible position is typically more understandable, logically speaking, than the corresponding one without the subordinate pronoun. Compare:

(40) This is the girl which the fact that John kissed{*her / **Ø} surprised everybody

(41) This is the girl that {*she / **Ø} and her brother were expelled yesterday

In conclusion: We have argued that the logical structure of relative clauses should consist of head noun phrase and a sentence which contains a pronominal reference to the head noun phrase. We have shown that many languages present such pronouns in surface and that these languages permit relative clause formation to apply in a greater variety of contexts, including the less accessible ones, than languages in which these pronouns are not retained. Our principle of Accessibility and of the Conservation of Logical Structure provide an explanation for these, and other, syntactic facts.

A closing note on method: Some linguists might object to our proposals on the grounds that the difficult relative clauses that we have judged acceptable in pronoun retaining languages are often cumbersome and not frequently used. Certainly in some cases such as relativizing into relative clauses, this is so. But as an objection to our work we feel it is not well taken since the purpose of our work has not been merely to enumerate certain sometimes clumsy structures that grammars of particular languages should generate, but rather to compare different relative clause stategies. To this end we have performed grammatical « experiments » in submitting different strategies to the same stress conditions (by trying to force them to operate on relatively inaccessible NP) and attempted to make generalizations concerning the nature of the strategies as a function, in part, of how they behave under similar stress conditions. Essentially we are claiming that pronoun retaining strategies hold up better under stress than pronoun deleting



ones — and the principles of CLS and Accessibility are our attempt to explain this behaviour.

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# « DEEP STRUCTURE »; A GENUINE THEORETICAL ISSUE?

EMANUEL VASILIU

§ 1. The term « deep structure » occured within the framework of the TG (= transformational grammar) as a kind of development of the earlier distinction between « kernel sentences » and sentences derived from kernel sentences by means of transformations.

In spite of the differences between the earlier version of the TG and the new one(s), there is a fundamental formal similarity between them. Both versions may be viewed as devices specifying *two languages*:

(*a*) the first language — let us call it $L_a$ — is specified by means of a set of « rewritting rules » (or « phrase-structure » rules);

(*b*) the second language — let us call it $L_b$ — is specified by means of a set of « transformation rules » applied to the constructions belonging to $L_a$ .

If the intersection of $L_a$ , $L_b$ is empty (that is, if any sentence belonging to $L_a$ does not belong to $L_b$ and vice versa), then TG, as a whole, should be viewed as a device enabling one to account *indirectly* for the syntactic properties of the natural language $L_b$ , in terms of the artificial language, $L_a$ .

If it is true that, in order to obtain the « surface structure » of a given language, we need to apply several transformations to the constructions specified by the « base component » of the grammar (that is, to the constructions obtained by « rewritting rules ») or, otherwise phrased, if it is true that « surface structure » is always specified by means of a set of *transformations* applied to a subclass of constructions generated by the « base component » of the grammar, then it seems to me that (*a*) and (*b*), together with the « emptiness condition » (mentionned after (*a*) and (*b*) is a convenient and adequate formal characterization of the TG, in the form it is given in Chomsky's *Aspects of the Theory of Syntax*, or in the form it is given by what is called « generative semantics ».

§ 2. Saying that $L_a$ accounts indirectly for a natural language, $L_b$ , we should make clear the following points:

1°. The content (or the « meaning ») of the category symbols of the TG is purely *theoretical*, that is the content of these symbols is specified only in terms of the theory and not in terms of our empirical observation of the facts.

For example, the content of the symbol « Aux » is not given by our empirical observation of the verbs, that is by what is traditionally considered to be an « auxiliary », but by means of a set of rules, like:



(1) i. $S \rightarrow NP^{\frown}VP$

ii. $VP \rightarrow V^{\frown}\begin{cases} NP \\ NP^{\frown}NP \\ \ldots\ldots \\ \# \end{cases}$

iii. $V \rightarrow Aux^{\frown}Verb$

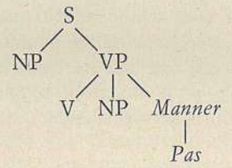
iv. $Aux \rightarrow Tense^{\frown}X$

v. $Tense \rightarrow \begin{cases} Pres \\ Past \\ \vdots \end{cases}$

The distinction between *theoretical* (that is *formal*) *content* and *empirical content* explains the fact that several times a symbol of the grammar (in our case, the TG) may be only loosely interpreted in terms of the ordinary words. This is exactly the case of the example just mentionned: the content of « *Aux* » is far from being identical with the content of the ordinary word *auxiliary* from the traditional grammatical terminology.

2°. The form of the expressions (constructions) specified by the grammar of $L_a$ is not determined by the form of the expressions (constructions) actually occurring in some definite natural language (in our case, $L_b$), but only by the rules of the grammar of $L_a$ . For example, the structure:

(2)




(accounting for the passive constructions) is by no means motivated either by an expression like

(3) *The apple is eaten by John*

or by any actual passive expression occurring in English.

3°. The « transformation rules », by means of which « surface structures » are obtained from underlying structures (deep structures), are but *rules* of *correspondence* between theoretical concepts and expressions belonging to $L_a$ , and the actual facts of the language $L_b$ . In particular, the *passivization rule* is such a « correspondence rule », by means of which any expression of the form (3) is put into correspondence with (2), and each item of any expression of the form (3) is put into correspondence with one symbol of (2).

§ 3. If such is the case, if the so-called « deep structure » is but a theoretical construct put into correspondence with one (or more) natural language(s) in order to account in this way for its (or their) structure(s), can we meaningfully raise the question of whether natural languages do or do not *have* deep structure?

Raising such a question would be as meaningfull as raising the question of whether the three books which lie on my table do or do not *have* the « Number 3 », or as raising the question of whether on my table *is* or *is not* the « Number 3 » (« Number 3 » would be in such a case the « deep structure » of the set of items which actually *are* on my table).

As a matter of fact, natural languages do not *have* anything more than some kind of *items* which are combined in what is usually called *sentences*. Since these combinations are not arbitrary, but, on the contrary, they display some regularities governing them, one is allowed to *represent* these regularities in terms of a *grammar* containing *rules*. To the extent that « grammar » is not viewed as a simple « report » about the empirically gathered facts, but is aimed to account in a *formal way* for the empirical regularities, *any* such formal device should be said that makes the distinction between the *formal construction* (= « deep structure », in the case of TG) and the *actual facts* (= surface structure », in the case of TG).

That is why it seems to me that, form the above mentionned reasons, the distinction *deep structure/surface structure* is, by itself, plainly trivial. What is not trivial at all is the *specific form* of this model (i.e. the TG): a set of abstract expressions specified by a finite number of rules which is put into correspondence, by means of another finite set of rules (= transformations) with the set of expressions actually occurring in some definite natural language(s).

Since the distinction *deep structure/surface structure* is but a particular case, holding a specific name, of the more general methodological distinction between *formal theory, formal concepts*, on the one hand, and *facts*, on the other hand, it seems to me meaningless to chriticize the « traditional structuralism » for no making the distinction between *deep structure* and *surface structure*. As a matter of fact, the « traditional structuralism » does make this distinction, but in a different form and without calling it in the same way. The « invariants » (phonemes, morphemes, etc.) of the structuralism belong to the level of theoretical concepts, whereas the « variants » which « realize » the variants belong to the empirical level; the concept « realization », together with the *conditions* under which a definite variant X is realized by the variants $x_1$ , $x_2$ , ..., $x_n$ represent in fact the « rules of correspondence » between the theoretical concept and its empirical counter parts. Thus, we can say that segments like [-s], [-z], etc. from English are in the same kind of relation with the morpheme {third person singular} as (3) with (2).

§ 4. I am going to conclude now by pointing out the following:

1°. If correctly understood, as a simple particular form of the more general distinction between « theoretical concepts » and « facts », the distintion *deep structure/surface structure* does not involve any genuine theoretical issue. However, at the same time, it must be said that in such a case the distinction is far for being as new and striking as transformationalists consider it.

2°. The trouble arises only when the concept « deep structure », as it is defined within the TG, is considered as referring to some mysterious entity actually *existing* somewhere and somehow.

This misleading view gives raise to a full series of pseudo-issues. The first of them would be exactly that of questionning the *existence* of such a « deep structure ». If the answer is negative, then why do we use such aconcept? If the answer is affirmative, then *where* is this « deep structure » located? Is it « contained » in any language in the same way in which the kernel is « contained » in any fruit? Or does it exist only in our mind? If « deep structure » does exist somewhere and is connected by transformations with a « surface structure », then any linguistic theory which does not tell us anything about « deep structure » is necessarely « less powerful » than TG, etc., etc.

It is easy to see that all of these problems become meaningless, when the distinction here under discussion is given the interpretation suggested under 1°, in this paragraph.

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# THE PARADIGM IN DEEP STRUCTURE

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It is a self evident fact that not all facets of language are directly observable. One can observe directly, for example, through the medium of the ear, a phonic string in an unknown language, but one cannot observe directly phonemes, morphemes or meanings, which must be inferred from continued observation of phonic strings and their use in situational contexts. From the point of view, therefore, of a scientific investigation of the phenomenon of language, these phonemes, morphemes and meanings are necessarily theoretical sub-structures, the requisite structures that condition the observable data. Like all scientific sub-structures, they are non directly observable, but lie « beneath the surface ». In analysing the phenomenon of language, therefore, it is always necessary to take into account these two levels: (1) the underlying conditioning sub-structures, which we may appropriately call *deep structure*, and (2) the directly observable, uniquely conditioned data which we may appropriately call *surface* structure.

The term « deep structure » has therefore a methodological justification. It should be pointed out that surface features themselves are not naively observable, but require interpretation: even a phonetic transcription requires the phonic string to be segmented, which is a form of interpretation. To penetrate beyond the facts revealed by this preliminary layer of interpretation (the facts of discourse) requires a much more profound analysis and will reveal a deeper and necessarily theoretical layer of interpretation, the facts of tongue, of *la langue*. In traditional linguistics it is these latter that constitute deep structure.

Such a view is quite different, of course, from the current view of deep structure as the elaboration of the underlying logical relationships of the sentence. Fillmore, however, in his case grammar, shows that these latter relationships are not language specific, but universal. It is permissable to speculate, therefore, that many of these relationships are the logical pre-conditions of all language, and that they are, in this sense, not linguistic, but pre-linguistics. It is self-evident, for example, that predication is a necessary precondition of language: spatio-temporal experience by itself is ineffable, and even the attribution of a proper noun to an object is a form of elementary predication. If predication is impossible, language is impossible; predication must be possible before language becomes possible.

The distinction made here between linguistic and prelinguistic, however, is essentially a matter of labelling. It does not indicate a profound disagreement with those who would consider predication to be a linguistic universal; its purpose is to provide a way of distinguishing between the logical relationships underlying all language and the specific deep structures of particular language. It is of the utmost importance to distinguish between these two facets; their nomenclature is of secondary importance.

If one adopts this distinction, for example, it is possible to categorize phono-

logical distinctive features as universal parameters that determine the phonology of specific languages. Man shares with the animal kingdom the faculty of vibrating the vocal chords; voicing is therefore a pre-linguistic feature which may be used as a basis for distinguishing syllabics from non-syllabics, and, in some languages, but not all, for further distinguishing non-syllabics into voiced and unvoiced categories.

In similar fashion specific grammatical systems and structures are based on universal contrastive mechanisms. Lack of awareness of this fact stems from the fashion of analysing grammatical systems as « signalling systems » (i.e. solely in terms of their morphological form) and thereby overlooking the fact that grammatical systems are primarily content systems. If there is a difference of grammatical meaning between *bake* and *baked*, between *take* and *took*, between *go* and *went*, this difference stems from the fact that the English tense system is based on a binary conceptual contrast of memorial time (marked forms) with non-memorial time (unmarked forms). One might say in other terms that the marked morphology of the preterit in English indicates a feature (+ memorial). The operation of this universal mechanism of binary contrast in the forging of a grammatical system becomes even more obvious if we examine the morphology of a complex tense paradigm such as that of classical Latin.

| | Infectum | Perfectum |
|---|---|---|
| present | amo | amavi |
| past | amabam | amaveram |
| future | amabo | amavero |

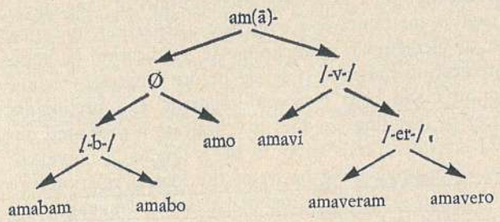
From these forms several binary contracts appear:

(1) Perfective (marked) vs. non-perfective

(2) Present time (immanent) vs. non-present time (transcendent). The morphological means of marking non-present time is /-b-/ in the imperfective forms and /-er-/ in the perfective forms.

(3) Past (experienced) time vs. Future (non-experienced) time. This contrast operates only for non-present time, and the morphological marking is amalgamated with the non-present marker.

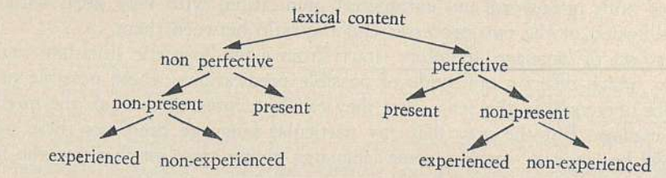
It is possible to present these choices in dynamic terms, in terms of vectors and tree diagrams using the morphological markers to label the nodes:




Alternatively we can diagram the content system that underlies this morphology, showing the binary choices offered to the speaker as he seeks the appropriate



paradigmatic form that will represent appropriately the view that he is seeking to express. The input to such a system is a lexical content; the system ifself permits the appropriate grammaticalisation of the lexical content by predicating an internalised grammatical content of some complexity, formed by the operation of several possible binary choices; and the output is that mysterious element, the word, an amalgam of various elements, a combination whose unity is directly dependent upon the language specific system that gives it birth:




The word, in such a view, is uniquely conditioned by the paradigmatic system. The paradigmatic system, however, does not determine the word, since the word is determined by the speaker, who is not an automaton but has free choice among the paradigmatic forms available.

To ignore the paradigm as a linguistic entity, therefore, is to ignore the distinctive and empirical phenomenon of the word. All languages have words; the word is a linguistic universal; to pass from morpheme to utterance and ignore the word as a distinctive entity, therefore, constitutes a failure to meet the requirements of scientific comprehensiveness.

The view of the paradigm as a content system, moreover, helps to explain at least three morphological curiosities: the cumulation of significates, the irregularity of morphological forms, up to and including the phenomenon of suppletion, and the phenomenon of stylistic variants such as *burnt* and *burned*.

Cumulation of significates occurs when a single morph stands as the sign of more than one underlying grammatical significate. The single phoneme /-o/ of Latin amo *I love*, for example, indicates the underlying meanings of first person, singular number, present tense, indicative mood, imperfective aspect. This is only possible because the phoneme in question is also a single morph which indicates a distinctive position in the paradigm where all five parameters (person, number, tense, mood and aspect) converge in a unique fashion. The single morph is simply a sign of this unique convergence. It is only because all five parameters can be threaded together at this point in the system that it is possible to represent them all together in the observable morphology by a single sign.

In similar fashion the word *took* is a single morph that represents the convergence of the lexical meaning of *take* with the grammatical meaning of preterit tense. It is a vain and unnecessary effort, therefore, to try to break the form *took* into two component parts simply because it is possible to analyse *baked* as *bake* + + *d*. And in the same way it is possible to recognize *went* as a single morph that represents the convergence of the lexical meaning of *go* with the grammatical meaning of preterit, and thereby put the whole question of suppletive forms into a comprehensible perspective.

Finally, once it has been realized that almost any form will suffice to mark a distinctive position or convergence of parameters within a paradigm, it becomes possible to play upon variant forms for stylistic purposes. The child's use of his analogical form *goed* is only stylistically different from the standard form *went*: we are quite aware of what the child means or intends: the convergence of lexical *go* with grammatical preterit. We can therefore make playful analogical forms such as *arrove*, for example, and we can also make use of such variant analogical forms to indicate major stylistic differences that may develop into full scale semantic

contrasts as when we distinguish the preterit *hung* from the analogical preterit *hanged*. Or, where the phonology of the language itself produces variations such as the variation of voiced and unvoiced preterit markers after liquids (*burned, burnt; spilled, spilt*) we may utilize such spontaneous variations to suggest the vaguest and most impressionistic of stylistic distinctions.

Traditional linguistics has always distinguished morphology (word grammar) from syntax (sentence grammar). Morphology marks the relationships within the word; syntax indicates the external relationships of the word. Every language makes use of both intra-word and extra-word predication, with very great variation in the utilization of the two processes and the ratio between them.

Every act of language, therefore, starts from a pre-linguistic situation, real or imaginary, which offers a multitude of possible predications. These possible predications are universal, in the sense that they can be expressed through the medium of any language. But the way that any particular language processes these possibilities will be language specific, some languages giving more emphasis to the morphological processes, others to the syntactic arrangement of words.

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## ASPECTS OF DEEP STRUCTURE

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Comparing the phrases *the doctor's arrival* and *the doctor's house*, O. Jespersen [1] noted that they have different structural characteristics. The difference is brought out by the transforms: 1) instead of *the doctor's arrival* we can say *the doctor arrived*, but *the doctor's house* does not allow of a similar transformation, 2) *the doctor's house* can be transformed into *the doctor has a house*, while *the doctor's arrival* cannot.

In other words, *the doctor's house* and *the doctor's arrival* are structurally-syntagmatic homonyms: one and the same formal structure serves to express different sense structures, the fact which is made explicit by transformation. Thus, it follows from the above analysis that the syntactic structure of the phrase — taken as a unity of form and sense — falls into two parts: a formal structure and a sense structure. The formal structure can be fixed during the immediate analysis of the syntactic structure, the sense structure only emerges from comparison with its synonym yelded by transformation.

We can view each step of transformation as a means of explicating some sense relation and assign different names to different steps so as to use them later and fix sense relations in the phrase to be investigated. For example, the transformation of *the doctor's arrival* into *the doctor arrived* can be referred to in the terms of the agentival relation, and that of *the doctor's house* into *the doctor has a house* in the terms of the possessive relation. Consequently, we state the agentival relation in the phrase *the doctor's arrival* (on the basis of the first transform) and the possessive relation in *the doctor's house* (on the basis of the second transform).

Let us complicate our examples and instead of *the doctor's arrival* consider the phrase *the arrival of the doctor's car*. By means of transformation let us state two sense relations in it: possessive (between the word *doctor* and *car* on the basis of the transform *the doctor's car* → *the doctor has a car*) and agentival (between the words *arrival* and *car* on the basis of the transform *the arrival of the car* → *the car arrived*).

Let us break the transformational process into several steps. We shall assume that each step explicates one and only one sense relation and that in order to do it one definite transformation is used. Let us fix the representation of the transformational process. Obviously, there may be many ways to do it. For example, we may suggest the notation where each phrase corresponds to the results of one step [2]:

[1] O. Jespersen, *The philosophy of grammar*, London, 1929, p. 136.

[2] Cf. this, for example, with the fixation of the semantic inference in: S. K. Šaumjan, *Filosofskiye voprosy teoretičeskoy lingvistici* (Philosophical Problems of Theoretic Linguistics), Moscow, 1971, pp. 118-119. There may be another way: to fix the transformational process by means of a tree (see: H. Harman, « Deep structure as logical form », *Synthese* 21 (1970); R. Langacker, *Language and its structure. Some fundamental linguistic concepts*, New York, 1968, etc.

1) the arrival of the doctor's a car

3) the doctor has a car, the arrival of the car

3) the doctor has a car, the car arrived

4) arrived = $f_1$ (the car = $f_2$ (the doctor)), where $f_1$ is the agentival relation and $f_2$ — the possessive relation.

Phrase 1 is usually called *surface structure*, and Phrase 4 is called *deep structure*.

Let us examine how these phrases are related to the dichotomy form/meaning in language. At first sight, surface structure belongs to the form and deep structure to the contents. But on second thought we see that at all steps of derivation we deal not with figures, i.e. unilateral (formal or sense) units, but with signs (i.e. with form-and-sense elements).

If we examine Phrases 1-4 from bottom to top, we can note that the transition from Phrase 4 to Phrase 1 via Phrases 2 and 3 reflects how the language is forming the sense represented by Phrase 4. Each of the four phrases fixes some sense (let us call it *sense structure*), but each does it in its own way: Phrase 4 by means of an artificial language which only partly coincides with the means of the language under consideration (cp., for example such meta-symbols in Phrase 3 as $f_1$ , $f_2$ (...), etc., in whose terms the sense structure of Phrase 1 is described), in Phrase 3 and 2 only one comma remains of all the metasymbols (cp. the meaning of ordinary comma with that of the meta-comma represented in Phrases 2-3), in Phrase 1 there are no meta-symbols at all.

Thus, we actually have four ways of expressing one and the same sense in different languages, corresponding to one and the same sense structure. So in each phrase (corresponding to the deep as well as to the surface structure) we can single out form and meaning.

Sense structure is the common part which unites the four phrases. But the sense plane of every phrase is not confined to its sense structure. While forming the sense, we use the means of a definite language, and in the system of each language formal means have their own peculiar value. We have shown above that Phrases 1-4 can be viewed as constructed in different languages. So we can single out two components in the sense part of each of them: the one that has been earlier referred to as sense structure and the one which is determined by the values of constituent forms. The first of them can be viewed as sense invariant, the second as sense specifier: in the process of its fixation we have, as it were, added a new sense component, equal to the value of the forms we use. Consequently, each phrase — as regards its sense — is both like and unlike any other.

Let us turn to the formal plane of the phrases. The peculiarity of the form is evident: all phrases have different formal structures, i.e. hierarchies of theses formal relations, such as agreement, government, adjoinment, etc. The invariant component is less obvious. In order to explicate it, let us turn to the process of translation.

We have already noted that *the doctor's arrival* and *the doctor arrived* have identical sense structure. It is retained not only during translation into artificial languages, but also when we shift from one natural language to another, for example, when we translate the aforementioned English phrases into Russian. If the invariant retained in translation were only this sense structure, the choice of equivalents would be based exclusively on the identity of sense stuctures. For example, on fixing the fact that the Russian phrase доктор прибыл has the same structure as the English phrase *the doctor's arrival*, we might consider the task of translating the English phrase *the doctor's arrival* into Russian accomplished.



But actually, it is all much more difficult. Looking for a Russian equivalent of the English phrase *the doctor's arrival*, we pay attention both to the meaning of the phrase and to its form. Every word of the English phrase enters into some formal class (nouns, verbs, prepositions, etc.). Classes make up a system and have their special values within it. Different languages have different systems of classes and, consequently, different values of separate classes.

However, comparing different languages, we may fix classes with more or less close (resp. remote) correspondances, and in translation the degree of proximity of formal classes as regards their value is no less important than the identity of sense structures. For example, though we have in Russian two phrases with one and the same structure доктор прибыл and прибытие доктора, we prefer the phrase доктор прибыл, when we see *the doctor arrived*, and прибытие доктора in the case of *the doctor's arrival*, and not vice versa.

To put it another way, in translation we try to retain not only some sense constituent, but the formal constituent too, i.e. the similarity in the formal means used in setting up both phrases. That which stands behind the choice between two semantically equivalent forms may be fixel as the formal invariant of the phrases. The formal structure of the phrase (whose peculiarity has been already touched upon) is nothing but a sum of formal elements, « selected » from the arsenal of the requisite means of the language according to the demands of the formal invariant.

Thus, from the point of view of the form/meaning dichotomy the four phrases (including the deep and the surface structures) may be characterized so. Each phrase falls into the formal and the sense components as composites consisting of the invariant and the specific parts. Sense structure is the sense invariant, its value characteristics are its sense specifier, the common formal means used by different languages in the building of equivalent formal phrase structure as hierachy of formal nodes and connections whereby to manifest the formal invariant is the formal specifier.

As we judge of sense structure of the phrase by its value, and of the formal invariant by formal structure, both sense structure and the formal invariant emerge as the signifying, while the value characteristics of the phrase and its formal structure emerge as the corresponding signified. Thus we have two pairs of « signifying — signified »: 1) the sense structure of the phrase (signified) — the value characteristics of the phrase (signifying), 2) the formal invariant of the phrase (signifield) — the formal structure of the phrase (signifying).

In their turn, the sense invariant and the sense specifier make up one sense whole, and the formal invariant and formal structure make up one formal whole. In relation to one another, the first composite is the signified and the second is the signifying. It follows that the phrase as a unity of sense and form is a sign, each side of which is also fixed as a sign [3].

We have formulated these conclusions about Phrases 1-4, and they explicate the inner meaning of the sense field which we connect with the term deep struc-

[3] In practical work these results are usually approximated so. If the sense specifier (the first signifying) and the formal invariant (the second signified) are left out of consideration, the sense constituent can be equalled to sense structure (the first signified) and the formal constituent to formal structure (the second signifying). In this case the proposition: « sense structure is the signified of the syntactic structure, and formal structure is its signifying » remains true, but the proposition: « sense structure is the signified of formal structure, and formal structure is the signifying of sense structure » is false. Moreover, using the metonymy: « that which is fixed by means of deep structure is deep structure », « that which is fixed by means of surface structure is surface structure » and bearing in mind the possibility of the aforementioned approximation, we come to the conclusion that deep structure can be equalled to sense structure and the invariant, and surface structure to formal structure and the specifier. This approximation is sometimes convenient in practical work, but in the analysis of the antinomies of the theory of linguistic relativity it leads us nowhere.

ture and surface structure. But they can be extended to any phrase or sentence of an artificial or natural language. For example, if instead of Phrases 1-4 we examine the phrase the arrival of the doctor's car, — for whose analysis Phrases 1-4 have been built — we shall see that its syntactic structure lends itself to the same parametrization as Phrases 1-4 (thus, the meaning of this phrase will be described in the terms of two constituents: sense structure and the value fixed by means of the transformational derivation, sense structure is then a certain entity, allowing us to represent Phrases 1-4 as a single derivational process, and the process itself is fixed as a means to form sense structure).

There are several practical considerations which bear out our analysis of the syntactic structure. In order to explicate one and the same sense structure different languages usually resort to sets of transforms differing in number and type, which means that the forming of one and the same sense structure proceeds along different lines in them. We shall be able to compare the descriptions of these languages only if we first single out their common part, both in sense and in form and then register their peculiarities. And this cannot be achieved purely syntagmatically, unless we fix every syntactic structure in accordance with the principles formulated above.

But the necessity to fix the invariant and the specifier is not limited to practical needs. Of equal importance is the fact that distinguishing the invariant and the specifier allows us to correlate the theory of syntactic structure with that of linguistic relativity and to unite them within one non-contradictory system.

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# THE NEUTRALITY OF DEEP STRUCTURES

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1. Transformational grammarians have been eager to match different interpretations of one and the same surface structure with distinct deep structures. There are various reasons to doubt the validity of this approach, and I will mention three of them.

(1) Positing distinct deep structures for different interpretations becomes a problem, as soon as the ambiguity concerned is a matter of vagueness rather than of ambiguity. This is a point that has recently been made by various authors (Binnick 1970, Kooij 1971). To give one example: if we assume that a prepositional NP complement like *with the flowers* in *He saw the girl with the flowers*, originates from a sentence-structure, then that sentence-structure should contain a verb. But which verb? Does the girl mentioned carry flowers in her hand, or does she sell flowers on the corner of the street? One solution to this problem is, to assume that the underlying sentence that later is reduced to a *with*-phrase, contains a vague verb, like HAVE ,or BE WITH. The precise interpretation of the relation between the girl and the flowers will then depend on context, which would make this a case of an undefinable ambiguity.

(2) Exact specification of deep structures can be inadequate. Bach (1968) argues that the sentence-structure underlying a phrase like *with the flowers*, above, does not contain a regular Tense element, but — at least under one interpretation — a context-sensitive narrative Tense. That is, we interpret *He saw the girl with the flowers* as « He saw the girl who HAD flowers », but we interpret *Do you see the girl with the flowers as* « Do you see the girl who HAS flowers? » It is another this hypothesis solves all problems — I believe it does not — but an important feature of this proposal is that it introduces a notion of « semantic specification by context ».

(3) Differences between interpretations can be so gradual that it becomes intuitively unattractive to assume that such interpretations actually originate from distinct deep structures. When I say *I saw the girl with the flowers*, I say something like « I saw somebody and that somebody was a girl with flowers that has been previously identified ». When I say *I saw the girl with the FLOWERS*, I say something like « The previously identified somebody-who-is-a-girl that I saw, was the one with the flowers ». To me, the difference between these two sentences seems to be a difference in topicalization of essentially the same semantic material, and not a difference in deep structure. In an article on the referential and non-referential use of Noun Phrases, Jackendoff (1971) has said that there have never been really compelling arguments to ascribe syntactic status to all kinds of inter-

pretational differences. And though I am not in agreement with other things he says in that article, I must say that the general point he makes is sound enough. I do not deny that in a semantically oriented framework, it is possible, and possibly easier, to have different quasi-logical representations for such differences. But the question is: what do these representations do, besides representing the difference? Do they, fo rinstance, also explain the difference, and in particular, do they explain why some interpretations are felt to be much closer related than others? It is true that there are two interpretations for the sentence *John wants to visit a museum everyday*, namely: « There is a certain museum that John wants to visit everyday » and « John wants to pay a visit to "some" museum everyday ». It is also true that more or less ingenious trees or formula's have been devised to capture this ambiguity. But the ones I have seen do not explain — at least, not to me — why the same ambiguity is absent in the sentence *John wants to eat a sandwich everyday*, though it is clear enough that, under normal circumstances, the interpretation « There is a certain sandwich that John wants to eat everyday » is out, and it is not difficult to see why it is out either.

From the above, three conclusions may be drawn. One, that we cannot possibly specify in its deep structure all the interpretations that a sentence might eventually have. As far as I can see, this is no reason for despair, but here, other people might think differently. Two, that we should allow for deep structures to be neutral in certain well-defined respects, so that they will be specified later. This, to add a reassuring note, is nothing new, but it has never been particularly emphasized. Features may be distributed downwards along a sentence-tree, a higher node of a subtype $P_1$ may impose certain constraints that a node of a subtype $P_2$ does not impose, etcetera. Three, as long as it is within our means to show why some ambiguities are gradual only, whereas others really involve distinct semantic or syntactic deep structures, we should try to do so, as long as we claim that our descriptions reflect native speakers' competence.

2. The case I want to discuss, with the above remarks in mind, is the difference between so-called restrictive and so-called appositive relative clauses. Consider the Dutch sentences.

(1) De man, die ik de vorige dag ontmoet had, kwam de kamer in
« The man whom I had met the day before, entered the room »

(2) De man die ik de vorige dag ontmoet had kwam de kamer in
« The man whom I had met the day before entered the room »

The arguments are familiar. In (1), the relative clause has the status not only of a separate sentence, but also of a separate assertion. In (2), the relative clause cannot be omitted without changing the truth-value of the sentence. Since, under the prevailing hypotheses, relative clauses like the ones above *both* originate from full sentence-structures, the obious difference in meaning between (1) and (2) has been explained by using different phrase-structure rules. For instance, by developing the so-called restrictive clause as part of the Determiner element (Smith 1964), and the so-called appositive clause as a separate, conjoined sentence, to be attached to the main clause later on.

Various problems inhrent in this analysis have led others to abandon it (compare Annear Thompson 1967, Lakoff 1968, Postal, unp.). These problems, it should be added, were mainly of a technical nature, e.g., the fact that in certain sentences pronominalization rules would not work unless one assumed an infinite number of underlying sentences. But there are semantic problems too, which have been noticed particularly in Annear Thompson 1967. In the sentences (1) and (2), above,



the difference between the restrictive and the appositive interpretation is clear enough. It is somewhat less than clear, however, in sentences with indefinite NP's:

(3) Een man, die ik de vorige dag ontmoet had, kwam de kamer in
« A man whom I had met the day before, entered the room »

(4) Een man die ik de vorige dag ontmoet had kwam de kamer in
« A man whom I had met the day before entered the room ».

In her otherwise highly instructive article (1964), Smith claims that indefinite NP's do not tolerate appositives. I must admit, however, that I see preciously little difference between the sentences (3) and (4). If there is any difference at all, it is a difference in topicalization. When you say: « A man entered the room and I had met that man the day before », you say two different things about the same individual. When you say « A man whom I had met the day before entered the room » you also say two different things about the same individual. The difference is in the way you say it. In the second case, the statement that you had met that man the day before is subordinated to the other statement you make. This, apparently, is one reason why the authors mentioned above have argued that *both* restrictive *and* appositive relative clause should have a conjunction of two sentences as their source, and that the difference is indeed merely a matter of subordination. In case the two underlying sentences are not re-arranged as one main clause and one subordinate clause, one of the sentences can still be reduced to an appositive relative clause. At least, under some circumstances that is possible. Thus, in Dutch you can say

(5) Een man, die ik nog nooit gezien had, kwam de kamer in
A man, whom I had never seen before, entered the room
but you can hardly say.

(6) ?Een man kwam de kamer in, die ik nog nooit gezien had.

If you use the appropriate appositive intonation here, you are more of less forced to change the relative clause into a separate sentence:

(7) Een man kwam de kamer in. Die had ik nog nooit gezien.

Assuming that the above analysis is basically correct, and that the appositive clause in (3) and the restrictive clause in (4) actually have the same source, we are left with the problem why the distinction between appositive and restrictive *does* seem to make all the difference when the NP is definite. It stands to reason that for the answer to this question, we will have to look into the nature of « Definiteness », and that we should do that before we start drawing trees that give us the right surface forms, but no explanation beyond the mere use of the features (+ Def) and (— Def).

The use of a definite article implies, that whatever falls within its scope has been — or, is supposed to have been — previously identified, or previously mentioned. Thus, if I have a discourse « I saw a man. I recognized somebody », and if the NP *somebody* refers to the same individual as the NP *a man*, this second NP should be definite: « I saw a man. I recognized the man, or, that man, or, him ». This is true, provided that the NP's are used referentially, and sometimes it is true even when they are not so used (this latter problem is treated in Karttunen 1968. I will not go into it here.). Notice, furthermore, that there are certain restrictions to this process of definitization. You can say « I say a policeman. The man entered the room », referring to the same individual. But it is odd to say: *« I saw a man.

The policeman entered the room ». In the first case, the policeman mentioned earlier is referred to by an NP description, *man*, the meaning of which is part of the presuppositions of the meaning of the word *policeman*. In the second case, however, the speaker jumps. He tells you that a previously mentioned man entered a room, and he tells you that he is a policeman. And he tries to tell you both these things at the same time, by using the one definite NP *the policeman*. Apparently, this is not allowed.

We now may try to combine the proposal to have conjoined sentences underlying restrictive as well as appositive clauses, and the idea that Definiteness is not just there, but that it is introduced. Consider again the two sentences.

(1) De man, die ik de vorige dag ontmoet had, kwam de kamer in
« The man, whom I had met the day before, entered the room ».

(2) De man die ik de vorige dag ontmoet had kwam de kammer in
« The man whom I had met the day before entered the room »

What I am sawing in the first sentence is, that somebody entered the room, that he was a previously identified man, and that I had met that individual the day before. What I am saying in the second sentence is, that somebody entered the room and that that somebody was a previously identified man whom I had met the day before. (For the sake of the argument, I will take the definiteness of the elements *ik*, « I », and *de kamer*, « the room », for granted). Proceeding along the lines for Definitization sketched earlier, we can add the discourse-material that triggers the Definiteness of the NP's, to the sentences underlying (3) and (4), in the form of presupposition-sentences. That is, we still start from the same sentences that serve as underlying sentences for (3) and (4), but we add a presupposition-sentence *There is a man* for the sentence with the appositive relative clause (1), and we add a presupposition-sentence of the subordinate type *There is a man* (*I met somebody the day before*) for the sentence with the restrictive relative clause (2). One problem with this proposal is, that in (2), the sentence *I met a man the day before* is then still part of what the speaker tells you. But in the restrictive interpretation of the relative clause, this is not quite appropriate. It is true that you can infer this presupposition from what he says, but it is not something that he actually asserts. Another solution for sentence (2) is, to have a presupposition-sentence of the form *There is a man* (*I met somebody the day before*) and to have as an underlying sentence only *Somebody entered the room*. But this is not without its problems either. One will then have to assume, that semantic material which is part of the presupposition-sentence, eventually becomes part of the actually spoken sentence by a process called repetition, in which *somebody* is replaced by *The man whom I met the day before*. This would be possible only, if we knew a little more about the status of presupposition-sentences. Furthermore, under current formulations of the repetition-transformation, I can replace a minimally specified NP, like *somebody*, with any *or* all of the semantic material associated with the first occurrence of an NP with the same index. But in this case, it would be obligatory to replace *somebody* with all the material. A discourse like: (« There was a man. I met that man the day before). The man entered the room », is perfect, but this is not what I am saying in sentence (2).

Let us assume that in all sentences that you speak, a distinction can be made between presuppositional material, and that part of the sentence which is what you actually assert. I find this proposal reasonable, since even the simplest sentences are usually not spoken out of the blue, but embedded in a certain context. If somebody says: « Mary bought a hat », it is therefore not quite appropriate to represent that sentence as « $x_1$ bought $x_2$ , $x_1$ is Mary, $x_2$ is a hat », since more often



than not one part of that sentence will serve as a starting-point, e.g., *Mary*, and one part will contain the « new » information, e.g. *bought a hat*.

The underlying structure of the sentences (1), (2), (3), and (4) can then be sketched as follows. The highest node is a sentence of the form *I say S*. This S splits into a presupposition-S and an assertion-S. Both these S's can, in turn, dominate any number of S's.

In the case of the sentences with indefinite NP's, (3) and (4), I will leave the presuppositions that are possibly connected with these sentences for what they are. The assertion-part of both (3) and (4) consists of three — rather than two — sentences, roughly of the form There is $x_1$ , $x_1$ entered the room, I had met $x_1$ the day before, and of two NP descriptions, *a man*, and *somebody*. The NP description *a man* is associated with the first occurrence of $x_1$ , and the NP description *somebody* is associated with the second and the third occurrence of $x_1$ . By application of the rules for definitization and repetition, we eventually get a sentence with an appositive clause like (3). The sentence (4) has the same underlying structure. The only difference is, that here, subordination by the use of Topicalization features is obligatory. Notice that, in English, only in the latter case the relative pronoun *whom* can optionally be deleted, yielding *A man I had met the day before entered the room*.

For sentence (1), we have a presuppositional sentence of the form There is $x_1$ , with an NP description *a man*. The assertion-sentences are $x_1$ entered the room, and, I had met $x_1$ the day before. For sentence (2), the presupposition-sentence consists of the subordinate structure There is $x_1$ (I had met $x_1$ the day before) and the NP description *a man*. *The* assertion-sentence is $x_1$ entered the room. In both (1) and (2), the NP description associated with the variables in the assertion-sentences is *somebody*. By the rules of definitization and repetition, we eventually get the sentences (1) and (2).

The difference between the two sets of sentences is, that semantic material which is part of the assertion in (3) and (4) is part of the presupposition in (1) and (2). For instance, the NP description *a man* shifts position. In all the sentences, however, both the presupposition-sentences and the assertion-sentences are dominated by the node *I say S*. For it is still possible that somebody says: « The man I had met the other day entered the room » without any previous mentioning of that man. And native speakers are still capable to single out what is actually asserted, and what is presupposed. The sentence above would, for instance, be a perfect sentence to start a novel with.

My claim, in short, is, that all four sentences (1), (2), (3), and (4) have deep structures that consist of essentially the following sentence structures: There is $x_1$ , $x_1$ entered the room, I had met $x_1$ the day before, and of the NP descriptions *a man* and *somebody*. The differences between the sentences are brought about by (1) a Topicalization device that can mark one sentence as (+ Main) and another sentence as (— Main); (2) a device that decides what part of the total sentence is presuppositional and what part of the total sentence is what the speaker actually asserts; (3) rules for definitization and repetition.

I do not wish to claim that this account of « definiteness » explains all uses of definite determiners. I believe, however, that in this way we can try to explain something about restrictive and appositive clauses, and that we come closer to what is actually going on than with the use of different phrase-structure rules. Finally, I believe that we might also be able to explain certain constraints on subordination, relative clause formation, and relative clause reduction. Of the latter, I will give one example. Morgan (1969) has observed that it is allright to say

(8) I dreamt that there was a king of France and that he was bald.

but that it is odd to say

(9) ?Idreamt that the present king of France was bald.

The definiteness of *the present king of France* carries the presupposition that there is such a person as the king of France, independent of what you dream. Since we all are supposed not to share that particular presupposition, sentence (9) is out. That is, the specific presuppositions associated with the use of a verb like *dream*, impose constraints on the possibility to reduce a sentence like There is $x_1$ and an NP description *king of France* to: *the present king of France*. There are, as is to be expected, no such problems in a sentence like.

(10) I dreamt that the present ruler of China was a woman

since we all are supposed to share the presupposition that there is such a person as a ruler of China. Notice, furthermore, that in both these sentences you cannot use the indefinite article *a*, though it is perfectly allright to say something like

(11) I dreamt that a goat ate my shirt

Apparently, in case a NP description is associated with a variable that is supposed to have one, unique referent, we use *the*, and not *a*. I will not even try to go into the many other problems that arise in an investigation of the use of definite determiners. I can only express the expectation that an analysis such as the one sketched above, will teach us something not only about the structure of sentences, but also about the way people talk.

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# DEEP STRUCTURES AND NEGATION

ANTHONY G. LOZANO

The role of negation as a universal is complex and cannot be described only with a rule such as: S → (sentence adverb) (Negation) (Question) (Imperative) NP VP. This rule describes the role of sentence negation, but does not account for the negation of the negative feature in lexical items such as in *doubt, ignore* and *nullify*. That is, can *I don't doubt his word* be paraphrased as *I believe his word* or is there still an element of negation or doubt involved in *don't doubt*? Similary, there is no constituent in the rule stated above that accounts for the lexically negative prefix in *He espressed his disbelief*, which is clearly not a paraphrase of *He didn't express his belief*. In English, some of these questions could be rejected on the basis of being inadequate paraphrases. However, in Spanish the negation of the dubitative feature inherent in *dudo* « doubt », results in the optionality of the subjunctive in the embedded sentence in *No dudo que se oponga* [ + subjunctive] *a la guerra*, « I don't doubt that he opposes the war ». The other option would result in *opone* [+ indicative] in the embedded sentence with a similar translation in English. However, *Dudo que se oponga* [+ subjunctive] *a la guerra*, « I doubt that he opposes the war », contains an obligatory subjunctive verb form governed by *dudo*. The difference in the above between *oponga* and *opone*—both in the environment of Neg—does not appear to be stylistic, but semantic, i.e. the difference between « ... that he is opposed [≅ indicative] » and « ... that he would oppose [≅ subjunctive] the war ». Thus, *Neg + dudo ... + indicative* shows complete negation of doubt while doubt is retained in *Neg + dudo ... + subjunctive*.

In Spanish, negation is crucial in the analysis of lexically negative morphemes, e.g. *posible*, « possible », *dudar*, « to doubt » and *ignorar*, « to be ignorant of », as well as of lexically affirmative ones, e.g. *afirmar*, « to affirm », *creer*, « to believe », and *pensar*, « to think ». Unlike English, unnegated and non-interrogative *creer*, « to believe », always asserts and unnegated *posible* always casts doubt. For example, *No es imposible que lo haga* [+ subjnctive], « It is not impossible that he do it », shows an obligatory subjunctive. Thus, the mutual cancellation of the sentence $Neg_1$ and [+ $neg_2$] prefix leaves the dubitative *posible* obligating the subjunctive. The motivation for distinguishing between $Neg_1$ and [+ $neg_2$] rests in the complete negation$_1$ of *No vino nadie*, « Nobody came », versus the lessening of negation, hereafter call [+ $neg_2$], in *No lo prohibo*, « I don't prohibit it ». The classification of morphemes into « lexically negative » or « lexically affirmative » is language specific and not universal even within related languages. Accepting [+ cognitive] as a feature of *creer* and [+ cognitive] as one for *believe*, we can state the semantic similarity in certain cases, i.e. *Creo en Dios* and *I believe in God*. Therefore, it is clear that the initial rule must be modified by the specification of features such as [+ $neg_1$], [+ $neg_2$], [+ cognitive] and [+ dubitative] in the deep structure.

Negation in Spanish is more complex, obviously, than the mere placement of the preverb *no* before the finite verb. Most grammars account adequately for the placement of such a *no* and for syntactic patterns such as *No vino nadie, Nadie vino, No tengo nada, No voy tampoco, Tampoco voy* (analogous to the affirmative *Voy tambien*), *No conozco a nadie* (analogous to *Conozco a alguien* which does not contain negation). However, more complex problems involving negation are normally not analyzed in any detail. For example, if we want to paraphrase a sentence including a verb of prohibition such as in the sentence, *Prohibo que lo hagas*, we must insert the preverb *no* in an analogous imperative sentence, e.g. *No lo hagas*. Similarly *Impido que lo hagas* can be paraphrased *No lo hagas*. Semantically, then, both *prohibir* and *impedir* are assigned a lexical feature which we have called [+ $neg_2$]. This feature is established on the basis of the paraphrase relationships shown below:

(1a) Los huelguistas impiden que tomes fotografías
(1b) No tomes fotografías

(2a) Tu padre rechaza que vengas a verlo
(2b) No vengas a verlo

(3a) Los campesinos desaprueban que llames a la policía
(3b) No llames a la policía

(4a) El presidente prohibe que participes en el movimiento
(4b) No participes en el movimiento

In a paper that will be published in *Hispania*, I have discussed in detail the different types of morphemes, phrases and features in the matrix sentence (elsewhere known as the main clause) which sometimes or always require the subjunctive (Lozano, 1972). In this study, it is evident that the effects of negation help us identify two major classes of subjunctives. In the first type which we call the optative-subjunctive, sentence negation is irrelevant as far as the subjunctive is concerned. In other words, in a sentence such as *Ordeno que lo hagas*, the subjunctive is obligatory whether or not the preverb *no* is present in the matrix (i.e. main) sentence. In the second type, however, the presence of the preverb *no* demonstrates a more complex patterning. The preverb *no* plus a verb of doubt such as *dudar* results in a completely optional subjunctive such as in *No dudo que lo hagas* (or *haces*). The verb, *dudar*, however, requires and obligates a subjunctive in an affirmative sentence. Thus, the subjunctive is obligatory in *Dudo que lo hagas*. After this extensive analysis of the obligatory subjunctive *Ordeno que lo hagas* versus the partially optional subjunctive with verbs of doubt, we were still left with the vexing problem of the difference between the semantic interpretations of sentences such as *No dudo que lo hagas* and *No dudo que lo haces*, as explained at the outset. It may be that the correct semantic interpretations depend on a discourse analysis rather than on a syntactic one.

As a preliminary step, we can make a tentative classification of the types of negation into different levels of difficulty, including elementary, intermediate and advanced. An elementary type is the negation of the main verb with *no* and the subsequent placement of pronominal objects such as in *No lo hagas* and *No lo haces* in contrast with *Hazlo* and *Lo haces* all of which are crucial.

Other types of elementary negation include the negative morphemes, *jamás, nunca, nadie, ninguno, nada* and *tampoco* both in post-verb and pre-verb positions such as *No lo he visto jamás* and *Jámas lo he visto*. The covertly [+ $neg_1$] morphemes and phrases including *en la vida, en parte alguna, en todo el día* (*noche* o *año*), *en absoluto, absolutamente, un bledo, un comino, una miaja* (= *migaja*), *un ardite*, and *siquiera*, all mentioned by Pérez-Rioja (374), are elementary types of negation. The indefinites *algo, cualquiera, alguien, alguno, unos, algún dia, varios, pocos, muchos, otro, ninguno*, and the coordinating conjunction *ni ... ni* can also be considered part of the elementary group.



The following types of negation described by Dalbor and Sturcken (340) can be considered intermediate in difficulty. « Spanish also uses negative expressions as *more than anything* (*más que nada*); *better than ever* (*mejor que nunca*). Negatives are also used after a negative prefix such as *in-* and after the negative preposition *sin* ». These examples include *Habla español mejor que nadie, Es inútil decir nada*, and *Se fue sin decir nada*. Dalbor and Sturcken (361-2) also examine the coordinating conjunction *sino*. They state, « the most common Spanish equivalent of *but* is *pero*. After a negative phrase or clause, *but* in the sense of *but rather ... instead,* (i.e., a direct contrast) is *sino*. *Sino* becomes *sino que* if what follows includes a conjugated verb. *No sólo* and *no solamente* are almost always followed by either *sino* or *sino que*. If *but* after a negative has the sense of *although* and introduces somewhat of an afterthought rather than a direct contrast, *pero* is used ». Thus the sentence, *No es española pero habla español divinamente*, « She's not Spanish, but she speaks Spanish beautifully », reveals the use of *pero* after a negative. The syntactic pattern including *no* + [+ $neg_2$] + verb ... should also be included in this level. Pérez-Rioja's (375) examples include, *No poco has luchado en la vida* (= *has luchado bastante*) and *No sin esfuerzo ha logrado una considerable fortuna* (*con esfuerzo*).

Because of the complex interplay between negation and the subjunctive, the types of negation so involved are considered to be advanced in difficulty. Sentence negation is, for example, not relevant in *Ordeno que lo hagas* while it is pertinent to sentences such as *No dudo que lo hagas* (or *haces*) and *Dudo que lo hagas*. In other words, sentence negation is pertinent in the environments of verbs of doubt and assertion.

The scope of negation, i.e. the way in which *no* affects various constituents, needs to be studied further. Gili y Gaya (51) gives the following two examples and mentions that the meanings are entirely different because of the placement of the preverb *no*.

(5) Tu hermano no puede volver. « Your brother cannot return ».

(6) Tu hermano puede no volver. « It's possible that your brother can't return ».

Gili y Gaya (51) gives two additional examples where the infinitive and not the finite verb is negated. Again, the meanings are entirely different:

(7) No deseaba entrar. « He didn't want to enter ».

(8) Deseaba no entrar. « He preferred not to enter ».

Turning to another feature of *no*, Gili y Gaya (53, 289) mentions that *no* in certain syntactic patterns has a meaning similar to adverbs of doubt such as *acaso, quizás*, and *tal vez*. Since this use of *no* is unlike sentence negation, it is assigned the feature [+ dubitative] along with the adverbs of doubt, e.g. *acaso*. He gives the following four sentences in which the *no* signals doubt and not negation.

(9) Temo que no se nos escapen. « I'm afraid that they may escape from us ».

(10) Temía (que) no lo denunciasen los vecinos. « He was afraid that the neighbors might denounce him ».

(11) Prefiero una renta segura que no meterme en negocios. « I prefer an assured salary than possibly getting into business ».

(12) Era mejor la fruta ayer que la de hoy. « Yesterday's fruit was better than what today's may possibly be ».

Gili y Gaya (289) states that this usage of *no* as doubt is part of the *habla corriente*. However, he recognizes that it is a very old usage and says, « *Las gramáticas hablan de este « no » redundante que desde antiguo suele acompañar a las oraciones comparativas y averbos de temor, preferencia, etc.* ». Two other examples of the same type are:

(13) Cuidado (que) no se nos escapen. « Be careful, they may escape from us ».

(14) Teme (que) no vayan a divulgarlo. « I'm afraid that they may divulge it ».

We have seen how the placement of *no* before the finite verb or infinitive affects meaning and how *no* has the meaning of doubt in certain syntactic patterns. We have also seen an example of covertly negative morphemes such as the negative *en absoluto* in the sentence, *No hablaron en absoluto*. The reverse is also true. That is, there are covert positive meanings of some negative morphemes. The following sentence presented by Gili y Gaya (52) has no negative sense whatsoever in spite of the presence of the negative morpheme *jamás*, thus indicating that certain morphemes should be analyzed as $[\pm neg_1]$.

(15) Te lo agradeceré por siempre jamás. « I will thank you for it forever more ».

Both Pérez-Rioja (375) and Gili y Gaya (52-53) recognize that the syntactic pattern including *no* + $[+ neg_2]$ + *verb* does not have a completely negative meaning. For example, the sentence below (Gili y Gaya, 52) shows a lessening of the negation although it is certainly not completely affirmative, resting somewhere between negation and affirmation.

(16) Habló no sin dificultad. « He spoke not without difficulty ».

According to Gili y Gaya a possible paraphrase for the sentence above is *Habló con dificultad*. This neutralization of negation, at least in part, is obviously not characteristic of double negatives of the type $[+ neg_1]$ in Spanish such as *No tengo nada*. However, the neutralization of negation is known to take place as shown above with *sin* and with adjectives and prefixes which have a negative feature such as *des-, in-, a-*: The following examples are also taken from Gili y Gaya (53) and are called « *atenuativas de la negación* ».

(17) una casa no deshabitada, « a not uninhabited house »

(18) una fama no intachable, « a not untained fame »

(19) un niño no anormal « a not abnormal boy »

The Real Academia (305) recognizes that *sino* serves to conjoin two similar syntactic patterns, the first one of which begins with *no*. *Sino*, of course serves to set in contrast or opposition the second conjoined sentence. Several types of ellipses can occur with *sino*. The Real Academia gives (305) the following examples, noting that *en cortes de príncipes corre moneda* has been deleted in the position after *sino*. The verb has been deleted in the third example.



(20) En cortes de príncipes no corre moneda de amistad, sino de conveniencia propia. « Among princes friendship doesn't have any value but self interest does ».

(21) No estudia Leyes, sino Medicina. « He doesn't study law, but he does medicine ».

(22) No lo hizo Juan, sino Pedro. « Juan didn't do it, but Pedro did ».

According to Alarcos Llorach (250-251) *sino* is a member of the set of conjunctions including *y, o* and *que* (of *más ... que*). He states that the conjunction *y* connects equivalent syntactic patterns and that the *que* of *más ... que* connects « *segmentos diferentes al mismo respecto* (*Bebe más vino que agua*) ». Whether or not to include the latter pattern, i.e. *más ... que*, in the same set requires further consideration. Alarcos goes on to say (251):

... *sino* conecta segmentos opuestos en cuanto a su adecuación a la realidad (o lo que como tal se considere): No bebe vino sino agua. Pero *sino* es también un sintagma dependiente, porque no puede aparecer aislado; así como que presupone la presencia de ciertos cuantificadores (*más, menos ...*) *sino* exige la existencia de un *no* previo. Todos estos elementos *y, o, que, sino ...* deben considerarse *conectivos*, es decir, conservando el término tradicional, auténticas *conjunciones*.

Linguists have recognized different types of negation in Spanish, but these have not been analyzed in a unifield treatment, although the facts presented in this paper indicate that they are related. The facts above can only be considered an introduction to the problem of negation in Spanish. Nevertheless, it is obvious that negation in Spanish should be studied in two large categories. The first involves negation and the subjunctive. The second involves negation and the indicative. The relationship between negation and the subjunctive includes (a) the division into optative and dubitative features, e.g. *mando* versus *dudo*, (b) the paraphrasing of prohibitions, e.g. *Prohibo que lo hagas.* ⇒ *No lo hagas*, (c) the negation of the dubitative feature, e.g. *No dudo que lo haces*, and (d) the use of *no* as an adverb of doubt in *Prefiero una renta segura que no meterme en negocios*, which has the same meaning even if the preverb *no* is deleted.

The second category includes (a) the distinction at the deep structure between $Neg_1 \ldots Neg_1$, e.g. *No quiero nada*, versus $Neg_1 \ldots Neg_2$, e.g. *Hablo no sin dificultad*, (b) the deep structure feature for covertly negative morphemes or phrases such as *en absoluto* which should be $[+ neg_1]$, (c) the deep structure feature for some morphemes which are normally $[+ neg_1]$ but which can be used affirmatively, hence requiring a $[\pm neg_1]$ feature, e.g. *Te lo agradeceré por siempre jamás*, (d) the distinction between *sino* in contrasts and *pero* afterthoughts although both may follow a negated main verb in the previous clause, e.g. *No estudia Leyes, sino Medicina* versus *No es española pero habla español divinamente*, and (e) the types of ellipses or deletions that can occur in the environment of *sino*. Considering these facts, we are forced to realize that negation in Spanish involves several complex problems and not merely the negation of the main verb. Furthermore, judging from the complexity of negation in Spanish which requires an entirely different description from English, it appears that the concept of negation as a universal is useful only in a very superficial sense.

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# DIACHRONIC TRANSFORMATION OF THE SYNTACTIC DEPTH OF SENTENCE

N. O. Shengelaja

Syntactic depth of a sentence is defined as the largest span of immediate memory at the time of sentence production. The highest possible value of this phenomenon equals $7 \pm 2$, the number of logically unconnected random elements that can be memorized by a person.

The phenomenon of sentence depth is of considerable importance both to the problems of synchronic study and to typological description of languages, as well as to the identification of the general tendencies of diachronic syntactic changes occurring in various languages [1].

It is assumed that of all possible structures expressing his thought the speaker chooses the one that puts less (or the least) strain on his immediate memory. Sentences of less depth are produced by the speaker with less expenditure of energy and are easily and quickly perceived by the hearer.

The synchronic tendency of permanent selection of sentences of less depth must, apparently, result in an appreciable reduction of the average sentence depth in the process of dichronic development of a language, for deeper structures fall out of use, giving place to less deep structures. At the same time, however, neither the semantic nor evpressive power of the language must suffer.

The specific kind of economy of thought manifested in the above-mentioned tendency — diachronic reduction of sentence depth — may constitute one of the factors determining the diachronic transformations of the syntactic structures of a language.

The depth calculation is fully based on the immediate constituent analysis of a given sentence, so-called regressive (left-branching) trees representing deep structures while progressive (right-branching) trees represent non-deep structures.

Thus in the process of diachronic changes progressive structures become more widespread, taking the place of deep — regressive structures.

Fairly large-scale quantitative changes of this kind may result in the emergence of an essentially distinct syntatic structures in some definite period of the development of a language. Naturally, the larger the time interval between two different periods the greater is the reduction of depth.

However, this must not be taken to imply that the process of diachronic development is caracterized by only such transformations. Concurrently, new deep structures appear and some deep structures attain wider usage.

But such a process is obviously so insignificant in comparison with the basic

[1] The notion of the sentence depth and methods for its calculating are introduced by V. H. Yngve, « A model and an Hypothesis for Language Structure », *Proc. of the Amer. Philos. Soc.*, vol. 104, No. 5, Oct., 1960; « The Depth Hypothesis », *The Structure of Lang. and its Math. Aspects*, Prov., 196[1]

one that it is incapable of altering the main tendency of diachronic reduction of depth.

The above-stated general propositions are confirmed by the findings of the author's study of English carried out along these lines.

An analysis of statistically sufficient material of all the three periods of English — Old English, Middle English and Modern English (some 1200 sentences in all) — affords an opportunity of observing depth transformation.

Texts of the following periods were drawn upon: for Old English, texts of the 8-th — 9-th centuries; for Middle English, texts of the 14-th century; for Modern English, texts published after the thirties of the 20-th century.

Inclusion of context-sensitive rules, as well as of rules generating discontinuous constituents, into IC-grammar enables the construction of a full IC-grammar for the English Language. The average sentence-depth calculated on the basis of homogeneous analysis of all sentences and of summing up of the depth of each of them demostrates a gradual reduction of the average depth in the course of the history of the English language. The resultant average depth values are as follows: for Old English — $4.3 \pm 0.1$; for Middle English — $3.8 \pm 0.1$; for Modern English — $2. \pm 0.07$.

Since the time interval between the material chosen for describing each of the three periods is nearly the same (about 500 years), a correspondingly even decrease of depth between these periods might be expected. However, this did not prove to be the case: the difference in the values of the average depth between Old English and Middle English equals 0.5, whereas between Middle English and Modern English it is 1.6.

In order to identify the concrete transformations responsible for the diachronic reduction of depth three types of tree are to be studied: 1. regressive, 2. multiple-branching [2], and 3. progressive [3]. Of these the first two describe the structures that load the immediate memory most:

*a*) the sequence VP-NP (regressive tree);

*b*) coordinated structures (multiple-branching tree);

*c*) more than one negation in the sentence (regressive tree);

*d*) group adverbs and group particles (regressive tree).

A quantitative study of these structures in all the three periods indicates their insignificant reduction in the period between Old English and Middle English, and much greater reduction in the period between Middle English and Modern English.

*a*) The VP-NP sequence of the basic elements is twice as much reduced in Middle English compared to Old English, and seven times reduces in Modern English compared to Middle English.

*b*) More than three element coordinated constructions have the following percentage of usage in the three periods: Old English — 6.9%; Middle English — 5.7%; Modern English — 0.8%.

*c*) Prohibition of more than one negation in a sentence by the grammarians of the 17-th — 18-th centuries [4] promoted depth reduction in Modern English.

2 N. Chomsky's term.
3 « Regressive and progressive trees » are V. Yngve's terms.
4 В. Н. Ярцева, « Развитие национального литературного английского языка », **Наука**, М., 1969, стр. 232-233.



*d*) Transformation of group adverbs and group particles into simple one-word sequences was mainly completed in the Middle English period.

It is well seen that the irregularity of depth reduction fully reflects the irregular quantitative changes of syntactic structures that has taken place in English over its entire history.

In this connection the question may be asked of what was it that made for more intensive quantitative changes in syntactic structures in the later periods. More intensive quantitative transformations have become possible in Modern English as a result of those morpho-phonemic changes that occured in earlier periods and took final shape by the Modern English period. These changes stipulated the introduction of strictly determined word-order in the sentence. Such influence of the morpho-phonemic structure of the language on its syntactic structure is a clear illustration of the interaction between different hierarchical levels of a language.

Some constructions typical of the later periods and causing greater strain of immediate memory i. e. contributing to an increase of depth should be considered here:

*a*) passive constructions;

*b*) negative constructions formed with « do »;

*c*) degrees of comparison formed with « more » and « most »;

*d*) constructinos with « anticipatory it » and « there is »;

*e*) obligatory use of articles before nouns.

However, as already noted, an increase of depth at the expence of these constructions has had no effect on the general tendency of depth reduction.

As a result of the present analysis it has been ascertained that Old English and Middle English represent homogeneous types of syntactic structures. In modern English a new type of structure — a purely progressive structure (with depth 1) that was thoroughly absent in earlier periods — has emerged. This would warrant the ascertion that the Modern English type of syntactic structure is essentially distinct from that of earlier periods.

The following may be concluded:

1. The average depth of the English sentence has been reducing diachronically.

2. Irregular decrease of deapth reflects the specific quatitative changes taking place in English.

3. Old English and Middle English are characterized by homogeneous syntactic structures.

4. Modern English is characterized by an essentially distinct type of syntactic structure.

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# ROOTS **WELK-*, **WOLK-*, **WLK-* and **WLK$^{w}$-*. A CASE STUDY OF NAMING (WILD) ANIMALS IN INDO-EUROPEAN LANGUAGES

ANTANAS KLIMAS

In spite of the overwhelming evidence from Baltic and other languages of the Northern region [1], Indo-Europeanists still resitate to reconstruct the underlying (base, or canonical — in earlier terminology) form **WELK-* for the entire group of words of this root found in many Indo-European languages. The reason is purely phonological: some Indo-Eurcpean languages, it would seem, « require » the labiovelar $k^{w}$ (written also: *q, q, k*$^{u}$) in the protoform. Thus, Germanic languages seemingly would presuppose the following development:

$$\text{PIE } *k^{w} \rightarrow \#\ \text{f/} \left\{ \begin{array}{l} \left\{ \begin{array}{l} \text{labial V} \\ \text{R} \end{array} \right\} \\ \left\{ \begin{array}{l} \text{labial V} \\ \text{R} \end{array} \right\} \text{f} \left\{ \begin{array}{l} \text{labial V} \\ \text{R} \\ \text{S} \end{array} \right\} \end{array} \right\}$$

Where: R = resonant
S = sibilant (and, perhaps, fricative).

The whole problem hinges on one factor: do we assume a labiovelar series of consonants for the earlier stages of Proto-Indo-European, or not? As is always the case concerning the unrecorded, prehistoric stages of PIE, the opinions of the scholars working in this field are divided.

In the latest work dealing with this problem, Professor Oswald Szemerényi argues for the existence of labiovelars in the entire PIE area [2]. However, he admits that the evidence for this, in the Satem-languages, as he has it formulated shows only « spärliche Reste » [3]. He cannot really decide whether to consider the $k^{w}$ as a monophonemic sound or as a group of phonemes (i.e., *k-w*) [4].

Christian Stang postulates $k^{w}$ and *k*, but be explains it as follows:

« (Ich postuliere ieur. *k* wegen der ziemlich zahlreichen Fälle, wo sowohl die centum als die satom — Sprachen *k aufweisen*, ohne dass etwas darauf deutet, dass *k* im späteren Ieur. eine phonetische Variante von $k^{w}$ oder *k'* war. Das ganze Problem aufzurollen, ist hier nicht möglich) » [5].

1 Cf. Antanas Klimas, « Baltic, Germanic and Slavic », *Donum Balticum*, Stockholm, 1970, esp. p. 263 and 264.
2 Oswald Szemerényi, *Einführung in die vergleichende Sprachwissenschaft*, Darmstadt, 1970, p. 61 and ff.
3 Oswald Szemerényi, *op. cit.*, p. 61.
4 Oswald Szemerényi, *op. cit.*, p. 61.
5 Chr. S. Stang, *Vergleichende Grammatik der Baltischen Sprachen*, Oslo-Bergen-Tromso, 1966, p. 90.



At any rate, Stang does postulate labiovelars for PIE.

On the other hand, several Indo-Europeanists have assume less than three series of velars for PIE. To quote Lehmann:

« From the PIE reconstructions of Brugmann and Walde one would assume three phonemes for each manner of articulation. In no IE dialect, however, do we find three contrasting phonemes; the greatest number in any dialect is two. The so-called *centum* dialects have a distinct reflex for [k$^{w}$] and only one for [k] and [k]. On the other hand the *satem* dialects have distinct reflexes for [k], but [k] and [k$^{w}$] have fallen together. Two different phonemic interpretations of the data have been made. Meillet, Introduction 91-5, assumes PIE phonemes *k* and $k^{w}$, Kurylowicz, EI 1-26, the PIE phonemes *k* and *k* » [6].

For the oldest imaginable Proto-Indo-European obstruent system then, Lehmann assumes only one velar series:

k g g$^{h}$

Lehmann further argues that this system remained throughout several development stages and only in the last stage, or perhaps a little earlier the labio-velars became phonemes. He further remarks that: « No mean has yet been discovered to determine their relative chronology » [7].

In this paper, we will try to suggest some semblance of the relative chronology, using the well-known roots **welk-*, **wolk-* and **wl̥k-*.

It is our belief that these roots and their reflexes are to be found, in one form or another, practically in all IE Indo-European languages, except in those where, due to the scantiness of the extant documents, nothing could be said either way [8]. As in so many cases, the most numerous representation of the series of reflexes of these roots can be found in Baltic, particularly in Lithuanian. Thus:

| **welk-* | **wolk-* | **wl̥k-* |
|---|---|---|
| velkù « I drag » | *valkà* « pond, pool » | *vilkti* « to drag » |
| *velke* « door) bolt » | *válkata* « hobo » | *vilkas* « wolf » |
| *velkà* « pond » | *válkšnà* « Fischzug » | *vilke* « she wolf » |
| etc. | *valktis* « rope » | *vìlkstine* « caravan » |
| | *válktis* « canoe » | etc. |
| | *valkùs* « elastic » | |
| | etc. | |

It is also fairly clear, as it was suggested as early as 1939 by Franz Specht [9], that this very same root gave us the main Indo-European word for « wolf » (i.e., Old Indic *vrka-*, Avestan *vəhrka-*, Old Church Slavic *vlτkτ*, Alb. *ulk*, Greek *lukos*, etc.). The only forms which seem to be deviant from the above are the Germanic and Italic words.

It has been an accepted theory that the Germanic **wulfaz* (Gothic *wulfs*, Old Icelandic *ulfr*, etc.) presupposes the Indo-European root **wl̥k$^{w}$-*, not **wl̥k-*. But, if one assumes that the labiovelar pronunciation of the velar developed later, then it is quite possible to think that the older form of Pre-Germanic dialect of (late) Proto-Indo-European was **wl̥k-*. In Germanic it then went to **wulk-* and then, under the influence of the labial *u* in the root, and also the possibly some-

6 Winfred P. Lehmann, *Proto-Indo-European Phonology*, Austin, 1955, p. 100.
7 Winfred P. Lehmann, *op. cit.*, p. 114.
8 This does not mean that these languages did not have the words under the discussion here. It merely means that, so far, we have not found them recorded in their extant documents.
9 Franz Specht, « Sprachliches zur Urheimat der Indogermanen », *KZ* 66 (1939), pp. 25-26.

what labial articulation of the newly added *-o-*, the *k* became a real labiovelar. This would be a development basically very similar to the one where the higher articulation of a front vowel caused the raising of the velar consonant, in other words, palatalized it.

As far as Latin *lupus* is concerned, the usual explanation has been that it is a borrowing from some Italic p-dialect (Sabinic?). However, there is another possibility, namely that Latin *lupus* came from a different root. There is the Indo-European root **LEP-/*LOP-/*LP-* « dainty, snug, playful, soft, cuddy, endearing, spoilt ». Original meaning must have been « soft ». The cognate of the Latin *lupus*, then, is not the (Lithuanian) *vilkas* « wolf » but *lape* « fox » [10].

Contrary to some names of the domesticated animals which, in the main, either show the athematic types (and formation), or consonantal, or mixed stems [11], both the base type **wl̥k-* and **lep-/*lop-* were formed when the thematic declensions were fully developed. Thus, we see:

| | | | | |
|---|---|---|---|---|
| **wl̥k-* | : **wl̥k-o-s* | (o-stem) | and **wl̥k-jā* | (jā-stem) |
| **lop-* | : **lop-o-s* | (o-stem) | and **lop-jā* | (jā-stem) |

This means that the majority of the wild animals in Indo-European were named later than most of the domestic animals.

It would be interesting to speculate why this may have happened. I propose that the following assumption warrants some consideration; animals were named (not necessarily only by the speakers of Indo-European) in those primordial days during the attempt to domesticate them, when people, trying to tame them, had many opportunities to observe the animal's behavior, its character, its form, shape, etc. I clearly remember from my childhood and youth in Lithuania that, for centuries, attempts were made to domesticate the wild animals, especially foxes and wolves. However, these attempts always failed eventually. The usual way to attempt this was to find the little wolf-cubs and/or the little fox-kits and try to tame them. The failure of these attempts is illusrated by several old proverbs stating this fact. One of the oldest, I believe, can be found in Lithuanian: « *Miško žveris į mišką žiūri* », (Literally: « A beast of the forest looks at the forest »). There are several variants of this old proverb, known to all native speakers: « *Miško žveris vis į mišką žiūri* » (Literally: « A beast of the forest keeps looking at the forest all the time »), and: « *Miško žveris tik į mišką ir žiūri* » (Literal translation: « A beast of the forest looks only at the forest »; a free translation of the last version would be: « A beast of the forest has only forest on its mind, keeps glancing and thinking only of the forest »).

*Conclusions*:

1. There were, basically, no labiovelar consonants in earlier Proto-Indo-European.

2. Labiovelar pronunciation (i.e., the labiovelar allophones) became separate labiovelar phonemes later, only in some Indo-European languages.

[10] In this case, there would be some difficulty in explaining the first *u* in Latin *lupus*. However, there are several cases where Latin has *u* instead of the expected *o*. Cf. Carl Carling Buck, *Comparative Grammar of Greek and Latin*, Chicago, 1933 (Fifth Impression, 1952), p. 82 ff.

[11] There is an excellent monograph concerning this question: A. Sabaliauskas, « Baltų kalbų naminių gyvulių pavadinimai (jų kilmė ir santykis su atitinkamais slavų pavadinimais) » / The Names of the Domestic Animals in Baltic (their Origin and their Relationship with the Slavic Equivalents) / *Baltų ir slavų kalbų ryšiai* (*Lietuvių kalbotyros klausimai* X), Vilnius, 1968, pp. 101-188.



3. Germanic **wulfaz* can be derived from an older **wl̥k-*.
Germanic *k*$^{w}$ appeared after the change from $R > uR$ (where $R$ signifies any resonant).

4. There is a possibility that Latin *lupus* may have come from the root **lep-/*lop-*, not from the root **wl̥k-*.

5. Wild animals (beasts) were named later than the domesticated (tamed, domestic) animals. Male names appear, usually, with the o-stem formation, females with the ja-stem formation. Some had only the « male-type » for both sexes, some had only the « female-type », some had both.

6. Either the observed activity (e.g., tearing, dragging its prey, food ...), or the observable characteristics (e.g., soft, playful, cuddy ...) were used to name the wild animals in Indo-European. This was done, mainly, while attempting to domesticate them.

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# ABSTRACT VERBS AND THE DEVELOPMENT OF THE GREEK MOOD SYSTEM

David Lightfoot

In the days before generative and interpretive semanticists buried their respective hatchets and went off in opposite directions, one of the major areas of dispute centred around the status of the abstract verb. George Lakoff (1965) postulated abstract causative and inchoative verbs in his thesis and Robin Lakoff developed the notion and made it considerably more sophisticated in her *Abstract Syntax and Latin Complementation*. At about the same time J. R. Ross wrote his celebrated *On Declarative Sentences*, where he produced a number of syntactic arguments foı postulating an abstract sentence *I say to you* as the topmost S for every surface declarative sentence. Meanwhile Chomsky and his interpretivist colleagues disavowed this tendency to make deep structures deeper and further removed from surface structure, regarding the introduction of abstract verbs as « a dubious move » (1967), although in fact Chomsky has never argued in print against Robin Lakoff and Ross specifically despite the fact that theirs constitute the best arguments for abstract verbs. Ross and Robin Lakoff captured a number of syntactic generalizations that do not seem to be capturable without resort to abstract verbs. In fact, some of Robin Lakoff's generalizations concerning the Latin subjunctive and the negative particles *ne* and *non* seemed to be quite spectacular, since by virtue of her abstract verbs she succeded in accountig for things that generations of traditional grammarians had addressed themselves to without success, for example the distinction between the negative particles, which she showed to be syntactically based[1]. However, the problem with all the arguments for abstract verbs that I have come across is that the device is too powerful. That is to say, while there are syntactic generalisations which may be captured by using an abstract verb, the same abstract verb will often make incorrect predictions. What Ross' claim boils down to is that surface declarative sentences behave the same way as surface complements to verbs of saying. Thus wherever one finds declarative sentences and complements to verbs of saying behaving the same way with respect to some syntactic phenomenon, e.g. reflexivisation, one has an argument for a higher abstract *I say to you* to express the generalisation economically. Conversely, however,wherever they behave differently, one has a counterargument. Thus, the fact that complement clauses in German characteristically have a different word order from independent declarative sentences would constitute a counterexample to Ross' abstract verb theory. Similarly, to take an example from Latin, if Robin Lakoff is to postulate *dico tibi* above every Latin declarative sentence (since she accepts the theoretical position in her *Ifs, Ands and Buts about Conjunction*, p. 140, and since there is no real candidate

[1] There are, in fact, some problems with this, for example, the use of *ut non* in object complements to verbs such as *efficio*. Lakoff postulates an extra abstract verb [*accid-*], to happen, immediately underneath *efficio*, so that the *ut non* is now a subject complement to [*accid-*] and therefore requires the negative particle *non*. There is, of course, no independent motivation adduced for this extra abstract verb and it is quite ad hoc.



other than *dico* for the higher verb, she must adopt this stance), then she will predict incorrectly that every declarative sentence has its subject in the accusative and its verb in the infinitive, because in Classical Latin *dico* takes only an accusative + infinitive complement type; whereas in fact declarative sentences have their subjects in the nominative and the verbs in the indicative mood. So then, even if Chomsky's 1967 arguments against abstract verbs are scarcely convincing, nonetheless there are severe problems. It seems to be true that there are generalisations capturable only with abstract verbs, but often these abstract verbs lead to false predictions. Robin Lakoff is not disturbed to find that abstract verbs can have exceptions and behave idiosyncratically: when talking of the abstract verb [*vel*], she says (p. 179) « This abstract verb, therefore, does not act like any of real verbs of its class (though, of course, an abstract verb easily could, as [*imper*] does), but it acts as a verb of its class might act if specially marked ». And of [*oport*] (p. 184) « Here, too the abstract verb does not behave like either of the real verbs in its meaning class ». On page 175 she lists a number of special rules needed just for the abstract verb [*imper*]. But the whole point of the theory of abstract verbs is that they enable a grammar to capture linguistically significant generalisations in the most economical fashion, by virtue of the fact that they behave exactly like corresponding real verbs and therefore feature only in independently motivated rules. As soon as we postulate special rules to apply only to abstract verbs, the argument for economy begins to wobble, and when abstract verbs show a different syntactic behaviour from the corresponding real verbs, it becomes doubtful whether there is any generalisation there to be captured in the first place.

So then, here we have a device introduced into grammatical theory which is on the one hand highly problematic but on the other hand allows us to capture generalisations which do not seem to be capturable in any other way. Generative semanticists have not really argued their way out of these syntactic problems, but have tended to assume the reality of this particular construct. The question, then, of the reality of the abstract verb assumes some considerable importance in the theory of grammar, and it is still an open question. No doubt, it will eventually be resolved when we know more about syntax, in particular about the dependency relations amongst rules, and can determine whether or not abstract verbs do in fact enable a grammar to capture the relevant generalisations in the most economical fashion. Meanwhile we can worry about the problem and try to find other ways of resolving the question.

It is hard to imagine how a psycholinguist could demonstrate experimentally the psychological reality of the abstract verb given the difficulty or perhaps the impossibility of syphoning off facts of performance from models of competence; and an abstract grammar of the kind in question is a model of competence. However, here I adopt the position of Paul Kiparsky in his *Linguistic Universals and Linguistic Change* (1968), that we can adduce strong prima facie evidence for the psychological reality of a theoretical construct by showing that it plays a crucial role in language change. Conversely, we would be suspicious of an entity or formal device of grammatical theory which is not necessary for the formulation of any known instance of linguistic change. Language change is grammar change, i.e. change in a model of competence, so we like to think that we do not have the psycholinguist's experimental problem.

What I want to do first is to present briefly an analysis of the mood system of Classical Greek which depends crucially on postulating certain abstract verbs This analysis relates features which no other known analysis can relate. These represent some of the conclusions of my doctoral thesis, *Natural Logic and the Moods of Classical Greek*, University of Michigan, 1971. Then I shall show that those features related by my abstract verbs, are also related in subsequent changes in the development of Greek, so that within Kiparsky's hypothesis we now have substan-

tial evidence for the reality, perhaps psychological reality, of the abstract verbs in my analysis of Classical Greek.

The claim I make about Classical Greek is that the subjunctive and optative moods are in fact future tenses. The usual view is that they are true moods, moods of the will and of wishes respectively, but some traditional grammarians, such as Goodwin and Adelaide Hahn, made similar claims, Hahn asserting that the subjunctive was « a future and nothing else » and the optative a « less vivid » version of the subjunctive. Indeed the subjunctive and future indicative are apparently interchangeable in a number of constructions. Unfortunately, however, Goodwin and Hahn do not discuss in what sense the subjunctive of a purpose clause is a future and nothing else, unlike the verb of an unreal purpose, which is characteristically in the indicative, nor how the subjunctives used in indefinite temporal, conditional and relative clauses are futures. Just how an optative was a less vivid version of the subjunctive was never explicated and no mention was made of the crucial question: if the subjunctive is a future and nothing else, how does it differ from the future indicative and why does it occur in different syntactic environments? These, then, were fairly vacuous accounts of the problem even if the conclusions were more or less right.

In my thesis I took the notion of abstract verbs developed by Robin Lakoff and thereby treated independent subjunctives and optatives just like complement types, finding that the abstract verbs required to explain the independent mood uses corresponded almost completely to real verbs which took subjunctive complement types, e.g. verbs such as *order, forbid, fear, wish, want*. However, while Robin Lakoff in her study of Latin had found that the verbs which governed subjunctive complement types did not seem to constitute any kind of natural semantic class, in my analysis of Greek I found that these subjunctive-governing verbs, both real and abstract, shared one semantic feature: they were all future-referring. By a future-referring verb I mean one whose complement can refer only to an event subsequent to that action of the verb itself. Examples in English would be *try, strive, want, prevent, persuade, order*, etc. Hence the unacceptability of

*Ed is trying to have become President

*Ed is striving to have become President

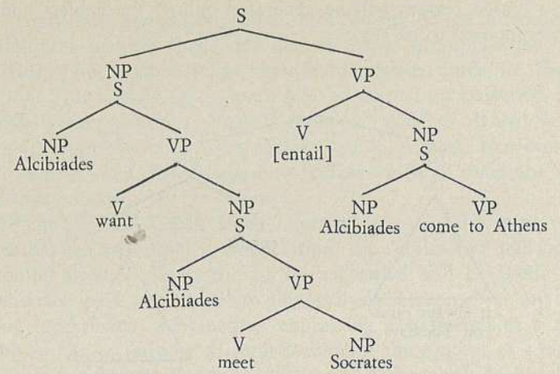
*Ed wants to be President last week

*I prevent Ed from having become President

Certain verbs, such as *be afraid*, may be future referring, as in *I am afraid that Ed will be President*, or may not, as in *I am afraid that Ed spilt the milk*. Only when *be afraid* (or phoboûmai) is future referring can it take a subjunctive complement in Greek. All this led one to suppose that maybe the so-called subjunctive « moods » were just future tenses. The fact that subjunctives were used in temporal and conditional clauses when they referred to the future, but never when they referred to the present or past, added more credence to this idea. As for the subjunctive in purpose clauses, I postulated an abstract and subjunctive-governing verb *want* to derive *Alcibiades came to Athens in order to meet Socrates* from a structure corresponding to *the fact that Alcibiades wanted to meet Socrates entailed that he came to Athens* [2].

[2] Not all purpose clauses can be paraphrased with a verb of wanting. *Bill came to Rome in order to be tried for treason* is presumably to be paraphrased as *Bill needed to come to Rome* rather than as *Bill wanted to come to Rome*. However, *need* and *want* clearly have much in common and I know of no other verb which is needed for these purpose clause paraphrases.






*Want* takes a subjunctive complement, thereby accounting for the fact that the verb *to meet* in these purpose clauses is characteristically in the subjunctive. Here I was modifying slightly Robin Lakoff's analysis of purpose clauses in Latin and English Lakoff had pointed to the equivalence of a purpose clause and a reason clause containing a verb of wanting. There would be no justification, syntactic or semantic, for postulating an abstract verb of wanting in an unreal purpose clause, such as *it would have been worthwhile coming to Athens in order to have met Socrates*; it is not equivalent to *it would have been worthwhile coming to Athens because you wanted to meet Socrates*. So my analysis would predict correctly that *have met* would not be in the subjunctive here, but rather in the indicative, because of the absence of any « trigger » for the subjunctive, namely a verb of wanting or any other future-referring abstract verb. However, there was a problem: firstly I would have to distinguish the subjunctive from the future indicative, and secondly there was a set of subjunctives I could not explain, namely the use in indefinite temporal, conditional and relative clauses. That is, the verbs in the following *ever* clauses would all be subjunctive in their Greek translations and would co-occur with a modal particle *an*.

if ever he *comes*, he steals the telephone

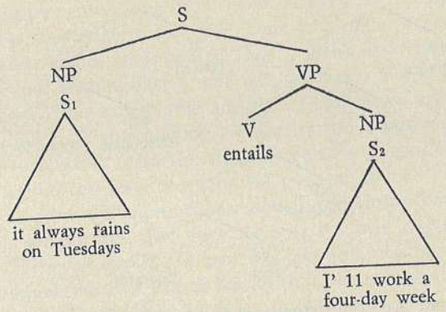
whenever he *comes*, he steals the telephone

whoever *comes* steals the telephone

My conclusion was that the subjunctive differs from the future indicative in that it never occurs where there is either a presupposition that the proposition is true or a presupposition that it is false. There are certain syntactic conditions which require the occurrence of such an « existential presupposition » such as the complements to factive verbs like *know ,regret, acknowledge, prove*, counterfactual conditionals, *because* clauses, *although* clauses. Even if it is somehow illogical to presuppose the truth of a future state or event (a future fact or non-fact is a contradiction in terms) we frequently do just that, and if a future occurs in any of these situations it will be realised as a future indicative in Greek. Examples of such situations in English would be *it will snow tomorrow, I know it will snow tomorrow, because it will snow tomorrow, I'm taking a coat*. Whereas, if a future occurs where an existential presupposition is excluded, e.g. in an indefinite, an open condition, or an *even if* concession clause, the subjunctive must be used.

I have argued elsewhere (1972) that reason and open condition clauses should have the same underlying structure, containing an abstract verb [*entail*], and differ

only in that a reason clauses will be generated only if the subject complement to [*entail*] is presupposed to be true [3].




The structure (Fig. 2) will give rise either to (i) *because it always rains on Tuesdays, I'll work a four-day week* or to (ii) *if it always rains on Tuesdays, I'll work a four-day week*. If $S_1$ is presupposed to be true (i) will result, whereas if there is no existential presupposition on $S_1$, (ii) will be generated. I argued that presence or absence of this presupposition was the only distinction between *because* clauses and open conditions, and that in all other important respects they behaved the same way [4]. This has the nice consequence of explaining certain problems with purpose clauses. Given the abstract verb analysis mentioned earlier, it is a problem that certain purpose clauses may be paraphrased not with *because* clauses containing a verb of wanting, but by an *if* clause. Thus *you must work hard in order to make money* is equivalent to *you must work hard if you want to make money*. This is not a problem if we assign the same structure to reason clauses and open conditions, because then we can say simply that where the speaker does not presuppose the truth of the desire expressed by the purpose clause, it will be equivalent to a condition. So, given this distinction between condition and reason clauses, we would predict correctly that in Greek only the future indicative will be used in a reason clause, but a subjunctive in a future tense open condition. Purpose clauses have subjunctive verbs because of the abstract verb *to want*, which is future-referring and therefore has its complement, which surfaces as the purpose clause, in the subjunctive.

Now we notice something else, that in both English and Greek indefinites do not occur where there is an existential presupposition, such as in a *because* clause.

if ever he went to Athens he visited Socrates

*because ever he went to Athens he visited Socrates

if anybody went to Athens, he visited Socrates

*because anybody went to Athens, he visited Socrates [5].

[3] I choose theverb *entail* rather than Lakoff's *cause*, because there is not necessarily any notion of direct causation involved with *if* and *because* clauses. In *if you come I shall leave*, your coming may be said to entail my leaving but it does not cause it.

[4] In certain apparently unimportant ways *if* and *because* clauses do not behave similarly. For example, only *if* may be used with a past participle: *if attacked the army will retreat to Saigon*; **because attacked the army retreated to Saigon.*

[5] Stressed *any* can occur in *because* clauses as a subject to a restricted set of verbs, precisely the same set of verbs with which *any* can co-occur in main clauses. *Anybody knows deep structure exists. Because anybody knows deep structure exists, you should be ashamed of yourself. *Anybody kicked Skinner. *Because anybody kicked Skinner, you should be ashamed of yourself.* These restrictions obtain only when the verb is used non-generically; all verbs may co-occur with *any* subjects when they are used indefinitely or generically: *anybody kicks Skinner when he has chance. Because anybody kicks Skinner when he has the chance, you should be ashamed of yourself for failing to do this.*



Subjunctive conditions normally presuppose the falsity of the antecedent, so should exclude indefinites because they have an existential presupposition. In fact they permit indefinites but then they lose their counterfactual force, i.e. their existential presupposition. This is striking evidence for the mutual exclusiveness of indefinites and existential presuppositions. Thus *if John had gone to Athens he would have met Socrates* presupposes that John did not go to Athens. However, *if anybody had gone to Athens they would have met Socrates* with an indefinite NP, does not presuppose that nobody went to Athens [6].

So then, in Classical Greek when referring to an indefinite or to the future, if a sentence has no existential presupposition, the subjunctive will occur. If there is an existential presupposition the future indicative will be used. It should be clear that abstract verbs are crucial to this analysis. I cannot see any sensible way of describing independent subjunctives expressing a command or a modest assertion, or subjunctives of purpose as futures without the concept of a class of future-referring verbs, which may be real or abstract. Although I do not have time or space to justify it here, the optative is just a past tense variant of the subjunctive, occurring where either the immediately higher verb is in the past tense or governs a past tense complement (Compare English verbs such as *pretend, imagine, suppose, wish — I wish I* WAS *President now, imagine you* WERE *President now*). Thus future tenses and indefinite reference seem to be of similar epistemological status: it is unreasonable to presuppose the truth or falsity of a future event and impossible to make an existential presupposition on indefinite reference. The two concepts are handled in the same way in the grammar of Classical Greek, which would indicate that we should postulate some kind of future-indefinite entity to be expressed by the subjunctive mood and thus allowing identical descriptions. Similarly in English, future tenses and indefinites are marked in the same way, with *will* (*It will rain tomorrow. Any linguist will say that deep structure exists*), and the past tense version of this marker, *would*, is used in circumstances very similar to those of the Greek optative.

In the subsequent development of Greek, the optative, a syntactically conditioned variant of the subjunctive in this analysis, was lost quite early. The morphological distinction between the future indicative and the subjunctive was also lost. However what was preserved was the identical treatment of future tenses and indefinites with one set of desinences. The Modern Greek verb system is quite different from the Classical system. Each verb has two stems, an indicative and what some grammarians call an « indefinite », which essentially is an aspectual distinction between continuous and punctual respectively. The so-called indefinite is the morphological descendent of the Classical future tense indicative. These forms may be prefaced with *tha* and serve as a future tense, or they may be prefaced with *na* and serve as a « subjunctive ». *na* occurs in a restricted range of roles. It may be used as a complement to verbs of wanting and the like; it is used in a real purpose clause, but not in unreal purposes such as *it would have been worthwhile coming in order to have met Socrates*; and it may be used in *if* clauses when they refer to the future or are indefinite. That is to say, it occurs in virtually the same situations as the dependent uses of the subjunctive in Classical Greek. Now this is interesting. The subjunctive as a morphological class has been lost in the development of Greek; it is the old future indicative formations that survive in a

[6] This is discussed more extensively in my Notes on Entailment and Quantifiers. In fact, not all subjunctive conditions with indefinite subjects lose their counterfactual force. If the subjects of the conditional and the main clause are non-coreferential, counterfactuality is preserved. For example, *if anybody had told me that babies eat cats I would not have left the cat in the playpen* is counterfactual, ie does presuppose that nobody told me that babies eat cats. There are similar coreferentiality constraints on indefinite subjects of *because* clauses.

new guise and may occur with one of two particles, *na* or *tha*. What remains constant is that in both Classical and Modern Greek there is a distinction between two ways of referring to the future, one where there is an existential presupposition (marked by the « future indicative » in Classical Greek and by the particle *tha* in Modern Greek) and one where there is no existential presupposition (marked by the « subjunctive » mood in Classical Greek and by *na* in Modern Greek). Indefinites (*whoever ... whenever ... , if ever ...* , etc.) can never involve any existential presupposition, as we pointed out, so in Classical and Modern Greek they are marked in the same way as future tenses with no existential presupposition (*ie* by the subjunctive or *na*). However, we can characterize coherently the subjunctive as a future tense only if we admit abstract verbs and say, then, that the subjunctive occurs as a complement type to a precise class of verbs, those that are future-referring. Examples would be *want, try, strive, fear* (in certain senses) etc.; a further example would be the verb [*future*] if we adopt the position of Ross (1969) and derive all auxiliaries and tense markers from higher abstract predicates such as [*future*], [*past*], [*is possible*], [*is necessary*] etc. So then, we describe the Classical Greek subjunctive as a future tense with no existential presupposition and thereby account for why it occurs only in a limited set of constructions (for example, why it never occurs in a reason clause). We do this by means of abstract verbs, saying that the subjunctive occurs as a complement type to future-referring verbs. We then find that subjunctives as morphological paradigms are lost in the development of Greek. But the old future tense forms are now functionally extended to occur also in those places where the now defunct subjunctive once appeared. This is a perfectly natural extension if we have analysed the old subjunctives as futures, which we could do only with abstract verbs. Also, however, the new extended future tense, the socalled « indefinite », is sub-divided and must occur with one of two particles, *tha* or *na*. This sub-division tallies with the distinction between the two kinds of futures in Classical Greek, the future tense and the subjunctive, that is presence and absence of an existential presupposition. Thus despite extensive morphological disintegration the conceptual distinctions concerning futurity are preserved in the later stage of the language. This all follows quite naturally given the kind of abstract verb analysis we have postulated for the earlier stage. If we had analysed the subjunctive mood in the style of *Aspects of the Theory of Syntax*, hugging the surface structure ground and using morphology-bound features [+ subj], [+ opt] or a phrase structure rule expanding some catch-all category

$$Aux \rightarrow \text{Tense} \left\{ \begin{matrix} \text{Indicative} \\ \text{Subjunctive} \\ \text{Optative} \end{matrix} \right\}, \ldots,$$

it is hard to see how one could describe these changes in the development of Greek as anything other than unrelated accidents.

Before giving the moral of this story, let me mention one other very specific fact which, I think, is explained more easily with an abstract verb analysis. In Classical Greek *hina* has only one use, to introduce an adverbial clause of purpose[7]. We have analysed purpose clauses as complements to an abstract and subjunctive-governing verb of wanting, and *hina*, then, is a complementiser. Given this analysis we are not surprised to find that in Modern Greek this word, now changed by normal phonological rules to *na*, still introduces purpose clauses but also serves as a complementiser to non-abstract verbs of wanting (thelo na pao, I want to go). This could only be treated as a historical accident by any theory which did not derive purpose clauses from complements to verbs of wanting.

What we have done here is to take seriously the claim that diachronic and synchronic analyses should proceed hand in hand; that a synchronic analysis should give a rationale for, or at least be consistent with subsequent diachronic changes. If some subsequent diachronic change must be regarded as an accident given Grammar A but is a natural consequence of Grammar B, Grammar B is to be preferred. Paul Kiparsky would take us further and say that if some grammatical device such as curly brackets, the taxonomic phoneme or the abstract verb or existential presuppositions can be shown to play a crucial role in linguistic change, that constitutes at least prima facie evidence for the psychological reality of that device. Whereas we should be suspicious of any entity that seemed never to play any crucial role in any known instance of language change. Kiparsky drew some consequences of this position for phonological theory. After fifteen years of work on transformational syntax we should be ready to ask similar questions about entities postulated for syntactic theory[8]. Within this view of things, I think there is solid evidence from the development of Greek that abstract verbs play a crucial role in linguistic change and therefore should be regarded as legitimate entities of syntactic theory.

[7] *hina* is also used as a relative adverb of place, but that is quite irrelevant to the problem in hand.



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[8] Of course, in syntax we do not have the traditional interest in diachrony which has served phonologists so well. Generative phonologists have been able to draw a rich storehouse of data compiled by the neogrammarians and the structuralists. Generative syntacticians, on the other hand, have had to do their own pioneering. Of the neogrammarians, only Delbruck had much interest in syntax, so syntacticians do not have a large body of diachronic data and rules as their disposal.

# MORE EVIDENCE FOR INDO-HITTITE: THE TENSE-ASPECT SYSTEMS

WARREN COWGILL

It has been accepted for over half a century that Hittite is genetically related to the previously known members of the Indo-European language family. It is further established that Hittite's closest relatives are other ancient languages of Asia Minor, such as Palaic, (Cuneiform) Luwian, Hieroglyphic Luwian, Lycian, and Lydian, which, together with Hittite, form a group called Anatolian.

The nature of the relation of Anatolian to the non-Anatolian Indo-European languages is controversial. When Hittite texts first began to be interpreted, the point of main interest was that Hittite was much more closely related to Indo-European than to any other known language family. Scholars, impressed by the striking differences in grammar and vocabulary between Hittite and the oldest previously known Indo-European languages, tended at first to view the relation between Hittite and the previously-known Indo-European languages as rather remote, Hittite and the other Anatolian languages being as it were cousins rather than sisters of the Indo-European languages proper.

But, beginning around 1925, the view began to gain ground that Anatolian is just one branch of Indo-European, on a par with Indo-Iranian, Greek, Italic, Celtic, and so on; that it may have branched off from the common stock earlier than any of the others, but that by and large it is descended from the same proto-language as is needed to explain Indo-Iranian, Greek, Italic, Tocharian, and so on; and that its divergences from that proto-language are essentially due to innovation on the part of Anatolian. This view can fairly be called the prevailing one today.

But a number of scholars have continued to maintain that the earlier view is closer to the truth, that, in effect, the ancestor of the non-Anatolian Indo-European languages continued to be a single language long enough after the ancestor of Anatolian had become a distinct, separate language for this ancestor of the non-Anatolian languages to develop significant innovations which spread throughout all of its dialects of which descendants are attested, so that the proto-language needed to account for Anatolian plus the rest of Indo-European is significantly different from the proto-language needed to account for the non-Anatolian languages alone.

Probably the most prominent of these scholars was Edgar H. Sturtevant, who consistently maintained this view in a series of articles and books stretching from 1926 to 1951. Sturtevant restricted the term « Indo-European » to the non-Anatolian members of the family, calling their ancestral language Proto-Indo-European, and used « Indo-Hittite » for the family consisting of Indo-European plus Anatolian, its ancestral language being Proto-Indo-Hittite. Sturtevant's view of the relation between Anatolian and the other members of the family is therefore called the « Indo-Hittite hypothesis ».

The opposing view, that Anatolian is on a par, genetically, with the other individual branches of the family, can be labeled the « Indo-European hypothesis ».



In dealing with hypotheses about linguistic events that would have occurred over 4000 years ago, and the evidence for which comes from languages whose earliest attestation is one to four millennia after the events themselves, it is probably unrealistic to talk about « proving » one hypothesis correct and its competitor wrong. The best that can be hoped for is to show that there are facts that fit one hypothesis considerably better than they do the other, and that there are no contradictory facts that fit the second hypothesis better than they do the first. Further, in a case of this sort, the burden of proof is on those who support the Indo-Hittite hypothesis: if there are no strong indications about the nature of the relationship of Anatolian to the other members of the family, clearly the hypothesis that asserts least is to suppose that Anatolian was an ordinary member of the family, on the same basis as Indo-Iranian or Balto-Slavic.

To demonstrate that the Indo-Hittite hypothesis fits the evidence better than the Indo-European hypothesis does, it is necessary first to show that Anatolian shares few or no significant innovations with other individual branches of the family; if it did, we would have to conclude that the ancestor of Anatolian was still a dialect of the common proto-language at the time when this began breaking up into the separate languages which were the ancestors of Greek, Celtic, Germanic, etc., and so could share in innovations that spread over only part of the dialects of the common proto-language.

Second, it has to be shown that there is a significant amount of innovation shared by all the non-Anatolian branches, but lacking in Anatolian; otherwise, there would be no reason to suppose that any significant time had passed between the splitting off of the ancestor of Anatolian as a separate language and the splitting up of the remaining dialects into distinct languages.

On the first point, the best and most cogent recent list of innovations which Anatolian is alleged to share with one or more other branches of our language family is probably that of Kammenhuber 1961, especially 40-49, 61-69. But in my opinion none of the features listed by Kammenhuber is indubitably an innovation significant for subgrouping. This is especially true of the lexical comparisons. To take an example, the only sure cognate of Hittite *eku-*, Palaic *ahu-* « drink » is Tocharian AB *yok-* « drink ». But this by no means implies that the word is a common innovation of Anatolian and Tocharian. It is at least equally likely that the word is a relic, especially since, as Hoffmann 1970: 30-31 has acutely observed, it is likely that the root **peH₃(y)-*[1] which in most Indo-European languages means « drink » originally meant « take a swallow »-precisely the meaning of its probable Hittite reflex *paš-!*

It is true that the use of the interrogative-indefinite pronoun as a relative is an innovation which Anatolian shares with several other branches of the family, e.g. Italic, Baltic, Tocharian. But this development has demonstrably occurred independently in the attested history of at least three branches of the family: Iranian, Slavic, and Germanic; thus we have no cogent reason to deny that it could have occurred independently in the prehistory of the languages which have such relatives from their earliest attestation[2].

The origin of the Anatolian mediopassive verb endings is highly controversial, and in my opinion the views to be found on this subject in recent literature are largely incorrect[3], although in several important respects the views of Watkins are relatively close to my own, which have so far been only partially and perhaps obscurely set forth Cowgill 1969: 25-27 and 1970: 142.

[1] This reconstruction is only approximate.

[2] On this, and a possible explanation of why interrogatives are apt to acquire relative meaning, see Nowicki Forthcoming.

[3] E.g. Kammenhuber 1961: 43-45; 1963: 316-317, 328-329; 1968: 71-72; Kuryłowicz 1964: 56-89; 1968: 7-20; Neu 1968a and b; Watkins 1969: 174-197; Szemerényi 1970: 225, 307-308; Rosenkranz 1971.

Briefly, I think that the original function of the *r* found in some mediopassive endings of Anatolian, Tocharian, Italic, Celtic, and Phrygian[4] was to distinguish primary endings from secondary endings, in the same way that **-i*, as universally agreed, functioned in the active endings of presents and aorists. All members of our language family in which inherited mediopassives occur derive their endings from a common set of basic mediopassive endings, of which the clearest and most widely attested members are 3rd sg. **-o, *-to* and 3rd pl. **-ro, *-nto*. The first singular can be reconstructed as **$H_2o$* or **-$H_2e$*, retained essentially unchanged in Anatolian, Indo-Iranian, Italic, Celtic, and Germanic (Old Icelandic *heiti*), but with *-m-* preposed in Greek and Tocharian (except perhaps for A preterit *-e*). The second singular was probably originally only **-t$H_2o$* or **-t$H_2e$*, as reflected regularly in Hittite *-tta(-)* and Tocharian primary B *-tar*, A *tār*, secondary B *-tai*, A *-te*, and, with considerable remodeling, in Sanskrit secondary *-thās* and Old Irish indicative and subjunctive *-ther*, imperative *-the*; the **-so* that underlies Sanskrit primary *-se* and all the second singular mediopassive endings of Iranian (except perhaps imperative *-hva/šva*), Greek, Latin, and Germanic is in all probability an innovation, on the pattern act. 3rd sg. *-t*: 2nd sg. *-s* = mp. 3rd sg. *-to*: 2nd sg. X.

In the first person plural, mediopassive endings seem to have been made originally by adding **-dh$H_2$* (or something similar) to the active endings, secondary **-me*, primary **-mos*. Hence, with various remodelings, Hittite *-wašta* (-), Indo-Iranian **-madhi*, **-madhai*, Greek -με(σ)θα, Tocharian B *-mte*, A *-mät*, AB *-mtär*, Gothic *-nda* (on this last see Cowgill 1970: 142, still hesitant, and Szemerényi 1970: 223). Italo-Celtic **-mor* represents a more radical departure from this type (Sturtevant 1929: 32; independently Cowgill loc. cit.).

For the second plural, **dhwe* or **-dhwo* is indicated by Indo-Iranian (especially *yájadhva* RV 8.2.37) and Luwian *-tuwa-*, Hittite *-ttuma(-)*; this ending probably ultimately underlies the second plural mediopassive endings of Greek, Tocharian, Irish, and Gothic, although in each there are numerous problems. (Latin *-minī* remains an unsolved riddle)[5].

It has often been observed that the singular and third plural mediopassive endings bear considerable resemblance to the endings of the same persons of the active perfects of the non-Anatolian languages and of the Hittite *hi*-conjugation. But a great deal less attention is paid to the fact that the endings of the first and second plural of the mediopassive, which are common to Indo-Iranian and Anatolian, and at least partly also to Greek, are utterly different from those of the perfect and of the Hittite (active) *hi*-conjugation. Nor do scholars pay sufficient attention to the less glaringly obvious differences between mediopassive and perfect/*hi*-endings in the singular and third plural, such as Vedic (MS) *aduhra* « they gave milk » vs. *vidúr* « they know ». Considering also that the ablaut of the mediopassive, both hysterodynamic (type ἔχυτο) and proterodynamic (type κεῖται), is quite different from that of the perfect (οἶδε) and of the *hi*-conjugation (e.g. Old Hittite *la-a-hu-i* « pours », *da-a-i* « places »), and that a number of mediopassive verbs recur in all three of the most archaic languages of the family (e.g. Hitt. *ki-it-ta* = Skt. *śáye* = Gk. κεῖται; Hitt. *e-ša* = Skt. *aste* = Gk. ἧσται), it is apparent that the mediopassive was a category distinct from the perfect as far back as we can trace the prehistory of our language family.

What the perfect and the mediopassive share formally is an identity of the basic, person and number marking components of some of their endings against

[4] I am tolerably sure that Armenian endings that are sometimes mentioned in this connection do not belong here. Venetic verbal forms in *-r*, *toler* and perhaps *kvidor*, are too problematic to be included now.

[5] I suspect that a still more archaic form of the second plural mediopassive is concealed in the 2nd and 3rd person dual mediopassive endings of Indo-Iranian. Consider the proportion *sedáthur*: *sedá* = *asāthe*: X.



a quite different set in the present and aorist active endings for the same persons and numbers. (Hence in the person mediopassive, **-o* and **-ro* are almost certainly older than **-to* and **-nto*, although the unanimous testimony of all witnesses indicates that both sets existed already before the breakup of the proto-language). This partial similarity may reflect a time when a remote ancestor of our language family had, say, a transitive *m*-conjugation, made by appending pronouns in ergative case to verb stems, and an intransitive $H_2$-conjugation, made by appending pronouns in nominative case (in the third singular however, no pronoun at all). But such a system is too remote to be more than dimly glimpsed from the data available to us. The system that we are entitled to reconstruct has a mediopassive distinct from the perfect in endings, in ablaut pattern, and in lexical constituency.

In Indo-Iranian, Greek, and Tocharian the basic mediopassive endings *-$H_2o$*, *-t$H_2o$* (*-so*), *-(t)o*, *-medh$H_2$* , *-dhwe*, *-ro/nto*, or forms derived from them, function as secondary mediopassive endings, opposed to a contrasting set of primary mediopassive endings. In Latin the only member of this basic set of endings to survive was the second singular **-so*; Irish 2nd sg. impv. *-the* evidently derives eventually from the more archaic **-t$H_2o$*, and 2nd pl. [δ′] may be from **-dhwe*. Otherwise in Italic and Celtic the old secondary mediopassive endings have been lost, parallel to the widespread loss of contrast between primary and secondary active endings in these languages[6].

In Germanic it may be that the optative endings, Gothic *-aizau, -aidau, -aindau*, acquired their *-u*, mysterious as it is, already before the Common Germanic loss of PIE **-o*, rather than that the endings are really the primary ones, developing regularly to Gothic **-aiza, *-aida, *-ainda*, to which *-u* was added as a late, internal Gothic development. In Anatolian it is at least doubtful whether the active preterit endings 3rd sg. Luw. *-ta*, 3rd pl. Luw. and Pal. *-nta* are originally mediopassive; on the Hittite endings that apparently continue the old secondary endings in present value, see below.

But everywhere that the inherited mediopassive is attested, there is also a set of primary endings, made by adding, at least in the singular and third plural, a further element to the basic, secondary endings. In Indo-Iranian, Greek, and Germanic, these primary endings were made by adding *-i*: cf. Skt. 1st sg. *-e*, 2nd sg. *-se*, 3rd sg. *-(t)e*, 3rd pl. *-nte*, *-re*; Greek (Arcado-Cypriote) -μαι, -(σ)οι, -τοι, υτοι[7]; Gothic 2nd sg. *-za*, 3rd sg. *-da*, 3rd pl. *-nda*, whose *-a* by Gothic sound laws can well come from Germanic **-ai*, but cannot come from **-ar*. That **-ai* is correct is indicated by OIc. *heiti*, Runic *haite* (e.g. Kragehul, Järsberg) « I am called ».

But Anatolian, Tocharian, Italic, Celtic, and Phrygian do not have primary mediopassive endings made by adding *-i* to the secondary endings (Late Phrygian -ται beside -τορ is surely from Greek); instead, these languages use *r*. In Tocharian the function of these *r*-endings as « primary » is quite clear: cf. B present *-mar, -tar, -tär, -mtär, -tär, -ntär* vs. preterit *-mai, -tai, -te, -mte, -t, -nte*[8]. In Italic and Celtic the *r*-endings function as both primary and secondary, e.g. Latin pres. *dīcitur*, imperfect *dīcēbātur*; Umbrian optative *emantur*; Old Irish present *sechethar*, preterit *sechestar*. This is surely due to spread of *r*-endings at the expense of original secondary endings (as conversely Lat. pres. *sequere* is due to leveling in the opposite direction)[9]. In Phrygian no forms occur where secondary mediopassive

[6] Discussion of Irish cojunct vs. absolute inflection and of Celtic imperative and imperfect endings would range far beyond the limits possible in this paper.

[7] The vowel timbre -αι of most Greek dialects in these endings outside the 1st singular is still as puzzling to me as ever. Cf. Neu 1968b: 349-350 for cogent reasons against simply supposing them analogic to the 1st singular.

[8] Lane 1970: 86 reports me as equating Gk. -μαι and Toch. B *-mai*. Rather, I equate, mutato mutandum, Greek primary -μαι with Tocharian primary (B) *-mar*, and I think that Greek secondary μᾶν and Tocharian secondary (B) *-mai* both represent parallel but presumably different remodelings of **-ma*, itself remodeled from the reflex of **$H_2o$* (or possibly **-$H_2e$*). Cf. Cowgill 1969: 27, with note 12.

[9] The Irish distinction between absolute and conjunct deponent and passive endings can

endings might be expected, but at least we can say that present mediopassive forms regularly have -τορ.

In Anatolian the *r*-endings are found in the present indicative, but not in the preterit. In Luwian and Palaic there occur, according to the standard interpretations, presents in which only *-r* is added to the basic mediopassive endings: Luwian 2nd pl. *da-a-ad-du-wa-ar*, Palaic 3rd sg. *ki-i-ta-ar*. In Hittite, *r* in the present indicative always has a further *-i* added, evidently on the pattern of the active present, which in Hittite of the 14th century and later always ends in *-i* (Old Hittite active forms in *-e* were earlier in **-a-i*). E.g. *ar-ha-ri* « I stand », *ar-ta-ri* « he stands », *a-ra-an-da-ri* « they stand ». Similar forms occur also in Luwian, e.g. 3rd sg. *-ti...a-a-ia-ri* « becomes », 2nd pl. *az-tu-u-wa-ri* « you eat ». These *-ri*-forms are evidently the basis for the Hittite and Luwian mediopassive imperatives in *-ru*, on the model of active indicative 3rd sg. **-ti*, 3rd pl. **-nti*: imperative *-tu*, *-ntu*.

But in Hittite there are also shorter present endings without *-ri*: *-(ha)ha*, *-ta*, *-(t)a*, *-wašta*, *-tuma*, *-anta*. On the surface these seem to be the original, unenlarged « secondary » endings. As mediopassive preterits Hittite has forms *-(ha)hat(i)*, *-tat(i)*, etc., with an enlargement *-ti*, *-t*, unknown in this function elsewhere (mediopassive preterits are not attested in Luwian and Palaic). But it is counter to the whole pattern of Indo-European and Anatolian morphology that unmarked, « secondary » endings should have present function, opposed to marked preterit endings. Hence I think that Neu 1968a: 140-143 is right in supposing that the Hittite present mediopassive forms in *-a* have lost a final **r*, so that e.g. Hitt. *ki-it-ta* « lies » corresponds exactly to Palaic *ki-i-ta-ar*. Although the conditions for loss of final *r* in Hittite are unknown, the fact of such a development cannot be doubted. Cf. e.g. the quotative particle *-wa*(-) final and before consonant, *-war-* before vowel.

It now becomes clear why, on the surface, Hittite has unmarked presents in its mediopassive, contrasting with marked preterits: the presents were in fact originally marked by **-r* (optionally expanded to *-ri*), and the *-ti*, *-t* of the preterits was originally a particle of little or no meaning [10], which in Hittite rather by accident acquired a distinctive function as a result of the phonetic merger of the present in **-ar* with the unenlarged preterit in **-a*: once the merger had occurred, the resulting *-a* forms were used exclusively in their psychologically more basic value as present, leaving the expanded *-at(i)* forms in uncontested possession of the value « preterit » [11].

Now, of the two sets of markers for primary endings, those using *r* are evidently more archaic than those using *i*. One evidence for this is geographic: the branches with *r*-endings — Celtic, Italic, Tocharian, Phrygian, Anatolian — in their historically attested locations are indubitably marginal vis-à-vis the languages with *i*-endings — Indo-Iranian, Greek, Germanic — which, allowing for gaps caused by the prehistoric disappearance of old mediopassive forms with primary endings in Balto-Slavic, Albanian, and Armenian, constitute a centrally located and interconnected group of languages. Thus, to assume that the *r*-endings were inherited by the languages that attest them and that the *i*-endings were a common, shared innovation of the Indo-European dialects ancestral to the languages that attest them requires fewer pheristoric shifts in the relative positions of Indo-European tribes than would the inverse assumption.

have no direct connection with the Proto-Indo-European distinction between primary and secondary endings. I do not know the source of Osco-Umbriam *-(t)er*, *-nter*, which in Umbrian are exclusively primary; cf. Watkins 1969: 180 against traditional explanations.

[10] Hence the attractiveness of deriving it etymologically from the same **-dhi* that was sometimes added to verb stems used as 2nd singular active imperatives: in both cases, the ending adds nothing essential to the meaning of the form to which it is appended.

[11] For relics of 2nd and 3rd singular *-ta* in preterit value see Neu 1968a: 28. I do not know why 2nd singular and 1st and 2nd plural endings *-tati*, *-waštati*, *-tum(m)at* occur in present value beside the « regular » *-ta(ri)*, *-wašta(ri)*, *-tuma(ri)*; for conspectus see Neu 1968a, 24-26. Perhaps philologic investitgation of the contexts where they occur would be revealing.



True, so long as we have no direct archeological evidence of the prehistoric migrations of Indo-European tribes, such geographic arguments are weak, easily upset by any kind of solid counterevidence. More cogent evidence for the greater antiquity of the *r*-endings is that if the *i*-endings are original, there is no plausible source from which one group of late Indo-European dialects could have gotten the *r*-endings; cf. Watkins 1969: 175, 179-180 against previous attempts to explain the *r*, and 194-197 for an explanation which I personally find quite unconvincing. On the other hand, if the *r*-endings are the older, our inability to explain the source of their *r* is only to be expected, and the *i*-endings can be explained with the utmost simplicity: they are analogic to the active, on the pattern active secondary *-m*, *-s*, *-t*, *-(e)nt*: active primary *-mi*, *-si*, *-ti*, *-(e)nti* = mediopassive secondary *-H2o*, *-tH2o*, *-(t)o*, *-ro*/*-nto*: mediopassive primary X [12].

The inflection of the mediopassive in Hittite and the other Anatolian languages therefore cannot be used as an example of an innovation shared by Anatolian with one or more other Indo-European subgroups.

On the other hand, advocates of the Indo-Hittite hypothesis have not yet to my knowledge demonstrated really convincing examples of innovations shared or presupposed by all non-Anatolian members of our family but lacking in Anatolian. Thus it may seem peculiar that Anatolian already by 1600 b.c. should have lost a distinction between masculine and feminine gender, while keeping the distinction between neuter and non-neuter, a development found elsewhere in the family only in some modern Germanic languages, and only within the last few centuries, some 3000 years later than the putative loss of the feminine in Anatolian. But the peculiarity is not so great that we can confidently assert that it cannot have happened and that the creation of a distinct feminine gender must be an innovation of the non-Anatolian part of the family.

Likewise, I see no cogent proof that, as Sturtevant thought (e.g. 1951: 108-109), the general non-Anatolian demonstrative pronoun **só*, **sā*, **tód* arose from combinations of sentence-initial particles with enclitic pronouns which were preserved essentially unchanged in Hittite. It is at least equally possible that the *so*-/*to*-pronoun existed in the ancestor language of Anatolian but was lost there, and that the sentence-initial particles of Hittite are unrelated to its genesis.

But there is a piece of evidence not considered by Sturtevant, which in my opinion constitutes stronger evidence for the Indo-Hittite hypothesis than any that he did adduce. This is the Hittite *hi*-conjugation of active verbs.

Hoffmann 1970 has recently sketched the morphologic categories of the Indo-European verb. On almost all points I am in complete agreement with him. Features relevant to this paper are that — if exclude Anatolian — the system common to Homeric Greek and Vedic Sanskrit is the one from which those of all other Indo-European languages are derived [13]; that system was built on three aspect stems, traditionally labeled present, aorist, and perfect, of which the first two expressed imperfective and perfective aspect respectively; the assignment of athematic root verb stems to one or the other of these two aspects depended originally on the lexical Aktionsart of the root in question: e.g. telic **dō-* (**deH3-*) « give » and **dhē-* (**dheH1-*) « place » were aorists, but atelic [14] **es-* « be », **ed-* « eat », and **ey-* « go » (= « be on one's way ») were presents; to form imperfectives to telic roots and perfectives to atelic roots, additional formants were needed, e.g. the

[12] Pedersen 1938: 100-108 is still the best treatment of the Hittite and Indo-European mediopassive endings that I know of. However Pedersen did not see that of the two formations of primary endings, that with *-i* is younger than that with *-r*.

[13] Shared innovations in details, such as the *i*-mediopassive, do not seriously lessen the essential archaism of the systems as wholes, compared with those of later attested languages such as Latin, Irish, or Old Church Slavic — or, for that matter, Hellenistic Greek or Classical Sanskrit.

[14] The terms « telic » and « atelic » are taken from Garey 1957.

reduplication of present Skt. *dá-dā-ti*, Gk. δί-δω-σι « gives » beside aorist Skt. *á-dā-t*, Gk. (1st pl.) ἔ-δο-μεν, or the *-s-* of Skt. aor. *á-vāk-ṣ-ur* « they have conveyed » beside pres. *váh-a-ti*. (The thematic vowel appears not, originally at least, to have been an aspect reversing formant.)

I differ from Hoffmann on two points. 1) Hoffmann evidently believes that the verb patterns of Hittite and the other Anatolian languages can be derived from the Greek and Indo-Iranian system. This is stated more clearly in Hoffmann 1968, in which an attempt is made to show a relic in Hittite of the present ≠ aorist contrast. 2) Hoffmann (39-41) — along with just about everybody else who has expressed himself on this point — views the perfect of Greek and Indo-Iranian as describing basically a state resulting from past action, which leads him to infer that, originally, the stative meaning must have been inherent in the endings of the perfect indicative, while the perfect stem itself, referring to the past action, was perfective in aspect.

To take the second point first, I believe that the earliest function of the perfect that we can infer from Greek and Indo-Iranian was to describe a state. Period. The meaning of words like Gk. δέδοικε or Vedic *bibhāya* was « he is afraid, il a peur ». True, this implies a previous process of getting frightened. Similarly Gk. οἶδε, Skt. *véda*, Go. *wait* « knows » implies a previous acquisition of knowledge. But this is true of any state other than the state of primeval chaos prior to the creation of the universe: any other state that you would care to name — « the unicorn is asleep », « the light is good » — is the result of some past event or combination of events [15].

Of course, statives derived from verb roots of telic Aktionsart are very apt to shift emphasis from the present state to the past event that brought about that state: « he is dead » has the same pragmatic implications as « he has died », and from that the Indo-European perfect was launched into its well known career as a past tense, which is documented in almost every non-Anatolian branch of our family.

On the first point, I believe it is not possible to derive in any plausible way the verb patterns of the Anatolian languages from the pattern that is common to Greek and Indo-Iranian.

Of the Anatolian languages, only Hittite is well enough known that we can be confident we understand its system of conjugation; but what is known of the verbs systems of the other Anatolian languages fits in with the Hittite material.

The basic difficulty is the Hittite *hi*-conjugation. Hittite has no aspect as a grammatical category, and only two tenses, present (or non-past) and past. The lack of a distinction between perfective and imperfective aspect is easy to see as a loss. (Although I am not convinced by the evidence of Hoffman 1968 for a trace of such a distinction in the Hittite contrast of *lu-uk-ki-iz-zi* « sets on fire » and *lu-ug-ga-at-ta*, *lu-uk-kat-ta* « it gets bright »: the former may after all be a causative, **lowkéyeti*, comparable to Vedic *rocáyati*, and the latter is perhaps enlarged from **lukka* from **léwk-o-r*.) Of the three main types of Hittite verbs — mediopassive, active in *-mi*, and active in *-hi* — the first two correspond excellently, in form, in meaning, and in lexical constituency to the mediopassive presents and to the active presents respectively of Greek and Indo-Iranian and the other Indo-European languages.

That the mediopassive endings of Hittite and the other Anatolian languages correspond well to those of mediopassive presents and aorists in Sanskrit, Greek, Latin, Irish, Gothic, and Tocharian has been documented above. As far as ablaut grades are discernible in Anatolian, there is no evidence for *o*-grade in roots of mediopassive verbs in Anatolian, any more than in Greek, Indo-Iranian, etc. Semantically, the mediopassive verbs of all these languages are typically, though

15 That is, if one does not get involved in philosophical problems of causation. Scholars who say that « he is afraid » implies « he got scared » do not so involve themselves.



by no means always, intransitive or reflexive, and when the same verb stem is conjugated in both active and mediopassive voice, the mediopassive often has passive value, e.g. Hitt. act. *ha-ma-an-ki* « ties », mediopassive *ha-me-in-kán-ta-at* « they were tied »; Homeric βάλε « he hit (with a missile) », βλῆτο « he got hit ».

Further, Hittite verbs conjugating mainly or exclusively in the mediopassive that have secure etymologies correspond regularly to deponent verbs elsewhere. *ki-* « lie » and *eš-* « sit » have been mentioned already. To these can be added *ú-e-eš-ta* « wears »: Skt. *váste*, Gk. (ἐπί)-εσται (Eichner 1970). I suspect also that Hit. *lu-ug-ga-at-ta* « gets bright » and *i-ia-at-ta* « proceeds, marches » have arisen in parallel fashion to Vedic *rócate* « is shining » and *áyate* « makes his way », by adding regular 3rd singular mediopassive endings to Hittite **lukka*, **iya* and Indo-Iranian **ráuca*, **áya* from earlier athematic proterotonic mediopassives **léwk-o*, **éy-o*. (Cf. Watkins 1969: 86-87, 98; the equation of Hitt. *iyatta* with Vedic *áyate* has been suggested to me independently in private conversation by Patrick Hollifield.)

One may also compare Hittite *ar-ta(-ri)* « stands, stellt sich » with the aorist Gk. ὦρτο « started off », Vedic (injunctive) *arta* « erhebt sich » (Hoffmann 1967: 224); cf. Lat. *oritur* « arises » with an imperfect aspect formant **-ye-*. Perhaps also Hittite *mar-ta-ri* « bets lost » goes with (AV) *amṛta* « has died » and Lat. *moritur*, Skt. *mriyáte* « dies ». *šu-up-ta-(a-)ri*, *šu-up-pa-ri* « sleeps » beside active *šu-up-tin* shows an easily understandable change of voice, but otherwise fits well with RV *svapánt-* « sleeping », AV *sváptu* « let him sleep ».

These eight are the only Hittite deponent verbs that I know of with reasonably good etymologies.

Likewise, the Hittite active *mi*-conjugation corresponds very well to the active present formations of Greek and Indo-Iranian. The formal identity scarcely needs to be documented. For the most part the endings of the present indicative, preterit, and imperative of the *mi*-conjugation correspond exactly to those of the Greek and/or Indo-Iranian active present indicative, imperfect, and present imperative. The only notable discrepancy is the Hittite 3rd plural preterit ending *-er*, which is evidently borrowed from the *hi*-conjugation, perhaps because the inherited form, **-an*, was uncomfortably close to the neuter of the (in Hittite) past participle. And here Luwian and Palaic appear to have kept the old ending, remodeled to *-nta*. Likewise the ablaut of Hittite root verbs in *-mi* agrees with that of Greek and Indo-Iranian athematic presents; cf. the famous Hitt. *ku-en-zi*, *ku-na-an-zi*: Vedic *hán-ti*, *ghn-ánti*. And again, Hittite *mi*-conjugation roots and formations, insofar as they have good etymologies, generally correspond to roots and derived formations of present aspect in Greek, Indo-Iranian, etc. Thus of root verbs we have the following seven good equations:

| Hittite | Sanskrit | Greek | Latin | Other |
|---|---|---|---|---|
| *eš-* « be » | *ás-ti* | ἔσ-τι | *es-t* | Go. *is-t*, OCS *es-tŭ*, etc. |
| *ed-* « eat » | *át-ti* | inf. ἔδ-μεναι | *ēs-t* | OCS *ěs-tŭ* |
| *pa-i-* « go », *u-i-* « come » | *é-ti* | εἶ-σι | *i-t* | OLi. *eĩ-ti*, etc. |
| *kuen-* « strike » | *hán-ti* | | | |
| *wek-* « want » | *váṣ-ṭi* | part. ἑκ-ών | | |
| *šeš-* « sleep » | *sás-ti* | | | |
| *eku-* « drink » | | | | Toch. B *yok-äm*, A inf. *yok-tsi* |

Of the formations of derived Hittite *mi*-verbs, the iterative-durative suffix *-ške-*, the causative suffix *-nu-* and infix *-nin-*, and the denominative suffix *-ie-* have well known equivalents among the present stem formants of Greek, Indo-

Iranian, etc. To these must be added now the causative formation with *o*-grade root and suffix **-éye-*, of which Hitt. *wa-aš-ši-e-iz-zi*, *wa-aš-ši-ia-zi* « clothes » is a certain example (Eichner 1970),and *lu-uk-ki-iz-zi* « sets on fire » is a possible example. Also, it is likely that the verbs in *-ae-/-a-*, of the type Old Hittite *tar-ma-e-mi* « I fasten down », 3rd pl. *tar-ma-an-zi*, correspond to one or another of the denominative present formations found outside Anatolian.

A few Hittite *mi*-verbs perhaps correspond to thematic(ized) aorists elsewhere. Thus *e-ip-zi* « seizes, holds » appears to correspond to Vedic *āpat* (clearest RV 9.92.1), which would make Latin *-ēpī* also an old aorist (*-ēpī*: *apiō* = *fēcī*: *faciō*); but Hoffmann 1967: 64 suggests that this Vedic aorist and its Avestan counterpart (opt.) *apaēmā* are secondary to the perfect *āpa*. Likewise *ša-an-ah-zi* « seeks » appears to go with Vedic *ásanat* « has won ». If these equations are correct, they probably represent semantic shift of the roots, entailing shift between telic and atelic Aktionsart, comparable to that say in the development of Ancient Greek imperfect ἔφερον « I carried » to Modern Greek aorist *éfera* « I brought ».

But in the main, the correspondence between Hittite *mi*-verbs and present stems elsewhere is as good as that between the present stems of any two non-Anatolian branches of our family.

Not so the *hi*-conjugation. Formally there can be no doubt that this conjugation agrees essentially with the (active) perfects of the non-Anatolian languages, as first stated in Kellogg 1925. For the non-Anatolian perfect we can reconstruct with fair confidence endings 1st sg. **-H₂e*, 2nd sg. **-tH₂e*, 3rd sg. **-e*, 1st pl. **-mé*, 2nd pl. *-é*, 3rd pl. **-ér* (this last directly preserved only in Avestan, e.g. Gathic *åŋharə* « they were »). Of these, the first plural is the same as the secondary ending of the perfect-aorist system, and everywhere except Indo-Iranian the same is essentially true of the second plural — Gk. *-τε*, Lat. *-(is)tis*, Go. *-(u)þ*, etc. [16].

In Hittite, these are the source of most preterit endings of the *hi*-conjugation. 2nd sg. *-ta* and 3rd pl. *-er* directly equate with the reconstructed Indo-European perfect endings, and 1st pl. *-wen*, 2nd pl. *-ten* follow the general Indo-European rule that perfect endings for these persons are identical with the corresponding secondary present-aorist endings. 1st sg. *-hun* has long been recognized as analogic, after the *-(n)un* of the *mi*-conjugation, for the *-ha* from **-H₂e* that is preserved as first singular preterit in the languages of the Luwian group. Only the 3rd sg. *-(i)š* for expected **-e* is completely outside the system, and of obscure origin [17].

The present of the *hi*-conjugation mostly consists of the perfect endings plus **-i*, evidently added on the analogy of the relation between primary and secondary endings in the **m*-conjugation. 1st sg. *-hi* and 3rd sg. *-i* come from **-H₂ey* (**-hay*) and **-ey*, as seen by Rosenkranz 1953: 344-345, who however derives the 3rd singular from **-ay*. But *-i* is the regular ending already in Old Hittite. E.g. from tablets written in the old ductus, with the sign *-i*: *pa-a-i*, *da-a-i* « takes », *da-a-i* « places », all frequent; *hu-wa-a-i*, *i-iš-sa-i*, *mi-im-ma-i*, *pí-en-na-i*, *šu-un-na-i*, *da-a-la-i*, *za-a-i* Laws A; *iš-ha-a-i* Laws q; *pí-e-da-i*, *hal-za-a-i* KBo XVII 3; *la-a-hu-i* KBo XVII 1. With the sign *-hi*: *da-šu-wa-ah-hi* Laws A, *šu-up-pí-ia-ah-hi* Laws q, *al-la-ap-pa-ah-hi* KBo XVII 1, 3. With the sign *-ši*: *wa-a-ši* Laws A, *wa-ar-aš-ši* (2x), *ha-a-ši* Laws q. Against these, the extremely rare spellings with *e*-signs (e.g. *wa-ar-aš-še* Laws q, vs. two occurrences of *wa-ar-aš-ši* on the same tablet) have to count as spelling irreguralities.

But the less frequent 1st singular is often spelled with *-hé* rather than *-hi* on tablets written in the old ductus. Thus KBo XVII 3 and 4, which are probably fragments of a single tablet (Otten and Souček 1969: 6), and which offer nine examples of the 3rd singular in *-i*, including [*al-la-ap-p*]*a-ah-hi* 3 I 29′, spell the

[16] Tocharian *-s*, although problematic, recurs in the 2nd plural active imperative, and so must have been the « secondary » ending of the present-aorist system also.

[17] Presumably *-šta* is a combination of this with the postconsonantal 3rd sg. pret. *-ta* of the *mi*-conjugation, and forms like *ak-ta* « he died » simply have the *mi*-conjugation ending.



1st singular with *-hé* twenty times, and only once with *-hi* (3 IV 30). This surely reflects the original difference in vocalism: srd sg. **-ey* had become *-i* already in Old Hittite, but 1st sg. **-hay*, with laryngeal umlaut, was still *-he*, only later becoming *-hi*; cf. the development of the enclitic dative **-soy* through Old Hittite *-še* to Late Hittite *-ši*.

I know of no Old Hittite example of the 2nd singular present (Late Hittite *-ti*), but I presume that it was *-te* from **-tay* from **-tH₂e* plus *-i*. *wa-ar-iš-ša-at-te*, mentioned by Watkins 1969: 79, although in a very late text (Tudhaliya IV), may well reflect a correct tradition of the Old Hittite spelling.

In the 3rd plural present the *hi*-conjugation has adopted the ending *-anzi* from the *mi*-present, in place of the expected **-eri*.

The stem form of Hittite root verbs of the *hi*-conjugation also corresponds well to the Indo-European perfect. In the singular the root invariably has *a*-vocalism (aside from variants like *še-ik-ti* beside *ša-ak-ti* « thou knowest »), generally written plene in Old Hittite. Thus e.g. *a-ki*, *a-ar-ri*, *a-ar-ki*, *ha-a-ši*, *hu-wa-a-i*, *iš-ha-a-i*, *iš-ta-a-pí*, *ka-a-an-ki*, *ka-ra-a-pí*, *la-a-hu-i*, *la-a-ki*, 1st sg. *ma-a-ar-ka-ah-hi*, *pa-a-i*, *ši-pa-a-an-ti*, *da-a-i* « takes » and « places », *wa-a-ki*, *wa-ar-aš-ši*, *wa-a-ši*, *za-a-i*. Although for most of these cogent etymologies are lacking, and for some laryngeal umlaut is possible, the sheer monolithic bulk against the prevailing *e*-vocalism in the singular of the *mi*-conjugation permits only one conclusion: the singular of the Hittite *hi*-conjugation, like the singular of the Indo-European perfect, has *o*-grade [18]. In the face of this clear testimony, the explanation of the *e* that sometimes shows up in the plural, e.g. *e-ri-ir* « they arrived », is of subordinate importance. Probably Kuryłowicz 1958: 228 is right in seeing it as originally a replacement of zero grade in roots of the shape *TeK-*.

The lack of reduplication in most Hittite *hi*-verbs makes no serious difficulty. We knew already from Gr. οἶδα, Skt. *véda* that at least one Indo-European perfect lacked reduplication, and we knew from Germanic that an Indo-European language could give up reduplication as a regular perfect marker.

The difficulties come when we try to compare the Hittite *hi*-conjugation to the Indo-European perfect on the semantic and lexical levels. Semantically, very few Hittite *h*-verbs have a stative value comparable to that reconstructed as original for the Indo-European perfect. The best case is *šakk-* « know », comparable to οἶδα, *véda*. Good also is *dakk-* « correspond to, resemble » beside Gk. ἔοικα « am like ». Still other *hi*-verbs have stative meaning, even if these meanings elsewhere are expressed by various present formations; e.g. *au-* « see », *waggar-* « be lacking », *karmalaššai* « is stiff ». There are also verbs for vocal actions, *mema-* « speak », *halzai-* « call », *išhamihhi* « I sing », *malt-* « vow », that compare with the Homeric type κεκληγώς, ἄνωγα, μεμηκώς, μέμυκε, γέγωνα, Vedic *āha*. But by and large, Hittite *hi*-verbs express decidedly non-stative ideas, e.g. *ar-* « arrive », *ak-* « die », *kuwai-* « run », *šipant-* « pour a libation ». Often they are transitive as well, e.g. *arr-* « wash », *ark-* « cut up », *haš-* « open », *išhai-* « bind », *kank-* « hang », *lahu-* « pour », *pai-* « give », *da-* « take », *dai-* « place », *wak-* « bite ». This is true of the whole class of *ahh*-factitives, which inflect basically according to the *hi*-cojungation, e.g. *šuppiyahh-* « make pure », *dašuwahh-* « make blind ».

Lexically, the *hi*-conjugation has about as many good root etymologies as each of the other two types of Hittite verb. But there is almost no correlation with perfects that can be plausibly reconstructed for Proto-Indo-European. The best case is Hitt. *ar-* « arrive »: Vedic *āra* « moved », Hom. ὄρωρε « has arisen, exists », OE *earð* « thou art ». Cognates of other *hi*-verbs either have no perfects at all, or else have perfects which there is reason to believe were creations of the branches where they occur.

[18] On monophthongization of **aihh* to *ehh* and **auhh* to *ohh* in 1st sg. *te-e-eh-hé*, *u-uh-hi*, etc., cf. Risch 1955: 191.

Corresponding to *dai-* « place » and *da-* « take » Vedic has *dadháu* « has placed » and *dadáu* « gave », which are merged in Avestan *dadā* « set, gave » and Lat. *dedī* « gave », *-didī* « gave, placed », perhaps also in Gaulish δεδε « gave » or « placed »; cf. also Oscan *deded* « gave ». But all of these have the later value of the Indo-European perfect as a past tense, and all occur in languages where the perfect was productive in this value. And, as Wackernagel 1904: 3 observed, active perfects of τίθημι and δίδωμι do not occur in Homer, although presents and aorists are frequent. τέθηκα « I have placed » and δέδυκα « I have given » are first securely attested in the early fourth (Meisterhans-Schwyzer 1900: 189n1556) and early fifth century (Pindar, Aeschylus) respectively. Vedic *dadáu*, *dadháu*, Lat. *dedī*, etc., although occurring in the oldest documented forms of their languages, must therefore nevertheless be innovations.

To Hitt. *išhai-* « bind », *nai-* « lead », and *mema-* « speak » correspond Vedic *sisāya*, Gatha Avestan *hišāiiā* « has bound », and Vedic *nināya* « has led », *mimāya* « bellowed ». But again these are perfects of the secondary, resultative type, no more cogent than *dadáu* and *dadháu* for establishing a Proto-Indo-European perfect.

Hitt. *šipant-* « pour a libation » is certainly cognate with Gk. σπένδω « id. », and *lahu-* « pour » is probably cognate with λοέω « I wash ». But the latter of these has no perfect in all of Greek literature, and the former has a perfect only in the manifestly late ἔσπεικα of Plutarch (ca. 100 a.d.). Lat. *lāvī* « I washed » is not an old perfect, but rather a *v*-preterit **lavavai*, a formation which basically continues the Indo-European root aorist; and *spopondī*, Old Latin *spepondī* « I promised », is no more evidence for a Proto-Indo-European perfect than is *dedī*.

Hitt. *kank-* « hang » and *išpai-* « eat one's fill » are probably cognate with Gmc. *hanh-* « hang » and OE *spōwan* « succeed », but the preterits Gmc. **hehang*, OE *spēow* are again no evidence for Proto-Indo-European perfects in these roots.

Hitt. *parai-* « blow » must be cognate with Gr. πρήθω, πίμπρημι « blow, (cause to) burn », but this has no securely established perfect active before the second century a.d.

*paš-* « take a swallow » and *pahš-* « protect » (which inflects mostly as a deponent anyhow) appear to have extended forms of the roots of Vedic *píbati* « drinks » and *pāti* « protects » respectively. But besides the lack of complete agreement in root shape, no perfect is attested to the latter in Indo-European (Lat. *pāvī* is not of perfect origin), and for the former Vedic *papáu*, Lat. *bibī* are not sufficient evidence against the lack of a perfect active in Homer (πέπωκα is first found in Hipponax, 6th century).

Hitt. *waš-* « buy » has only nominal cognates elsewhere, with secondary verbs derived from them — e.g. Skt. *vasná*, *vasnayáti*.

Hitt. *šakk-* « know » may be cognate with Lat. *scīō* « id »; if so, the Latin preterit *scīvī* « I came to know » is necessarily secondary to the present stem, which would be from **sk-yé-*.

Looked at from the opposite end, the perfects that can most securely be reconstructed for Proto-Indo-European, on the basis of recurrence with stative meaning in two or more branches, are **wóyd-e* « knows », **ste-stóH₂-e* « stands », **H₁ge-H₁gór-e* « is awake », **me-món-e* « is mindful », **dhe-dhórs-e* « dares », **e-ór-e* « is started (up) ». And of these only the last has a plausible Hittite cognate, *ari* « arrives ».

Furthemore, at least three Hittite suffixes follow the *hi*-conjugation: factive *-ahh-*, iterative-durative *-šša-*, and *-na-*, also usually durative. But the Proto-Indo-European perfect gives evidence of having been formed only direct to verb roots, as it essentially remained in Sanskrit, where derived verbs form perfects, if at all, periphrastically (type *gamayām cakāra*), and in Latin, Celtic, and Germanic, where derived verbs make their preterits from formations other than the perfect. Only in Greek do we find things like βεβίηκα, and that only as part of a general restructuring by which the language was moving toward filling out a complete set of tense-aspect stems for every verb.



Thus at most one Hittite *hi*-verb can be etymologically correlated with a plausible Proto-Indo-European perfect, and even there the meaning is rather diverse: « arrives » vs. « is started up, has come into existence ». A few *hi*-verbs, like *šakk-* « know », *mema-* « speak », have meanings compatible with the oldest Indo-European perfects, but these lack good etymological connections with clearly old perfects elsewhere.

Thus if we are to derive the great mass of Hittite *hi*-verbs from the perfect as reconstructed for Proto-Indo-European on the evidence of the non-Anatolian languages, it can only be by a complicated and to my mind extremely unlikely set of developments. We would have to suppose that in Anatolian, as in Indo-Iranian and elsewhere, the perfect acquired preterit value, and so came to be formed to roots like **deH₃-* « take/give » and **spend-* « libate », and also, a development known elsewhere only from Greek, to verbs derived with the suffixes from which come Hitt. *-ahh-*, *-šša-*, *-na-*, and that then, when Anatolian lost aspect distinctions, for some reason these verbs happened to preserve their perfect-based preterits, to which new presents were created by adding primary endings, while their old presents and aorists disappeared. That is, starting from a set pres. **de-deH₃-mi* « I take », imperfect **(e-)de-deH₃-m* « I used to take », aor. **(e-)deH₃-m* « I took », we should have to suppose that a perfect **(de-)doH₃-H₂e* « I have taken » was created, after which the original present and aorist went out of use, while a new present **(de-)doH₃-H₂ey* « I take » was created in place of the inherited present; but that other verbs, such as **ey-mi* « I go », either never created a perfect, or if they did, later abandoned it in favor of keeping the old present. Similarly for derived verbs like **new-eH₂-* « make new » we would have to suppose that a perfect **(ne-)new-eH₂-H₂e* « I have made new » was created, and that this then ousted the old present formation, **new-eH₂-* or **new-eH₂-ye-*, while other derivatives, like causative *-nu-*, either never formed a perfect, or else eschewed it in favor of the present when Anatolian lost aspect as a grammatical category.

All of this is too arbitrary and implausible to te believed, especially when the early time of Hittite's attestation is taken into account. Compare the preterit presents of Gothic, formally a good parallel to the Hittite *hi-conjugation*, but semantically and etymologically much closer to the Proto-Indo-European perfect, even though Gothic has had two thousand more years to evolve in than Hittite. Semantically all Gothic preterit presents are stative, e.g. *aih* « I have » *gadars* « I dare », *kann* « I know », *mag* « I am able », *gamot* « I have room », *man* « I intend », *og* « I fear », *wait* « I know ». Etymologically at least three out of thirteen verbs in this class go whit stative perfects attested elsewhere — *gadars*, *man*, *wait* — and the rest can be explained as having acquired perfect inflection as a result of their meaning.

I see only one feasible conclusion. Hittite is not descended from the proto-language common to all the non-Anatolian Indo-European languages, or even from a proto-language only a little different. The common ancestor of Hittite and the non-Anatolian languages evidently had mediopassive and present active verbs very much like those found in the attested languages, but the forms ancestral to the Indo-European perfect and the Hittite *hi*-conjugation must have had a very different place in the system from both the Indo-European perfect and the Hittite *hi*-verbs. Limitations of space and time prevent me from offerring here my hypotheses about what the original value of these verbs was, and how they developed in the different branches of our family. But I think one thing is clear: the Indo-European perfect, as we know it, can have arisen only as an innovation common to the ancestor dialects of Indo-Iranian, Greek, Germanic, etc., during a period of several centuries after their split from the dialect ancestral to Hittite. Sturtevant's Indo-Hittite hypothesis is correct after all, and should be taken into account in further work

dealing with historical grammar of our language family and in attempts to correlate linguistic and archeological data.

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# СЕМАНТИЧЕСКАЯ РЕКОНСТРУКЦИЯ (В ГРАММАТИКЕ, ЛЕКСИКЕ, ИСТОРИИ КУЛЬТУРЫ)

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Семиотические системы, действующие в обществе, глубоко различны; достаточно сравнить язык с обрядами или с фольклорной сказкой. Но со стороны плана содержания, семантики, все эти системы разделяются менее резко, они образуют плавные переходы от плана содержания одной системы к плану содержания другой. Хорошо известно, что нет резкой границы между семантикой грамматической и семантикой лексической, нет ее также и между лексической семантикой и системой понятий. Семантика грамматики, семантика лексики и система понятий (духовных ценностей культуры) составляют три отдела одной системы — семантики культуры.

Поэтому, когда ставится вопрос о приемах установления и восстановления (реконструкции) семантики, естественно рассматривать грамматику, лексику, историю культуры как три последовательных в том или ином порядке — звена. Однако было бы преждевременным пытаться соединить эти три раздела в единую теорию семантической реконструкции: требуется еще полная разработка приемов в каждой из трех общее. В семантических реконструкциях в области грамматики, лексики, истории культуры одинаково стараются установить прежде всего узловое звено, переломный момент в развитии одной семантической системы в другую и равно видят признак этого переломного момента в нейтрализации семантических различий.

Таким образом, время от времени возникающее в семантических системах явление нейтрализации есть общая черта семантического развития во всех сферах, а описание нейтрализации — общая черта семантических реконструкций в разных областях.

Нейтрализация в тексте, или в синтагматике, наиболее известна. Она заключается в том, что различие между двумя противопоставленными единицами системы снимается, полностью или частично, в определенных условиях в тексте. Так, в русском языке различие прилагательных **врачебный** и **лечебный** полностью снимается в таком словосложении, как **зубо** {**-врачебный**, **-лечебный**}. В немецком различие глаголов giessen « лить » и fliessen « течь » частично снимается в словосложении Gußeisen « чугун », Flußeisen « литое железо », Flußstahl « литая сталь ». Широко действует нейтрализация в устойчивых словосочетаниях разного типа: русск. **каши {ухи, пива} не сваришь**, франц. bec {bouche, gueule} enfariné « доверчивый человек » и т.п. Обнаружение нейтрализации этого типа служит узловым пунктом реконструкций семантической истории слова.

Нейтрализация в поле, т.е. в рядах слов, объединенных по тому или иному признаку, меньше привлекала внимание исследователей. В своем « Словаре индоевропейских социальных терминов » (1970) Э. Бенвенист с сожалением подчеркивает, что даже такие безупречные в формальном отношении сближения, как лат. texo (корень teks-) (« ткать » и санскр. taks « рубить топором » наталкиваются на непреодолимые трудности в семантике: ткачество и плотничье ремесло кажутся « несводимыми ни к какой общей технике ». Между тем с точки зрения теорий семантических этимологических полей это сближение безупречно подтверждается: плетение тесно связано с текстильным, деревообделочным и гончарным производством, и переход терминов « резать, рубить, рвать » > « плести » > « ткать » есть основное семантическое выражение этой связи (О. Н. Трубачев, Ремесленная терминология в славянских языках, 1966). Таким образом семантические реконструкции в лексике опираются на реконструкции в сфере материальной культуры. Наиболее отчетливое выражение и обобщение эти связи находят в явлении функциональной семантики, заключающейся в том, что название одного предмета переходит на другой, заменивший его в той же хозяйственной функции: русск. **поезд**, нем. Zug из более раннего « вереница карет или упряжек лошадей »; русск. **перочинный нож** из наименования « ножа, служащего для очинки гусиных перьев ». Ср. также параллелизм трех явлений: замена в хозяйстве оленя лошадью, торжественное наряжание лошади в маску оленя (Н. Я. Марр, С. Руденко, 1930-ые г.г.) и переход названия оленя на лошадь (Н. Я. Марр).

В таких случаях мы имеем по существу три процесса семантической нейтрализации. Во-первых, во внеязыковом ряде, в объективной действительности, а именно в сфере культуры, происходит замещение одного предмета другим в той же функции и в этом смысле стирание, нейтрализация объективных различий этих предметов в пределах их общей функции (например, различий между конной упряжкой и составом с паровозом в случае **поезд**, Zug). Во-вторых, в языковом ряде — в поле слов происходит перенос названия и нейтрализация в сфере языковой семантики. В-третьих, перекрещивание ряда внеязыкового с рядом языковым: новейшие этимологические исследования показывают, что процесс здесь всегда основан на групповом или массовом переходе ряда предметов в новую хозяйственную функцию и параллельном переходе ряда слов к новым обозначениям (масса терминов плетения переходит в термины гончарного ремесла; термины конного транспорта переходят в термины парового — **поезд, сцепление, тяга, лошадиная сила, дорога и** т.д.) и таким образом один и тот же фактор оказывается одновременно и вне- и внутриязыковым.

Нейтрализация в поле без только что названной третьей нейтрализации, или скрещения вне- и внутриязыкового, также широко распространена. В этом случае параллельно существуют внутриязыковой и внеязыковой ряды без какого-либо их взаимодействия. Так, при полном параллелизме идей и образов « глаза » и « солнца » в мифах и фольклоре название солнца на глаз или глаза на солнце как правило не переходит. Другой пример: связь текстильного производства с плетением максимально выражена в материальной культуре и минимально в языке; напротив, связь плетения с гончарным производством гораздо слабее, но зато значительно шире представлена в лексике (Трубачев, 1966).



Некоторые случаи отчетливо обнаруживают и социальный смысл такой нейтрализации в поле. Самодвижущиеся экипажи (автомобили) в начале 20 века имеют внешний вид карет 19 века: старый вид предмета, уподобляющий его уже известному предмету, выступает как общественная санкция, необходимая для принятия нового предмета. То же основание и в духовной культуре: ср. идеи М. Бахтина о санкционировании романа народной карнавальной культурой Средневековья (М. Бахтин, Творчество Ф. Рабле, 1965).

Нейтрализация в парадигме — специфически грамматический вид нейтрализации. Она может иметь несколько типов. Один тип — такой, когда какой-либо признак, принимающий в двух формах парадигмы разные значения и поэтому служащий противопоставлению форм, в третьей форме парадигмы нейтрализуется. Этот случай часто встречается в парадигмах подвижного ударения: ср. русск. противопоставленные ударением формы родит. п. **у шка́фа — у хвоста́**, и непротивопоставленные формы именит. п. **шкаф, хвост**, откуда возможность оформления слов парадигмы « шкаф » по парадигме « хвост » (эта возможность реализуется, например, в слове **мост, у мо́ста, у моста́**). Если рассматривать место ударения как морфему, то можно сказать, что формы родит. п. **шка́фа, хвоста́** находятся в дополнительной дистрибуции по этой морфеме, но в этих же парадигмах имеется и такая третья форма (именит. п.), где противопоставление нейтрализовано. Точка нейтрализации, присутствующая в самой парадигме, может стать переломным пунктом перехода от одной парадигмы к другой. Этот тип встречается и в плане содержания.

Другой тип такой, когда в дополнительной дистрибуции находятся целые ряды форм. Пункт нейтрализации представлен в этом случае не одной формой, а множеством (классом) форм, и это множество а) или имеется в самой парадигме, или о) отсутствует в ней и реконструируется как предшествующий этап в развитии парадигмы. Тип « А » описан Соссюром (Accentuation lituanienne, 1896): четыре литовские парадигмы ударения группируются Соссюром попарно в так называемые парадигмы I, II; III, IV, они оказываются по ряду признаков в дополнительном распределении и возводятся соответственно к парадигме I для пары I, II, к парадигме III для III и IV. Тип « Б » мы рассмотрим ниже подробнее.

Общий принцип такой реконструкции заключается в том, что исходное множество словоформ последовательно разбивается на группы по одному или нескольким признакам, противопоставленным друг другу. Наиболее наглядным случаем является множество, допускающее разбиения, кратные числу 2, особенно — разбиения на 4 группы. В общей форме: исходное множество из групп словоформ I-ая группа, 2-ая, 3-я, 4-ая допускает разбиения: I) (1,2) (3,4); II) (1,3) (2,4); III) (1,4) (2,3). Каждая из таких группировок (I, II, III) может быть предшествующим этапом исторически засвидетельствованной парадигмы, а иногда все три группировки образуют три последовательных этапа.

Именно этот последний случай мы предполагаем существующим в греческих глаголах I-го класса на -μι. Запишем исходное (« четырехклеточное ») множество, используя для сокра-

щенного представления лишь формы I лица глагола ἵστᾱμι (ἵστημι):

1) ἵ-στᾱ-μι;
2) ἑ-στη-κ-α;
3) ἵ-στα-μεν;
4) ἑ-στα-μεν.

Все три теоретически возможные группировки здесь реализуются как последовательные этапы реконструкции. (Сказанное ниже представляет проблему лишь в очень краткой и грубой форме. Огрубление заключается в том что вся ярупна глаголов представлена одним образцом; что флексии учитываются лишь частично — выбрана форма 1л., так как в 1 л. мн. ч. совпадают флексии презенса, имперфекта, аориста и перфекта индикатива; и одинаков вокализм корня в индикативе и медии; что опущены некоторые существенные детали. Мы полагаем, однако, что неизбежное при этом искажение не затрагивает последовательности этапов относительной хронологии, которая, напротив, выступает благодаря такому упрощению особенно четко).

1) Группировка (1,3) (2,4), основанная на дополнительном распределении по морфеме удвоения ἵ- // ἑ-, дает наиболее новый — исторический классический этап, парадигму презенса (1,3) и перфекта (2,4).

II) Группировка (1,2) (3,4) — дополнительное распределение по морфеме корня: продленная ступень корня στᾱ-, στη- (1,2) // редуцированная ступень στα- (3,4). Этим вскрывается нейтрализация различий по форме корня: ед. ч. тяготеет к продленной ступени, мн. ч. — к редуцированной ступени (в глаголах на -μι она совпадает со ступенью -е-: τίθεμεν, ἵσταμεν). Эта нейтрализация была точкой разнообразных нейтрализаций также и по категории времени: 1) презенса — имперфекта: φαμέν през. — ἔ-φαμεν имперф.; ἵ-στα-μεν през. — ἵ-στα-μεν имперф.; 2) имперфекта — аориста: ἔφαμεν архаич. форма и имперфекта и аориста; ἔ-στη-ν аор. — ἵ-στη-ν имперф.; 3) аориста — перфекта: гомер. θῆκαν аор. — класс. τέ-θηκαν перфект; суффикс — κ — распространяется из аориста первоначально на ед. ч. перфекта и т.д.

III) Группировка (1,4) (2,3) — дополнительное распределение по обоим рядам морфем — как по удвоению (ἵ- // ἑ-), так и по корню (στᾱ-, στη- // στα-). Если трактовать ἱ- как редупированную с точки зрения греческого ступень удвоения против полной ступени ἑ —, то мы получаем здесь формулу: **удвоение в редуцированной ступени + корень в полной ступени (основа I) // удвоение в полной ступени + корень в редуцированной ступени (основа II).** По правилу, вытекающему из теории корня Бенвениста, мы находим здесь за чередованием основ I//II гипероснову. Эта гипероснова с нерасчлененным значением инфекта-перфекта соответствует древнейшему этапу рассматриваемых парадигм. Реконструируемый этап находит историческое подтвержение в парадигме глагола οἶδα ед. ч. — ἴδμεν мн. ч., где в плане выражения имеется чередование ступеней корня (полная ступень -о- // редуцированная ступень), а в плане содержания — нерасчлененное значение презенсо-перфекта. Другие, внешние, соответствия — презентно-перфектные глаголы готского (wait и вся группа), и, в соответствии с реконструкцией Бенвениста (« Archivum linguisticum », I, 1949) латинские претериты stĕti, dĕdi, ēmi, ēpi, ōdi, ēgi (<*āgi). Для последних Бенвенист восстанавливает этап с удвоением в полной ступени при редуцированной ступени корня: *ste - stə$_2$ - ai > *stesti > > stĕti; *de - də$_3$ - ai > dĕdi и т.д., что соответствует восстанавливаемой основе II в греческом.



В качестве заключения можно поставить вопрос о том, какая категория могла бы обобщить все рассмотренные выше случаи нейтрализации, от « лошади, маскированной под оленя » до презенса, представляемого перфектом. Ответ вытекает из сопоставления сам собой: эта общая категория — метафора.

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# SEMANTIC UNIVERSALS AND EMPIRICAL VERIFICATION

MYRNA GOPNIK

There has been a very great interest recently in the hypothesis that learning a language is different from other cognitive processing. The claim is that language is learned by means of some very specific mechanisms which are different from general learning strategies [1] and further it has been suggested that these language learning devices are in some sense innate in human beings. It seems clear that if this is true then the structure of these innate mechanisms establishes a set of constraints on possible human languages. That is, not all elements and rules of combination can exist as human language. All possible human languages share a core of properties which can be called linguistic universals (these universals are necessary conditions for all possible human languages and are not to be confused with the statistical concept of « linguistic universals » which means a property possessed by all *known* human language as opposed to all *possible* human languages).

The innateness hypothesis about the universal grammar has been proposed in order to explain the acquisition of language. It has been argued that language is a species specific characteristic of human beings and that evidence for this can be found in the neurological structure of the brain as well as in the patterns of distribution of language among humans with many different kinds of disorders. (For details of this claim see *Biological Foundations of Language* by E. Lenneberg) [2]. Moreover, the acquisition of a first language seems to proceed in similar ways independent of the specific language being learned or the intelligence of the learner. Further, much of the data available to the child learning a first language is « meager and degenerate » [3]. By postulating some rich innate universal grammar which restricts severely the possible range of grammars we see that « What faces the language learner, under these assumptions, is not the impossible task of inventing a highly abstract and intricately structured theory on the basis of degenerate data, but rather the much more manageable task of determining whether these data belong to one or another of a fairly restricted set of potential languages » [4]. That is, what the language learner must do is to create an hypothesis about the structure of the language on the basis of the instances of the language which have been presented to him. But not all hypotheses are equally likely because the innate universal grammar contains restrictions on the forms of possible grammars; therefore some hypotheses which might be compatible with the data are excluded by the universal grammar. Presumably, therefore, these restrictions on the possible hypotheses used in language learning must be operative in learning any language, even an artificially constructed language, which has the formal properties of a possible natural language since there is in principle no formal

1 *Language and Mind.*
2 (New York, Wiley, 1967).
3 *Language and Mind*, p. 68.
4 *Language and Mind*, p. 76.



difference between a « possible natural language » and an « actually occurring natural language ». We propose to study this question of the restrictions on the formal properties of language which are reflected in the way these languages are learned. As Chomsky describes the task, « Formally speaking, acquisition of "common-sense knowledge" — knowledge of a language, for example — is not unlike theory construction of the most abstract sort. Speculating about the future development of the subject, it seems to me not unlikely, for the reasons I have mentioned, that learning theory will progress by establishing the innately determined set of possible hypotheses, determining the conditions of interaction that lead the mind to put forth hypotheses from this set, and fixing the conditions under which such a hypothesis is confirmed- and, perhaps, under wich much of the data is rejected as irrelevant for one reason or another » [5].

The crucial experiment in the verification of Chomsky's innateness hypothesis is to expose a new-born baby to only a language without the formal properties which are claimed to be innate and see if he learns this language in the same way that babies usually learn languages which do have these formal properties. Clearly this is not an experiment which can be performed. We have attempted to design a set of experiments which can be done and which address themselves to the investigation of this innateness hypothesis. We expect that if indeed there are innate restrictions on the forms of possible grammars these restrictions will not entirely disappear with maturation, and further if language processing is discontinuous from other forms of cognitive processing this discontinuity should be manifested in the different ways in which these two kinds of processing are carried on. Therefore languages which do have the formal properties of the universal grammar and which can therefore be handled by the system or language should be processed differently from those languages which do not have the formal properties of the universal grammar and which therefore must be processed by some other cognitive system.

We have designed a set of experiments which will not simply test the general validity of the innateness hypothesis, but more precisely test specific formal properties of the universal grammar which have been suggested by linguists. Because natural languages are so complex and because the variables are so difficult to isolate it is necessary to develop a set of artificial languages in which the parameters are specifiable and controllable. Such an experiment must specify a set of significant parameters for languages and encode these parameters in a set of artificial languages.

The parameters of particular interest to our study are those which involve the relationship between the formal characteristics of a sequence of symbols and the meaning assigned to this sequence. In order to determine the role of this semantic component in the structure of the language as a whole, we also investigate the properties of sequences of symbols to which no meaning is assigned, that is, purely syntactic strings. The artificial languages are not autonomous for each parameter, but rather are incremental. A base language is developed and new parameters are introduced by rules which operate on this base language. Thus, the languages get more complex with the addition of new rules, and in this way languages of some complexity can be investigated without giving up control over parameters.

Specifically we investigate how people learn artificial languages. We construct these languages by establishing a set of words and a set of rules which operate on these words. The output of these rules is the grammatical strings of the language. Strings of symbols which cannot be produced by the rules are the ungrammatical strings of the language. The subjects of the experiments are given some of the grammatical strings of one of the languages. Their job will be to figure out the structure of the test language. The subjects construct test strings in the language and then are told whether their string is grammatical or ungrammatical. A subject

5 *Language and Mind.*

is said to know the language when he can reliably construct new grammatical strings in the language. For the languages which incorporate a semantic component each string in the language is not only grammatical, but in addition, is meaningful. The meaning of a grammatical string is represented in a picture. Thus, in the semantically based test languages the subjects are given both a grammatical string and the picture associated with it. The job of the subjects in this case is to figure out both the syntactic structure of the string and the way in which the meaning is represented in the string. A subject is said to understand the language when he can construct appropriate grammatical strings to go with a picture.

We are interested in not only whether or not a particular test subject is able to learn the various languages, but also what kinds of learning strategies are involved in this learning. Subjects are required to show their mastery of the test language by constructing grammatical strings in that language. These test strings therefore encode the subjects hypothesis about the structure of the test language. Examining these test strings, even when the hypothesis is wrong for the test language, provides us with data about the range of rules which are hypothesized. We expect, for instance, that the first kind of rule which will be tried will be rules which depend on the absolute position of a word in the string. For example, given the strings: « gat nof » and « gat dat bin » a first hypothesis might be that all strings start with « gat ». Obviously the most effective way to test a universal rule is to try one negative instance. Therefore we allow subjects to input either strings which they suspect are grammatical or strings which they suspect are ungrammatical; however, they have to indicate their hypothesis about the grammaticality of the string in question.

The languages we use are increasingly complex, i.e. they contain an increasing number of rules [6]. Each test language has as a part a very simple *base language*. This consist of a small number of simple rules. These serve as the basis upon which *additional rules* operate.

Each additional rule joined to the base language is meant to specify a characteristic of a « natural » (or « natural-like ») language. In a sense we can say that each such rule constitutes a partial definition of what a « natural » language is. The parameters (or properties) encoded into these rules are hypotheses about the fundamental characteristics of a natural language. The additional rules therefore express various theoretical claims about the universal properties of a natural language.

If current theoretical hypotheses about universals are correct it should be the case that languages *lacking* these hypothesized universal properties either

(i) cannot be learned

or

(ii) are learned in a « different » manner (via different strategies) from « natural-like » languages.

Thus, we expect that the strategy used to master a language described by a rule expressing a universal property is different from the strategy used to learn a language which contains a rule describing a violation of this property. Our use of well defined artificial languages therefore permits us to examine certain theoretical proposals about universals of language.

The claim that purely formal languages are learned in a different way from « natural-like » formal languages is crucial to our study. This assumption is also

[6] This work throughout has benefitted greatly by consultation with Mr. Glenn Kessler who has developed the formal languages. This section discussing the structure of these languages is substantially his.



crucial to the various theories of linguistic universals we propose to examine. If this difference in learning strategy cannot be maintained, the proposed universals become a purely *coincidental* feature of some languages (e.g. the system used to describe French). The position of the theorists, however, is that certain languages are natural *because* they possess these characteristics.

Let us suppose we have two languages L1 and L1′. L1 consists of the *base language* and only one additional rule T. This rule expresses a property proposed as a natural language universal. The corresponding language L1′ also consists of the base language and one additional rule T′. This rule expresses a characteristic antithetical to that expressed in rule T of L1. If, for example, T operates on a structured string, T′ might require an analogous operation on an unstructured string.

We hypothesize that the strategy for learning L1 is different from that used to learn L1′. If there is in fact no difference in strategies used to learn L1 as opposed to L1′ then the universal status of the parameter encoded in T is called into question. We can then investigate further in this direction.

The « natural-like » languages are incremental in complexity. They are formed by adding a new additional rule, encoding some hypothetical universal, to another « natural-like » language. A « non-natural » language corresponds to each natural one. It is generated by adding a rule violating the proposed universal to the same « natural-like » base. There appears to be no reason for the non-natural languages to be of an incremental nature.

The implementation of this system includes the use of a computer with a graphics display system for presentation of the test strings and accompanying pictures. The computer will perform an analysis on the test strings in order to determine their grammaticality. It will also produce semantic pictures which represent the meaning of test strings.

An explanation of the plan and methods of this set of experiments can be divided into three interrelated systems: 1. development and structure of test languages and related graphics; 2. computer implementation of these languages and graphics; 3. presentation of test languages to subjects.

## 1. *Test Languages and Graphics.*

The first stage of the study is the development of a set of test languages and accompanying graphics. Each language consist of a set of rules which determine the order of elements in a sentence. In all of the languages there is at least one recursive rule so that each language has an infinite set of syntactically correct sentences. The types of rules which occur in the syntax of the test languages are one of the variables in this study. In general the rules are of two types, context sensitive rewrite rules and transformational rules. Each language is specified by a partially ordered set of these rules as well as a lexicon which specifies the objects which can appear as items in the rules. These rules, together with the lexicon, generate all of the sentences in the language and assign a structure to each of them.

One of the parameters studied is the structure of rules in the grammar. We try to determine what the effect on learning is when the rules in the grammar do not have the formal properties of those in natural languages. For example we investigate the differences between rules which operate on structured strings, as is the case with all known rules for natural languages, and those which operate on unstructured strings. That is, in one language the rule for negation will introduce a negative particle before the verb phrase, in another language the rule of negation will introduce a negative particle after the third word in the sentence no matter what its structure. We shall also study the structure of various rules of modification and case relationships. And also we are interested in the effect of order restrictions among the rules of a grammar.

Along with the development of the syntax of the language we develop a semantics. This semantic system assigns a meaning to each of the sentences of the languages. The meaning encoded by a picture which represents an appropriate situation in which this sentence might be uttered. However, this very limited interpretation of meaning is in no way a reflection of a committment to a picture theory of meaning. We are well aware of the inadequacies of such theories of meaning and are anxious to extend our study at some later data to include a more comprehensive theory of meaning. However, at present, this form of semantic representation is most tractable for study.

In order to avoid problems of the subjects prior knowledge of the world being brought to bear on the interpretation of the semantic content of the sentences we establish imaginary worlds with unfamiliar relationships to talk about. Moreover, by establishing an imaginary world to talk about we are able to investigate those assumptions which hold true even in imaginary worlds. We intend also to investigate the problem of classification across natural classes, various relationships between rules in syntax and rules in semantics, accidental vs. necessary semantic gaps, and semantic primitives.

Another level of semantic which we intend to treat in our study is the difference between true sentences and meaningful sentences. We shall attempt to see if the introduction of the concept of « true in this world » is necessary or appropriate for semantic interpretation.

The development of these abstract grammars and accompanying graphics is now underway. We have received a small grant from McGill's Committee on Research and Resources of the Humanities which allowed us to develop artificial semantic languages with incremental rules. Mr. Glenn Kessler is now involved in the precise specification of the parameters to be encoded and is developing a formalism for writing these grammars.

## 2. *Computer Implementation.*

In order to provide subjects with immediate judgements about the strings which they hypothesize are sentences in the test language, it is important that computer-assisted presentation be used. While it is certainly true that in some kinds of processing of natural language data the speaker of the language is much faster and more reliable than the computer, the reverse is the case for artificial languages. The reliability and speed of the experimenter in determining whether any arbitrary string is a sentence in the test language is much below that of the computer. Moreover, even if some of the test languages were partially learnable by the experimenter one of the significant sets of parameters to be investigated are those which produce unlearnable languages. In these cases only the computer could be an adequate judge of sentencehood. From the point of view of the keeping of experimental records the computer-assisted program is also important. It enables us to keep accurate records on the time each subject worked, the test sentences he tried, the time spent on each item, and the patterns of consulting previously learned items. This data provides us with information for computing various patterns of learning strategies which is crucial for the establishment of differential learning of natural and unnatural language-like rules.

The main part of the work is to create a structure which will relate the presentation of a sentence in the formalism described above, to the picture representing the meaning of the sentence. This will be done by a formal system which will manipulate elements of pictures and elementary movements and combine them to represent for instance static situation and actions (movement).



## 3. *Presentation of test Languages*

A test language is presented to each subject displaying one item at a time for his inspection. The only direct information given to the subjects about the language is sentences of the language. We do not provide them with either an explicit dictionary or an explicit description of the rules. Their task is to understand the structure and meaning of the language well enough to produce sentences in the language.

The subjects are able to get feedback of five kinds: 1. judgements about the sentencehood of strings which they input; 2. semantic representations for strings which they input; 3. judgements about the truth-value of strings which they input; 4. yes-no answers to queries about specific rules in the grammar; 5. yes-no answers to queries about the structure of the lexicon. Not all of these five kinds of feedback are available to each subject. For example, since some of the test languages do not involve meaning or truth neither type 2 nor type 3 would be pertinent. Since the effect of feedback on learning the structure of the grammar and lexicon is one of the variables which we propose to control, we allow this kind of feedback to only a subset of the subjects.

The subject is allowed to review any of the items which he previously processed. In this way he can establish whether or not a new hypothesis he has constructed about the language on the basis of current items is, in fact, compatible with the structure of earlier items. He may also use his ability to review previous items to check class membership, or semantic representation. The number of reviews which a subject makes and the time spent in this review constitutes significant data.

In order to describe the learning patterns exhibited by subjects learning these test languages, we intend to record a number of variables about their responses. We hypothesize that the most revealing information about their internal processing of the test language is the structure of the strings which they input as possible sentences. Not only are we interested in those strings which are correct sentences in the language but also in these strings which are incorrect. The structure of the incorrect strings is informative about the kinds of hypotheses which the subject is making about the structure of the language in question. In this regard the kinds of rules which he proposes about the grammar and the questions which he asks about the lexicon will be of great interest.

At present the first stages of this set of experiments in underway. The languages and formalisms are being developed and the specific computer programs for implementing the formalisms are being refined. Some of the languages are being tested informally on pilot subjects. We hope to have all of the preliminary work finished by September of 1972 when we hope to start the full scale investigation.

It seems clear that if we do not find that our « natural-like » languages are not learned via different strategies from our « non-natural-like » languages we will not have disproved the innateness claims because the results could be because our languages or techniques are faulty. However if there are different patterns of learning used to learn these two kinds of languages then we must suspect that the difference in learning strategy is a result of the formal properties of the languages and we would therefore have empirical evidence supporting the innateness hypothesis.

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# REFERENCE, PREDICATION, SEMANTIC AND INTERPRETATION

KEITH LEHRER

An utterance of a speaker is subject to multiple interpretations. In this paper, I shall investigate one source of this multiplicity, referential ambiguity. Such ambiguity is resolved by specifying which words a speaker is using referentially and which he is not. I shall argue that a theory of reference adequate to provide such disambiguation should consider a speaker as a rational decision maker choosing the words he does to achieve the objectives he seeks. Hence, whether he uses words referentially or not will depend on his objectives and how he believes they can best be achieved in the context of utterance. Thus an adequate theory of reference rests on a theory of rational choice. To establish this thesis, I shall consider some recent theories of reference and articulate some objections. To overcore these objections requires, I shall argue, the decision theoretic approach I advocate.

## I

Perhaps the most influential recent paper on reference was written by Donnellan [1]. McCawley defends a theory of generative semantics in which the referential function of an expression determines the way it is generated from logical structure [2]. Whether referential function should be reflected in the generative structure of a sentence, as it is in McCawley's theory, or whether it should be superimposed on the terminal output of an interpretative semantics, I shall not attempt to adjudicate. A theory of reference is required in any theory of performance adequate to explain why a speaker utters the words he does to communicate the message he intends. Consequently, I shall assume a linguistic theory of competence, it does not matter for my purposes whether it is theory of generative semantics, interpretative semantics or some other, which yields a terminal output of linguistically acceptable sentences.

Donnellan was particularly concerned with the function of descriptive phrases beginning with the definite article, definite descriptions. Consider the sentence

The man wearing the pink dinner jacket is president of the X-club.

The initial definite description can function in two quite different ways according to Donnellan. There are two different situations in which this sentence might be

1 Keith Donnellan, « Reference and Definite Description », *Philosophical Review*, 1966, LXXV, pp. 281-304, reprinted in *Semantics*, Danny D. Skinberg and Leon A. Jakobovits, Cambridge University Press, Cambridge, 1971, pp. 100-114. Page references given below are to *Semantics*.

2 James D. McCawley, « Where do Noun Phrases Come From? », in *Semantics*, pp. 217-231.



uttered. First, imagine this sentence is uttered in a room full of people in reply to a question as to which person in the room is president of the X-club. Here the purpose of the definite description is to identify a person, and the function of the remainder of the sentence is to attribute to that person presidency of the X-club. The initial descriptive phrase serves only to refer to a person, and the truth of what is said does not depend on whether that description is correct. The function of that expression is *solely* referential. Hence, if the person referred to is president of the X-club, then what is said is true whether or not the person referred to is actually a person wearing a pink dinner jacket.

The second situation is one in which the speaker does not know who the president of the X-club is, nor does the listener. The speaker is asked about the attire of members of the X-club at a party in some place remote from the stage of discourse. In an attempt to supply information about what is going on, the speaker, who, we may imagine, supplies the clothes and knows the protocol of the X-club, might say, « The man wearing the pink dinner jacket is president of the X-club. The man wearing the blue dinner jacket is treasurer. And so forth ». In this case, the definite description is used to attribute something to a person, to affirm, among other things, that there is a person wearing a pink dinner jacket.

The difference between these two uses of the definite description may be brought out in the following way. In the first case, if there is no person that fits the initial definite description, the speaker may still have successfully identified someone by uttering those words. For example, suppose that the jacket the man is wearing is not actually pink, though it looks pink in the red light shining upon it. Or suppose that the jacket is not actually a dinner jacket, but a sport coat. Or suppose that the person is not actually a man but a woman who looks like a man. Still the speaker will have successfully referred to the person he has misdescribed, if the audience to whom his mark is directed take him to be referring to the person to whom he intends to refer by that mistaken description. If, moreover, the person to whom the speaker has successfully referred by that description is president of the X-club, then the speaker will not only have successfully referred to someone, he will also have correctly attributed the presidency of the X-club to that person.

In the second case, if no man is wearing a pink jacket, then there is no one to whom the speaker successfully referred, and, hence, there is no one to whom he attributed the presidency of the X-club. The speaker used the definite description with the intention of attributing to a person the wearing of a pink dinner jacket and then going on to attribute to that same person the presidency of the X-club. Since the first attribution fails, the speaker fails to attribute anything to anyone.

The use of the definite description in the first case is *referential* and in the second case *attributive*. To indicate a referential use of an expression I shall mark it as follows:

S [ref: The man wearing the pink dinner jacket] is president of the X-club.

We thereby bracket off the expression used referentially and indicate that the function of this expression is to refer to S rather than to attribute anything to S. The implications of this marking for semantics are controversial. In the generative semantics of James McCawley, the bracketed expression is generated from a separate node [3]. In the formal semantics of David Kaplan [4], the bracket expression is treated like a name or demonstrative. The advantage of treating referential expressions in this way is readily seen by supposing that the person referred to in the first ex-

3 McCawley, pp. 222-227.

4 David Kaplan, « Bob and Carol and Ted and Alice », unpublished manuscript forthcoming in a volume entitled *Approaches to Language* edited by Jaakko Hintikka. I wish to acknowledge support of my research by the National Science Foundation.

ample is a woman and a second speaker communicates this to the first by saying, « The man wearing a pink dinner jacket is a woman ». Of course, this speaker is using the definite description referentially to identify the person he says is a woman. The utterance should be marked as follows:

S [ref: The man wearing a pink dinner jacket] is a woman.

If we treat the definite description as a demonstrative, like *that* in

That is a woman

then any semblance of inconsistency in the utterance of the second speaker is removed. It is clear that what has been said is true if and only if the speaker has successfully referred to someone by the demonstrative who is a woman.

## II

However, some refinement is needed to make any of these theories viable. First, it must be noted that the attributive and referential use of an expression are not, as the author's in question have assumed, mutually exclusive, even within a single use in a single utterance. Second, the referential function of words is not restricted by grammatical structure in any straighforward way.

Let us consider a third situation in which one and the same expression functions both referentially and attributively. Imagine a situation, similar to case one, but where a person is asked whether the president of the X-club is formally attired. In reply, the person says

The man wearing the pink dinner jacket is president of the X-club.

This case is different from the first, because to answer the question it is essential that the speaker attribute to some person the wearing of formal attire, a dinner jacket, and also the presidency of the X-club. So at least *some* of the words in the initial descriptive phrase are used *attributively*. On the other hand, the initial definite description is also used to pick out a person, to enable the listener to pick out a person, to whom the speaker refers. Thus the definite description also has a referential function in this case.

The referential marking of the sentence should be as follows:

S [ref: The man wearing a pink dinner jacket] is wearing a dinner jacket and president of the X-club.

This marking shows that certain words in the utterance have both an referential and an attributive function. Moreover, the marking indicates that, though the speaker has attributed the wearing of a dinner jacket to S, he has not attributed the wearing of a *pink* dinner jacket to S. (This is a change from the abstract.) The justification for marking the color word as having a referential and not an attributive function is that color is mentioned only to enable the listener to pick out the person referred to. If the jacket is actually white but illuminated by a pink light, then, though we would regard the speaker as having misdescribed the subject in the way in which he referred to him, what he attributed to the subject was correct. He gave a correct answer to the question asked.

## III

The second problem concerns grammatical restrictions on the referential function of an expression. First, note that a referring expression need not be the gram-



matical subject of the utterance. If the reply to the question asked in the third case had been,

« The president of the X-club is the man wearing a pink dinner jacket »,

the referential marking of the sentence would be the same as above. Moreover, suppose that instead of either of the preceding answers, the speaker had said,

« The president of the X-club is wearing a pink dinner jacket ».

Then only the verb phrase would have a referential function. One function of those words is to pick out a person. Of course, those words also have the function of attributing the wearing of a dinner jacket to the subject they serve to pick out. The marking of the sentence would be as follows:

S [ref: is wearing a pink dinner jacket] is the president of the X-club and is wearing a dinner jacket.

The preceding examples are intended to indicate the relative freedom of referential function from grammatical restraint. This freedom may be further illustrated by considering an example from McCawley who claims that in the sentence

He went to the pool room after John left his apartment

the first pronoun cannot refer to John[5]. However, there are cases in which it would be perfectly natural to utter that sentence using the first pronoun to refer to John. Imagine that we are playing a game called *witness* in which one person is designated as the witness of a crime and is the only one allowed to read the details of the crime. The other players must find out who committed the crime in the fewest possible questions. Suppose someone asks the « witness » whether the criminal went to the pool room after John left his apartment. The reply, « He went to the pool room after John left his apartment », would be perfectly correct even if the « witness » knows that John is the criminal. By uttering those words, what he says is, strictly speaking, correct, but he has avoived revealing that John is the criminal. A similar case would arise if the speaker did not know that John was the criminal but knew that the criminal, whoever he was, went to the pool room after John left his apartment.

## IV

It should be clear from the preceding remarks that the referential function of words in an utterance is not restricted by grammar in any simple way. Why this is so, becomes clear when we consider the role of grammatical and semantic theory in a theory of performance aiming at the explanation of why a speaker utters the words he does. Semantic theory, whether interpretative or generative, yields an abstract structure, a sentence that is grammatically and semantically acceptable. A somewhat idealized speaker may be thought of as competent to utter these sentences. A speaker in an actual speech situation competent to utter any proper subset of these sentences must decide which to utter and must decide what sentence, if any, it is best for him to utter relative to his knowledge and purposes. More technically, as a decision maker, it is reasonable for him to utter those words which will enable him to maximize expected value in terms of this subjective probabilities and preferences. What wodrs in an utterance a speaker uses referentially will depend on what he attempts to accomplish. Consequently, there is no general reason why the referential function of an utterance should be restricted grammatically in any simple way or why such a function should be restricted to those words that are not used attributively.

Once we think of a speaker as a rational decision maker whose utterances are

to be explained in terms of his objectives and beliefs, the preceding examples become completely intelligible. It may seem odd that a person should intentionally misdescribe the subject to which he réfers, as in our earlier example, when a man says, « The man wearing a pink dinner jacket is a woman ». But, the woman in question has already been successfully referred to as « The man wearing a pink dinner jacket », and, consequently, the speaker may reasonably assume that referring to the subject in those words insure success. He is seeking to convey the message that the subject is a woman and reasonably chooses those words to achieve his objective. Similarly the « witness » of our game who says, « He went to the pool hall after John left his apartment », has the complex objective of referring to the criminal, concealing the fact that John is the criminal, and correctly informing his listeners that the criminal left for the pool room after John left his apartment. The words he chooses to utter are ideally suited to the achievement of his aims. His listeners will take him to be referring to the criminal by the pronoun « He » but will not take him to be referring to John. His choice of words is perfectly rational. The cases in which a person uses the same words referentially and attributively may be explained in terms of efficiency. It would be simply repetitious for the speaker to utter the same words twice, once to refer to the subject and once to attribute something to him.

In conclusion, I wish to eliminate some possible areas of confusion. First, I am not rejecting the distinction between theories of performance and theories of competence. Instead, I am looking at theories of competence from the standpoint of the role of such theories in an overall linguistic theory adequate to explain why a speaker utters the words he does. It is my contention that a theory of competence should be considered as partially specifying a set of linguistic alternatives open to a speaker. To explain why he chooses to utter the words he does we must understand not only what alternatives are available to him but also what he is seeking to achieve and what he believes in the speech situation. In my opinion the most satisfactory model for such decision making is Bayesian decision theory. I do not claim that there is any automatic or mechanical method for applying decision theory to the speech situation. It is a coherent and well articulated mathematical model.

This approach has two advantages. First, it will enable us to explicate why a speaker chooses the words he does to refer to a subject in terms of the objectives and beliefs of the speaker. A theory of reference founded on decision theory allows us to explain the referential function of words in a systematic way without confining referential function in terms of grammatical or semantic structure. Secondly, and more important, such an approach could free the linguist of the neeed foı relying on linguistic intuitions to determine the acceptability of grammatical and semantic theories. Once we have a decision theoretic link from competence to performance, such questions could be decided in terms of the scientific utility of theories of gramar and semantics in an overall theory of speech behavior. The merits of this kind of an overall theory of human speech behavior would be measured in terms of the simplicity, coherence, and explanatory power of the theory. I conjecture that the grammar and semantics that suits those purposes best will be no more plausible intuitively than noneuclidean geometries.

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# A PROCEDURE FOR MEANING ANALYSIS OF PREPOSITIONS

LAURA VASILIU

*Abstract*

My paper is intended to outline an analysis procedure accounting for the meaning of prepositions.

This procedure is based on the homonymy and synonymy relations among the prepositions of the same language.

By substituting $Prep_i/Prep_j$ in the context $Verb_1$ ——— $Noun_1$, the subsequent possible cases are obtained:

(1) $Prep_i/Prep_j$ (= preposition $Prep_i$ is substitutable for $Prep_j$)

and the relation:

$(Verb_1-Prep_i-Noun_1)\equiv(Verb_1-Prep_j-Noun_1)$ is L-true (= both constructions are L-equivalent);

(2) $Prep_i/Prep_j$

and the relation:

$(Verb_1-Prep_i-Noun_1)\supset(Verb_1-Prep_j-Noun_1)$ is L-true (= one construction is L-implied by the other one) or vice versa;

(3) $Prep_j$ is not substitutable for $Prep_i$.

In (1), $Prep_i$ is synonymous with $Prep_j$.

In (2), $Prep_i$ implies $Prep_j$, but $Prep_j$ does not imply $Prep_i$, that is: $Prep_i$ is not synonymous with $Prep_j$, but between the meanings of the two prepositions a specific relation holds, the nature of which will be explained below.

In (3), $Prep_i$ is not synonymous with $Prep_j$.

The degree of ambiguity of a preposition $Prep_i$ may be then specified as follows: *if $Prep_i$ is synonymous with $Prep_1$, $Prep_2$, ..., $Prep_n$, $Prep_i$ is n-ways ambiguous* (its homonymy is of degree *n*).

The implications (see (2)) are interesting because: *a.* in case of considering the meaning of the preposition in its extension, the implications make evident the relations of strict inclusion between the classes corresponding to the two preposi-

tions; *b.* in case of considering the meaning of the preposition in its intension, the implications make evident the partial identify between the two prepositions.

From (3) combined with (1) (that is in the context $Verb_1$ — — — $Noun_1$ the substitution $Prep_i/Prep_j$ is not possible, but in the contexts $Verb_2$ — — — $Noun_2$, ..., $Verb_n$ — — — $Noun_n$ the substitution of $Prep_j$, ..., $Prep_n$ for $Prep_i$ is possible) follows that in context $Verb_1$ — — — $Noun_1$ is actualized exactly one meaning of $Prep_i$ which is not synonymous to any preposition. If $Prep_i$, with respect to the relation of synonymy (1), is n-ways ambiguous and, with respect to (3), has a meaning which is not synonymous to any other preposition, the degree of homonymy of $Prep_i$ is $n+1$.

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# SUR LA PROFONDEUR DES THÉORIES ET LA SUPERFICIALITÉ DES LANGUES

Laurențiu Theban

*Abstract*

L'exposé entreprend de comparer les théories sémantiques et syntaxiques des phrases nucléaires (la théories des *kāraka* [Pānini], la perspective fonctionnelle de la phrase [École de Prague], la grammaire générative [Chomsky], la grammaire « casuelle » [Fillmore], la théorie de la transitivité [Halliday], les niveaux des génotypes et des phénotypes [Šaumjan], les structures syntaxiques profondes universelles [Khrakovski], la sémantique générative [Chafe, McCawley etc.], et encore des suggestions contenues dans les ouvrages de Anderson, Capell, Greimas, Guillaume, Lyons, Martinet, Staal, Tesnière, Uhlenbeck, Vasiliu, Xolodovič et des tagmémiciens du SIL) au point de vue de la profondeur des spéculations, l'abstraction des structures proposées, l'universalité de celles-ci, leur degré d'éloignement de la réalité structurale des langues (ou bien leur coincidence avec des structures de surface ou même avec des énoncés réels d'une langue donnée), enfin la realité, linguistique ou autre, des structures profondes avancées.

D'autre part, il sera proposé un nouveau modèle d'essence « typologique », dont le trait particulier est de ne pas faire appel à des notions et systèmes extérieurs à la linguistique, à des cadres pré-établis, mais bien de prendre son départ dans la diversité structurale des langues naturelles. À la différence de la doctrine transformationnaliste, les dissemblances entre les langues au niveau grammatical (ordre des constituants, accord, rection, détermination, dédoublement lexical et grammatical du verbe etc.) ne seront plus considerées comme ayant un caractère superficiel, dépourvu de signification structurale profonde en tant que complications superflues des langues, et susceptibles d'être reléguées aux opérations tardives de la dérivation (c'est-à-dire aux transformations); ces mêmes différences typologiques entre les syntaxes des langues du monde conduisent mieux qu'aucune hypothèse ou construction *a priori* à la découverte de la nature, des configurations, de la hiérarchie et de l'orientation de l'enchaînement génératif des *structures sémantiques* et *informationnelles* sous-jacentes, profondes et universelles, qui constituent le point de départ de tout acte communicatif.

Le modèle proposé s'est constitué graduellement à partir d'une analyse typologique des phrases nucléaires dans plusieurs langues romanes (roumain, italien, portugais), indo-aryennes (sanskrit, hindi, konkani), caucasiques, austronesiennes (fidjien, malgache, samoan, hawaiien langues philippines), papoues et australiennes. La confiance accrue qu'on ne saurait refuser aux structures grammaticales — aussi « superficielles » et « much less interesting » [Chomsky, 1969] qu'elles soient — des langues humaines les plus diverses n'est pas mise en doute par tous les linguistes contemporains: « Validation of Chomsky's entire theory of grammars will ultimately depend on the results of applying it to a wide range of languages » [Plath,

1961] et « Chomsky's theory of language structure can be attacked only on empirical grounds, b calling on actual linguistic data » [Lakoff, 1969].

Si la question se pose de découvrir la STRUCTURE PROFONDE des LANGUES, force est alors de soumettre à l'examen les LANGUES mêmes; et la question, à laquelle sont consacrés les travaux de la 9e section du XIe Congrès International des Linguistes, à Bologne, valait d'être posée: « ... nous avons, en Europe, beaucoup de difficulté à saisir ce que veut dire exactement cette structure profonde » [Togeby, 1970].

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# PROBLÈMES DE LA SYNTAXE DE L'INTERROGATION (ASPECTS THÉORIQUES)

DAN MÂRZA

Cet exposé a comme but de mettre en évidence quelques particularités de l'interrogation. Pour avoir la possibilité de faire des comparaisons et de tirer des conclusions on a envisagé des langues appartenant à des familles différentes, à savoir: le français, l'anglais, le hongrois, le russe et le roumain [1, 4, 5, 17, 27].

Comme méthode on a associé au méthodes traditionnelles des possibilités de la linguistique mathématique (les graphes, p. ex.) [8, 19, 20, 21, 22]. Mais ce n'est pas la méthode employée qui compte ici.

Pour paler des marques et des types de l'interrogation nous avons considéré la langue dans sa totalité (langue écrite, procédés familiers ou populaires). Il est important ici que le fait mentionné existe dans la langue respective.

Pour pouvoir étudier le mécanisme de l'interrogation il faut établir tout d'abord les moyens (marques) d'exprimer l'interrogation dans les langues envisagées et puis les procédés qui emploient ces moyens (marques).

Dans les langues envisagées il y a six moyens possibles pour marquer l'interrogation: les pronoms interrogatifs, les adjectifs interrogatifs, les adverbs interrogatifs, les particules interrogatives, l'inversion et l'intonation. En écrit il y faut ajouter le point d'interrogation. En fait ces moyens se réduisent à deux marques: les mots interrogatifs (pronoms, adjectifs, adverbes, particules) et l'ordre des mots (inversion, ordre normal + intonation). L'intonation est un moyen complémentaire: elle s'ajoute à une autre marque interrogative. Elle accompagne toujours les tournures interrogatives, son rôle étant principal dans les tournures à l'ordre normal des mots. Le ton interrogatif est le correspondent du signe graphique (le point d'interrogation), comme le ton ennonciatif est le correspondent du point et le ton exclamatif est le correspondent du point d'exclamation. Nous avons groupé les particules parmi les mots interrogatifs parce qu'elles sont des mots qui marquent l'interrogation comme les autres mots interrogatifs. C'est quand même une catégorie spéciale parce qu'elles n'ont pas de sens vidées de contexte. C'est pourquoi elles sont comparables aux morphèmes. En anglais il y a un cas à part: pour l'interrogation on emploie le verbe « to do » qui joue le rôle d'une particule étant donné le fait qu'il se vide de sens dans l'interrogation. On emploie « to do » pour l'interrogatif de ce verbe lui-même. Le schema nr. 1 montre plus en détails la répartition de ces marques pou chaque langue envisagée.

Schéma nr. 1

| langue / procédé | Français | Roumain | Anglais | Hongrois | Russe | Exemples |
|---|---|---|---|---|---|---|
| Pronom interrog. | + | + | + | + | + | Qui, cine, who, ki, kmo queri |
| Adjectif interrog. | + | + | + | + | + | Quel, care, what, milyen, kakoŭ |
| Adverbe interrog. | + | + | + | + | + | où, unde, where, hol, zge |
| Particules interrog. | + | — | (+) | + | + | ti, e, ru, to do |
| Inversion | + | + | + | + | — | vient-il? văzut-ai? etc. |
| Intonation | + | + | + | + | + | il vient? ai văzut? etc. |

Les moyens d'exprimer l'interrogation décrits ci-dessus servent à former divers types de tournures interrogatives. On s'arrête tout d'abord sur l'interrogation qui porte sur le verbe, c'est-à-dire sur l'interrogation totale (general question). L'interrogation totale emploie comme narques: l'inversion qui peut être simple ou complexe, obligatoire, facultative ou au choix; les particules et le ton interrogatif. Les tours possibles se réduisent à une dizaine. Le schéma nr. 2 donne l'emploie des divers tours dans les langues étudiées. On a employé les notations:

V - verbe
$S_p$ - sujet pronom
$S_n$ - sujet nominal
S - sujet
R - sujet repris par un pronom
P - particule interrogative

Schéma nr. 2

| langue / type | Français | Roumain | Anglais | Hongrois | Russe |
|---|---|---|---|---|---|
| $V \rightarrow S_p$ | + | + | + | + | — |
| $S_n \rightarrow V \rightarrow R$ | + | + | + | — | — |
| $V \rightarrow R \rightarrow S_n$ | + | + | + | — | — |
| $V \rightarrow S_n$ | + | + | + | + | — |
| $S \rightarrow V$ | + | + | + | + | + |
| $P \rightarrow S \rightarrow V$ | + | — | + | — | — |
| $S \rightarrow V \rightarrow P$ | + | — | — | + | + |
| $P \rightarrow P \rightarrow S \rightarrow V$ | + | — | — | — | — |
| $V \rightarrow S \rightarrow P$ | + | — | — | — | — |
| $V \rightarrow P \rightarrow S$ | — | — | — | + | — |
| $S \rightarrow P \rightarrow V$ | — | — | — | — | + |



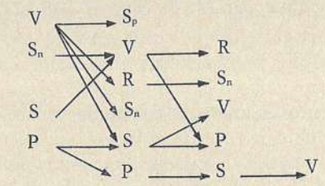
Il faut faire remarquer que c'est le français qui a le plus de possibilités pour exprimer une interrogation. On peut remarquer l'existence des langues izomorphes: un izomorphisme total et un autre partiel (il y a des cas communs pour deux ou trois langues) [10, 11]. On pourrait ainsi donner une caractérisation des langues selon les types d'interrogation ou selon l'ordre des termes dans les tournures interrogatives [13, 14]. Il y a ici une liaison étroite entre le nombre des tours interrogatifs et les différences que les langues font entre les divers éléments de ces tours, chose précisée dans le schéma nr. 3.

Schéma nr. 3

| élément / langue | V | $S_p$ | $S_n$ | S | R | P | PP |
|---|---|---|---|---|---|---|---|
| Français | + | + | + | + | + | + | + |
| Roumain | + | + | + | + | + | — | — |
| Anglais | + | + | + | + | + | + | — |
| Hongrois | + | + | + | + | — | + | — |
| Russe | + | — | — | + | — | + | — |

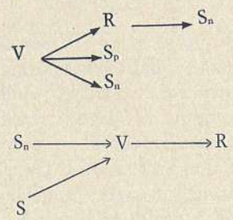
Les tours possibles dans chaque langue peuvent être rangés dans un ou plusieurs graphes [8, 12].

Le français:



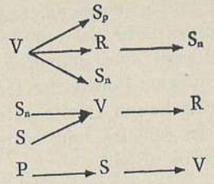

Par comparaison avec le schéma nr. 2 on voit qu'il y a quatre routes virtuelles: V—S—V; $S_n$—V—P; S—V—R; P—S—P, et une route non-marquée: S—V.

Le roumain:



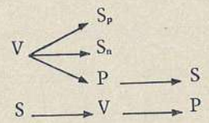

Il y a deux graphes, une route virtuelle: S—V—R et une route non-marquée: S—V.

L'anglais:



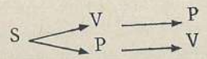

Il y a une route virtuelle: S—V—R et une route non-marquée: S—V.

Le hongrois:




Il y a une route non-marquée: S—V.

Le russe:




Il y a une route non-marquée: S—V.

Pour analyser chaque graphe [12, 22] nous avons calculer l'entropie $e_o$ du graphe selon la formule établie par M. S. Marcus [19, 21]

$$e_o = \lg_2 \gamma$$

où $\gamma$ est le nombre des routes donné par la formule:

$$\gamma = A - N + e.$$

A étant le nombre des arcs, N le nombre total des noeuds et e le nombre des noeds extrêmes. Les résultats sont:

| la langue | $\gamma$ | | | $e_o$ | | |
|---|---|---|---|---|---|---|
| français | 4 | — | — | 2 | — | — |
| roumain | 1 | 2 | — | 0 | 1 | — |
| anglais | 1 | 2 | 1 | 0 | 1 | 0 |
| hongrois | 1 | 1 | — | 0 | 0 | — |
| russe | 2 | — | — | 1 | — | — |

L'entropie nous montre la quantité d'information, l'imprécision, l'ordre qui existent dans un système. Le français présente l'entropie la plus grande car il fait le plus de différences entre les éléments de l'interrogation, il emploie le plus de tours interrogatifs, [5, 6, 15, 16] et présente des routes virtuelles. Donc le désordre, la possibilité de confusion dans le système sont plus grands. C'est pourquoi il existe des tendences de compensation: la chromatique des éléments, la redondance



des marques de l'interrogation. L'opposition entre deux éléments consécutifs est grande le graphe étant chromatique, chose qui assure que le message de langue soit mieux réceptionné [19, 20].

Le roumain, l'anglais et le russe ont l'entropie $e_o = 1$. Le roumain ne fait pas toujours la différence entre $S_p$ et $S_n$ . L'anglais a le nombre le plus grand de graphes. En russe le tour employé le plus souvent est non-marqué. Le hongrois est le plus précis, la seule marque propre à l'interrogation étant la particule interrogative.

Les pronoms et les adjectifs et les adverbes interrogatifs apparaissent dans l'interrogation partielle (sur le sujet, l'attribut, le complément). Les mots interrogatifs peuvent apparaître aussi dans des contextes noninterrogatifs et l'interrogation peut apparaître avec un mot autre qu'interrogatif [18].

Ex. You? El? Rouge?
Elevul care vine.
L'homme part où il veut etc.

Nous avons montré ci-dessus que les particules ont le rôle d'un morphème. C'est la même chose pour le pronom de reprise (tout comme le pronom sujet). L'intonation montante n'est pas propre à l'interrogation [28]. Dans le cas des interrogations partielles l'intonation est commune avec celle ennonciative (contour terminal descendent) [3]. La voix montante à la fin de l'ennoncé n'a pas une valeur bien déterminée qui s'oppose à une valeur bien déterminée de la voix descendente [23]. Donc la marque la plus importante de l'interrogation est l'ordre des mots [26]. Les tours interrogatifs se réduisent aux suivants: S—V, V—S. C'est la même chose dans l'interrogation partielle oú l'ordre des mots est donné non pas par la place du mot interrogatif mais par celle du sujet et du verbe. L'ordre normal n'est pas propre à l'interrogation. L'ordre inverse dans certaines circonstances existe aussi dans des phrases autres qu'interrogatives (en français, roumain, hongrois, russe). Donc l'interrogation n'a qu'une seule marque propre: c'est la particule interrogative, le procédé qui l'emploie étant un procédé morphématique. C'est pourquoi la redondance des marques est nécessaire dans l'interrogation. Il y a une liaison étroite entre l'interrogation et l'exclamation. Il s'agit des faits comme: un même mot et une même construction aussi peuvent apparaître dans l'interrogation aussi bien que dans l'exclamation, l'existance de l'invertion dans l'exclamation, l'intonation est souvent ambiguë [29].

Ex. S-a dus? S-a dus!
Il est parti? Il est parti! etc.

Il est parfois difficile de décider si l'on a affaire à une interrogation ou à une exclamation. C'est que, comme l'a noté Bally « une question est le plus souvent l'expression d'un besoin et d'un désir qui s'accompagne de mouvements affectifs ». L'interrogation qui est toujours chargée de sentiment rejoint donc naturellement l'exclamation qui comprend « la totalité des intonations affectives ». La quantité d'affectivité contenue dans l'interrogation et les possibilités stylistiques dont dispose l'interrogation sont mis en évidence aussi par l'entropie. Il y a certaines affinités qui existent entre l'interrogation et la négation. Elles ne s'excluent pas mais elles ne sont pas tout à fait sur le même plan. L'interrogation peut être positive ou négative et une négation peut être ennonciative ou interrogative. Il y a des ressemblances aussi en ce qui concerne le mouvement de pensée dans l'interrogation et dans la négation mais cela ne nous intéresse pas ici [24, 25].

L'interrogation est considérée par la logique classique un procédé non-logique. Cela s'est imprimé dans ses mécanismes [7]. D'ici les ressources affectives de l'interrogation. C'est que là où l'affection intervient l'ordre normal, logique dans le sens de norme grammaticale est dérangé. Il y faut ajouter la possibilité des retranchements dans la phrase interrogative (l'ellipse), des insistances des renforcements (procédé inverse à l'ellipse), l'existance des fausses interrogations. Tout cela montre les possibilités affectives stylistiques de l'interrogation. La rechcerche de l'expressivité et de clarté fait que le système de l'interrogation se diversifie considérablement bien que les procédés d'exprimer l'interrogation soient limités. Le choix des tours interrogatifs est déterminé des buts stylistiques et des couches de la langue. Dans un tel système le besoin de précision est évident. Et on a vu que la langue a ses moyens: la redondance des marques la chromatique des éléments. Ces moyens de compensation permettent la conservation de l'information ce sont des facteurs de cohésion syntagmatique.

EN CONCLUSIONS: les moyens d'exprimer l'interrogation sont peu nombreux et peuvent être réduits à un seul: les particules interrogatives. Les autres mots interrogatifs apparaissent dans l'interrogation partielle. L'intonation est un élément complémentaire. Les éléments de l'interrogation peuvent servir à une caractérisation des langues. Ainsi, par exemple, le roumain se caractérise par la reprise facultative du sujet par un pronom, le hongrois par l'absence du pronom de reprise, le français par l'existance du nombre le plus grand d'éléments et de tours etc.

Le système de l'interrogation est assez diversifié ce qui est démontré aussi par les valeurs de l'entropie. Cela donne à l'interrogation de grandes ressources affectives et stylistiques. Pour la clarté de l'expression la langue intervient par des moyens de compensations.

L'interrogation est un riche champ de recherches. Les possibilités stylistiques de l'interrogation, les liaisons avec la phrase ennonciative, exclamative, négative, la structure logique des tournures interrogatives etc., dans une étude plus approfondie ne pourraient donner que des résultats fort intéressants.

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# UN UNIVERSAL DANS LES PRONOMS QUANTIFICATEURS INDÉFINIS

MAURICE COYAUD - KALED AIT HAMOU

## 0. *Quantificateurs et conjonctions.*

Le rapport entre les quantificateurs et conjonctions de la logique est souvent mis en évidence par les logiciens; ceux-ci interprètent par exemple le quantificateur universel ∀ comme une suite de « et » (intersections). Nous verrons que cette équivalence n'est pas confirmée par les modes de formation des mots du paradigme « quiconque » dans les langues naturelles. Nous examinerons l'un après l'autre le quantificateur universel et l'existentiel. Les signes ∀ et ∃ ne renvoient pas ici exactement aux quantificateurs logiques; ils sont simplement utilisés comme abréviations pour « mots du paradigme *quiconque* » et « mots du paradigme *quelque* ». Nous voulons précisement démontrer que les quantificateurs des langues naturelles ne correspondent pas à ceux de la logique.

## 1. *Le quantificateur universel V.*

Les mots du paradigme « quiconque » sont formés sur des interrogatifs dans les langues suivantes, par les procédés: 1) adjonction d'un mot signifiant « aussi »; 2) « même si »; 3) par redoublement; 4) par adjonction d'un mot signifiant « vouloir »; 5) « ou »; 6) « être » au subjonctif.

Le nom de chaque langue est suivi du numéro du procédé employé, et d'un exemple d'adjonction à l'interrogatif; les langues non suivies d'un numéro n'entrent pas dans les six catégories indiquées ci-dessus, mais dans la catégorie résiduelle des « divers » dont il est question au § 1.7.

adie: to
allemand: I wer auch immer
anglais: I who so ever
antaisaka: 3,5 na
arabe: 3 mah man
arménien: okh

basque: 1 ere
berbère: 4 θaβgid
beserman: kot
bulgare
bulu

chinois: I ye, ren hé
coréen: 2 lado

danois: hvem som helst
daza: mano

eskimo: tuinnaq
espagnol: 4 quiera
6 quiera sea

finnois
fiu: sa
(anc.) français: 1 qui qui
français: 6 quel que soit

géorgien
grec anc.: 5 ei kai tis allos (bouletai)
grec mod.: 2 opoios dèpote



guaymi: 1 erere

hausa: 2,5 ko
hébreu: šehu
hindi
hongrois: 2 bár, 4 akár

igbo: obula
ila: 3
italien: 6 qual sia si

javanais: 3
japonais: 1 mo, 2 -de mo

kanuri: 4 so
kikongo: 2 ata
komi
kurde: 2 har

latin: 2 quicumque, 3 quisquis, 4 quivis
l'élé: 3 mômô
lolo: 6 maghai
lingala: 2 ata

malais: 3 siapa-siapa
malgache: 3,5 na iza na iza (*na* « ou »)
mari
mongol: 1 č, 2 -v č
mord

ngbăndi: 3

ossète: käcidärittär

persan: 2 har
polonais: 6 badź
portugais: 4 quer

quechua: 1,5 pis (ou *pas* selon les dialectes)

roumain: 5: ori, 6 fie
russe: 3-libo, 6 kto by to ni byl

sanskrit: yah
serbo-croate: 4 god
suédois: vilken som helst

tagalog: 2 kahit (maski)
tatar: 2 her
tchèque: koli, leda
thaï: 1 kɔ day « aussi possible »
tibétain: 1, 2, 5 yang
trumai
turc: 2 her
tonkawa
tupi

uzbek: 2 her

vietnamien: 1 cũng, 3

Table I. Liste des langues satisfaisant le quasi-universal (l'indication du type, le cas échéant, est suivie d'un exemple).

### 1.1. *Interrogatif + « aussi ».*

1.1.1. Allemand: *wer auch immer, wo auch immer,* à côté de irgend-*wer* irgend-*wo*; *irgend* a selon Kluge (Etymologisches Wörterbuch der deutschen Sprache) l'origine suivante: m.h.a. iergen < a.h.a. *io wergin*; *io* vient de *eo* en anglo-saxon « toujours, une fois, quelconque », et a donné en allemand moderne *je* « toujours, jamais (positif = déjà) »; *wergin* < **hwargin*, de **hwar* (an. « where », « où ») et **gin*, gotique *hun* correspondant au latin *cum* « même si », que l'on retrouve dans *-cum- que.* Dans le français *quiconque*, on retrouve *onque* « immer ».

En ancien français, on employait les syntagmes *qui qui* ou *qui que*; ce n'est que plus tard qu'apparait l'adjonction *onques*; évidemment, ce *onques*, de même que *immer* et *ever*, n'a pas valeur temporelle, mais notionnelle: il sert simplement à indiquer la possibilité de répétition indéfinie de l'opération question. Ceci peut servir de définition de ce que nous appelons quantificateur universel dans les langues naturelles. Cela correspond à l'opération de « parcours » signalée par Antoine Culioli. Nous sommes loin ici de la définition du ∀ en logique (opération « et » appliquée à des ensembles finis).

1.1.2. Anglais: *who so ever, where so ever*, à côté de *any-body, any-where*, etc.

1.1.3. Basque *nor* « qui? », *nor-bait* « quelqu'un »; *ere* « aussi, même »; *nor-bait-ere* « quiconque »; *zer* « quoi? »; *zer-ere* « n'importe quoi ». Lafon (1966: 217-48) donne l'exemple suivant: *zer-ere bait agizue, gogotik egizue* « quoi que vous fassiez, faites-le de bon coeur ».

1.1.4. Chinois *yě* « aussi », *shénmo* « quoi? »; *shénmo yě bù zhīdào* « il ne sait rien »; dans cet emploi, *yě* est remplaçable par *dōu*.

En chinois on a en outre la forme *rénhé* « n'importe quel » composée de *rén* « selon » et *hé* « quoi? ».

1.1.5. Tibétain: la forme *yang* ou *kyang* « aussi, ou, quoique » sert à fabriquer les quantificateurs universels. Voici quelques exemples pris dans Roerich (1957: 86, 91, 92):

(1) *pugu phagir* SUS *gare byasson* « *qui* a fait quoi à ce garçon? »

(2) *sus gaŋ* YAŊ *byas ma soŋ* « personne n'a fait quoi que ce soit » (*sus* « par qui? », *yaŋ* « aussi », *ma* « ne ... pas ».

(3) *bad la žiŋka žegčig red* YAŊ *thaŋ ther red* « au Tibet la terre est-celle cultivée, ou est-ce toute une plaine inculte? ».

(4) *čhu* YAŊ *'thuŋs soŋ* « ils ont *aussi* bu de l'eau ».

1.1.6. Vietnamien: *nào* « quel? » + *cũng* « aussi » = « n'importe qui » *ngu'o i nào cũng ăn hõi lô* « n'importe qui reçoit des pôts de vin ».

1.1.7. Japonais *mo* « aussi », *dare* « qui? », *dare de mo* « quiconque », *dare mo konai* « personne ne vient »; de même *donata* « quelle personne? », *donata de mo* « qui que ce soit qui »; *dore* « lequel? (non humain) », *dore de mo* « n'importe lequel »; *nan* « quoi? », *nan de mo* « n'importe quoi »; *doo* « comment? », *doo de mo* « n'importe comment »; *doko* « où? », *doko de mo* « n'importe où ».

1.1.8. Mongol *č* « aussi », *xen* « qui? », *xenč* « quiconque »; *xezee* « quand? », *xezeeč* « n'importe quand »; *jamar* « comment? », *jamarč* « n'importe comment »; *xaa* « où? », *xaač* « n'importe où »; *juu* « quoi? », *juuč* « n'importe quoi ».

1.1.9. Guaymi: *medén* « quel? », *erere* « aussi, même, comme »; *medén-erere* « n'importe quel » (Ephraïm Alphonse, 1956).

N.B. En ngbaka (Thomas, 1963: 105) la forme *gbó*, glosée comme « totalisateur-égalisateur » se traduit selon les cas par « aussi » ou par « tout ». Cette homophonie indique bien le rapport profond entre les opérations de répétition (« aussi ») et de totalité.

## 1.2. *Interrogatif + même si.*

Dans quelques langues du groupe précédent (chinois, tibétain, japonais, mongol) « aussi » et « même si » sont exprimés par une forme unique. Ce n'est pas le cas dans les langues suivantes:

1.2.1. Hongrois *bár* « même si, quoique », *ki* « qui? », *bárki* « quiconque »; *mi* « quoi? », *bármi* « n'importe quoi »; *hol* « où? », *bárhol* « n'importe où »; *hány* « combien », *bárhány* « en quelque quantité que ce soit »; *hogyan* « comment? », *bárhogyan* « de quelque façon que ce soit », etc.



1.2.2. Kikongo et lingala: *ata* « même si, quoique », *nani* « qui? », *atanani* « quiconque »; *wapi* « où? », *ata wapi* « n'importe où »; *nini* « quoi? », *mokolo* « jour », *ata mokolo nini* « n'importe quel jour ».

1.2.3. Latin *quicumque* « quiconque » (*cum* + subjonctif « même si »).

1.2.4. Persan *har* « quoique, chaque », *ke* « qui? », *harke* « quiconque »; *če* « quoi », *harče* « quoi que ce soit »; *čand* « combien? », *harčand* « quelque quantité que ce soit » (Lazard 1957: 114-23 et 240-1). Les expressions relatives indéfinies *har če* « tout ce qui, quoi ... que », *har qadr* « quelque ... que » sont souvent employées avec une nuance concessive.

1.2.5. Turc de Turquie, tatar (Poppe, 1968) et uzbek (Alo Raun, 1969) ont emprunté le har iranien: turc *kim*, uzbek *kim* « qui? »; turc *herkim*, uzbek *harkim* « quiconque »; turc *ne*, uzbek *nima* « quoi? », quel? », turc *herne*, uzbek *harnima* « quelconque »; turc *ne kadar* « combien? », *her ne kadar* « autant que ce soit ».

1.2.6. Tagalog (Bowen, 1965): *saan* « où? », *kahit* « même si », *kahit-saan* « n'importe où », *kanino* « de qui? » « qui objet » (whose, whom?), *kahit-kanino* « de (à) n'importe qui ».

Le tagalog, selon notre informateur M. Reyes, a encore un opérateur pour former, sur l'interrogatif, le quantificateur universel; cet opérateur est emprunté à l'espagnol *mas que*, en tagalog *maski*; on a ainsi *sino* « qui? », *maski sino* « quiconque »; *kanino* « de qui? », *maski kanino* « de quiconque »; *maski saan* « n'importe où ».

1.2.7. Le coréen forme aussi son quantificateur universel sur un interrogatif + « même si »: *nugu* « qui? », *lado* « même si », *nugu lado* « quiconque »; *nugu lado kɪ g's ɪl halsuitta* « n'importe qui peut faire cela ».

## 1.3. *Redoublement d'interrogatifs.*

On distinguera un redoublement strict (purement formel), et d'autre part un redoublement sémantique (emploi de deux mots interrogatifs différents).

### 1.3.1. *Redoublement stricts.*

1.3.1.1. Ila (Smith, 1907 : *oni* « qui? », *oni-oni* « quiconque »; *ukwi* « où? », *ukwi-ukwi* « n'importe où ».

1.3.1.2. L'élé (Bon, 1953) *mo* « qui? singulier », *bye* « qui? pluriel »; cette langue présente l'originalité d'avoir des formes différentes correspondant exactement au français « n'importe *le*quel » et « n'importe *les*quels »; la voyelle de l'interrogatif est nasalisée dans le cas du redoublement: *mômô* « n'importe qui (singulier »); exemples:

*mo n woné ga?* « qui est là? »
*nê yal kan mo? - mômô* « quelle femme veux-tu? - n'importe laquelle ».

Les pronoms interrogatifs diffèrent selon les classes nominales et selon le nombre:

1ère classe (humains) *mo* (sg) *bye* (pl);
2ème classe (animaux) *ké* (sg), *sye* (pl);
4ème classe (objets) *ko* (sg), *to* (pl);
*n ba pa'n ésyèr syè? - syêsyê* « tu me donneras quels chevaux - n'importe lesquels ».

*nê yal kibyu ko? - koko* « quel bracelet veux-tu? - n'importe lequel ».

1.3.1.3. Latin: *quisquis* « quiconque ».

1.3.1.4. Javanais (Horne, 1961: 382) *pi je* « comment? », *pije-pije-o* « n'importe comment, en tous cas »; *sôpó* « qui? », *pundi* « où? »; *sôpô-sôpô* « quiconque »; *pundi-pundi* « n'importe où ».

1.3.1.5. Malais (Lewis, 1947-65) *siapa* « qui? » *siapa-siapa* « quiconque »; *apa* « quoi? », *apa-apa* « n'importe quoi »; *bila* « quand? », *bila-bila* « n'importe quand »; *mana* « où? », *manamana* « n'importe où ». A côté du redoublement, le malais utilise aussi la préfixation de *barang*: *barang di mana* « n'importe où », *barang siapa* « quiconque »; *barang apa* « n'importe quoi ».
Le javanais préfixe aussi *saq*: *saq ora-ora-né* « n'importe comment ».

1.3.1.6. Vietnamien: *ai* « qui? », *ai-ai* « quiconque, tous » (Thompson, 1965).

1.3.1.7. Ngbandi: *wa* « quel? », *wàwà* « quelconque » (Lekens, 1952).

1.3.2. *Redoublement sémantiques.*

En arabe, l'adjonction de *mā* « quoi? » à un interrogatif donne un quantificateur universel: *ayna* « où? », *ayna mā* « n'importe où »; *ayyu* « qui? quel? », *ayyu mā* « quiconque »; *matā* « quand? », *matā-mā* « n'importe quand »; *kayfa* « comment? », *kayfa mā* « n'importe comment ». En outre, l'adjonction de *mā* « quoi? » à n'importe quel nom suffixé par l'article indéfini, donne le sens de « n'importe »: *kitab-un mā* « n'importe quel livre ».
*Ayyu, man, mā* sont trois interrogatifs dont la signification primitive est respectivement « qui, celui qui; qui; quoi »; ils sont utilisés comme quantificateurs, en apposition avec différentes particules adverbiales et interrogatives.

*Ayyu* en apposition:
*ayyu man* « qui que ce soit »
*ayyu mā* « tout ce qui ».

La répétition de *ayyu* rend l'idée de « quel que soit celui »:

*ayy va ayy-ka kāna kabir-an* « quelque soit celui de nous deux qui est grand » (*ayyu* est réalisé comme *ayy*).

En outre: *man* « qui? », *man huva* « qui est-il? », *man darasa* « un qui a étudié? ».
*man* en apposition avec *ayyu kullu* et *mah* sert à former le quantificateur universel « quel que soit » (voir table 2). Exemples d'emplois de *mā* « quoi? »: *mā*



*taktubu* « qu'écris-tu? », *fī ma taktubu* « où (dans quoi) écris-tu? », *mā lī* « quelque » chose que jai », *mā lī illa* « je n'ai rien sauf ».
Avec les interrogatifs *kullu* et *ayyu*, on peut remplacer *mā* par *say*[3] « chose »:

*ayyu mā* « quoique »; *ayyu say*[3] « quelque chose que »;

pour ce second exemple, les grammariens arabes admettent volontiers l'existence d'une substitution de *mā* par *say*[3].
Dans tous les autres cas (et ce sont les plus nombreux) on peut, sans en altérer le caractère formel, parler alors de redoublement sémantique (voir table 2); on rencontrera également des assemblages de particules adverbiales avec *mā* dont le caractère d'universalité est absent, car la possibilité de répétition illimitée du procès n'est pas introduite par cet assemblage:

*ka mā ǰa ʒ a* « comme il est venu »;
*mitla mā dahaba* « de même qu'il est parti »;
*mā* plus « accompli » a un sense négatif: *mā katebtu* « je n'ai pas écrit ».

D'autre part, *inna* « certes » se combine avec *mā* pour donner le sens « seulement »; *a* « particule interrogative » se combine avec *mā*: *a-mā* « aucun, personne »; *a-mā-inna* « sûrement »; la négation *lā* « prohibitif » se combine avec *imma imma lā* « au moins ». Une autre négation de l'accompli, *lam*, se combine avec *mā*: *lam mā* « pas encore ».
L'énumération des différents quantificateurs formés à l'aide des formes *mā* et *man* que l'on trouvera ci-dessous n'est pas exhaustive:

| | | | | |
|---|---|---|---|---|
| haytu | mā | « partout où » | hay tu | « où? » |
| ayna | mā | « n'importe où » | ayna | « où? » |
| ayyu | mā | « quoi que ce soit » | ayyu | « que - quel? » |
| mah | mā | « quoi que » | mah | « opérateur = mā » |
| | | « quelque ... que » | | |
| kullu | mā | « chaque fois que » | kullu | « tout » |
| matā | mā | « n'importe quel moment » | matā | « quand? » |
| kayfa | mā | « de quelque manière que » | kayfa | « comment? » |
| rubba | mā | « quelque fois » | rubb | « beaucoup? » |
| anna | mā | « quelque moyen que » | anna | « que » |
| ayyana | mā | « n'importe quand » | | |
| id | mā | « chaque fois que » | ida | « si » |
| lā siya | mā | « surtout, spécialement » | siy | « égal » |
| mit la | mā | « de même que » | mitl | « tel que » |
| bi | mā | « par quelque » | bi | « avec » |
| ayyu | man | « celui qui » | man | « qui? » |
| | | « quelque qui » | | |
| mah | man | « quiconque » | | |
| | man | « quel que soit » | | |

*Table 2.* Il existe encore en arabe un quantificateur indéfini *bard* « quelques, certains, beaucoup ». (On verra plus loin qu'en japonais, l'adjonction de *ka* « marque de l'interrogation » à un pronom ou adverbe interrogatif donne un quantificateur existentiel. En russe *kto* « qui? », *li* « marque d'interrogation », *bo* « particule affirmative », *kto-libo* « quiconque »).

1.4. *Interrogatif + « vouloir ».*

1.4.1. Berbère *anga* « où? », *θaβgid* « tu veux », *anga θaβgid* « n'importe où »; portugais, espagnol (*quien* « qui? », *quien quiera* « quiconque »).

1.4.2. Latin (*quivis*), mais en roumain, contrairement à ces deux autres langues romanes, l'emploi du verbe « vouloir » sert à former les quantificateur existentiels (voir plus loin); en roumain, « quiconque » se dit *fie-care*, mot-à-mot « soit qui? » (Pop, 1948: 217):

1.4.3. Hongrois: *ki* « qui? », *akár* « il veut », *akár-ki* « quiconque »; en préfixant *akár* à n'importe quel pronom ou adverbe interrogatif, on obtient un quantificateur universel (partie droite de la table 3). Nous avons déjà vu que ce même quantificateur peut être exprimé en préfixant *bár* « même si » à l'interrogatif. Le préfixe *vala* donne parfois (d'après Lelkes) une valeur de quantificateur universel (les combinaisons avec *hány*, *hogy*, *fele*, *melyen*, *mennyi*. Cette asymétrie dans le système des quantificateurs hongrois mérite quelque commentaire. Bornons-nous au cas de *mennyi* « combien? », qui, combiné *à vala-* peut donner selon le contexte les sens « tout » ou « quelque, un peu »:

(1) *valamennyi pénzed csak van?* « tu as quand même *quelque* argent? ».

(2) *valamennyi házban otthon voltak a férfiak* « dans *toutes* les maisons les hommes étaient là ».

(3) *valamennyi penzt a tolvaj ellopott* « le voleur a volé *un peu* d'argent ».

(4) *valamennyi penzt a tolvaj elelopta* « le voleur a volé *tout* l'argent ».

Dans (1) et (3) *valamennyi* « un peu » n'est pas mis en valeur, dans (2) et (4) il est fortement accentué. Dans (3) le verbe est à la forme subjective (indéfinie), dans (4) à la forme objective (définie). Le rôle de l'accent d'intensité, signalé par Kelemen et confirmé par notre informatrice Posgay Ildiko, peut être rapproché de l'opposition que l'on trouve en français entre:

(5) *Intelligent, il l'est un peu* (accent faible: « un peu »).

(6) *Intelligent, il l'est UN PEU* (accent fort: « très »).

| | | |
|---|---|---|
| *valaki* « quelqu'un » | *ki* « qui? » | *akárki* « n'importe qui » |
| *valamelyik* « l'un d'eux » | *melyik* « lequel » | *akármelyik* « n'importe lequel » |
| *valami* « quelque chose » | *mi* « quoi? » | *akármi* « n'importe quoi » |
| *valahogy* « d'une manière quelconque » | *hogyan* « comment? » | *akárhogyan* « n'importe comment » |
| *valamikor* « un jour, autre-fois » | *mikor* « quand? » | *akármikor* « n'importe quand » |
| *valahol* « quelque part » | *hol* « où? » | *akárhol* « n'importe où » |
| *valahonnan* « on ne sait d'où » | *honnan* « d'où » | |
| *valahova* « vers quelque part » | *hova* « vers où? » | *akárhova* « vers n'importe où » |
| *valamennyi* « *tous*, un peu quelque » | *mennyi* « combien? » | *akármennyi* « n'importe combien » |
| *valamifele* « une sort de » | | |
| *valamilyen* « quelconque » | *milyen* « quelle sorte de? » | *akármilyen* « n'importe quel ... » « quelque ... que » |
| *valahány* « tous ceux qui » | *hány* « combien? » | *akárhány* « n'importe combien » |



*Table 3.* Nous avons rempli la table 3 selon les données du lexique de Lelkes (1967). Il y a seulement trois cases vides. Une enquête plus approfondie donne les résultats indiqués dans la table 4.

Les indications de Tompa (1968: pp. 66-7, 70, 253, 286) ne permettent pas d'établir le système des indéfinis et « généralisateurs » du hongrois. Seule une enquête auprès d'informateurs a permis d'établir le système. Notons des désaccords entre informateurs: dans certains cas où nous avons indiqué par le signe moins l'absence d'une forme dans le paradigme à prefixe *né*, des informateurs déclaraient la forme existante mais désuète.

| | se/o(+ n/m —) | né- | vala- | akár- | bár- |
|---|---|---|---|---|---|
| -ki | senki | + | + | + | + |
| -mi | semmi | + | + | + | + |
| -hol | sehol | + | + | + | + |
| -hány | — | + | tous | + | — |
| -mennyi | — | — | tous, un peu | + | + |
| -mikor | + | — | + | + | + |
| -hogy (an) | + | — | + | + | + |
| -honnan | — | — | + | + | + |
| -hova | + | — | + | + | + |
| -milyen | + | + | + | + | + |
| -mifele | + | désuet | quelconque, certain | + | + |
| -mely | + | + | + | + | + |
| -melyik | — | — | + | + | + |
| -ha | soha | + | + | — | — |

*Table 4.* Indéfinis du hongrois.

*Remarques.* La première colonne contient des mots interrogatifs (on en a donné la traduction dans le tableu précédent; *melyik signifie* « quel ou quelle? ») et le mot *ha* « si, quand »; combiné avec la négation forte, il prend le sens de « jamais » (*soha*); combiné avec la négation faible *né*, il signifie « quelquefois » (*néha*); combiné avec *vala* (étymologiquement dérivé de *valo*, participe du verbe « être »), il signifie « jadis ». On observe une correspondance régulière, en effet, entre deux types de négations baptisées par convention « fortes »: *se/so* hongrois (alternance due à l'harmonie vocalique), et *ni* slave; d'autre part des négations « faibles »: *né* hongrois et *ne* slave. Pour simplifier, donnons simplement des correspondances en russe:

*ni-kto* répond à hongrois *sen-ki* « personne »
*ne-kto* répond à hongrois *né-ki* « un certain personnage »
*ni-čto* répond à hongrois *sem-mi* « rien »
*ne-čto* répond à hongrois *né-mi* « une certaine chose »
*ne-skol'ko* répond à hongrois *né-hany* « quelques uns »
*ni-kuda* répond à hongrois *se-hol* « nulle part »
*ni-kogda* répond à hongrois *so-ha* « jamais ».

Dans un dernier exemple, il y a un léger décalage sémantique: le russe *ne-kogda* signifie « jadis » ou « pas le temps »; le hongrois *né-ha* « quelquefois », et c'est *vala-ha* qui signifie « jadis ».

La négation russe *ni* se retrouve dans une des formes du quantificateur universel *kto by to ni byl* « qui? hypothétique, celui-là, pas même, serait » = « qui que ce soit ».

1.4.4. Russe: *ljuboj* « quiconque », *ljuboe* « n'importe quoi »; il s'agit là de formes dérivées du verbe *ljubit'* « aimer », équivalentes à « vouloir » d'un point de vue sémantique, de même que *ugodno* « agréable », qui lui, se forme avec les interrogatifs: *kto ugodno* « quiconque », etc.

En serbo-croate, on retrouve *-god*, employé de la même façon que le russe *ugodno*.

1.4.5. En kanuri (A. Von Buisburg, 1917) *so* « désirer, vouloir », *afi* « quoi? », *afiso* « n'importe quoi »; *ndu* « qui? », *nduso* « quiconque »; *ndasa* « which? », *ndasaso* « whichever ». Un autre procédé de formation est la suffixation d'un emphatiseur *ma* (emphatic, strengthening syllabe): *afima* « anything », *nduma* « anyone ».

Pour résumer, on trouve le verbe « vouloir » ou un verbe sémantiquement équivalent, dans les langues suivantes: berbère, latin, espagnol, portugais, hongrois, russe, serbo-croate, kanuri.

## 1.5. INTERROGATIF + « OU ».

1.5.1. Malgache et antaisaka: malgache *na* « ou », *iza* « qui? quoi? », *na-iza-na-iza* « quiconque »; *inona* « lequel? », *na-inona-na-inona* « lequel que ce soit »; l'adjonction d'un « ou » est combiné avec le redoublement (Malzacz, 1926).

La description de Malzacz concorde tout à fait avec celle de Deschamps (1936), appliquée au dialecte antaisaka: *ia* « qui? », *ino* « quoi? », *na* « ou », *ndre* « même, si »; *na-ia-na-ia* « quiconque », *ndre-ino-ndre-ino* « quelque soit la chose que »; *ndre-ino* « même si ».

1.5.2. Hausa *ko* « ou », *ina* « où? », *ko-ina* « n'importe où »; *kaka* « comment? », *ko-kaka* « n'importe comment »; *yaushe* « quand? », *ko-yaushe* « n'importe quand »; *mi(ne)* « qui? quoi? », *ko-mi(ne)* « n'importe qui, quoi ». Selon Robinson, le *ko* du hausa est également marque d'interrogation (comme le japonais *ka* ou le russe *li*) et se traduit aussi par « même » et par « si ».

1.5.3. Quechua *pis* « ou », *pi* « qui? », *pi-pis* « quiconque »; dans le dialecte de Ayacucho on trouve *pas* au lieu de *pis*; selon Lastra, qui donne une description du dialecte de Cochabamba, *pis* a d'autres emplois qu'il est intéressant de rapprocher (Lastra, 1968: 40); *pis* comparatif est souvent traduit par « aussi »: *sara-m-pis* « son blé aussi »; *muna-n-ku-pis* « ils veulent aussi »; parfois il est traduit par « et »; *papasta, oqasta saratapis* « patates ocas et blé ».

En conjugaison avec *la*, *pis* signifie « n'importe »: *maygen-la-pis* « n'importe qui » (*may* « quel? »); *pis* apparaissant dans une construction alternative: *yurahpis yanapis* « blanc ou noir ».

1.5.4. Roumain *ori* « ou », *care* « qui? », *ori-care* « quiconque »; *ce* « quoi? », *ori(si)ce* « quoi que ce soit » (équivalent à *fie-ce*). Nandris, 1953, et Gramatica Limbii rumîne, vol. I, pp. 175-7 et 194-5, Bucarest, 1963.

1.5.5. Tibétain *yang* « ou », *su* « qui? », *su-yang* « quiconque ». Ce *yang* signifie également « aussi » et « même si » (voir plus haut § 1.1.5, orthographie' *yaŋ*).

## 1.6. INTERROGATIF + « ÊTRE » AU SUBJONCTIF

Au français *quel-que-soit* correspondent l'italien *qual-sia-si*, le roumain *fie-care* « quiconque » (*fie* « soit », *care* « qui? ») et le polonais *kto-bądź* « quiconque », *kto* « qui? », *bądź* « soit ». Noter que le russe emploie le même procédé pour former l'existentiel: *kto-ni-bud'* « quelqu'un ».



## 1.7. DIVERS

1.7.1. En fiu (Mélanésie: Ray, 1926: 490): *tae* « qui? », *sa-tae* « quiconque ».

1.7.2. En igbo (Nigéria: Welmers, 1968), les mots du paradigme « n'importe qui » sont formés sur des interrogatifs par adjonction du mot *obula*; la formation de ce paradigme sur les interrogatifs est aussi attestée en mbum (Cameroun; communication de Claude Hagège), en adie et bulu (langues voisines): en adie, *nza* « qui? », *ie* « quoi? », *to-nza* « quiconque », *to-ie* « n'importe quoi ».

1.7.3. En hébreu moderne, les indéfinis peuvent être constitués « purement et simplement par l'interrogatif » ou bien « lorsque le terme indéfini ne se trouve pas juste avant *-š* (particule servant à lier les propositions), il est exprimé par la construction des éléments interrogatifs avec le complexe *šehu* (Cohen et Zafrani, 1968: 220).

1.7.4. En thaï la même forme *kray* signifie « qui? » et « quiconque »; mais on peut former le paradigme « n'importe » par adjonction à l'interrogatif d'une forme *kɔ day* « aussi possible »: *thi nay* « où? », *thi nay kɔ-day* « n'importe où » [2].

1.7.5. En eskimo (communication de D. R. Collis et de L. J. Dorais), les mots du paradigme « n'importe » se forment par adjonction à l'interrogatif d'un mot *tuinnaq* « propre, spécial »: *suna* « quoi? », *sunatuinnaq* « n'importe quoi »; *kina* « qui? », *kinatuinnaq* « quiconque »; *noni* « où? », *nonituinnaq* « n'importe où »; *qonga* « quand? », *qongatuinnaq* « n'importe quand » (*umiaq* « bateau », *umiatuinnaq* « bateau au sens propre, kayak »).

1.7.6. En daza (lecoeur, 1955): *wona* « quel? », *mano* « si », *wona-mano* « quiconque ». En teda, langue voisine étudiée par le même auteur, le procédé de formation sur l'interrogatif n'est pas attesté, mais on a: *aõ* « quelqu'un, ou », *na* « et », *aõ-nana* « quiconque ».

1.7.7. En sanskrit, « le relatif précédant l'interrogatif le rend indéfini »: *yaḥ kaḥ* « quiconque » (Mac Donnell, 1927: 80). En arménien (Meillet, 1962), l'indéfini-interrogatif *o* et de la particule *-kh* (cf. grec τε, lat. *que*).

1.7.9. En beserman (Tepljašina, 1970: 206) *mar* « quoi? », *kot'mar* « n'importe quoi ».

1.7.10. En tupi (Fernandez, 1960) *naá* « quel? », *naá maha* « quelconque ». Le quasi-universel est encore vérifié en ossète (Miller, 1962: 95), hindi (Beames, 1970, vol. 2, p. 327) et lolo (Vial, 1909: 34); en lolo, d'après Vial, on utilise (adjoint à l'interrogatif) au opérateur *ma* « négation » *ghai* « être », tout à fait parallèle au russe *ni-bud'*.

[2] A vrai dire le thaï serait mieux classé en I.I.

## 2. LE QUANTIFICATEUR EXISTENTIEL ∃.

### 2.1. *Diversité des modes de formation.*

Dans les langues présentées plus haut, il arrive assez souvent que les mots du paradigme « quelqu'un, quelque part ... » soient formées sur un interrogatif, mais cela ne constitue pas un trait universel, et il s'en faut beaucoup. Les modes de formation du quantificateur existentiel sont assez variés. Parmi les langues qui font appel à l'interrogatif, le japonais le combine à la marque *ka* de l'interrogation de phrase (nous avons là un cas de redoublement « sémantique », l'interrogation étant employée deux fois, d'abord sous forme de pronom, puis sous forme de particule):

> *dare* « qui? », *dare ka* « quelqu'un »; *doko* « où? », *doko ka* « quelque « part ».

Le roumain, utilise le verbe vouloir: *care* « qui? », *careva* « quelqu'un »; *cine* « qui? » (humain), *cineva* « quelqu'un »; *ce* « quoi? », *ceva* « quelque chose ».

Pop (1948: 216) interprète *-va* comme une contraction de *vrea* « il veut »; *ceva* « quelque chose », à l'origine *ce-vrea* « ce qu'il veut ».

Dans pas mal de langues indo-européennes, ce quantificateur est formé sur un interrogatif, auquel on ajoute souvent un élément comme « un » (*qualcuno*, *quelqu'un*), ou comme « autre » (*aliquis*); les langues slaves forment un groupe à part, intéressant par un emploi diversifié de formes qui sont des négations ou des homophones de négations (sans l'attribution à l'une ou l'autre des deux catégories soit certaine).

En coréen (Horne, Yun 1951: 76-7) *ttan* signifie selon les cas « lequel? » et « certain, quelque ».

### 2.2. *Interrogatifs et négations.*

C'est seulement dans le groupe slave et en hongrois que cette combinaison formelle est évidente; russe, serbo-croate, tchèque, polonais, bulgare, slovène et vieux slave offrent des formes tout à fait parallèles; contentons-nous de donner des exemples russes:

> *kto* « qui? », *kto-ni-bud'* « quelqu'un », *ne-kto* « un certain », mais le même *ni*, combiné avec *kto* seul donne: *ni-kto* « personne ».

Par ailleurs, le *ni* russe correspond au *ni* français; le *ne* russe correspond au *ne ... pas* français. On peut interpréter *ne-kto* comme « pas n'importe qui = un certain », *kto-ni-bud'* « qui que ce soit, quelqu'un ».

Dans les remarques annexées à la table 4, nous avons esquissé une explication, tenant compte du fait qu'il y aurait deux types de négations dans ces langues: les faibles et les fortes. Cette explication est évidemment insuffisante. Tâchons de préciser un peu ce qui fait, selon nous, que le paradigme *ni* en slave, et *se* en hongrois, constitue la négation forte; c'est qu'il comporte en plus de la valeur négative, une valeur renforçante, emphatique, qui est représentée en français, comme dans beaucoup d'autres langues, par une forme représentant l'idée de « même »; nous interprétons alors *ni-kto* comme « pas même qui? » c'est-à-dire « personne », tandis que *ne-kto* est « pas qui? », i.e. « pas un inconnu », d'où « une certaine personne ». Cet essai d'explication concorde avec le fait que dans le nombreuses langues, le quantificateur universel est exprimé par la combinaison d'un emphatiseur « même » ou « aussi » + interrogatif. Notons de plus qu'en hongrois



*sem* « pas même », et *sincs* « il n'y a pas même », s'opposent ensemble à *nem* « non » et *nincs* « il n'y a pas ». De façon analogue, on connait bien en russe les emplois de *ni* au sens de « pas même », en plus de ses emplois comme négation coordonnée (français *ni*), de la même façon que le *sem* hongrois. Il y a là un système très cohérent, qui est certainement compatible avec celui des quantificateurs non négatifs. (Voir notre analyse du russe *kto by to ni byl* dans les remarques annexées à la table 4, § 1.4.3).

En ce qui concerne l'interprétation de *ni-kto* comme « pas même qui? », il semble raisonnable de faire porter la négation sur « même » seulement: on a « (pas même) qui? » et on n'a pas « pas (même qui?) ». Le *kto* russe est complètement indéfini (il correspond de près au *n'importe*). Par contre, il y a des langues où l'interrogatif peut être défini (macédonien), ou moins indéfini qu'en russe et français (langues à interrogatifs singuliers et pluriels).

### 2.3. *Interrogatifs employés comme indéfinis.*

En français, comme en russe et en géorgien (Goletiani, 1970: 188), les interrogatifs « qui? » en série ont le sens de « quelqu'un »:

> *vybežali soldaty: kto emu xleba, kto kaši, kto vodki* « les soldats coururent: et de lui apporter qui du pain, qui de la purée, qui de la vodka ».

Mais cela ne vaut que pour « qui? ». Parmi ces trois langues, c'est seulement en russe que *čto* « quoi? » peut voir le sens de « quelque chose »:

> *a razve ja govoril čto durnoe pro vlastei?* « est-ce que vraiment j'ai dit quelque chose de mal concernant le pouvoir? ».

Dans plusieurs langues, les interrogatifs seuls peuvent être employés comme indéfinis:

> chinois: *jĭ* « combien? quelques »
> grec: *tís* « qui? » *tis* (*atone*) « quelqu'un ».

N.B. - En sanskrit, *ka* « qui?, quoi?, quel? » + *čit* donne le sens de « quelque, quelqu'un ».

En guina (Delafosse: langues du Dahomey): *we* « quel? », *de* « un certain », *me* « quelqu'un »; *me-de-we* « un tel ».

En gagauz (Pokrovskaja, 1964: 146), les mots signifiant « quelqu'un » (*kimisi*) et « quelque chose » sont formés sur des interrogatifs.

## 3. CONCLUSIONS.

3.1. Les procédés employés pour former les quantificateurs sont relativement monotones en ce qui concerne le paradigme « quiconque », mais assez divers pour le paradigme « quelqu'un ». Des procédés identiques peuvent produire des résultats différents du point de vue sémantique. En voici des exemples: la négation en arabe sert à former les universels, mais en russe et dans les autres langues slaves elle sert à former les existentiels. Le japonais utilise *ka*, particule interrogative, pour former les existentiels, mais le russe utilise la même particule (*li*) pour les universels. Plusieurs langues (dont le polonais) utilisent « être » au subjonctif pour former l'universel, mais le russe utilise cette forme avec la négation *ni* pour l'existentiel.. Contrairement à plusieurs langues, le roumain utilise « vouloir » pour former l'existentiel.

3.2. L'interprétation banale du quantificateur universel, en logique, comme une suite d'intersections (« et »), nous paraît à revoir sérieusement, si l'on veut rapprocher la logique des modes d'expression les plus généraux dans les langues naturelles; parmi les six procédés de formation énumérés au § 1 il semble possible de ramener le « aussi », le « même si », le « ou » et la répétition à un archiséméme commun. Selon cette interprétation, étayée sur l'observation de formes appartenant à une soixantaine de langues fort diverses, il nous paraît plus vraisemblable de considérer le quantificateur universel comme une suite de « ou d'union », dans la mesure où l'on a le droit d'espérer que les notions de la logique, loin de rester tout à fait coupées des notions « naturelles » (proches des langues naturelles), doivent être précisées de façon à fournir un modèle de ce que Richard Zuber appelle « les logiques naturelles ». Si les propositions de la logique symboliques sont si difficilement interprétables dans les langues naturelles, c'est evidemment que les outils de cette logique symbolique doivent être raffinés (rapprochés des logiques naturelles ou linguistiques).

3.3. Il n'est pas sûr qu'on puisse considérer que l'universal hypothétique (les quantificateurs universels sont formés sur les interrogatifs) soit totalement confirmé par notre enquête.

Nous avons obtenu des résultats positifs pour la soixantaine de langues énumérées au début du § 1, mais notre enquête, qui a couvert près de cent langues, s'est heurtée à bien des silences de la part des grammairiens; on constate ainsi que Prost (1964) ne dit mot des indéfinis dans un gros ouvrage consacré au mambar, kirma, toussian, sɛmɛ. Dans le Handbook de Boas, Wagner est muet sur les indéfinis du yuchi; Bunzel n'est pas clair sur ceux du zuñi. Ray (1926) donne des notices grammaticales sur une foule de langues mélanésiennes mais guère de renseignements concernant notre problème, à l'exception du baki, malu, fiu.

Concernant le yurok, Robins (1954) présente des données montrant que le quantificateur universel n'est pas formé sur un interrogatif. Autres exceptions à notre universal, compte tenu des limites de notre documentation: bambara (Delaforge, 1958), Swahili (Brauner et Bantu, 1967), sherbro (Atsumner, 1921).

3.4. Le redoublement de formes non interrogatives est un procédé d'expression du quantificateur universel en arabe, japonais (*kotogotoku* « tout », *ono-ono* « chacun »), vietnamien (*ngúói* « homme », *ngúói-ngúói* « quiconque », *ngay* « jour », *ngay-ngay* « toujours »), yoruba (*osu* « mois », *osu-osu* « tous les mois »), malais (*tiap-tiap* « chaque », *masing-masing* « chacun »), manding (*yoro-ō-yoro* « n'importe quand », *kele-ō-kele* « n'importe quel », *do-ō-do* « n'importe qui »).

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# THE VP-CONSTITUENT OF SVO LANGUAGES

ARTHUR SCHWARTZ

## 1. TWO SETS OF FACTS

### A. The First Set: Predicate-Complement Structure.

Some languages can be characterized by a basic organization of the sentence in terms of predicate-first (the so-called VSO type), and some by an organization in terms of predicate-last (the so-called SOV type). Among the VSO group we find Samoan, Berber, Squamish, Chinook, and Kalispel; among the SOV we find Telugu, Japanese, Basque, Amharic, Hindi, and Turkish. What we are interested in is whether the predicate (say, V) and the nominal phrase adjacent to it in the basic organization of the clause form a constituent, i.e., whether the VS of VSO systems and the OV of SOV system are bonded in some way (regardless of the possibility that the VS unit would be of a phrasal type distinct from the OV). We will take Samoan as representative of the first type, and Turkish as representative of the second.

The normal order of elements in Turkish is subject-first, predicate-last, and « complements » intervening: roughly, *the boy a book reads*; *the boy to-school goes*. « Any element which is to be emphasized may be placed immediately before the verb », as follows (from Lewis, 1967: 240-1):

BASE: *ressam geçen hafta Bebek'te bize resimlerini gösterdi*
artist last week Bebek-at us pictures-his showed
« the artist showed us his pictures last week at Bebek »

*geçen hafta Bebek'te bize resimlerini RESSAM gösterdi*
« it was the artist who showed us his pictures ... »

*ressam Bebek'te bize resimlerini GEÇEN HAFTA gösterdi*
« it was last week that the artist showed ... »

*ressam geçen hafta bize resimlerini BEBEK'TE gösterdi*
« it was at Bebek that the artist showed ... »

Unless we are to imagine all unemphatic material brought forward so as to leave the emphatic element immediately before the verb, we conceive of this positioning as a movement of the focussed element from its basic position in the sentence toward the predicate.

The normal order of elements in Samoan is predicate-first, subject-next, complements following. There is apparently considerable freedom of order, although the



« basic » arrangement in a transitive expression seems to be Predicate-Agent-Patient-etc. Adverbials are positioned basically in clause-final position: However, alternations do occur

*sa togi e le tama le ma'a lelei*
past throw by the boy the rock good
« the boy threw the rock well »

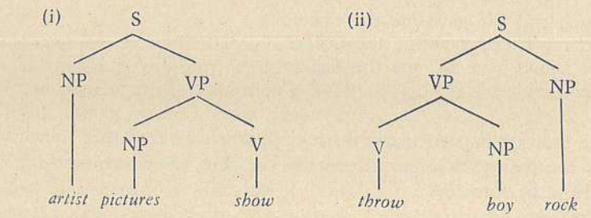
*sa togi lelei e le tama le ma'a*
past throw good by the boy the rock
« the boy threw the rock well »

But this movement is strictly in terms of « to the predicate » since a movement resulting in

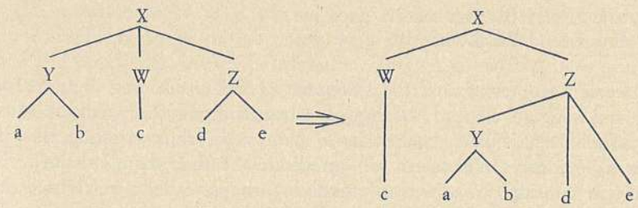
*sa togi e le tama lelei le ma'a*
past throw by the boy good the rock

is ungrammatical if intended as « the boy threw the rock well»: it can only mean « the good boy threw the rock » (Pizzini, 1969: 82, 102).

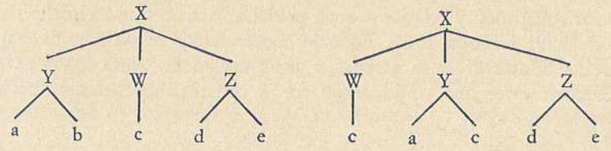
Turkish and Samoan might be conceived of in the following way




in which case, any constituent brought toward the predicate will have to intervene between the predicate and its co-constituent: the move would result in a tripartite constituency relation in the representations above. I have argued elsewhere (Schwartz 1972) for a general constraint on movement transformations that would rule out « lowering » of phrases; in particular, it would rule out the merger of sisterphrases:




If, in fact, the sequence *a b* constituting the unit Y comes to stand between *c* and *d e* from a basic organization as given, then the restructuring can only be



Intuitively, the constraint expresses the empirical observation that, in the unmarked situation, transformations do not increase structure (depth of branching). This constraint, in turn, presupposes a constraint on the preservation of structure: namely, when material (typically lower) is incorporated into a phrase (typically higher), the phrasal character of the « receiving » group remains intact. If these constraints are right, and the facts in Samoan and Turkish are right, then the notion VP in representations (i) and (ii) is wrong.

We now consider three languages that fall into the SVO class: Mandarin, Tera, and Indonesian. In Mandarin, time adverbials have two positions:

last week my friend gave me the ticket
my friend last week gave me the ticket
*my friend gave last week me the ticket
*my friend gave me last week the ticket
*my friend gave me the ticket last week

The two acceptable constructions in themselves show that the time adverbial is either clause-initial or, for the moment, « after the subject ». Even if basically clause-initial, the movement to the other position shows nothing other than a fairly distinct separation between the subject and the « rest of the sentence ». However, the positioning of the negative *bu* can only be given as:

my friend BU gave me the tickets
*BU my friend gave me the tickets
*my friend gave BU me the tickets
etc.

This unique position is particularly instructive when we find that transitive predication allows the patient nominal to precede the verb (in which case the verb itself is preceded by the form *BA*):

my friend BA tickets gave me
*my friend BA me gave tickets
*my friend gave me BA tickets
etc.

and, when negated, requires that BU precede the BA-nominal:

my friend BU BA tickets gave me
*my friend BA tickets BU gave me

This placement argues against the statement of BU-positioning in terms of « main verb », and suggests instead the notion « beginning of the predicate » as the essential idea. Even if BA is taken as a main verb (thus vitiating this particular instance as evidence in support of « predicate » rather than « main verb »), one has only to consider constructions involving the so-called Co-Verbs in order to see that BU need not be linked directly to the main verb: e.g., *ta BU tsung Junggwo lai* « he didn't come from China » (lit. he not from China come).

Our argument in connection with Mandarin assumes that a feeling for interruptability (more accurately, a resistance toward interruptability) can be used as evidence for constituency relations. Such evidence has been used in the past (Maclay & Osgood 1959; Johnson 1965; Fodor & Bever 1965) in support of major constituency breaks. However, it is at best a weak argument. Notice, for example, that in the Samoan case, one could argue for a constituency relation between *tama*



« boy » and *ma'a* « rock » as to explain why *lelei* « good » cannot intervene. The explanation seems to me to be simple enough: the movement is « toward the predicate » and so any other positioning is ungrammatical. To interpret that constraint as evidence for constituency would lead us to suppose that the ungrammaticality of **sa lelei togi e le tama le ma'a*, in which the adverb *lelei* intervenes between the tense marker *sa* and the verb *togi*, indicates a constituency relation between *sa*, *togi*, *tama*, and *ma'a*. There is nothing in the language to suggest that these are sister-constituents; if anything, one is inclined to take this resistance to interruptability between *sa* and *togi* as an indication of a more local grouping, that is, simply between *sa* and *togi*, which is fairly inviolable (except for subject pronouns).

To use interruptability as a criterion for constituency, we must be able to show that an element which is *otherwise* freely positioned is excluded from the context that interests us. For example, time adverbials in Indonesian — our second SVO example — do have considerable freedom:

*yesterday* the patient died
the patient *yesterday* died
the patient died *yesterday*

With this observation as background, we then feel justified in interpreting facts like

yesterday the patient wrote a letter
the patient yesterday wrote a letter
*the patient wrote yesterday a letter
the patient wrote a letter yesterday

as indicating some special relation between *wrote* and *a letter* since no other principle would seem to explain the inability of the time adverbial to occur in just that position. That transitivity has nothing to do with the constraint is evident from other facts:

yesterday the patient went to the hospital
the patient yesterday went to the hospital
*the patient went yesterday to the hospital
the patient went to the hospital yesterday

Thus, the intuitive sense of a « bond » or « valence » between these predicates and their complements is substantiated by a probing of constituency breaks: the stronger the bond, the worse the violation. Interruptions like ... *to yesterday the hospital* ... and ... *to the yesterday hospital* ... are worse than ... *went yesterday to the hospital* ... (in Indonesian, as in English).

In Tera, the normal order of a transitive expression is again Subject-Verb-Object. There is a particle *KU* which marks a nominal phrase as plural. « If a sentence has either a plural noun or conjoined nouns as subject, and if the predicate is either verbal or existential, the plural marker [KU] is added to the end of the predicate » (Newman, 1970: 49):

*A and B learn reading KU*
*Children learn reading KU*
**A and B learn KU reading*
**Children learn KU reading*

The notion « end of the predicate » is corroborated by the effect of sentence-level

time and place adverbials. These normally are in clause-final position:

A learns reading tomorrow
A learns reading at-school

*KU*-placement is dictated quite strictly by the facts

A and B learn reading KU tomorrow
A and B learn reading KU at school
*A and B learn reading tomorrow KU
*A and B learn reading at school KU

which support a feeling that the sentence has as its major constituents *A and B*, *learn reading*, and *tomorrow/at school*.

Another aspect of Tera confirms the need for this « end of predicate » notion. In sentences with conjoined nominals a subject, one member of the conjunction can be shifted away:

(i) A and B learn reading ⇒
(ii) A learn reading and B

Type (ii) might be thought of as a reduced S-conjunction: *A learn reading and B learn reading* ⇒ *A learn reading and B Ø Ø*. But the evidence of the plural marker militates against this alternative:

(i) A and B learn reading ⇒
(ii) A and B learn reading KU ⇒
(iii) A learn reading KU and B

That is to say, the manifestation of KU in sentence (iii) shows that *A and B* were a compound subject at some point in the formation of the sentence. Now, in order to state the shift of *and B* precisely, we have to allow for the same stricness as in *KU*-placement: the conjunct must be positioned before time and place adverbials.

A and B learn reading tomorrow
A and B learn reading KU tomorrow
A learn reading KU and B tomorrow
*A learn reading KU tomorrow and B
*A learn and B reading KU tomorrow

The import of these facts, like the facts originally cited for Mandarin, rests on the placement of certain elements: in order to say where the material is to be positioned, we find it convenient to establish a boundary point (as in phonology we posit word boundaries for stress placement, devoicing phenomena, and cluster reduction). Tera does not indicate whether KU and the shifted member of the compound subject are part of the predicate or simply follow the predicate: the facts do suggest that a major constituent break occurs between *learn reading* and clause-final adverbials like *tomorrow* and *at market*. But neither placement nor interruptability constitute « hard » evidence for constituency. As far as I can see, the only clear test is based on the unit-movement constraint; if two or more constituents can be shown to move simultaneously, then we must assume that they form a constituent themselves.

Indonesian has a way of forming emphatic questions: it attaches an enclitic *-KAH* to the emphasized element, and brings that element to clause-initial position: thus,



BASE: the patient went to-the-hospital yesterday
(i) *yesterday*-KAH the patient went to-the-hospital?
(ii) *went*-KAH the patient to-the-hospital yesterday?
(iii) *to-the-hospital*-KAH the patient went yesterday?
(iv) *went-to-the-hospital*-KAH the patient yesterday?

Now, one could suppose that (iv) is the result of combining (ii) and (iii). But the cost of positing two KAH-operations is exorbitant: first, KAH-attachment itself can only apply once as its sporadically internal appearance in Indonesian indicates and as its regular internal appearance in Malay corroborates; second, a « touch-up » rule would have to suppress the first of two successive KAH's: *went-KAH to-the-hospital-KAH ...* ⇒ *went Ø to-the-hospital-KAH ...*; third, it is not clear how to constrain the KAH-operation from applying more than twice since it is now free to apply once, or twice, or ...?; fourth, we must somehow constrain the rule (in its multiple operation) to results like (iv) but not *to-the-hospital went-KAH ...*? Given the unit-movement constraint, and positing emphatic KAH-questioning as a single operation, we are led to conclude that *went to-the-hospital* forms a constituent.

We thus see that SVO systems (like Mandarin, Tera, and Indonesian) manifest a Predicate+Complement bond while VSO and SOV systems (like Samoan and Turkish) do not.

## B. The Second Set: Ergative Systems.

Some languages manifest a transitive expression that has come to be called the « ergative construction ». Essentially, an ergative construction treats the patient nominal as its subject, much as an intransitive predicate would treat its subject. The agent nominal in an ergative construction is usually marked by some particle. In rough English translation, we might constrast active, passive, and ergative forms in the following way:

| | | | | |
|---|---|---|---|---|
| ACTIVE: | *the girl* | *sews* | *the shirts* | |
| PASSIVE: | *the shirts* | *are-sewn* | *by* | *the girl* |
| ERGATIVE: | *the shirts* | *sew* | *by* | *the girl* |

Languages that have only the ACTIVE type, or only the ACTIVE and PASSIVE types, are commonly called « accusative » systems. Languages that have ACTIVE and ERGATIVE, or ACTIVE, PASSIVE, and ERGATIVE, are commonly called « accusative-ergative » systems. Languages that have only the ERGATIVE as a basic transitive expression are called « ergative » systems.

By « basic », I mean that an ergative construction is the unmarked member of a pair of constructions expressing a transitive relationship (say, that obtaining between *girl*, *shirt*, and *sew*). By unmarked, I mean essentially the same kind of evidence that would distinguish active and passive in, say, Indonesian:

*anak itu mem-batja buku ini*
boy the read book this
« the boy read this book »

*buku ini di-batja (oleh) anak itu*
book this be-read (by) boy the
« this book was read by the boy »

The fact that both nominals are unmarked in the active while the agent is marked in the passive suggests that the active is primary. In another language, the verbal

form itself might show increased complexity in the passive (e.g., Hebrew). In this sense, an ergative system might have an alternative transitive construction (say, « active ») as derivative: however, this development in an ergative system is rare, to my knowledge. (But cf. Dyirbal in Dixon 1969: 36-7).

Considering the three elements in a transitive network — the Predicate, the Patient, and the Agent — there are six possible basic orders:

| I | II | III |
|---|---|---|
| Pred-Pat-Ag | Pat-Pred-Ag | Pat-Ag-Pred |
| Pred-Ag-Pat | Ag-Pred-Pat | Ag-Pat-Pred |

but as has been observed (Greenberg 1966), the only types that show up significantly are *Pred-Ag-Pat*, *Ag-Pred-Pat*, and *Ag-Pat-Pred*. In other words, there is a prevailing tendency to announce the agent nominal before the patient, regardless of the basic position of the predicate. We will refer to these three types by their by now familiar rubrics VSO, SVO, and SOV — bearing in mind that S = Agent and O = Patient, not subject and object.

Accusative systems can be found in all three types, as indicated by the following:

*VSO*: Berber, Hawaiian, Squamish
*SVO*: Nguna, Indonesian, Yoruba
*SOV*: Japanese, Telugu

Accusative-Ergative systems can also be found in all three types:

*VSO*: Samoan, Tongan
*SVO*: Sikaiana, Luangiua
*SOV*: Hindi, Georgian

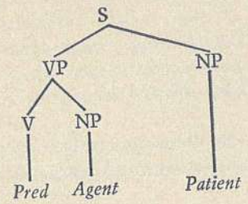
But true ergative systems are not distributed as generally:

*VSO*: Chinook, Niuean
*SVO*: ***************
*SOV*: Basque, Dyirbal

What we ask, then, is: are the two sets of facts — the distribution of Predicate+Complement structure given in (A), and the distribution of Ergative systems given in (B) — related? That is, is the non-occurrence of SVO-Ergative systems in any way connected to the fact that SVO systems demand Predicate+Complement bonding? What is that connection, and will it also serve to explain why VSO and SOV systems admit an ergative character?

## 2. Four hypotheses

At the beginning of section 1, it was suggested that a Samoan transitive construction might be represented by a structure like






But if the notion VP is to have any interesting value, it should be regarded as a general (cross-linguistically constant) relation — such as that between the predicate and the patient nominal, as is usually assumed. I take it, then, that the notion « VP » means, in the transitive case, a constituent whose head is a predicate and whose complement is a nominal in the patient relation to it.

A number of hypotheses with respect to the distribution of the VP-constituent are possible, among them —

(i) all systems have VP
(ii) only SOV and SVO systems have VP
(iii) no systems have VP
(iv) only an SVO system has VP

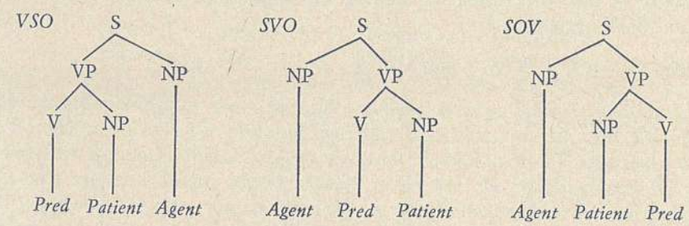
Before examining each hypothesis more carefully, let us list some of the general principles or constraints that one or more of them presupposes with respect to notions like Agent, Patient, Subject, and Predicate:

I. Agent to precede Patient in the unmarked transitive construction
II. « Subject » to be a nominal immediately dominated by S-node
III. « Subject » to have a uniform time-orientation with respect to Predicate
IV. Only one nominal to be immediately dominated by S-node.

Constraint (I) has already been introduced (see p. 12) and is reflected in the fact that we have typed all possible systems in terms of (i) the position of the predicate; and (ii) the universal requirement that Agent precede Patient. This constraint will not be discussed any further here.

For convenience of reference, we will tag the four hypotheses just given in the following way: (i) the All-VP thesis; (ii) the Some-VP thesis; (iii) the None-VP thesis; and (iv) the One-VP thesis.

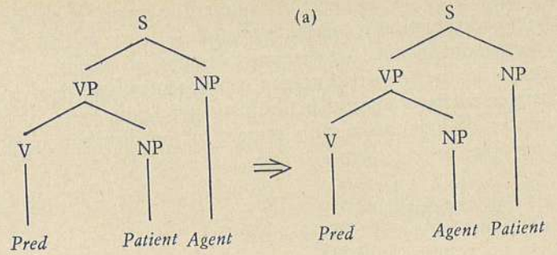
Hypothesis (i) is a universalistic statement, and requires that all systems assume a certain structure fundamentally:




The prime advantage resulting from such a thesis is that a general definition of « subject » can be obtained. What the VP-construct brings about is the coincidence of Constraints II and IV: that is, it allows only one nominal to be in immediate association with the S-node. Thus, universally, the agent nominal becomes the unmarked « subject » (the logical one).

But this All-VP hypothesis has yet to satisfy Constraint I, that the Agent precede the Patient in all unmarked transitive constructions. In order to meet this requirement in VSO systems, the hypothesis will have to be touched up with a maneuver like (a) or (b):

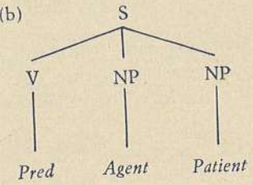
BASE:




(a)



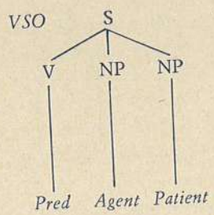

(b)



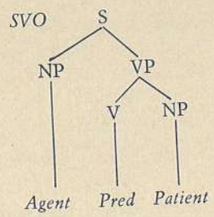

Derivative (a) or (b) well be necessary to remove the patient nominal from its « basic » (= universal) constituency with the predicate. The maneuver, as far as I can determine from the data available for VSO systems, is unmotivated. Moreover, the re-structuring in (a) will require us to admit, as part of the general theory of syntax, a « switch » in structural position — which lacks substantial empirical justification. The re-structuring in (b), in which the patient nominal is postposed, is a curiously counter-intuitive way of expressing the requirement that Agent precede Patient: it would be appropriate only if Constraint I were phrased as a requirement that Patient follow Agent. But most damaging to the All-VP thesis is that, in and of itself, it offers no explanation for the facts in (A), Predicate-Complement Bonding, and (B), the distribution of Ergative systems.

Hypothesis (ii), the Some-VP thesis, is a weakening of (i): we give up the universality of base-structuring by limiting the appearance of the VP-construct to SVO and SOV systems:

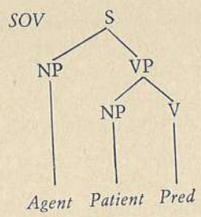
*VSO*




*SVO*




*SOV*



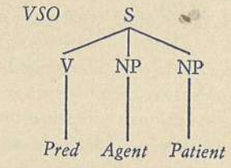

Hypothesis (ii), unlike (i), does not (in fact, cannot) require Constraint IV, that one and only one nominal be dominated by the S-node. It assumes Constraint II, that the subject nominal be given an « immediate » relation to the S-node, but that the subject relation not be defined uniquely in structural terms. As we shall see, all hypotheses other than (i) the All-VP thesis, will have to offset the loss of Constraint IV with some substitute construct for the subject relation. In itself, then, the rejection of Constraint IV is not a distinctive aspect of Hypothesis (ii). In fact, this hypothesis has little to recommend it: it has already given up the attractive universality of (i) but offers nothing to replace it. It assumes Constraints I, II, and III, and yet offers no explanation for the facts in section 1: indeed, it promises to show how SVO and SOV systems share cer-



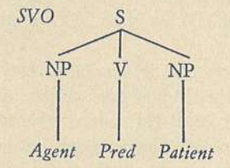
tain features when, as the facts have indicated, there is more in common between VSO and SOV systems than between SVO and either of the others. The Some-VP thesis, therefore, serves only to make the facts of Predicate-Complement Structure and Ergative Systems more obscure.

Hypothesis (iii), the None-VP thesis, is closest in spirit to (i) in that it claims a universal character for the base organization of all systems — at least in the sense that all and only the same categories appear:

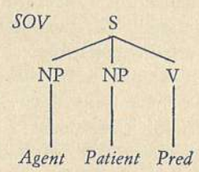
*VSO*




*SVO*




*SOV*




(Whether all linear organizations derive from the same order is another aspect of the universalistic perspective, but one which I postpone discussing to the next section of the paper). A None-VP thesis, like a Some-VP thesis, cannot fall back on a structural definition of « subject » — which was the chief virtue of Hypothesis (i) and Constraint IV. True enough, « subject » will be — as required by Constraint II — a nominal immediately dominated by the S-node, but that is not a unique characterization.

Hypothesis (iii) is an attractive proposal, not only for its universal domain, but also for its explanation of the facts given in (B): recall that true ergative systems, i.e., those expressing the transitive relationship as ergative in the unmarked construction, were found only in VSO and SOV systems:

| | | | | |
|---|---|---|---|---|
| *VSO* | Pred | AGENT | Patient | (accusative) |
| | Pred | Agent | PATIENT | (ergative) |
| *SOV* | AGENT | Patient | Pred | (accusative) |
| | Agent | PATIENT | Pred | (ergative) |
| *SVO* | AGENT | Pred | Patient | (accusative) |
| | *Agent | Pred | PATIENT | (ergative) |

(Capitalization indicates the nominal in subject relation to the predicate). Hypothesis (iii), the None-VP proposal, satisfies Constraints I, II, and III. Since it is the first proposal that does not pretend to exploit a VP-construct, we may very well ask how such a thesis expects to answer the puzzling facts we started with. Apparently, only Constraint III, the requirement that the subject bear a uniform time-orientation with respect to the predicate (transitive or *intransitive*), is the critical factor. For the first time, omitting any consideration of the VP-construct, we can see clearly that what sets VSO and SOV systems apart from SVO systems is that, in the former, the subject *must* be treated uniformly: anchoring the predicate in first position forces any subject to follow; anchoring the predicate last forces any subject to precede.

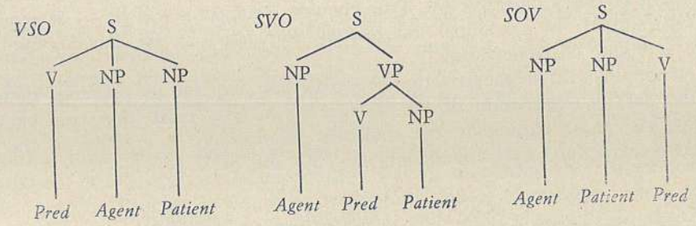
But in an SVO system which is at the same time « truly ergative », Constraint I (Agent precedes Patient) and Constraint III (Subject-Predicate Uniformity) are in conflict. Constraint III requires the ergative construction to be an unmarked

PATIENT Pred Agent

in conformity with the subject-orientation of intransitive predicates. But Constraint I requires that Agent precede Patient in the unmarked transitive expression. Since we find no Ergative-SVO systems, we must assume that Constraint I takes precedence over Constraint III.

Hypothesis (iii), then, seems to take advantage of, on the one hand, the rejection of the VP-constituent entirely, and, on the other hand, its universal levelling of all systems to configurations of S, NP, and V: on the basis of such an equalization, Constraint III stands out as a critical factor. It offers an explanation uniquely for the facts of (B) — that SVO systems and « true ergative » systems are incompatible.

It would seem therefore that Hypothesis (iv) has little to recommend it, for we have said that all the hypotheses under consideration here assume the validity of Constraints I, II and III. Since Hypothesis (iii) can dispense with the construct, VP, Hypothesis (iv) appears to be more costly — blatantly so in its neglect of a universal base structure. However, in defense of Hypothesis (iv), we could say that since it invokes one constrcct (the VP-constituent) perhaps the other (Constraint III) is not necessary. Hypothesis (iv) posits the following base types:



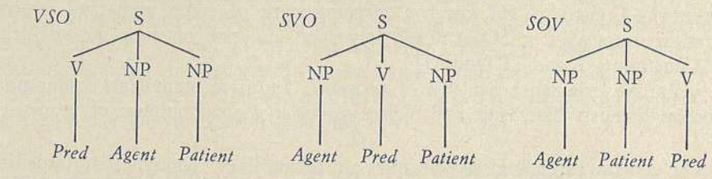

This hypothesis, as did the others, assumes Constraints I and II — the first being the temporal precedence of Agent over Patient; the second being the immediate domination of the subject nominal by the S-node. Can these two principles, plus the VP-construct, explain the facts in (B)? If such a cluster of assumptions can, then the only advantage Hypothesis (iii) has over Hypothesis (iv) is its universal aspect: otherwise, (iii) requires Constraint III for its explanatory value, while (iv) requires the system-specific VP-constituent.

It should be fairly clear that Hypothesis (iv) does offer its own explanation for the incompatibility of SVO and « true ergative » systems. The crucial requirement here is Constraint II: if the subject nominal must be in immediate association with the S-node of its predicate, and if Constraint I forces the Agent to precede the Patient, then the VP-construct rules out an SVO-Ergative system. The patient nominal in an SVO system can never be the subject of an unmarked transitive construction.

While Hypothesis (iv) can dispense with Constraint III, it leans crucially on the positing of a language-specific category like VP. Thus, while both Hypotheses (iii) and (iv) explain the facts in (B), Hypothesis (iii) would appear — because of its more general character — to be preferable. However, we have yet to consider these alternatives in the light of the facts given in section (1A). There, a number of phenomena involving constituency relations built around the predicate suggested certain distinct characteristics associated with VSO and SOV languages, on the one hand, and certain distinct characteristics associated with SVO languages, on the other. Hypothesis (iii) assumes the following basic or-



ganization




but these sub-hypotheses of Hypothesis (iii) can ofter nothing to explain the critical facts in (A): i.e., that while VSO and SOV systems manifest an « openess » with respect to movement « toward the predicate », SVO systems show a « resistance » to interrupting the Predicate-Patient sequence. Hypothesis (iv) exploits its VP-construct in two ways then: first, in explanation of the non-occurrence of SVO-Ergative systems; second, in explanation of phenomena involving interruptability, placement, and movement with respect to the predicate.

It would appear, threfore, that even at the cost of surrendering universality, Hypothesis (iv) is to be preferred over (iii).

## 3. In search of an explanation

It will be recalled that in giving up Hypothesis (i), we recognized a need for finding an alternative to the rejected « structural » definition of subject. Hypothesis (iii), like (iv), must cast about for a replacement. Both hypotheses seems to converge on the SVO system as supplying the direction of inquiry: each in its own way requires that Agent and Subject be identified in an SVO system. For Hypothesis (iii), Constraint III — the requirement of uniform subject-predicate orientation — forces the identification; for Hypothesis (iv), the VP-construct does the same.

It is interesting that each hypothesis, for its own reason, forces an identification of Agent and Subject (in the unmarked transitive expression) in the SVO system. Since this contrasts obviously with the lack of such a constraint in VSO and SOV systems — recall that true ergative systems identify the Patient and Subject in the unmarked transitive expression — what we are led to ask is whether the SVO system is a marked or unmarked organization. If marked, does it stand opposed to two equally unmarked organizations? If unmarked, in what relation does it stand to the two marked systems?

One argument for the unmarked character of SVO organization would run as follows: as elsewhere in linguistic analysis, when two or more variants of a construction are in question and the « base-derived » relationship is not clear, one criterion that often serves to distinguish the candidates is that of generality of distribution. For example, if nothing else serves to indicate the primary of active over passive in a particular system, we could ask whether active and passive occur equally « naturally » in all clause-types (subjunctive, imperative, relative, interrogative), in all nominalizations, in all deletion and pronominalization phenomena, etc. If active turns out to have the wider distribution, we incline to view that variant as the unmarked member of the set. Such a line of reasoning would indicate that « accusative » systems are unmarked since, among the VSO-SVO-SOV alternatives, they have the widest distribution. Passive constructions would then be marked, and so would ergative (cf. Hale 1968). Ergative systems, then, would be most marked since they have the most restricted distribution: they require a special context within which to develop. A fairly justifiable inference can be extracted from all this: VSO and SOV systems are special contexts

which allow (invite?) ergative systems. Or, perhaps more accurately, the « ergative view » of transitivity (being incompatible with SVO organization: VP+Constraint I+Constraint II) forces a rearrangement of some unmarked expression toward one (VSO or SOV) which incurs no violation of these general principles, Constraints I and II (and III).

I claim no originality for such a proposal. Intuitive statements from quite unparochial linguists like Sapir and Velten go back a good number of years:

« On general psychological principles, it seems likely enough that transitive activities are necessarily more closely connected in experience with the object [= patient] than with the subject [= agent] ».
(Sapir 1917: 84)

« Though it is always well to be wary of socalled universal psychological phenomena, one may safely state that it is natural to refer to the goal or recipient of an action only after the action itself has been mentioned. This would seem to be inherent in the analytic system ».
(Velten 1932: 261)

Velten's last remark is particularly interesting for our purposes: it implies that although uninflected transitive constructions can occur in all systems (VSO-SVO-SOV) — because Constraint I requires an announcement of Agent followed by Patient — the unmarked temporal sequencing of Patient and Predicate is « naturally » Predicate followed by Patient.

What sort of evidence would support such speculative proposals? How else can one argue for the unmarked character of the Predicate-Patient constituent? There are a number of possibilities, but a good deal more has to be learned about these areas before anything clearly confirmatory (or disconfirmatory) will emerge. The possibilities include:

(a) evolutionary « tendencies »
(b) « natural » but non-verbal systems
(c) language acquisition in children
(d) unmarked interpretations of Predicate-Nominal utterances
(e) pidgin developments
(f) experimental evidence

I will try to say something about each of these areas, but I have little to report at the moment. Whatever I have come across, however, either does not contradict Hypothesis (iv) or else supports it.

There is not much known about typological development and the accusative-ergative issue: according to Hohepa (1969), the Polynesian group offer an attractive laboratory for the investigation of the relationship between active-passive-ergative constructions, on the one hand, and VSO-SVO organization, on the other. A number of languages show a relatively fine grading in this respect, suggestive of a process in action in closely related systems.

There is almost nothing known about « natural » sign systems like those of the deaf. It has been observed (A. Cicourel, personal communication) that in schools for deaf children, a private peer-group sign system is developed which deviates from the conventional system propagated by the school. Furthermore, when the deaf from different societies meet, their conventional systems are set aside for a more basic (« pidgin ») system which they contrive *ad hoc*. Since the congenital deaf have no oral language to prejudice their « natural » inclinations, the *ad hoc* systems just mentioned would seem to offer clear evidence for or against the the hypotheses discussed here. But, obviously, the facts about such systems are



very hard to come by, so that we can expect the evidence for the next few years to be slow in emerging and fragmentary in character.

With respect to the development of language in children, I have in mind studies like those of Gruber (1967) and McNeill (1966), i.e, those focussing on the relation of subject to predicate. In topicalization, what can serve as the topic? From Gruber's work it seems that the patient of an active transitive construction cannot serve as topic. We find expressions like.

| | |
|---|---|
| boy, break toy | (= « the boy broke the toy ») |
| toy, break | (= « the toy broke ») |
| toy, broken | (= « the toy is broken ») |

but not

| | |
|---|---|
| *toy, boy break | (= « the boy broke the toy ») |
| *toy, boy break it | (= « the boy broke the toy ») |

This constraint on topicalization is clear from discussion of constructions like

(a) catch me
(b) no him no bite

(a) is only two-ways ambiguous: it is either a transitive predicate (equivalent to the adult imperative *Catch me!*) or a topicalized agent relation (« as for me, I catch (something) »). (b) is unambiguously a topicalized version of « he doesn't bite »: it does not mean « nothing bit him » or « don't bite him! » Such findings are interesting but not compelling, given the fact that they occur in an SVO context. Similar findings emerging in non-SVO contexts would constitute significant support for the unmarked status of the VP-constituent.

A slim piece of this kind of evidence can be found in some work done on the acquisition of Samoan (Kernan 1969: 114). For the child under investigation (two years two months of age), the unmarked order appears to have been Predicate followed by Patient followed by Agent. Much more corroborative work must be done before this finding can be taken seriously, but it is, in itself, intriguing. If we suppose transitivity to involve two Constraints like Agent-precede-Patient and Patient-follow-Predicate, then the precedence relation between these two principles changes as the child matures. This exchange of priorities implies a developing sense of causation, which is not a new idea (cf. Piaget 1930; Laurendeau & Pinard 1962) but one whose content remains rather elusive.

By « unmarked interpretations », I mean the following: in support of Constraint I, we adduce the fact that in systems or constructions within a system in which neither the predicate nor the nominals have informative case-marking, clauses like

| | | |
|---|---|---|
| Transitive Predicate | Nominal | Nominal |
| S | | |

| | | |
|---|---|---|
| Nominal | Nominal | Transitive Predicate |
| S | | |

whose semantics do not force an interpretation will be « naturally » interpreted in an Agent-Patient order. Similarly, one might argue that an unmarked nominal in relation to a transitive predicate, if consistently interpreted in one way rather than another would indicate something about the « natural » semantic relations. So, in

Squamish, in the basic active transitive construction, the agent and patient nominals are in the same case (the « absolutive »). But the sequence VSO is unambiguous because of Constraint I. We ask, then, what interpretation of the superficially uninformative

$$\begin{bmatrix} \text{Transitive} \\ \text{Predicate} \\ \\ \text{S} \end{bmatrix} \qquad \text{Nominal}$$

will be made, if the semantics are left as open as possible. According to Kuipers (1967: 172), the only interpretation gives the patient relation, not the agent. This piece of evidence is particularly instructive in view of the Pred-Nom-Nom interpretation which gives temporal preference to the agent: the natural semantic primacy of Predicate + Patient yields to another consideration, the primacy of agent over patient.

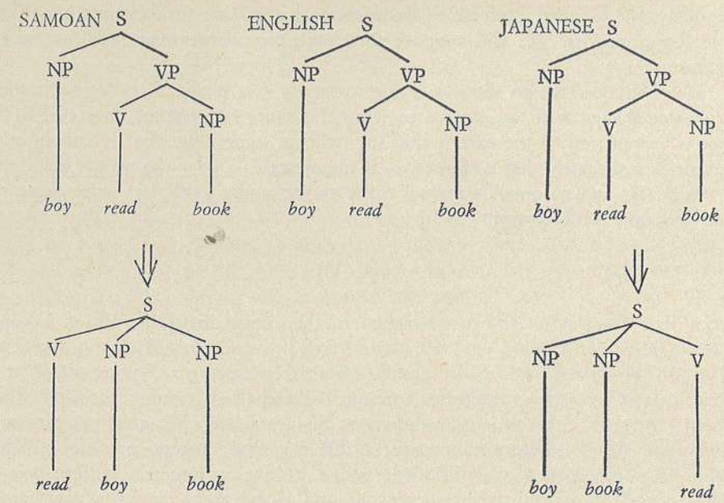
Like the « natural » situation of deaf signers who contrive a system that will make minimal demands (= maximize « natural » semantic relationships), pidgin systems arise from an attempt to satisfy conflicting systems. The laboratory questions are: if SVO is set in conflict with SOV, what will emerge? If SVO is set in conflict with VSO, what will emerge? Suppose it turns out that SVO prevails with greater-than-chance frequency: what can be made of that fact? In the case of SVO-VSO conflict, the conclusion is weakened by the fact that every VSO system allows an alternate SVO order. Thus, the fact that Chinook Jargon is SVO while Chinook itself is VSO is not very persuasive, even though it is surprising that a jargon that leans so heavily for its vocabulary (including pronouns and numerals) on one language would incline another way for its syntax (cf. Jacobs 1932; Grant 1945). More enlightening might be SVO-SOV conflicts that involve « strict » SOV languages, that is, systems which do not allow alternate SVO orders. At the moment, I have no evidence about pidgins that would develop in such conflicts.

Finally, we might discover something about the « natural » relationships of agent, patient, and predicate from experimental manipulation. In a very limited way, Johnson (1968) showed « phrase-structure » was instrumental in facilitating learning; but the context was totally English — the experimenter, his subjects, the language of instruction, the language manipulated, etc. were all prejudiced by English-specific structure. What I am suggesting is a similar procedure in various contexts (VSO, SOV, as well as SVO) which can test for the « natural » constituency relations: a number of variations are possible in the laboratory design, all of which could converge to confirm or disconfirm what is being proposed here.

## 4. A Modest Proposal

What follows is an attempt to reconsider how generalizations like « Constraint I » or « the unmarked status of VP-constituency » are to be incorporated into linguistic theory. It is clear to me that a maneuver like






is of little explanatory value. The maneuver itself is simple and strainghtforward: we assert a universal base (unmarked configuration) as given in more-or-less surface English, and then indicate the marked deviation in Samoan and Japanese by attributing a rule to those systems which moves the predicate to first and last position in the proposition, respectively. The move itself is natural, direct, and effective: it produces just the sequencing and constituency in harmony with the facts of section 1 (both sets, A and B) which gave us our point of departure.

But this proposal it to be rejected: as far as the empirical evidence is concerned, it is a gross distortion to claim that Samoan and Japanese have any such « basic decision » characterizing their respective systematic characters. In what way, then, can we satisfy both the universality of principles like « Constraints I » and « the unmarked status or VP-constituency » as well as the supposedly marked character of systems like Samoan and Japanese? One rather simple way is to view the universal principles in some hierarchical fashion, seeking optimal actualization. For example, there might be among the general constraints, two sets called Predicative and Transitive:

*General Predicative Requirements*

(i) a predicate to be announced;
(ii) the time of announcement to be first, last, or neither;
(iii) time of announcement to be made consistently;
(iv) if there is a subject, it is to be in a sister-relation to the predicate;
(v) if there is a subject, it is to be in a uniform time-orientation to the predicate;
(vi) ...

*Transitive Requirements*

(i) agent to be announced before patient;
(ii) patient to complement predicate;
(iii) instrument to be marked as agent;
(iv) ...

Obviously, the General Predicative Requirements are more fundamental than Transitive Requirements. We will suppose they take precedence over predicate-specific constraints.

Now, suppose we go about « trying to satisfy » as many of these requirements as possible-always with an eye to obeying the more compelling ones. GPR (i-v) shape a proposition to the extent that it predicate something, that it announce the predicate consistently, that a subject — if manifested — bear the proper relation to the predicate; and so on. A system-specific choice under GPR (ii) gives three possible temporal configurations:

(a) [s V ...] (b) [s ... V] (c) [s ... V ...]

Notice that there is no « cost » attached to the choice in itself: option (a) is no more to be preferred over (b) than (b) is over (a); and so with (c) in relation to these two. However, each choice entails certain consequences. For example, in the special case of transitive predicates, options (a) and (b) overrule Transitive Requirement (ii), that « the patient complement the predicate ». System (a) cannot accommodate this desideratum because of TR (i), that « agent precede patient », which takes precedence over TR (ii): since Agent must precede Patient, yet not precede Predicate, it is forced to intervene and cancel the « natural » predicate-patient constituency. System (b) cannot accommodate TR (ii) since the more fundamental option of GPR (ii) in the form of a « predicate-last » bias prevents any « complements » to the predicate, in the strict sense of a temporal completion. Thus, system (c) — which can accommodate both TR (i) and (ii) — satisfies more general requirements than either of the other systems, and so emerges as the least marked.

Given these assumptions, it is rather mysterious why marked systems like VSO and SOV should arise at all. I would like to point out GPR (v), the principle that was in our earlier discussion called Constrain III — that the subject bear a uniform time-orientation with respect to the predicate. Although it was the distinctive component of Hypothesis (iii), and in my contrived competition between hypotheses (iii) and (iv), I was obviously favoring (iv) and rejecting (iii), I nevertheless consider GPR (v) a valid constraint (or desideratum) in sentence organization. What I wanted to avoid is the suggestion that GPR (v) is the explanation for true ergative development in VSO and SOV contexts only. In fact, given the precedence of General Predicative Requirements over particular predicative requirements, Hypothesis (iii) fails as an explanation for the facts in (B). The principle critically charactering Hypothesis (iii) was GPR (v), that the subject be uniformly oriented with respect to the predicate in terms of time. But in order to invoke this hypothesis as an explanation of ergative systems and their skewed distribution, we were forced to accept the precedence of TPR (i), that the agent precede the patient, over GPR (v): see page 20. If we are correct in our hierarchy of desiderata, no *particular* predicative requirement can overrule a *general* requirement. The construct VP allows us to preserve the dominance of the general desiderata over the specific, as a block.

At this point in the exposition, having advanced TR (ii) as the essential principle, I would like to implicate GPR (v) as an accessory: I think the explanation of ergative systems involves an interesting interplay of several constraints. Note that GPR (ii) offers a free choice of time of predicate announcement. GPR (iii) requires that the choice, once made, be made consistently in any one system. If the choice is « predicate-last » or « predicate-first », then GPR (v), the uniform subject-predicate orientation, is automatically satisfied. If we give bonuses for « clever decisions », then such options at the GPR level must be highly valued. It seems to be just this value that sustains the option even at the cost of flouting TR (ii), that the patient complement the predicate. In other words, it is not GPR (v) that leads to the development of VSO/SOV ergative systems: it is GPR (ii) and its apparent optimization wich respect to GPR (v) that leads to a « comparative neglect of TR (ii). It is this « costly » dissociation which ultimately allows for an ergative view of transitivity.



## 4. Conclusion and Summary

It would be easy to misinterpret and overgeneralize this discussion of transitive predication. System (b), the so-called SVO type, seems to be the least marked in this one respect. But there are many other aspects of sentence construction which remain to be considered. Systems (a) and (b), in other respects, may be more highly valued than system (c); or, the three may split up in different ways under different requirements (cf. WH-fronting which groups VSO and SVO as the marked types, as opposed to SOV). In this paper, I was concerned with a very specific syntactic property of natural language, the VP-constituent and its relation to ergative systems. I had assumed a constraint on movement transformations which precluded increase of structure. In VSO and SOV systems, a certain trait-attraction to the predicate-suggested a detached status of the predicate in which the patient nominal was not in a strict complement relation. Given the proposal of syntactic markedness just sketched (end of section 3), we can estimate the cast of this option: that is to say, it is a bit clearer why, in just these systems, there is nothing to stop patient nominals from developing into the subjects of unmarked transitive expressions.

As indicated earlier, the adoption of any hypothesis other than (i), that all systems have a VP-constituent, entails the rejection of a unique structural definition of the notion « subject ». Hypothesis (iv), the account which seems to offer the best explanation of all the facts, is in this sense as « costly » as (ii) and (iii) would have been. I am not able, at this point, to say exactly how the « subject-of » relation is to be incorporated into a proposition. There is obviously some flexibility in this respect from language to language. In the case of transitive predication, the so-called double complement verbs (*give, offer, sell*, etc.) allow for maximally three possible candidates: some languages restrict it to the agent, others relax it to include the patient (a primary passive), still others extend it to include the beneficiary (a secondary passive: *he was given a choice*). At the moment, I am inclined to view this choice of subject as a lexical redundancy rule rather than a transformation since the various actualizations of the transitive network seem merely to be a shifting of perspective on the action — which principal in the drama the camera is focussing on, which principals are by default backgrounded as « complement » structure. Clearly, an important line of inquiry is some clarification of the idea of grammatical subject.

Contraints like GPR (i-v) and TR (i-iii) represent the set of considerations making for the well formedness of base representations. The constraints are universal, but in their particular interplay from system to system, certain incompatibilities and priorities make for language-specific bias. The constraints have little concern with the semantic content of propositions: what they do is dictate certain shapes (cognitive-perceptual) for successful linguistic performance. The shapes themselves are determined by the mind's eye, not the mind. It will be interesting as we learn more about these constraints to discover how much the mind's eye shapes the mind.

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# CONNECTING CHILDREN'S LANGUAGE AND LINGUISTIC THEORY [1]

THOMAS ROEPER

The problem of origins is old: Shakespeare scholars have, when baffled, looked back to Plutarch to find the roots of Elizabethan dramas. They find, not surprisingly, that the mundane origins of Shakespeare's plots provide little with which to fathom his genius. In similar fashion scientists have sought the origin of speech in crying behavior. While crying, if arduous, may exercise those muscles that need exercise to prepare for the speech process, it possesses nothing that resembles sentence structure. Consequently, though crying could be a necessary preliminary to speech, it is categorically not the origin of speech structures.

The problem recurs in later stages of acquisition: suppose we discover that mothers (but not others) speak in clearly simplified structures to their children, and that children acquire just those simplified structures [2]. We would still not know how a child knows what role those structures play in a complex grammar. We need not conclude therefore that knowledge of the context of language-learning is useless knowledge. On the contrary, it may be vital for us to know the original context in which language is learned in order to know the terms in which a child frames hypotheses about language. For instance, does a child limit the corpus of utterances he analyzes by focusing upon a certain person as a model, or does he treat all exempla of speech as equivalent? If he does focus upon one person — presumably the mother — then the specific character of the mother's simplified speech may prove to be of special importance. He might then use a procedure of this kind: identify the structure of the mother's most frequent utterances. Form an hyothesis: some features of deep structure — such as the position of the subject and main verb — are revealed in her structures. For reasons discussed below, some but not all features of deep structure could be inferred in this manner. Other algorithms are also quite plausible. A child might, for instance, limit his corpus by eliminating all utterances spoken with an intonation of hysteria because those utterances are likely to be grammatically deviant or incomplete. In any case at some point — not necessarily at the outset — a child must adopt the hypothesis that a structure known to him can serve as deep structure.

Nonetheless, it is the child's hypothesis about his context — not the context itself —that must be the « origin » of much of this language. We might, in that vein, keep separate two research areas: *exposure* and *recognition*. 1) In what manner is a child exposed to language? 2) How does he use this exposure to recognize language structure? It is possible, through exposure, that a child might acquire certain grammatical forms before he recognizes their role in a grammatical system. In particular,

[1] Revised version of a paper presented at the Buffalo Conference on Psycholinguistics. I am indebted to members of the conferences for a number of pertinent criticisms, some of which have led to alterations in the paper.
[2] This view is maintained by M. Bowerman in « Structural Relationships in Children's Utterances: Semantic or Syntactic » (1971).

he might acquire a surface structure form (such as indirect-object precedes direct object) before he recognizes that it is a reflection of deep structure.

In what follows I shall consider the problem of a child's recognition of non-universal aspects of deep structure. In particular, how does a child know the positions in deep structure of subject, verb, object, indirect object, negatives, and adverbials? There has been some confusion among a few researchers on several related points. 1) It is *not* the case that deep structure is the same for all languages. Grammatical relations are, by hypothesis, universal, but not the order of elements. Chomsky comments [3]:

> the system of base rules ... carry out two quite separate functions: they define the system of grammatical relations *and* they determine the ordering of elements in deep structure.

2) It is *not* the case that simple, active, declarative sentences always reflect deep structure order directly. German, as we discuss below, is a counterexample.

3) It is *not* the case that the most frequent forms in surface structure reflect deep structure [4]. German again is a counterexample.

How then does a child learn what the correct deep structure for his language must be? Fodor comments [5]:

> The problem of characterizing a device that, given as input a sample of the utterances drawn from a natural language, supplies as output a system of rules that correctly assigns base structures to the sentences of the language is considerably beyond the capacities of current psycholinguistic theory.

Tradionally the determination of base-word-order depends upon analysis of the transformational component. The linguist seeks an order which will make the distance between deep structure and surface structure as short as possible in terms of the number of transformations that are necessary. If the language is highly inflected, the problem is more difficult because the inflections permit greater variation in word-order.

A child faces the same task. Two frequent observations become, in that light, astonishing: a) children often seem to be able to control the sentence types of an inflected language before they have mastered the inflections. b) Children seem to comprehend deep structure order before they have learned any transformations [6]. It looks, therefore, as if some other means must exist for the determination of DS-order.

Let us, for illustration, consider some of the sentence types a child faces:

1) He has a yo-yo
   (subj-verb-obj)
2) Has he a yo-yo
   (verb-subj-obj)
3) A yo-yo has he (especially in German)
   (obj-verb-subj)
4) A yo-yo he has
   (obj-subj-verb)

[3] p. 123, *Aspects of the Theory of Syntax*, MIT, Press, 1965.
[4] It could be the case that a mother's speech may be altered to highlight deep structure features however.
[5] p. 113, « How to Learn to Talk: Some Simple Ways », in *The Genesis of Language*, ed. F. Smith and G. Miller, MIT Press (1966).
[6] Although young children may clearly lack adult transformations, they may have prototype transformations at a very early age, cf. T. Roeper, *A Child's Mental Structures*: Theoretical Issues in Language Acquisition with Evidence from German Children. Harvard dissertation (in preparation).



Within this simplified scheme where adverbs, negatives, etc. have been excluded, there are still four possible orders. The child must solve a real conundrum: any of these sentences could provide him with a base order; all of these sentences could be transformed into each other. He cannot know, it seems, the base structure until he knows what transformations have applied, and he cannot know what transformations have applied until he knows the base structure to which they apply. In particular, if we take verb-subj-obj as base order, then the declarative *he has a truck* would be generated by subject-preposing and no transformation would be necessary for questions. German, as we discuss below, uses a verb-second transformation to produce declaratives. If we take subj-verb-obj as the base, then we have the familiar subj-verb inversion transformation and no transformation for declaratives is necessary. Use of a simplicity metric would, then, choose between possible base orders. But this calculus requires the evaluation of too many alternatives to be plausible. There must be some direct clues to deep structure elsewhere. We shall discuss one kind of clue that emerges from recent work in linguistic theory, but the problem, nonetheless, persists.

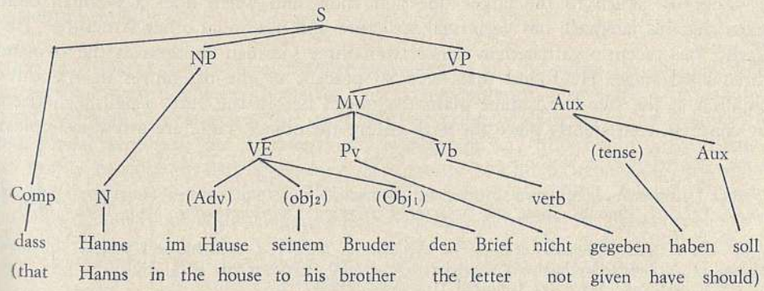
The deep structure of German contrasts with English and provides a better basis for the discussion of these issues. It happens to be the case that in English simple, declarative sentences often do mirror base structure. German like English has subj-verb-obj order in present tense declarative sentences: *Hanns schreibt einen Brief* (Hanns writes a letter), and subj-aux-obj-verb order in past and modal sentences. By several accounts, however, it has subj-obj-verb order in base structure. This is the order we find in German subordinate clauses. The claim that German is verb-final not only agrees with the intuition of native speakers, but it has been used in the most comprehensive description of German transformational grammar by Manfred Bierwisch, and it has been independently supported in recent work by Bresnan, Maling, and Emonds [7].

Let us consider Bierwisch's model:

Dependent clause: Ich weiss dass Hanns im Hause seinem Bruder den Brief nicht gegeben haben soll.

$S \rightarrow NP + VP$
$VP \rightarrow MV + Aux$
$MV \rightarrow (VE)\ (Pv)\ V$
$VE \rightarrow (adv)\ (Obj_2)\ (Obj_1)$
$Pv \rightarrow (+ \text{ or } - \text{ adv})$, e.g. NEG
$V \rightarrow$ verb (tense)

a.) Four primary and permutable sentence parts are: NP, VE, Verb, Aux.
b.) VE includes: sentential adverb, indirect object, direct object, in that order.
c.) Pv refers to negation or affirmation.




[7] M. Bierwisch, *Grammatik des Deutschen Verbs*, Studia Grammatica II, Akademie-Verlag, Berlin (1963); J. Maling, « On 'Gapping and the Order of Constituents », MIT OPR (April

Notice that the subordinate clause order places *Aux* (haben soll) next to the main verb on one side, and NEG on the other. The direct-object is closer to the verb than the indirect object. There may be some sense in which it is more natural for AUX, NEG, and Dir-object, to have positions close to the verb.

Digression: it is interesting to note that English, which once had verb-final structure, may still be in the process of shifting to a verb-medial structure. J. Maing [8] has pointed out that the present order in English *indirect-object/direct-object* puts the verb further from the direct-object. If English were still verb-final, however, the order subj-IO-DO-verb would put the verb next to the direct object as it is in German. To correct this situation there has been a gradual shift, still incomplete, toward putting the indirect-object in a final prepositional phrase. This restores the direct-object to a position next to a medial verb. If children's grammars are one vehicle for linguistic change, then we may expect to see a gradual preference for prepositional indirect-objects [9]. This brief digression illustrates one ramification of a child's decision to consider his language verb-final or verb-medial.

The most important transformation in German is the verb-second transformation which transfers an element from final position to second position in the creation of declarative sentences. It is the broad applicability of this transformation which makes the description of German elegantly simple using a verb-final base structure. If there is a modal, then the modal is put in second position; if there is no modal, then the same transformation puts the main verb in second position:

5) a. Hanns das Madel lieben kann → Hanns kann das Madel lieben

b. Hanns das Madel liebt → Hanns liebt das Madel

I did a small experiment to illustrate the psychological reality of the verb-second transformation with older children. Menyuk (and others) report [10] that children often fail to perform subject-verb inversion for questions in English. They produce, for example: *Why he can go outside.* If the structure of German were like English, then both would use subj-verb inversion, and one would predict that German and English children would make the same mistake. However we found that with two or three exceptions from 75 children 4-6 yrs-old, German children never failed to put the verb after the Q-word: « Warum spielt er Fussball » (Why plays he football) and never *Warum er spielt Fussball* or *Warum er Fussball spielt.* The explanation is that Germans must create declaratives and questions with the same verb-second transformation. It has, therefore, much broader scope than the subj-verb inversion transformation in English; hence it is acquired earlier. Use of the verb-second transformation presupposes that the verb does not originate in second position. The experiment provides therefore indirect support for the claim that German is verb-final.

Let us return to the larger question: how and when does a German child learn that his language has verb-final structure and not some other structure? T.Z. Park [11] has recently gathered evidence from three German children at the two-and three-word stage. He found that over 80 percent of the utterances of the three children at the two-word stage place the object before the verb. English children, by contrast, consistently place the verb before the object. Here are a few examples:

1970); J. Bresnan, « Sentence Stress and Syntactic Transformations », *Language*, Vol. 47, no. 2, 1971; J. Emonds, *Root and Structure-Preserving Transformations*, MIT Thesis 1970.

[8] op. cit.

[9] For related discussion see: « The Acquisition of Direct and Indirect Objects in Japanese », D. McNeill, R. Yukawa, N. McNeill, in *Child Development*, 1971, No. 2.

[10] P. Menyuk, *Sentences Children Use*, MIT Press 1969.

[11] T. Z. Park, « The Acquisition of German Syntax » (mimeo).



| *Two-word* | *Three-word* |
|---|---|
| Bleistift holen<br>(pencil get) | Puppi Strumpfe anziehen<br>(doll socks put on) |
| Kaffee trinken<br>(coffee drink) | Ulrike wieder suchen<br>(Ulrike again look for) |
| Auto fahre<br>(car drive) | Ulrike Roller fahre<br>(Ulrike skates rides) |
| Turm gehen<br>(tower go) | Ich Schiff mache<br>(I ship make) |
| Dies haben<br>(this have) | Nikolaus immer Brot machte<br>(Nokilaus always bread made) |
| Noppa haben<br>(Noppa have) | Ich Pullover zeige<br>(I pullover show) |
| | das auch nicht malt<br>(that also not paint) |
| | Ich nicht spiele<br>(I not play) |
| | ande Auto suchen<br>(another car look-for) |
| | Mama Schüchen anziehen<br>(Mother shoes put-on) |
| | Papi Wäsche runter<br>(Papa laundry down) |
| | Keller Wäsche runter<br>(Cellar laundry down) |

Statistics:

| | *Ulrike* | | *Angela* | | *Georg* | |
|---|---|---|---|---|---|---|
| | n-v | v-n | n-v | v-n | n-v | v-n |
| Agent-action | 16 | 1 | 16 | 1 | 39 | 4 |
| Action-Object | 16 | 13 | 35 | 3 | 42 | 14 |
| S V O | | | | | | |
| agent-action-object | 3 | | 6 | | 13 | |
| S O V | | | | | | |
| agent-object-action | 4 | | 4 | | 15 | |

Notice that the verb in the two-word sentences is in the infinitive form. This suggests that they might be the latter portion of sentences that have a modal in second position, for instance, *Er kann Wasser trinken* (He can drink water) [12]. Since modal sentences are frequent in adult speech, a child might learn them first simply because of their frequency. If they are a kind of repetition of form, then the child may not realize that object-main verb reflects deep structure. They would be instances of child language that had no connection to linguistic theory (which, in a crude sense, he is said to have somewhere in his head). On the other hand, the child might possess an algorithm which says that the object-verb

[12] I am indebted to Hermine Sinclair-de-Zwart for this observation.

positions — but not the modal position — reflects deep structure. The evidence at the two-word stage seems insufficient for any conclusion.

When we look to the three word utterances, however, we find sentences for which there is absolutely no adult model, but which are direct reflections of German deep structure. Park comments [13]:

> Indeed, these grammatical sequences turn out to be grammatical if they occur in subordinate clauses, but construction of complex sentences lies beyond the capacity of children. Moreover, there were exceptionally few complex sentences spoken by the mothers to their children. Ulrike's mother constructed no complex sentences. Imitation or linguistic environment fails to provide any reliable explanation of the occurrence of the ungrammatical sequences.

The sentence « Ich Pullover zeige » does not have an infinitival verb; as a declarative sentence, which it is, it would be decidedly ungrammatical for an adult. The child seems to have insight into deep structure, but there is no apparent clue. Some higher order analysis must be available to him.

The matter is complicated however; the children use an almost equal number of sentences at this stage that have the subj-verb-obj structure that adults use in declarative sentences. One might think that this is a free word-order phenomenon (although German has « free word-order » only with nouns). However Park points out that a Korean subject, whose language has freer word-order than German, used a verb-final sentence on only one occasion. Otherwise the Korean child used the subj-verb-obj deep structure of Korean. It seems unlikely that these sentences are a sudden exhibition of free word-order. Instead it seems that their grammar is in a state of flux between structures, rather than without structures [14]. It is difficult to develop a comprehensive hypothesis to account for their inconsistency. Let us, for now, pursue a method whereby, possibly, children could discern base structure order before they acquire a full system of transformations.

J. Emonds has developed an hypothesis about language structure which, though still controversial, is the kind of hypothesis that has the power to explain how a child could acquire deep structure quickly [15]. It is at least valuable as a model, if not a solution. The principle applies to complex sentences and might be, consequently, the kind of principle that a child connects with the structures he uses during a latter phase of acquisition.

Emonds claims that all cyclical transformations — those that apply to embedded sentences (subordinate clauses) — preserve structure although lexical items are moved from one position to another. For instance, the passive moves an object into subject position, but it does not move the subject position. On the other hand, a transformation like subject-verb inversion *does* move the positions themselves: subject and aux change places. This means that embedded sentences, but not declaratives, will reflect deep structure order directly. Notice that English as well as German allows indirect questions in subordinate clauses, but they do not permit subject-verb inversion:

6) a. He knows why the man can sing.
   b. # He knows why can the man sing.

The passive transformation, thought it is intrinsically more complex than subj-verb

[13] p. 19, op. cit.
[14] P. Menyuk, « Alteration in Children's Grammars », in *Studies in Modern English*, ed. Reibel and Schane.
[15] Edmonds, op. cit. His work is corroborated by Chomsky, *Conditions on Transformations* 197? (MIT memeo), and numerous others.



inversion, does not shift positions and is therefore permitted in subordinate clauses [16]. Topicalization, Adv-preposing, tag questions, etc are all prohibited.

In another words, a universal constraint limits transformations that apply to embedded sentences to those that do not shift positions. This rule is not without exceptions; in particular, direct quotations and embedded sentences that are not marked by a complementizer, usually *that*, may not adhere to this principle.

If it is a universal constraint, then it might form part of a child's perceptual strategy. A child — or any person — might find that his system is rapidly overloaded by structure-altering transformations upon embedded sentences, just as the human system is overloaded by self-embedded sentences such as *the rat the cat my mother bought bit died*. In some sense they are related phenomena; both show that embedded sentences place a special tax upon perception. Self-embedded sentences are limited to one embedding; normal embedded sentences are limited to transformations which preserve structure.

If Emonds's principle is upheld as linguistic theory grows, then it is difficult to imagine that it would not form part of an acquisition strategy in some phase. It might not be the mechanism that reveals the locus of subject, verb, and object, but rather the deep structure locus of Adv, NEG, and indirect object. Those latter constituents are particularly subject to movement in declarative sentences through stylistic transformations, etc.

How could a child identify the subordinate clause? The key may be the presence of the complementizer *that* [17]. Emonds shows that where the COMP morpheme is not present, the universal constraint is liable to permit exceptions. Bresnan and Chomsky have adopted the notion that the COMP morpheme must be present in deep structure [18]. Emonds theory works with:

7) COMP SUBJ AUX VERB IO DO

The presence of COMP in deep structure allows embedded sentences such as *whom I saw* to be structure-preserving. The object in this case has been moved into the COMP position with the marking *wh-* [19].

Could a child be sensitive to subordinate clauses when he himself is capable of only three word utterances? It is true that the word *that* is one of the first pivots he learns [20]. Nevertheless such a claim would require that a child's comprehension be far in advance of his production. Available evidence, which is small, suggests that parents say few complex sentences to their children. They would have to encounter subordinate clauses through listening to conversations between adults. There is some evidence that children do learn from listening to adults. Children who are spoken to in one language, but hear another language as well, often learn parts of the other language (especially the phonology) [21].

[16] I am indebted to Dan Slobin for pointing out that sentences like « I wonder why can you sing », are acceptable in black English. Such examples may require revision or abandonment of the theory. However, in this instance, one might listen to see if the intonation pattern indicated that the subordinate clause were being treated like direct discourse, which is not true subordination.
[17] It is interesting to note that in T. Bever's recent work on perceptual strategies, the recognition of subordination figures prominently. The role of *that* as a perceptual cue is also made very clear. « The Cognitive Bases for Linguistic Structures », in *Cognition and Language*, ed. by J. Hayes (John Wiley & Son), 1970.
[18] N. Chomsky, op. cit.; J. Bresnan, « On Complementizers: Toward a Syntactic Theory of Complement Types », *Foundations of Language*, 6 (1970).
[19] Emonds offers a more precise definition of « root » clauses which permit structure-altering transformations.
[20] We intend to perform the following experiment, suggested by Christine Tanz, to see if and when children perceive the difference between quotation and subordination. Give a child two instructions: « Ask him what you like » and « Ask him "what do you like" ». If the child perceives the difference in reference for the word *you*, then he must perceive subordination, cf. Christine Tanz, Thesis (in preparation), U. of Chicago, for a study of the acquisition of personal pronouns and shifters.
[21] The sources for this observation are merely anecdotal (and personal experience).

On the whole, these reflections about linguistic environment seem more suited to older, less egocentric children. But if we reject the notion that the very young child can recognize the subordinate clause, we are still left with a problem: how does a child learn the deep structure position of the main verb at the three-word stage?

Let us assume that the child has some unknown means of knowing that German is verb-final [22]. Why, then, does he use subject-verb-object structures in nearly half of his utterances? This is just the structure that is produced by the verb-second transformation. It seems plausible to me that a child might acquire deep structure and a first major transformation concurrently. His use of a transformation at an early stage may reflect the fact that the verb-second transformation plays a more central role in German than any transformation does in English. He might also learn each structure separately and discover their transformational relation at a later point. It seems difficult to choose between such alternatives. Neither disturbs the claim that these children have some insight into deep structure.

In sum, the subordinate-clause-strategy is a powerful mechanism for the discovery of deep structure. If it is not invoked by the young child, it might be used by older children to ascertain the permissible positions in deep structure of the adverbial and negative elements as well as the indirect object. That is, a child's awareness that a sentence was embedded, and therefore had to be processed with cyclical transformation, would entail an awareness that positions of (almost) all elements were fixed, and therefore reflected deep structure. Further research with this hypothesis in mind could shed more light on the matter [23].

One further comment. There has been a good deal of attention given recently to correspondences between semantic concepts and grammatical relations in deep structure. It has provided a rich new dimension of grammatical study, but it has also overshadowed the purely syntactic aspects of deep structure. It is difficult to see how any kind of semantic knowledge could reveal base order. A purely syntactic strategy, of the kind outline above, seems unavoidable. A separate, but possibly concurrent, semantic strategy could them map semantic structure onto syntactic structure.

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[22] Other kinds of clues are imaginable. For instance, the position of the verbal negative *nicht* in final position in declarative sentences (as in « er nimmt das Auto nicht ») might suggest verb-final structure to the child. It is also possible that the stress upon sentence-final verb particles might contribute to a child's perception of deep structure, cf. Bresnan op. cit., and Bierwisch, « Two Critical Problems in Accent Rules », *Journal of Linguistics*, 4, 173-8.

[23] There is some evidence that children are aware of subtle movement restrictions that depend upon the choice of complementizer *that* or *to*, cf. T. Roeper, op. cit.



# FRICATIVES IN CHILD LANGUAGE ACQUSITION

CHARLES A. FERGUSON

*Abstract*

For children acquiring English as their first language the fricatives present a complicated set of problems. On the basis of longitudinal studies and experimental data it is possible to identify alternative strategies followed by children in progression toward full mastery of the fricatives. Analysis of these strategies has implications for the analysis of English phonology and for general linguistic theory.

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# DEEP STRUCTURE AND SOME ASPECTS OF SEMANTIC LEARNING

GIUSEPPE FRANCESCATO

According to J. Lyons' statement, « ... most linguists who accept the validity of the distinction between deep grammatical structure and surface grammatical structure ... assume that there is some intimate connexion between deep syntax and semantics »[1]. This paper aims at contributing to a better understanding of some aspects of « deep structure » in relation with language learning. By definition, every native speaker of a language is able to render a semantic content (having certain relations with objects or situations) in a linguistic form, which is typical for the language he speaks. This is what we call « linguistic competence »[2]. Within the limits of this contribution, I will disregard the special problems of language acquisition; I will be satisfied with the statement that native linguistic competence is the result of certain initial capacities (here undescribed) and of prolonged exposure to the language (essentially in the first years of life)[3]. In my opinion, however, the type of relations suggested by current generative-transformational theory between deep and surface structure, that is between the semantic content and its (overt) expression, is inadequate. To be sure, the initial reduction of all semantic aspects to syntactic aspects[4] has been gradually substituted by new theoretic approaches, tending to give a larger share to semantics against syntax. At the same time, deep structure came to be regarded not as a single level, but as a complex pattern of levels, progressively « deepening » from the more particular to the more general, with the possible aim of reaching — at the deepest level — some sort of « universal » type of content[5]. In my opinion, this effort towards « universality » is frustrated by a simplified view of the semantic relationship between « referent » and « language ». European semanticists (mostly operating with lexical items) have shown that semantic structure is much more complex than american transformationalists (mostly operating with syntactic items) are inclined to admit[6]. On the other hand, the russian psycholinguist Vygotsky, working with the child's acquisition of language, has underlined how inaccurate is the notion of « semantic value » as a rigid and invariable entity, such as required by many current approaches to semantics[7].

I will introduce here a few examples, with the purpose of showing how the learning of some semantic aspects of the mother tongue makes it necessary for the negative speaker to have some previous knowledge of the syntactic structure (eventually, at the surface level). To say it otherwise, the syntactical complexities and selections appearing at the surface structure of a given language — necessarily learned by the native speaker of that language — may constrain him to insert at the preceding level (one of the levels of deep structure) certain selection rules which are not necessarily the same for the spakers of different languages. This does not imply, however, that the speakers of different languages could not be able to express the same « basic » content — and, as a matter of fact, to perceive the same reality as alike.

As I have shown in a recent paper[8], a comparison of the words denoting the general semantic content « being uncovered, naked » in Italian and in English might result in the following set of selections:

TABLE 1.

| *Italian* | corpo | piedi | testa | (capo) | occhio | semi- | parete | terreno | albero | fatti | verità | mettere a |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| nudo | + | + | + | (+) | + | + | + | + | + | + | + | + |
| spoglio | | | | | | | + | + | + | | | |
| scoperto | (+) | (+) | (+) | + | | (+) | | (+) | | | | (+) |

| *English* | body | foot | head | eye | half- | wall | ground | tree | facts | truth | to | lay |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| naked | + | | | + | + | | | | | + | | |
| bare | | + | + | | | + | + | + | + | | | + |
| uncovered | (+) | (+) | (+) | | (+) | | (+) | | (+) | | | |

The total semantic « field » covered by the Italian words « nudo, spoglio, scoperto » and the english words « naked, bare, uncovered », might be interpreted as a sort of continuum, having a common basic content (« the fact of being uncovered ») which certainly is not perceived differently by the native speakers of Italian or English. In spite of this, the syntactic selections between the names and adjectives expressing « nudity » obey to different rules in Italian and in English: there is no correspondence between the two sets of words. It goes without saying that the situation in the chart is enormously simplified; the actual occurrences ask for a lot of finer distinctions, partly depending upon a larger context or even the macro-context. On the other side, it seems that in such a situation it is relatively simple to infer from a few examples some « intuitively » valid criteria for a large number of different situations[9].

Another example of the actual intricacies of a situation like this is afforded by the treatment of the lexical field for « remembering », studied by K. Baldinger[10]. We realize that in natural language a large number of semantic contents presents a very complex picture. On the other hand, we cannot fail to observe that in this case a two-termed expression (a the surface level) in French (« rappeler - se souvenir ») or English (« recall - remember ») corresponds to one term only in Italian

[1] J. Lyons, *Introduction to Theoretical Linguistics*, 1968, p. 269.
[2] I disregard, for the sake of simplicity, other possible interpretations of this term.
[3] There may be a « competence » acquired later in life: however, the « native » competence shows a tendency to interfere with the later one, as in bilingualism.
[4] Cfr. N. Chomsky, *Syntactic Structures*, ch. 2 and 9, *Semantic Considerations in Grammar*, Georgetown Univ. Mon., 8, 1955, pp. 141-58, and S. Dik, *Oppervlakte struktuur en diepte struktuur*, p. 27.
[5] Cfr. Fillmore, « The case for Case », in Bach-Harms, *Universals in Linguistic Theory*, 1968, pp. 1-88.
[6] Cfr. K. Heger, « Die Semantik und die Dichotomie von langue und parole », *ZRPh.*, 85, 1969, 144-215, K. Baldinger, « Structures et systèmes linguistiques », *TraLiLi*, 5, 1967, 123-139; J. Rey- Debove (« La définition lexicographique », *Cahiers de lexicologie*, 8, 1, 1966, p. 74) writes: ... les signifiants des langues naturelles appartiennent à un système autonome qui a d'autres lois que le système des concepts ».
[7] L. Vygotsky, *Thought and Language*, 1962, pp. 70 ss.
[8] G. Francescato, « *nudo, spoglio, scoperto* », « Una esercitazione di polisemia differenziale », *Interlinguistica*, Festschrift M. Wandruszka, 1971, 115-122.
[9] However, is seems quite difficult to reduce these criteria to a well defined set of rules
[10] K. Baldinger, « Sémantique et structure conceptuelle », *Cahiers de lexicologie*, 8.1, 1966, pp. 3-46.

(« ricordare - ricordarsi ») or Spanish (« recordar - recordarse »), with this proviso, that the semantic differenciation suggested in French or English by two different items is cared for in Italian and Spanish by a syntactic device [11].

Maybe one would like to put to test the psycholinguistic significance of these examples in intra-linguistic consideration. I do not think they can be supposed to perform entirely at the surface level. A native speaker of French, trying to convey a message about some « content » referring to the field of « memory », is obliged to make his choice between two content units before coming to the selection of the terminal units leading to the surface structure, because this is essential not only in view of the « meaning » to be conveyed, but also of the syntactic restrictions going with it [12]. In the same way, a speaker of English wanting to express something about a state of « nudity » will need a previous knowledge of the « name », before chosing the adjective going with it — as against a speaker of Italian, using *nudo* indifferently in all context [13]. There must be, then, at the level of deep syntax, a « psycholinguistic » capability for handling such situations: this capability seems to be determined both by the syntactic modalities of the language and by the semantic requirements of the message. For the native speaker, learning the syntactic modalities of the language seems as essential as learning the basic semantic relations. (This also seems to explain the particular difficulty offered by such differences in second language learning) [14].

One more example provided by some syntactic patterns of Italian. Compare the following set of sentences:

1 a. Confido che Maria mi ama
1 b. Confido che Maria mi ami

2 a. Dico che Antonio viene
2 b. Dico che Antonio venga

3 a. Desidero che Antonio venga
3 b. *Desidero che Antonio viene
3 c. Desidero la venuta di Antonio

4 a. Voglio che Antonio venga
4 b. *Voglio che Antonio viene
4 c. Voglio la venuta di Antonio
4 d. Voglio far venire Antonio

The difference between 1 a. and 1 b., and between 2 a. and 2 b. consist in the substitution of the indicative mood by the subjunctive; all sentences are acceptable. The semantic difference between 1 a. and 1 b. could be explained as lexical difference (compare English 1 a. « to tell », 1 b. « to rely »): here the change of mood in the subordinate clause has, so to say, a heuristic function with respect to the semantic content of the principal verb. The semantic difference between 2 a. and 2 b. seems to be of a quite different nature: the basic semantic content of « dico » does not change, but the subordinate clause expresses either a statement (2 a.) or a command (2 b.). There is no alternative of mood for 3 a. (3 b. is impossible) as

[11] Cfr. Baldinger, cit., pp. 15-16 ,Rey-Debove, cit., p. 88.
[12] The same is true, of course, for a speaker of Italian of Spanish: the difference consists in the fact that the restrictions, in this case, are only syntactic.
[13] Of course, within the limited lexical set of our example.
[14] The problem of « secundary competence », as suggested above (note 3) has not found as yet a comprehensive treatement in terms of transformational-generative grammar. However, from that branch of general (applied) linguistics dealing with that sort of problems (« contrastive linguistics ») useful suggestions as to the degrees of difficulty could be gained.



well as for 4 a. (4 b. is impossible); 3 c. can be interpreted as equivalent of 3 a., but 4 c. is hardly acceptable, the obvious equivalent of 4 a. is 4 d. At this point we might classify the principal verbs of the entries in this set into three cathegories (1. confido, 2 dico, 3. voglio, desidero) according to the particular use of the syntactic selections in order to determine the semantic values of each sentence (other syntactic selections will permit to distinguish between the two verbs belonging to group 3). Altogether, it could be stated that the semantic « content » of all these verbs is *not independent* from their syntactic selections [15]. Once more, of course, the situation as presented here is extremely simplified; there is an enormous number of syntactic « variations » and semantic affinities that we might introduce in our analysis. In language learning, we expect the native speaker to become able to handle certain syntactic structures — as we have shown — in order to be able to handle the semantic content with satisfactory competence [16].

Other examples could be traced back to the sort of linguistic situations generally investigated in a sociolinguistic perspective. A very common one is suggested by the structure of kinship terminology. Every society builds in this respect a peculiar structure, and the native members of the society, while learning their language, learn to handle all kinship situations in terms of this structure. The « concrete » situation being the same, members of different cultures may react to kinship relations in different terms, motivated only by their linguistic background. How deep (psychologically) such apparently superficial differences can reach, is shown by the breaking up of the linguistic structuration of kinship terminology in the language of schizophrenics and insanes [17].

In a multilingual society, a good exemple of the influence exerced by the linguistic structure on the semantic content and vice-versa is suggested by the rapid swithches of code made necessary by a change in the macro-context, or by the simple need of conveying some particular type of semantic content. The presence of a single technical term may produce the switching of the entire syntactic code to another level (in diglossia) or to another language (in bilingualism) [18]. In a more general setting, a single loanword in the context of a language, can be considered in fact as a document of « partial bilingualism », implying acceptation of the semantic values of a different culture. The type of the language, from a sociolinguistic point of view, seems to be dominated by the socio-cultural setting, and the same speaker learns to respond differently to the same stimulus-situation, according to sociolinguistic cues [19].

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[15] This problem is the subject of a thesis (unpublished) by J. Meihuizen Dokkum.
[16] I have no informations of research dealing with these problems in child language.
[17] Cfr. J. Debois - L. Irigaray, « Les structures linguistiques de la parenté », *Cahiers de lexicologie*, 8.1, 1966, pp. 47-69.
[18] Cfr. N. Denison, « Sauris: a trilingual Community in diatypic Perspective », *Man*, 3-4, 1968, *Some observations on language variety and plurilingualism*, A.S.A. Conference, Sussex 1969 (preprint).
[19] Does every reaction of the speaker require a different adjustment at the « deep » level? To this day, insufficient attention has been devoted to this sort of problems, and to the related psycholinguistic aspects, in a generative-transformational perspective as well as in a traditional one.

## CATEGORIAL CRITERIA AND GRAMMATICALNESS FOR DEEP-STRUCTURES

VINCENZO LO CASCIO

*Abstract*

It should be stressed that, with a system of deep-structure and transformational rules as hitherto developped in the transformational theory or generative grammar, cannot be pretended to describe the real psychological process of the language user.

To the author it seems almost impossible to describe a semiological system and process employing categorial units and grammatical criteria of an other system. What on this topic has been done so far, remains only a temptative approach. But even by this approach on the start level of deep-structure shouldn't be employed grammatical categories (i.e. NP, VP, V, ecc.) nor criteria of grammaticality belonging to the surface structure. Deep-structure should be seen as a combination of different levels and conditions. The formalised level should be the output of a more abstract level where the semantic and logic relations are fixed. This imput level would thus be formed by an other categorial system than the one for the formalised level. The transformational rules, operating on different levels of deep-structure in order to bring more and more closely to a formalised level (and ultimately to the surface structure) shouldn't be choosed to produce grammatical, wellformed intermedial strings (as intermedial relative transformations).

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## THE INCORPORATION OF VIEWPOINT INTO NOUN PHRASES [1]

WILLIAM R. CANTRALL

In arguing that surface noun phrases reflect various viewpoints that have expression in deep structure, I will in particular attack the classical transformational theory that reflexives arise from deep structure sources identical with their antecedents, as in the Reflexive Rule offered by Lees and Klima [2]:

X−Nom−Y−Nom′−Z ⇒ X−Nom−Y−Nom′+Self−Z

where Nom=Nom′=a nominal and where Nom and Nom′ are within the same simplex sentence.

The added morpheme and the identity condition account for the distinctions in 1: (In this and other examples a third person pronoun is judged to be coreferential with an expressed antecedent).

(1) John saw himself / me / *him /*myself.

The simplyex sentence condition accounts for the distinction in 2-4, and, if possessives are taken to derive from relative clauses, for 5 and 6 as well:

(2) John thought that Mary hated him / *himself.

(3) John hated the girl who hit im / *himself.

(4) Mary worked in a store but she / *herself / didn't like it.

(5) Mary's father supported her / *herself.

(6) Mary supported her / *herself's / father.

Under transformational theory (which derives verbals and imperatives from sentences), given that Reflexive occurs before Subject Deletion, the same rule will produce 7 and 8:

(7) Calm yourself.

[1] Essentially everything in this paper derives from my unpublished Ph. D. dissertation, « On the Nature of the Reflexive in English », University of Illinois, 1969, for criticism of which I am indebted to Robert B. Lees, James D. McCawley, and Michael L. Geis.

[2] Lees, Robert B. and Edward S. Klima, « Rules for English Pronominalization », *Language* 40, 1963, p. 24.

(8) John thought shaving himself was hard work.

Ordering Passive before Reflexive blocks 9, and blocking Passive where Nom= Nom′ blocks 10; finally, the left-right order of Nom and Nom′ blocks 11:

(9) *Himself is shaved by John.

(10) *John is shaved by himself.

(11) *Himself shaves John.

The Lees-Klima Pronoun Rule follows Reflexive (see note 2):

X−Nom−Y−Nom′−Z ⇒ X−Nom−Y−Pro−Z

where Nom=Nom′, and where Nom is in a matrix sentence while Nom′ is in a constituent sentence embedded within that matrix sentence.

The assumption that there is no difference between Nom and Nom′ at the point in the derivation at which Reflexive and Pronoun rules apply begins a long chain of inferences and further assumptions. Since both Reflexive formation and Relative Clause formation depend upon « total identity of structure »[3] between the two NP involved, including « sameness of reference »[4], the failure of strings like 13 must be assumed to result from a structural change in the NP in the higher clause from undergoing Reflexive, which, assuming transformations are ordered, can be assumed to precede Relative Clause formation, thereby blocking it[5]:

(12) I was shaving John, who had the shakes.

(13) *John was shaving himself, who had the shakes.

Interestingly, reflexives do take relative clauses, I find:

(14) John was shaving himself, which was a natural enough person for him to *be* shaving, it seems.

*Himself* in 14 seems to be a very ordinary reflexive which in fact must be unstressed in order to preserve a reasonable reading for the sentence. The relative clause in 14 presumably derives from a form underlying the natural sentence in 15, which I find acceptable despite the Reflexive rule:

(15) Himself was a natural enough person for John to be shaving, it seems.

Though some people prefer *who* to *which* as a relative in 14, I prefer *which* even after names:

(16) I was shaving John, which was a natural enough person for me to *be* shaving, it seems.

The occurrence of 14 as well as 12 along with the nonoccurrence of 17 as well as

[3] Chomsky, Noam, *Aspects of the Theory of Syntax*, Cambridge, Massachusetts, MIT Press, 1965, p. 225.
[4] Chomsky, *op. cit.*, p. 145.
[5] Identity conditions apparently apply similarly in nonrestrictive clauses and restrictive clauses. Nonrestrictive clauses are analyzed as depending upon identity between NP which consist of relativized NP in Cantrall, *op. cit.*



13 could be taken as confirmation of the transformational theory, which defines identity of structure upon structures which may have undergone changes:

(17) *John$_i$, which was the person he$_i$ shaved most often, was shaving himself.

Put simply, reflexivized NP relativize only reflexivized NP and others relativize only others.

But this seemingly necessary principle leads to contradictions in the analysis of picture noun phrases[6] like *picture of Mary*, *story about Bill*, *reference to himself*, where the relative pronoun refers to the entire phrase. It might conceivably be argued that a relative pronoun following a picture noun phrase refers only to the head noun, if 18 with *of her* is possible:

(18) John was looking at a picture of Mary that Bill had looked at (??of her).

But 19 seems quite bad:

(19) *John was looking at a picture of Mary that Bill had spit on of her.

At any rate, where no such phrase appears in the relative, it seems clear that the relative pronoun stands for the entire noun phrase; though there are sentences like 20 and 21, there are none like 22:

(20) John was looking at a picture that showed Bill nude.

(21) John was looking at a picture of Mary alone that showed her nude.

(22) *John was looking at a picture of Mary alone that showed Bill nude.

Presumably the contradiction in 22 is exposed in the sentence underlying the relative clause:

(23) A certain picture (*of Mary alone) showed Bill nude.

Also there are no cases like 24, with an *of* phrase after a relative pronoun subject:

(24) *John was looking at a picture of Mary that of her showed her nude.

Accordingly, the relative pronoun *that* in 25 must be referring to *picture of herself*:

(25) Mary was looking at a picture of herself that had been spit on by Bill.

Such a sentence seemingly cannot depend upon an identity of NP which takes into account the effects upon structure of reflexivization; the sentence underlying the relative clause in 25 may have been 26 but not 27:

(26) A certain picture of Mary had been spit on by Bill.

(27) *A certain picture of herself had been spit on by Bill.

[6] So styled by Florence Warshawsky in « Reflexivization », unpublished paper, MIT, 1965.

If it were like 26, then the relatizivation would produce a string like that in 28 and some later rule would then apply to produce the reflexive:

(28) [MARY was looking at a picture of MARY that had been spit on by Bill].

The unhappy consequence is an ordering contradiction: Reflexive, Relative for 14; Relative, Reflexive for 25. Also, 13 could no longer be blocked by considering Reflexive to have made a difference in structure, without an ad hoc exemption for picture noun phrases.

Further, the relative clause in 29, taken alone, would necessarily be like 30 rather than like 31:

(29) I bought almost every picture of Mary that she drew.

(30) Mary drew pictures of herself.

(31) *Mary drew pictures of Mary.

Then to get 29, it appears that Reflexive in the lower clause have to be postponed until after Relative Clause formation had applied in the higher clause. Since in transformational theory, transformations apply cyclically, first in the lowest S (for underlying Sentence), then in the next higher S, and so on, no rule applying more than once in each S[7], this result would make Reflexive a « Non-cyclic » rule. But that can't be either, since by the failure in 13 the system requires that Reflexive already have applied at the higher level of the picture noun phrase in 32 and in the lower S as well before Relative Clause formation:

(32) Mary was looking at a picture of herself, which was the person she was most interested in.

However, these problems do not arise if we reject the notion that an NP in the base which underlies a reflexive is identical in structure with its antecedent and replace it with the proposal that the NP represented in 25 *by herself*, for instance, is in fact a complex NP which contains not only what will become the reflexive form on the surface but also a higher coreferent to that reflexive — as suggested in 33:

(33) someone who Mary identified as herself ⇒ herself.

Then the relativization in 25 would be between two identical noun phrases; e.g.:

(34) [Mary was looking at [*a picture of someone who MARY identified as herself* [ Bill had spit on *a picture of someone who Mary identified as herself*]]].

Other facts abuot language convince us that structures of the general sort to be seen in 33 do exist and do allow this particular sort of transformation, which perhaps should be called « Usurping ». How, for instance, do we discriminate between a name and the use of a name (see 35 and 36) and yet understand the association between them except by being able to substitute *Bologna* for *a certain city that is called « Bologna »*?

7 Chomsky, *op. cit.*, p. 143.



(35) *This city is called Bologna, which is famous for its university.

(36) You should visit Bologna, which is famous for its university.

(37) You should visit a certain city called Bologna, which is famous for its university.

The same principle is needed to account for 38:

(38) John, who is obviously stupid, is a self-styled genius.

Though *self-imposed discipline* may be *discipline that has been imposed by one's self* (as *teacher-imposed discipline* is *discipline that has been imposed by a teacher*), *self styled* in 38 cannot have been derived similarly from a relative clause dependent upon *genius*, since an attempt to do so reveals a contradiction:

(39) *John, who is obviously stupid, is a genius who is styled (by himself) a genius.

It appears that *self-styled* has derived from a position higher than *genius*, and in a fashion much like *self-imposed*. If so, then there must be a higher NP in such sentences supporting a relative clause which contains *is styled by himself genius*:

(40) [John is an NP that is styled by himself genius].

This « mediating » NP, being a predicate noun, must necessarily define a class to which John belongs, such as *man* or *person*. Under this proposal 38 can be analyzed as in 41, without contradiction:

(41) John, who is obviously stupid, is one who is styled by himself (a) genius.

In the same way, *an accused murderer* is not *a murderer who has been accused of being a murderer* but rather *someone who has been accused of being a murderer* and *a proven fact* is not *a fact that has been proven* but *something that has been proven to be a fact*.

The same principle can be applied again in analyzing still another kind of construction:

(42) Mary's « epidemic » consisted of two cases.

The author of 42 indicates by his punctuation or pronunciation of *epidemic* that he is not expressing the contradiction in 43:

(43) *An epidemic consists of two cases.

Also the responsibility for that identification has been shifted from the speaker onto « Mary », presumably by means of the possessive inflection. Accounting for that inflection will account for our intuitions. It's not a simple possessive, **an epidemic that Mary has*. It's closer to being a genitive of origin (agentive) — as *Mary's statement* is *a statement made by Mary* so *Mary's epidemic* is in a sense *an epidemic made by Mary*. However, a literal analysis of *Mary's* as a geni-

tive of origin with *Mary* as agent requires a structure with a mediating NP and a clause of identification:

(44) something that has Mary's identification as an epidemic = something that has an identification-made-by-Mary as an epidemic.

If phrases like those in 44 can be seen as essentially equivalent to phrases like those in 45 —

(45) something that has been called / identified as / an epidemic by Mary

then we can analyze the synonymous 42 and 46 by one set of terms, accounting in 47 for contradiction avoidance, quotation, attribution, genitive, past participle, and *so* at once:

(46) Mary's so-called « epidemic » consisted of two cases.

(47) The series of illnesses which by Mary has been called so: « an epidemic » consisted of two cases.

Thus the analysis of *Bologna*, *self-styled genius*, and *Mary's « epidemic »*, superficially very different structures, seemingly depends upon part of their underlying structure being markedly similar. Besides each requiring a mediating NP which is to be usurped by an NP dominated by it, each has called upon an outside viewpoint — the subject of the relative clause has not been the speaker. The verbs in these relative clauses — *call*, *style*, *identify* — share syntactic properties as well as semantic ones. Though *call* and *identify* require somewhat different structures, *style* shares with both; also, *so* is surely related to *as*:

(48) John was styled / identified / as a genius, by himself.

(49) John was styled / called / (so:) a genius, by himself.

The common principle in the analysis of these three constructions seems to be that stated in 50:

(50) An NP which has been asserted to have been given a particular identification by a referent other than the speaker may have its position usurped by that identification, if the identity of that referent is recoverable.

Though obviously reflexives after picture nouns *can* be analyzed by the same principle (at least down to the *if* clause), and *should* be (to prevent ordering contradictions), it seems also that they *must* be, in order to account for the occurrence of sentences like 51 and 53 and the nonoccurrence of 52 and 54:

(51) Two pictures of herself hang across from my secretary.

(52) *Two pictures of itself hang across from my desk.

(53) This picture of himself makes Nixon look handsome.

(54) *This picture of himself makes Lincoln look handsome.



Analyzing the surface reflexive as a complex NP which includes an antecedent of the deep structure reflexive justifies the reflexive in the acceptable cases and marking the noun and verb in the identification clause as [+PERCEIVING] allows a necessary distinction between NP which can and those which cannot « identify themselves »:

(55) Two pictures of someone who she identifies / views / as herself hang across from my secretary.

(56) *Two pictures of something that it identifies / views / as itself hang across from my desk.

(57) This picture of one that he identifies / views / as himself makes Nixon look handsome.

(58) *This picture of one that he identifies / views / as himself makes Lincoln look handsome.

Further evidence that noun phrases must incorporate viewpoint lies in the apparently free variation between reflexive and personal pronouns after prepositions in certain constructions, including picture noun phrases:

(59) I should send John this picture of him / himself.

(60) This story about him / himself / seemed funny to Bill.

However, the choices involved are meaningful rather than accidental. For instance, the differing character of *revelation*, *allegation*, and *youthful boast* seem to be responsible for these differences:

(61) I repeated the following revelation about me / myself /, that I was the bastard son of Quasimodo.

(62) I repeated the following allegation about me / *myself /, that I was the bastard son of Quasimodo.

(63) I repeated a youthful boast about *me / myself /, that I was the bastard son of Quasimodo.

Notice that specifying a source other than the speaker for *youthful boast* produces an opposite result:

(64) I repeated a youthful boast of Mother's about me / *myself /, that I was the bastard son of Quasimodo.

When the source of *youthful boast* is not designated in some attributive structure (e.g., *Mother's youthful boast*, *a youthful boast of Mother's*, *a youthful boast that Mother had made*), the source is coreferential with the subject of *repeated* and the object of *about*, even though a second inference might seem possible:

(65) I repeated a youthful boast of Mother's about / *myself /, since she wouldn't do it.

(66) I repeated a youthful boast about *me / myself /, since Mother wouldn't do it.

Providing alternate sources for *revelation*, *allegation*, and *youthful boast* appears to explain the pattern of grammaticality seen in 61-63, at the same time demonstrating that the identity of the referent making the identification *me* or *myself* is recoverable:

(67) I repeated a revelation of Mother's about me / *myself / that she had made ten years before.

(68) I repeated a revelation of mine about *me / myself / that I had made ten years before.

(69) I repeated an allegation of Father's about me / *myself / that he had made ten years ago.

(70) I repeated an allegation of mine about *me / *myself / that I had made ten years before.

(71) I repeated a youthful boast of mine about *me / *myself / that Mother had made ten years before.

(72) I repeated a youthful boast of min about *me / myself / that I had made ten years before.

In each of the cases 61-63, when the source of the original remark is not specified, the occurrence of *myself* guarantees a first person source (identity of reference) and the occurrence of *me* guarantees an indefinite third person source (nonidentity of reference).

From the fact that such deletion has occurred on a principled basis, it appears necessary to derive *me* in these sentences from a complex NP structure of this sort:

(73) one who someone else identified as me / *myself

Therefore sentence 67, for example, would stem from underlying structure which would be represented conventionally as in 74:

(74) [I repeated the following revelation of SOMEONE ELSE'S$_i$ that SOMEONE ELSE$_i$ had made ten years before about one who SOMEONE ELSE$_i$ identified as me].

The occurrence of SOMEONE ELSE in any of these positions guarantees a coreferent in the other two plus *me* as the object of *about*. Whichever occurrence is the Master NP allows its pronominal coreferents to delete and in turn is allowed to delete by the clear distinction between *me* and *myself*. Similarly, if *myself* derives from something like *one who I view as myself / *me*, the conditions have been met for deleting first person antecedents of *myself*.

Since picture noun cases have seemed to be « beyond analysis » to some, there may have been a tendency to treat them as outside the analysis of « bona fide » reflexives. But just as confounding to the classical view of reflexives and personal pronouns is the occurrence of either form after prepositions in constructions dominated by verbs of thinking and feeling; these nominals are not both *in* and *not in* the same simplex sentence with their antecedents:

(75) John knew Mary to be well-disposed towards himself / him.



(76) John regarded Mary as unalterably opposed to himself / him / on the matter.

(77) John realized that Mary's remarks had been intended for himself / him.

(78) John wants to be told why the responsibility should fall on himself / him.

(79) John believes that the universe centers upon himself / him.

(80) John took Mary to be referring to himself / him.

The degree of stress on the pronouns involved varies from sentence to sentence but not between the reflexive and any other NP; e.g., *Bill* in 81 is stressed like *him* and *himself* in 81:

(81) John took Mary to be referring to Bill.

An analysis which attempts to derive the reflexives in 75-80 by deletion from NP+intensive structures [8] must ignore that fact along with intonation differences and meaning differences. Unlike 80, 82 has the implication supplied in parentheses:

(82) John took Mary to be referring to him himself (rather than to someone or something close to him).

80 carries only the implication *rather than to someone else*.

Clearly in sentences 75-80 the reflexive pronoun is facilitated by the « reflective » verb; I distinguish between 83 and 84 as possible communications:

(83) *Mary is well-disposed towards myself.

(84) I regarded Mary as being well-disposed toward myself.

Again a complex NP structure with a clause (or clauses) o identification appears necessary to account for the two forms; 80 would be analyzed as in 85 and 86:

(85) John took Mary to be referring to (one who I identify for you as) him.

(86) John took Mary to be referring to (one who I identify for you as one who he views as) himself / *him.

It appears that the reflexive with a noncoreferential identifier (e.g., *one who I identify as himself, itself, etc.*) may usurp the head position under roughly the same conditions specified in the Reflexive rule of classical transformational grammar. In my speech, only reflexives with coreferential identifiers (e.g., *one who John views as himself*) may usurp in all the various environments noted in this paper. People who say sentences like 52 must, unlike me, be able to derive them from sources like 87, which seems in fact to be a possible sentence:

[8] As in Michael Helke's unpublished Ph. D. dissertation, « The Grammar of English Reflexives », MIT, 1970. But notably Helke adds an interesting argument for a phrase structure origin of reflexives from similarities in behavior between reflexives and possessive-inherent noun structures, e.g., *The poor girl lost her mind*.

(87) Two pictures of (something I identify as) itself hang across from my desk.

Analyzing surface NP forms as Usurpers that have risen from within a complex NP to destroy it and take over as head appears to reduce many problems. But analyzing a surface reflexive, for instance, in terms of a « deeper down » reflexive leaves the latter yet to be analyzed. But however *one who John views as himself* may be further analyzed, it seems impossible to derive it by the Reflexive rule from *one who JOHN views as JOHN*, because of the semantic inconsistency.

Finally, if surface noun phrases are analyzed a reflecting the viewpoint of an incorporated identifier, then Chomsky's choice in his example « "I drew it toward me" »[9] is just as principled as Besant's in « He took the girl's hands and drew her to himself »[10] — it depends on whether one is viewing the relationship objectively or subjectively.

(88) If you don't share my viewpoint I hope you can convince us both.

(89) Either you or I should stop kidding himself about reflexives.

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[9] Chomsky, *op. cit.*, p. 147.
[10] From Walter Besant's *By Celia's Arbour*, cited in Poutsma, H., *A Grammar of Late Modern English*, Groningen, P. Noordhoffen, 1916.



# « CREATION IN SYNTAX AND GENERATION IN SYNTAX »

Carlos Rafael Dominguez

Linguistics is continually re-posing the problem of its own object. This is usually done under the form of distinctions introduced into the field it covers. These distinctions bound the scope of linguistics as a science while restricting or enlarging its area accordingly.

What the different linguistic tendencies or schools frequently do is to place a greater or lighter emphasis on one or other of the terms of these distinctions which are commonly presented in the guise of dichotomies.

Linguistic tendencies are often reflected in linguistic terminology.

The *creative aspect of linguistic use*, for one, is a very important item in linguistics nowadays as it was in other periods of its history. It is an inspiring item, rich and pregnant, full of possibilities. Much has been written and is being written about it.

Both *creation* and *generation* are a couple of terms which are employed practically indistinctly in reference to this item. Now simply I suggest a distinction between them which I think may prove of use in this line of investigation. In my opinion, a need for further accuracy is strongly felt as regards their use.

There is nobody denying that distinctions (or, more precisely, dichotomies) were always useful tools in the study of language as in every other field of human knowledge. It will be enough to consider the impulse given to linguistics by such binary distinctions as *analogy/anomaly*; *langue/parole*; *substance/form*; *ergon/energeia*; *synchrony/diachrony*; *competence/performance* ...

But as well as they are useful tools they can become unsurmountable fences when somebody eliminates radically one of the two components altogether. This often starts a pendular reaction and so divergencies between different and sometimes opposite schools commonly may be traced to a shade of stress on one or the other of the terms of a dichotomy.

In spite of being well aware of all these acknowledged possible dangers, I believe that the benefits could be more than the harms.

With all these limitations in mind I venture to suggest the convenience of making a distinction in the use of the words *creation* and *generation* as applied to two diverse notions within the same *creative aspect* of language. I shall restrict myself to a well defined problem, narrowing the field to a very limited area.

The distinction I propose, therefore, is between two notions that can be adequately represented by the English words *creation* and *generation*.

I shall assume that all the matter must be understood within the general framework of a *generative grammar*, which is the linguistic tendency nowadays in which the *creative* aspect of linguistic use is considerably emphasized.

The note refers only to SYNTAX (to the *syntactic component* of a generative grammar, which is the real core of grammar in this approach).

Both terms *creation* and *generation* are used more or less indistinctly today because the main purpose of their users is simply to oppose the *creative principle* to the *mechanical principle* inspired in the psychological views of behaviourism (for which language is essentially a system of habits, a matter of repetition based on analogy), or to any other form of mechanical linguistic determinism. In this context, both terms, *creation* and *generation*, are equally apt to stress the *dynamic* process of *creation* in every instance of speech performance, against the deterministic conception of mechanical stimulus-response connections.

The *creative* aspect remained rather in the shadow in the last decades. Ferdinand de Saussure, on whom most of present day linguistics relies, did not deny the *creative* aspect but relegated it to the *parole* and regarded it as out of the scope of linguistics proper.

It was only natural that in the new trends, which tried to put the stress on the *creative* aspect in general, further distinctions were unnecessary and irrelevant.

I insist that it is the moment now to distinguish accurately between these two aspects of the same general process: *creation* and *generation*.

The notes regards only this distinction. It does not touch any of the connected problems, for instance, whether the formal conditions referred to are universal or not, or what are the philosophical or psychological implications of the linguistic distiction, etc. ... The note suggests a practical way for a better and deeper study of SYNTAX, especially in the light of a generative grammar.

The starting point for the idea of this distinction was a paragraph by Chomsky in his preface to « Introduction to Formal Grammars » by Gross and Lentin. The paragraph is the following (the underlining is mine): « Speculating, I think it is not unreasonable to assume that the linguistics of the next generation will revel that each *natural language* is a specific realization of a highly restricted schema that permits grammatical processes and structures of a very limited variety, and that there are innumerable *"imaginable" languages* that violate these restrictions and that are, therefore, not *possible human languages* in a *psychologically* important sense, even though they are quite able, in principle, to express the entire content of any *possible human language* ».

In a personal interview with Mr Chomsky in February, 1971, in reference to this passage, I asked him whether this distinction between an *imaginable language* and a *psychologically possible language* could be the basis for a hypothesis that each *particular human language* might be analyzed into a *central core* of a *formal nature* and a set of *psychological restrictions* modifying the central core in various ways.

Mr Chomsky acknowledged that this could be an interpretation but it was certainly not what he intended to say. He simply was stating there that we can consider an imaginable language as a species and a psychologically possible language as a sub-species.

Even if departing from the original intention of the author, I want to risk the following hypothesis:

— Any particular language (in this case, its *syntactic component*) has a part which is formalizable (which accepts the imposition of a formal syntactic model).
— This formal part is more or less extensive in different natural languages.
— The formalizable part can accept more than one model. The better will be considered the one which covers more field in the most explicit, unsophisticated, and complete way).
— This part does not exhaust the whole of the syntactic component of a natural language.
— There is a part in this component which, by its own nature, resists formalization because it is the real of unpredictability.



— The proportion between the formalizable part and the non-formalizable one is continually changing in a diachronic line. Some aspects which were non-formal once can become formal and vice-versa. Formalization and de-formalization are continually going on in a natural language.

When we refer to the creative aspect of linguistic use we refer to a variety of things:

— A natural language provides recursive mechanisms to express a practically infinite number of thoughts, feelings, intentions, and so on, independently of external stimuli or identifiable internal states.
— Everything connected with the speaker's performance of a language can be called *creative* as far as he produces (*creates*) new sentences every time he speaks. The sentences are original and new taking into account the total context and situation even if formally they can coincide with already uttered sentences.
— When new elements are introduced into the body of a language we properly speak of *creation* of new words, new expressions, new resources, etc.
— In instances of artistic production (poetry) we speak of *creation* to refer not only to new combinations of thoughts, feelings, and so on, but also to the new linguistic forms in which they are embodied.

I propose to call *generation* everything which is an output of the formalizable mechanism of any particular human language. The word *creation* could be adequately reserved to refer to what takes place in a linguistic zone which is marginal to the one in which the formalizable mechanism operates.

*Generative* is the algorithmic aspect of the performer's behaviour (the one which operates the recursive mechanisms of the language). He employs certain rules to construct his sentences. (*If* and *when* these rules have been internalized is a completely different problem). The infinite number of new sentences he may utter will be *generated* according to this set of formal rules. The task of a generative grammar is precisely to discover the model which fits better this part of every natural language.

But continually the speaker comes across a set of optional rules. He may choose between two, three or more options ... There is nothing in the system itself determining him to one or the other. He is linguistically free to choose. He now is *creating* and not simply *generating*. These free options are almost always the rule in the use of the semantic elements proper (words).

From what precedes we can see that *creation* is possible within the framework of *generation*.

The individual competence is slightly modified in each act of performance. This is the margin of *creation*. Some modifications may become general and are incorporated to the standard competence (the competence of an ideal speaker). *Creation* (not *generation*) is responsible for the evolution of languages.

Even though the performer employs a highly formalized system, he is always free to employ elements from outside the system or to depart a little from the commonly accepted patterns without affecting intelligibility. In a word, he may always act in an unpredictable way. So there is always an unpredictable aspect in any act of speech. All this is *creation*. *Creation* is, therefore, always present in every act of speech (whether something really « new » is introduced or not from a purely formal point of view). The linguistic sign is *arbitrary* not only because a natural link cannot be determined between its original elements, but because the performer, in every act of speech, is free to modify it, and actually does, without intrinsecally affecting the regular aspects of the system.

*Creation* is constantly renewing the system (even the *generative* part of the syntactic component). Hence the primary importance of every act of performance.

Of course there could be an entirely formal language. Artificial formal models can be produced without limitation. But now our concern is natural languages and it is different to construct an artificial entirely formal language and to discover that some aspects of any natural human language are actually formal (may accept formal models). In every case we relay on empirical data.

Actually formal in a language are all those aspects that are either directly or indirectly represented in the surface structure of sentences in that language and the corresponding processes which lead towards it. What is not represented in the surface structure cannot be considered formal, at least in that stage of the evolution of that language. In a natural language, aspects which are not formal at one time, may in the long running become formal, precisely by way of *creation*. But the hypothesis assumes that there is always a part which is not only non-formal but also non-formalizable.

This non-formalizable part can be well appreciated in the restrictions imposed upon the speaker by the linguistic context in a wide sense of the word, in the limitations originated in each particular situation, in every change that may occur in the extra-linguistic world as reflected in the combination or adoption of elements (the province of syntax).

*Generation* points to a *static system*, which always produces its material according to the same invariable patterns. *Creation* points to a *dynamic* system which is constantly re-making itself. In a *static generative system* the possibilities of expression are practically infinite, but only within certain fixed patterns. In a *dynamic creative system*, the possibilities are infinite not only as regards the combination and filling in of invariable patterns generated by a fixed set of rules but also as regards the possibility of varying the rules and of modifying the system.

There is a long distance from *generating* a grammatically correct sentence within the *dynamic* framework of a *static generative system*, to *creating* a real sentence in a real situation within the *dynamic* framework of a *dynamic generative system*. In this last there will always be a non-formalizable part variously affecting the formal mechanism.

There are degrees in linguistic *creation*:

— Anybody who performs an act of speech *creates*.
— An artist (a poet) *creates* (even linguistically) in the highest sense of the word.
— Anybody who (either consciously or unconsciously) innovates in the generative system, *creates* new *generative* possibilities.

*Creative* possibilities are not equal for all the speakers of a language or, at least, they are exercised in different degrees. They depend either on the amount of artistic capacity of the individual or on the degree of awareness with which he handles the system, or even on the speaker's ignorance of the system.

Commonly while we grow up our *creative* possibilities decrease and our *generative* possibilities increase as our handling of the operation of the system becomes both deeper and more mechanical.

Maybe *creation* is at its best in the language of primitives, where the system is not so hampered by so precise and definite grammatical limitations (*generative* rules).

To make the distinction I suggest between *creation* and *generation* more explicit it may be allowed to me to afford an example drawn from the game of chess. When sitting in front of the chess-board the player feels as in a little battle-field. He can move the chess-men at his own will. He can adopt the tactics he judges more conducive to a good result. He plans the battle and proceeds accordingly. The adversary in turn has his own plan. After every movement made



by one of the players each of them faces a new unpredictable situation, which demands a new unpredictable answer. The player is continually *creating*. The whole game is his own *creation* even though many movements could find their counterpart in some games played by some other players. But while *creating* his game, he follows a definite system of rules. He has to keep to it. While *creating*, he *generates* each particular movement according to an invariable mechanism which allows only limited possibilities. A limited number of rules of a *generative* mechanism may allow the *creation* of an infinite number of quite distinct games.

*Creation* refers to what exceeds mechanical possibilities. Its atmosphere is unpredictability. *Generation* refers to what is reducible to machine terms. Its province is predictability.

SYNTAX, by its essence, is the realm of freedom, where elements unite and separate, as Bolinger puts it, « in the white heat of communication ». The speaker has almost unlimited means at his disposal for building sentences, provided he builds them according to certain expectations of his hearer. These expectations are the syntactic (generative) rules.

The description of all the generative processes, or better, of the rules which guide them, is precisely the taks of GRAMMAR, namely of its syntactic component. But in a real act of communication there is always some part, even in the syntactic component, of the message, which lies out of the realm of this GRAMMAR. This marginal zone is the one in which the *creative* capacity of the speaker operates freely. This part can, of course, be the subjectmatter for a scientific study of a different kind from that of SYNTAX or GRAMMAR. Could it be called SUPER-SYNTAX or SUPER-GRAMMAR?

The distiction proposed might not be completely original. Chomsky, for instance, when criticizing Humboldt (Cartesian Linguistics, p. 27), distinguishes between « the rule-governed creativity » and other kind of creativity. What I think is original is the adoption of the couple *creation/generation* to cover this double linguistic area.

The understanding of this distinction could be of substantial importance for a deeper study of the relation between *langue* and *parole*, and *competence* and *performance*.

In 1931, year of the Second International Congress of Linguistics, in Geneva, Roman Jakobson wrote: « The uniting of static and dynamic processes is one of the fundamental dialectic antinomies which serve to characterize the concept of language. The dialectic of language development cannot be understood without observance of this antinomy ».

Summarizing: A distinction is proposed between *creation* and *generation* in syntax, as a means of pointing out two different subjacent processes or, at least, two different aspects of a same process which broadly can be called *creative use*. I propose to call *generation* everything which can be considered an output of the formalizable mechanism of any particular human language; this aspect belongs properly to syntax. The word *creation* could adequately be reserved to refer to what takes place in a linguistic zone which is marginal to the one in which the formalizable mechanism operates. This marginal zone is in no way less important than the central one and sometimes becomes all important in the whole of human linguistic communication. The operations taking place in this marginal zone could be said to belong to a super-syntax. The *creative process* proper operates in this marginal zone and tends constantly to modify the formalizable core, so being a fundamental factor in linguistic changes.

What really matters here is not a distinction between names but the hypothesis that there can be distinguished in a natural language a central core fully formalizable and another essential part which by its nature resists formalization.

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# GENERATIVE PHONOLOGY IN MANDARIN CHINESE TONES

Dr. Helen T. Chiang

Part I

## 1. Introduction

The phonological analysis here is based on the theory that the grammar of a language is the system of rules that govern sound an meaning. Utterances are sequences of discrete segments, which are complex phonetic representations. Such phonetic representations are infinite; they occur in various new arrangements and combinations. In order to deal with this factor, the rules of grammar not only should be adequate for the descriptions, but also should discover the underlying principles which determine these complex phonetic phenomena.

The rules of the syntactic component assign to each sentence a surface structuce and a deep structure; however, in this paper we dael only with the surface structure. The surface structure consists of lexical representatives, formatives, which are categorized as nouns, verbs, adjectives, etc. by syntactic rules. The rules of phonological components then convert surface structure into phonetic representations. Thus, the imput of the phonological component is surface structure, and its output is phonetic features. With this generative principle as a base, various specific phonological rules have been constructed for Mandarin Chinese. By applying such rules to analyze Chinese tones, it is hoped to reveal some the deep complexity of Chinese tonal structure.

### 1.1. *The rules of the phonological component.*

In this paper, we assume that the rules are linearly ordered, and this order is cyclical which means the sequence of phonological rules is first to apply to innermost constituents of a string which is represented by labeled bracketing. Innermost brackets are then deleted, and the sequence applies to the new innermost constituents. This cyclical application is repeated until the maximal domain of phonological processes is reached.

Besides cyclical rules, non-cyclical rules are also used; they apply only at word boundries, and are limited to the context # ... —— ... #. Within the linear sequence of rules, there are rules which are « disjunctively ordered ». When a disjunctively ordered rule applies to a substring, the other members of the rules are not applicable to this substring.

### 1.2. *Notational conventions.*

Since the realization of tones are because of vowels, without vowels there will be no tones; therefore, we assign tones only to vowels or syllabic consonants,

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### 1.2. *Notational conventions.*

Since the realization of tones are because of vowels, without vowels there will be no tones; therefore, we assign tones only to vowels or syllabic consonants,

and 0-tones are unmarked. We also use capital T as a cover symbol for all five tones. $C_0^1$ stands for one occurrence or zero occurrences of C (consonant), and $C_1^1$ stands for exactly one occurrence of C. $C_2$ stands for a string of two or more occurrences of C. When no subscript is given it is to be assumed that there is one C. V stands for one or more vowels. $\alpha$ $\beta$ variables as feature coefficients. When ( ) ( ) occurs it means choose one.

1.3. *Tonal features.*

TABLE 1. Mandarin Tones and Their Features.

| | Tones and their configurations | | | | |
|---|---|---|---|---|---|
| | 0 | 1 | 2 | 3 | 4 |
| Features | \| | ˥ | ˧ | ˨˩ | ˥˩ |
| High | − | + | + | − | + |
| Level | − | + | − | − | − |
| Rising | − | − | + | − | − |
| Falling | − | − | − | − | − |
| Concave | − | − | − | + | − |

TABLE 2. Mandarin Tones and Their Position of Occurrences

| | Tones | | | | |
|---|---|---|---|---|---|
| Position | 0 | 1 | 2 | 3 | 4 |
| Initial | − | + | + | + | + |
| Final | + | + | + | + | + |

By examining Table I above, we notice that 0-tone do not possess any pitch [± high] or contour [− tone features], and in Table II, they occur-initial. Some linguist called them neutral tones because of this reason. Although 0-tones look so shapeless; however, they play a very important role in the Mandarin-Chinese language which we shall deal with later. The oter four tones (1, 2, 3, 4) are phonemic variations. A change of pitch or contour means a change of meaning. For example:

| Tone-1 | Tone-2 | Tone-3 | Tone-4 |
|---|---|---|---|
| mā (mother) | má (hemp) | mǎ (horse) | mà (scold) |

1.3.1. *Boundry features.*

The formative boundry is marked [+FB] which appears between the final segment of one formative and the initial segment of the following formative. One of the boundry features is [− segment]. The unit # appears before and after a word, and in sentence-initial and sentence-final position.



1.3.2. *Segmental features and segmentals.*

TABLE 3. Mandarin-Chinese Distinctive Features and Segments

| | i | e | a | o | u | p | t | k | b | d | g | f | s | h | ts | sh | ch | j | m | n | ng | l | r | z[1] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| vocalic | + | + | + | + | + | \| | \| | \| | \| | \| | \| | \| | + | \| | \| | \| | \| | \| | \| | \| | \| | \| | \| |
| consonantal | \| | \| | \| | \| | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| high | \| | \| | \| | \| | + | \| | \| | + | \| | \| | + | \| | \| | \| | \| | \| | + | + | + | \| | \| | \| | \| | \| |
| back | \| | \| | \| | \| | + | \| | + | + | \| | \| | \| | \| | \| | \| | \| | \| | \| | \| | \| | \| | \| | \| | \| |
| low | \| | \| | + | \| | \| | \| | \| | \| | \| | \| | \| | \| | \| | \| | \| | \| | \| | \| | \| | \| | \| | \| | \| |
| anterior | \| | \| | + | + | \| | + | + | \| | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| coronal | \| | \| | \| | \| | \| | + | + | \| | + | + | + | \| | + | + | + | + | + | + | + | + | + | + | + | + | + |
| voice | \| | \| | \| | \| | \| | \| | \| | \| | \| | + | \| | \| | \| | \| | \| | \| | \| | + | + | + | + | + | + | + | + |
| continuant | \| | \| | \| | \| | \| | \| | \| | \| | \| | \| | \| | + | + | + | + | + | + | \| | \| | \| | \| | \| | \| | \| |
| nasal | \| | \| | \| | \| | \| | \| | \| | \| | \| | \| | \| | \| | \| | \| | \| | \| | \| | \| | \| | + | + | + | \| |
| strident | \| | \| | \| | \| | \| | \| | \| | \| | \| | \| | \| | + | + | + | + | + | + | \| | \| | \| | \| | \| | \| | \| |

[1] For typing conveniences, we use the Yale Romantization in this paper for transcription. In this system j, ch, sh occur with -r become retroflex, and when they occur with vowels -i, yu they become palatalized. When d, ts, s occur with -z, they become dental.

$$\begin{Bmatrix} i \\ u \end{Bmatrix} \rightarrow \begin{Bmatrix} w \\ y \end{Bmatrix} / C_o \text{ ——— } (V)\,V$$

This rule means that when two or three vowels occur simultaneously, the first vowel i or u becomes y or w, examples are liou → lyou; iu → yu; kuai → kwai; uen → wen.

1.3.3. *Mandarin-Chinese syllable structure.*

There are three syllable types in Mandarin-Chinese as follows:

| | |
|---|---|
| $(C_0)$ V (V) V | (*a*) |
| $C_0$ V $C_1{}^1$ | (*b*) |
| $C_0$ C | (*c*) |

In case (*b*) $C_1{}^1$=n or ng. In case (*c*) where C= −r or −z and −r, −z are syllabic consonants. $C_0$ = one or more consonants.

## 2. Tone Alternations

2.1. Although Mandarin-Chinese has well-defined tones on each syllable; however, in connected speech the tones alternate for articulatory, and syntactical reasons. For example:

I.

| | |
|---|---|
| yī | (one) |
| shfyī | (eleven) |
| èrshfyī | (twenty-one) |
| sānshf yī | (thirty-one) |

II.

| | | | |
|---|---|---|---|
| (*a*) | yìtiān | (one day) | |
| | yìnyán | (one year) | |
| | yìběn | (one volume) | |
| | yìjya | (one home) | |
| (*b*) | yídwèi | (a pair) | |
| | yíkwài | (a piece) | |
| | yíbàn | (a half) | |
| | yíjyù | (a sentence) | |

By examining the above data, we notice that the tone, of the formative yi has three variants, one for numerals two for modifiers. In explaining these phenomena, we assign the following surface structure:

(1) (*a*) $\begin{bmatrix} \# \\ \text{cnu} \end{bmatrix}\begin{bmatrix} \text{\# shf \#} \\ \text{nu} \end{bmatrix}_{\text{nu}}\begin{bmatrix} \text{\# yī \#} \\ \text{nu} \end{bmatrix}\begin{bmatrix} \# \\ \text{nu} \end{bmatrix}_{\text{cnu}}$

(*b*1) $\begin{bmatrix} \# \\ \text{np} \end{bmatrix}\begin{bmatrix} \text{\# yi \#} \\ \text{m} \end{bmatrix}_{\text{m}}\begin{bmatrix} \text{\# tiān \#} \\ \text{n} \end{bmatrix}\begin{bmatrix} \# \\ \text{n} \end{bmatrix}_{\text{np}}$

(*b*2) $\begin{bmatrix} \# \\ \text{np} \end{bmatrix}\begin{bmatrix} \text{\# yí \#} \\ \text{m} \end{bmatrix}_{\text{m}}\begin{bmatrix} \text{\# dwèi \#} \\ \text{n} \end{bmatrix}\begin{bmatrix} \# \\ \text{n} \end{bmatrix}_{\text{np}}$

where cnu = compound numeral m = modifier n = noun
np = noun phrase or numeral phrase.

In case (1)(*a*) we see that the tone in numeral yi « one » is level and it does not change, whether it is a simple numeral or compound numeral; but, in case (1)(*b*1), and (*b*2) there are two variants of tones in the shape of falling and rising when yi functions as modifiers. Let's assume that the tone feature of the formative yi is level; we therefore propose the rule:

(2) In formative yi the tone is level

apply this rule to the structures of (1) and then erasing innermost brackets in



accordance with the principle of the transformational cycle, we have, in the bracket notation, the representations (3*a*), (3*b*1), and (3*b*2).

(3) (*a*) $\begin{bmatrix} \# \ \# \text{ shí } \# \ \# \ \bar{\text{y}}\text{i } \# \ \# \\ \text{cnu} \end{bmatrix}_{\text{cnu}}$

(*b*1) $\begin{bmatrix} \# \ \# \ \bar{\text{y}}\text{i } \# \ \# \text{ tiān } \# \ \# \\ \text{np} \end{bmatrix}_{\text{np}}$

(*b*2) $\begin{bmatrix} \# \ \# \ \bar{\text{y}}\text{i } \# \ \# \text{ dwèi } \# \ \# \\ \text{np} \end{bmatrix}_{\text{np}}$

case (3)(*a*) has the correct tonal contour; however, we need to formulate rules that apply to (3)(*b*1), (3)(*b*2) as processes that place correct tones on the words. Thus we write a rule which says all the tones of yi as modifiers have the feature [+ falling], febore [$\alpha$T]. In notation form:

(4) $[+\text{level}] \rightarrow [\text{falling}] / \text{——} [\alpha \text{T}]_{\text{np}}$

where np = noun phrase or numeral phrase $\alpha$ = variable T = tones

rule (4) will give the following tonal contours for (3)(*b*1), and (3)(*b*2)

(5) (*a*) # # yì # # tiān # # (*b*) # # yì # # dwèi # #

Rule (4) generates correct-tones for (5)(*a*), but (5)(*b*) does not occur. Therefore, we will need a rule to account for the case (5)(*b*). Let's return to the data II (*b*), we see that it is pretty regular in tones that a falling feature preceeded immediately by a rising feature. The reason is that it is easier to say with a rising and falling contour than with both of the tones falling. Thus we write rule

(6) $[\text{falling}] \rightarrow [\text{rising}] / \text{——} [\text{falling}]_{\text{np}}$

Rule (6) gives the correct « phonological representation » of (5)(*b*) as follows:

(7) # # yí # # dwèi # #

Now let's look at data (8):

(8)

| | | |
|---|---|---|
| (*a*) | chī | (seven) |
| (*b*) | chí wèi | (seven persons) |
| | chí gè | (seven things) |
| | chí dwèi | (seven pairs) |

The underlying tone of the numeral chi in case (8)(*b*) is level, so we write rule

(9) $[\text{level}] \rightarrow [\text{rising}] / \text{——} [\text{falling}]_{\text{np}}$

2.2. *More tone alternations.*

In this section we will demonstrate further that tone alternations are based on the convenience of speech-making. It is easier to form a rising and a falling tone all in one breath, than form two falling tones in succession and where one has to pause in between two falling tones. Furthermore, the speech apparatus, namely the

lips, the tongue, and the jaw moves freely when it produces curved, or connected tonal contours; but, when it produces two falling tones in juxtaposition, the lips have to protrude more, the tongue has to press harder against the teeth, and the jaw has to drop lower. Therefore, it saves energy for te speaker if he uses the alternate tone features, rising and falling, instead of two fallings at the sametime. This theory can be further proven by the negative prefix bu (no/not).

(10) (*a*) bù (no or not)

(*b*) búbì (need not)
búdà (not very)
búdàn (not only)
búhwài (not bad)

(*c*) búyaujǐn (that's nothing)
búfangsyīn (be uneasy)

By examining data (10)(*b*) we see that the alternate rising feature occurs in all the negative formative bù-, before a falling feature of adjectives and adverbs. In (10)(*c*) the rising feature also occurs before a 0-tone of disyllable verbs. We can thus formulate the following rules:

(11) $\begin{bmatrix}\text{level}\\ \text{rising}\\ \text{falling}\\ \text{concave}\end{bmatrix} \rightarrow [\alpha \text{ contour}]$ (*a*)

$[\pm \text{ high}] \rightarrow [\alpha \text{ pitch}]$ (*b*)

(12) $[\text{falling}] \rightarrow [\text{rising}] / \text{——} \begin{cases} [\text{falling}]_{]\text{ang}} & (a) \\ \begin{bmatrix}-\text{ pitch}\\ -\text{ contour}\end{bmatrix}[\alpha T]_{]\text{vng}} & (b) \end{cases}$

where ang = adj/adv negative vng = verb negative $\alpha$ = variable T = tones
The same principle of articulation ease can also apply to tone-3 alternation. When a tone-3 is followed by another tone-3, the first one changes to a tone-2, which means when two low tones occur, the first low tone becomes the high rising tone. Thus it is easier to say a high tone and a low tone in combination, than to say two low tones at the same time that means one has to lower one's voice again, and again.

(13) (*a*) haŭbyău (*b*) háubyău (good watch)
hăumă háumă (good horse)
hăujyŏu háujyŏu (good wine)
hăushwĕi háushwĕi (good water)

In case (13)(*a*) the tones are in their original forms, in (13)(*b*) the tones in the first column are alternates. Thus we have rule:

(14) $[\text{concave}] \rightarrow [\text{rising}] / \text{——} [\text{concave}]_{]\text{ap}}$ where ap = adj. phrase

Since rule (6), (9), (12), and (14) all deal with tone features become rising, thus we can collapse these four rules into one rule (16). Before we write rule (16), let's assume that the features level, falling, concave are-rising in citation form, thus we have rule (15)



(15) $\begin{bmatrix}\text{level}\\ \text{falling}\\ \text{concave}\end{bmatrix} \rightarrow [-\alpha \text{ rising}] / \left[\overline{\text{CT}}\right]$ where CT = citation tones

(16) $[-\alpha \text{ rising}] \rightarrow [+ \text{ rising}] / \text{——} \begin{cases} [+\text{ falling}] & \text{(i)} \\ \begin{bmatrix}-\text{ pitch}\\ -\text{ contour}\end{bmatrix}[\alpha T] & \text{(ii)} \\ [+\text{ concave}] & \text{(iii)} \end{cases}$

$/ \text{——} \begin{cases} C_0\ V\ C_0]_{(np)(ang)} & (a) \\ C_0\ V\ C_0 + C_0\ V\ C_0]_{vng} & (b) \\ C_0\ V\ C_0]_{ap} & (c) \end{cases}$

where $C_0$ = zero or more consonants
V = one or more vowels
$\alpha T$ = any tone except 0-tone

Rule (16)(i-iii) are tone feature rules, and rule (16)(*a-c*) are segmental conditioned rules. Furthermore rule (16) abbreviates a sequence of three disjunctively ordered rules (16 ai), (16 ciii). When any one of these three rules applies to a string, the other two rules are not applicable to it. Of course, rule (16) also abbreviates (16 aii), (16 aiii), (16 bi) etc., However, Mandarin-Chinese tones do not appear in such feature combinations; therefore, we will not discuss them here. To further test the validity of rule (16 ai), (16 bii), and (16 ciii), we apply them to the following data:

(17) I. numeral

(*a*) bā (eight)
(*b*) báwèi (eight persons)
bágè (eight things)
bádwèi (eight pairs)

II. ang (adj-negative)

(*a*) bù (no/not)
(*b*) bútswò (not bad)
búyùng (need not)
búgoù (not enough)
búgwèi (not expensive)

III. vng (verb-negative)

byéjaují (don't worry)
byéshwohwà (don't talk)
byéshengchì (don't be angery)
byéchouyān (don't smoke)

IV. adjective

(*a*) syău (small)
(*b*) syáubyău (small watch)
syáugoŭ (small dog)
syáushŏu (small hand)
syáuwăn (small bowl)

Now we turn to the data of (17); first let's consider bá(wèi) of column I(*b*); Condition (*a*) of rule (16) is applicable, because ba is lexically marked as a numeral, and it occurs before wei, which is of the syllable structure $C_0$ V $C_0$. Furthermore, the tonal feature of wei is [+ falling], and the underlying tonal feature of ba is [− rising]; they meet the requirement of tone feature rule (16)(i); therefore, we must apply rule (16)(i). The same ruly will apply to the rest of the formatives in column I. Thus (16 ai) correctly determines the tonal features of column I. In addition rule (16 ai) also generate the tone of bu in column II, because they are adj-negatives; they have the underlying tone feature [− rising], and they occur before the sillable structure $C_0$ V $C_0$ which is in [+ falling] tone feature. In column III the formative bye is a contraction of búyàu (do not)[1] bu has the underlying tone feature [− rising], son we can assume that bye also has a underlying tone features [− rising]. Bye is lexically marked as verb negative which occurs before $C_0$ V $C_0$+$C_0$ V $C_0$. And the tonal features of the conditional segments are $\begin{bmatrix} -\text{ pitch} \\ -\text{ contour} \end{bmatrix}$ [$\alpha$T]. Thus, condition (16)(*b*) and rule (16)(ii) are applicable. In column IV syau is marked as adjective and ha sthe underlying tone feature [− rising] ;it occurs before $C_0$ V $C_0$ which possesses the [+ concave] feature. Thus condition (16)(*c*) and rule (16)(iii) are applicable. We now demonstrated that rule (16) can generate correctly the above data and will generate more which are not listed. Therefore, we have proven rule (16) is a valid and adequate rule.

2.3. *Tone alternations in tri-syllables.*

In tri-syllable combinations, it seems that the tone in the middle tries to join the tones on both sides, therefore it transforms itself into the tone feature, [+ level], no matter what the underlying tone it has. For example see data (18).

(18)

| I. | II. | |
|---|---|---|
| (*a*) tā dwō chī | (*a*) tā dwō chī | (he eats more) |
| (*b*) tā cháng chí | (*b*) tā chāng chí | (he often rides) |
| (*c*) tā yěh mǎi | (*c*) tā yēh mǎi | (he also buys) |
| (*d*) tā bú tswò | (*d*) tā bū tswò | (he is not bad) |

In data (18), the tones of column I are the underlying forms of the tones in column II. Case (18) I (*a*) does not have underlying tones, because its middle syllable has a level tone, and [+ level] is the main feature for connecting the tones on both ends. However, (18) I (*b*), (*c*), (*d*) all subject to transformations; especially the middle tone feature of (*d*) which has gone through transformational process twice. In (*d*) the underlying tone feature for bu is [+ falling]; therefore we have:

$$bù \rightarrow bú/ \text{ —— } tswò]_{ang} \text{ rule (16ai)}$$

But in the tri-syllable combination, the [+ rising] feature of bú(tswò) is transformed once again to the feature [+ level]. Thus, we have tā bú tswò tā bū tswò.
Now we will formulate a rule for all the above tri-syllables:
Rule (19)

$$[-\text{ level}] \rightarrow [+\text{ level}]/[+\text{ level}] \text{ —— } [+\ \alpha\ \text{contour}]_{(ad)(a)}$$

[2] The word byé (don't) undergoes the following processes:
(1) vowel elision: bú + yaù → byàu
(2) vowel contraction: byaù → byé



where ad = adverb a = adjective.
Rule (19) means that the tones of adverbs or adjectives which occur after a level tone and before [+ $\alpha$ contour] tones become level tones. However, these medial tones do not onl yoccur after level tones; they also occur after tones with [+ rising], [+ falling], [+ concave] features, as follows:

(20)

| I. | II. | |
|---|---|---|
| (*a*) shéi cháng feī | (*a*) shéi chāng fēi | (who often flies) |
| (*b*) nà bú tswò | (*b*) nà bū tswò | (that's not bad) |
| (*c*) nǐ yěh maǐ | (*c*) nǐ yēh maǐ | (you also buy it) |

Therefore we rewrite rule (19) to rule (21)

(21) $[-\ \alpha\ \text{level}] \rightarrow [+\text{ level}/[+\ \alpha\ \text{contour}] \text{ —— } [+\ \beta\ \text{contour}]_{](ad)(a)}$

2.4. *Tone alternations in relation with stress and syntactical boundries.*

Of all the examples on tone alternations which are given above, the tone feature of the last formative of a construction remains stable; it never alternates. Furthermore, the tonal feature does not alternate before a syntactic pause or in a stressed word of a sentence. For example:

| | |
|---|---|
| (*a*) nǐ geǐ wǒ bù geǐ | (rule 21) |
| (*b*) nǐ geǐ wǒ bū geǐ | (rule 16 ciii) |
| (*c*) nǐ geí wǒ bū geǐ | (surface structure (*a*) note 3) |
| (*d*) nǐ geí-wo bū geǐ | (rule 21, 16 ciii) |
| (*e*) ní geǐ, wǒ bū geǐ | (surface structure (*b*) note 3) |

Case (*a*) is a string of formatives with their original tones. In case (*b*) the last formative is gei with concave tone feature, since it is the last formative of a VP construction, therefore its tone feature remains unchanged, and by rule (21) the tone feature of bù becomes bū. In case (*c*) by rule (16 ciii) the tone feature of gěi becomes géi before wǒ, and nǐ belongs to the np construction. Between np and vp constructions, there is a syntactical pause or a potential pause, therefore the concave tonal feature of nǐ is unchanged. In case (*d*) the indirect object wo (we), becomes 0-tone, which we will discuss it further in Part II of this paper. Case (*e*) is an emphatic compound sentence with a pause acting in between to join in two short sentences. It has the surface structure of (*b*) in note (1). Notice in (e) the first gei is before the pause (,) and it also is stressed, therefore it retains its original tone feature [+ concave]. The second gěi is the last formative of vp construction (bugei), therefore it too keeps its original tone. In this surface structure, there is no pause between ni gei, therefore by rule (16 ciii), nǐ becomes ní [+ rising]. Wǒ in this sentence structure is a subject instead of an object; it is a np, thus it also remains unchanged.

[3] The string ni gei wo bu gei has two surface structures; it depends how one assigns them.

(*a*) $[_s \# [_{np} \#$ ni $\# ]_{np} [_{vp} \#$ gei-wo bu gei $\# ]_{vp} \# ]_s$ (Do you give it to me or not?)
(*b*) $[_s \# [_s \# [_{np} \#$ ni $\# ]_{np}$ $[_{vp} \#$ gei $\# ]_s$ (but) $[_s \# [_{np} \#$ wo $\# ]_{np}$ $[_{vp} \#$ bugei $\# ][\ \#\ ^{da}{}_s \# ]_s$
(You give it but I don't)

2.5. *Summary.*

In Part I of this paper, we deal mainly with tone alternations in the Mandarin-Chinese language, and these variations are manifested only under normal speech conditions. If it were in fast tempo, the situation will be very much different, and the phonetic features of tones in terms of pitch and contour will be greatly reduced. Besides a few irregularities of tones and some idiomatic usages of pitch and contour which we have not discussed here, we believe that we have given a pretty good approximation on the tonal alternations in Mandarin-Chinese here. In Part II, we will discuss the functions of the 0-tone, and its importance in the tonal system.

## Part II

## 0-Tone in Mandarin-Chinese

### 1. Introduction

In studying Mandarin-Chinese, linguists usually do not emphasize 0-tones. because they are [− pitch], and [− contour]. However, occurrences of 0-tones rank first amount other tones in the language. Statistically they occupy about 40% [4]. The reason for this increase in 0-tones is that in modern Chinese, words are largely disyllabic or polysyllabic, some formatives have lost both their meanings and tones, and they become affixes to mark the functions of the words of which the form a part; thus resulting in derived words of various types which we will discuss below.

1.1. *Derivational affixes in* 0*-tones.*

Among the derivational affixes in 0-tones, we have nouns derived from suffixes, verb phrases derived from suffixes, and subordinative phrases derived from suffix -de.

1.1.1. *Nouns derived from suffix* -r.

(1) (*a*) A+r→N — where A = Adjective N = noun

| | |
|---|---|
| lyàngr | (light) |
| hwángr | (egg yolk) |
| hăur | (regards, good wishes) |

(*b*) V+r→N — where V = verb N = noun

| | |
|---|---|
| chàngr | (songs) |
| yìr | (seal) |
| bāur | (package) |

[4] In a recent experimental study by computer programming on a Chinese language textbook, *Speak Chinese*, Yale University Press, we found out that in a total of 4800 tones, there are 2016 O-tones. The occurrences of O-tones here is about 42%.



(*c*) N+$r_1$→N — where $r_1$ = diminutive N = noun

| | |
|---|---|
| yúr | (small fish) |
| jīr | (chicks) |
| lár | (small basket) |

(*d*) M+r→N — where M = measure N = noun

| | |
|---|---|
| gèr | (size) |
| tyáur | (strip) |
| kwàr | (a piece) |

Now we write rule (2) to abbreviate rules (1)(*a-d*)

(2) $$\left\{\begin{bmatrix}A\\V\\M\end{bmatrix}+r\right\}\rightarrow N$$

rule (2) is a disjunctively ordered rule. In this case (N+$r_1$) has to occur together.

(3) yìr (seal, kwàr (a piece)

The underlying representation for yi(r) and kwa(r) are yin(r) and (kwai(r), and after -r is added to them the -n and -i is dropped respectively, therefore, we have the present form yir, and kwar. This kind of phonological processes not only occur with these two words but with all the words occur in the same environment. Therefore we have following deletion rules:

(4) Nasal elision

$$\begin{bmatrix}+\text{cons}\\-\text{ant}\\+\text{cor}\\+\text{nasal}\end{bmatrix}\rightarrow\emptyset\ /\ \text{——}\ \begin{bmatrix}+\text{voc}\\+\text{cons}\\-\text{ant}\\+\text{cor}\\+\text{cont}\end{bmatrix}$$

(5) Vowel elision

$$\begin{bmatrix}-\text{cons}\\+\text{high}\\-\text{back}\end{bmatrix}\rightarrow\emptyset\ /\ \begin{bmatrix}+\text{voc}\\-\text{cons}\end{bmatrix}\text{——}\begin{bmatrix}+\text{voc}\\+\text{cons}\\-\text{ant}\\+\text{cor}\\+\text{cont}\end{bmatrix}$$

(6) lyàngr (light), hwángr (egg yolk), chàngr (songs).

The underlying representations of case (6) is when -ng occurs after vowel before -r then the vowel is nasalized, and the -ng is dropped. Thus, we have rule (7) and (8)

(7) Nasalized vowel

$$\begin{bmatrix}+\text{voc}\\-\text{cons}\end{bmatrix}\rightarrow[+\text{nasal}]\ /\ \text{——}\ \begin{bmatrix}+\text{cons}\\-\text{ant}\\-\text{cor}\\+\text{nasal}\end{bmatrix}$$

(8) Nasal elision

$$\begin{bmatrix} +\text{cons} \\ -\text{ant} \\ -\text{cor} \\ +\text{nasal} \end{bmatrix} \rightarrow \emptyset \;/\; \text{——} \; \begin{bmatrix} +\text{voc} \\ +\text{cons} \\ -\text{ant} \\ +\text{cor} \\ +\text{cont} \end{bmatrix}$$

Now let's look at rule (4) and rule (8) in the left of the arrow the difference of the two rules is only by one feature [± coronal]; therefore, we transfer this feature from the left hand side of the arrow to the environment; thus we have rule (9).

(9)

$$\begin{bmatrix} +\text{cons} \\ -\text{ant} \\ +\text{nasal} \end{bmatrix} \rightarrow \emptyset \;/\; \left\{ \begin{bmatrix} \text{——} \\ +\text{cor} \end{bmatrix} \begin{bmatrix} \text{——} \\ -\text{cor} \end{bmatrix} \right\} \begin{bmatrix} +\text{voc} \\ +\text{cons} \\ -\text{ant} \\ +\text{cor} \\ +\text{cont} \end{bmatrix}$$

1.1.2. *Nouns derived from suffix -dz.*

(10) (*a*) A+dz → N — where A = Adjective N = noun

| | |
|---|---|
| laŭdz | (oldman or father) |
| sȳādz | (blind person) |
| pàngdz | (fatty) |

(*b*) V+dz → N

| | |
|---|---|
| pyàndz | (swidler) |
| hwádz | (rower) |
| shwādz | (brush) |

(*c*) M+dz → N — where M = measure N = noun

| | |
|---|---|
| gèdz | (stature) |
| fèndz | (gift) |
| tyáudz | (note) |

(*d*) N+$dz_1$ → N — where $dz_1$ is a redundant nominalizer.

| | |
|---|---|
| jwōdz | (table) |
| fángdz | (house) |
| jīndz | (gold) |

We can no wrewrite rule (10)(*a-d*) as one rule.

(1)

$$\left\{ \left\{ \begin{matrix} \text{A} \\ \text{V} \\ \text{M} \end{matrix} \right\} + \text{dz} \right\} \rightarrow \text{N}$$
$$(\text{N} + dz_1)$$

1.1.3. *Verb phrases derived from suffixes.*

(12) (*a*) V+past → V+le — where V = verb

| | |
|---|---|
| chīle | (ate) |
| láile | (came) |
| nyànle | (studied) |



(*b*1) V+progressive → V+je — where V = verb

| | |
|---|---|
| chīje | (eating) |
| shwōje | (speaking) |
| nyànje | (studying) |

(*b*2) V+je → V+je+N+ne — where N = noun V = verb

| | |
|---|---|
| chīje fàn ne | (is eating (food)) |
| shwōje hwà ne | (is speaking (words)) |
| nyànje shū ne | (is studying (book)) |

(*b*3) V+je+N+ne → N+V+je+ne

Sometimes the direct object of the verb can be transposed to the front (see rule *b*3) as emphatic expression. Examples are as follows:

| | |
|---|---|
| tāng rèje ne | (The *soup* is being heated) |
| jyŏu lyángje ne | (The *wine* is being cooled.) |

(*c*1) V+perfect → V+gwo(le)

| | |
|---|---|
| chīgwo(le) | (have/had eaten) |
| shwōgwo(le) | (have/had spoken) |
| nyāngwo(le) | (have/had studied) |

(*c*2) V+gwo → V+gwo+N+le

| | |
|---|---|
| chīgwo fàn le | (had eaten(the food)) |
| shwōgwo kwà le | (had spoken (words)) |
| nyàngwo shū le | (had studied (books) |

(*d*) Some verbs take more than one 0-tone as suffixes. For example: The verb syăng (think) can take as many as four 0-tone suffixes.

| Verb | no. of Suffix | Meaning |
|---|---|---|
| syăng | 0 | (to think) |
| syăngchilai | 2 | (to think about it.) |
| syăngchilaile | 3 | (remembered) |
| syăngbuchilaile | 4 | (could not remember) |

We will now abbreviate rule (12)(*a-c*) into one rule (13).

(13)

$$\text{V} \left\{ \begin{matrix} \text{past} \\ \text{progressive} \\ \text{perfect} \end{matrix} \right\} \rightarrow \text{V} \left\{ \begin{matrix} \text{le} \\ \text{je} \\ \text{gwo} \end{matrix} \right\} \text{ where V = verb}$$

We can also combine rule (12)(*b*2, *c*2) to rule (14)

$$\text{V} \left\{ \begin{matrix} \text{je} \\ \text{gwo} \end{matrix} \right\} \rightarrow \text{V} \left\{ \begin{matrix} \text{je} \\ \text{gwo} \end{matrix} \right\} + \text{N} \left\{ \begin{matrix} \text{ne} \\ \text{le} \end{matrix} \right\}$$

## 2. Reduplication *in* 0-tone

In addition of affixation, 0-tone also occur in reduplications, usually they occur on the second syllable, such as:

2.1. *Kinship terms.*

| | |
|---|---|
| pàpa | (father) |
| māma | (mother) |
| dìdi | (younger brother) |
| mèimei | (younger sister) |

2.2. *Nouns.*

| | |
|---|---|
| syīnsyin | (stars) |
| bǎubau | (baby) |
| chyūchyu | (cricket) |

2.3. *Aspect of verbs.*

We have discussed previously of the forms, verb + je (progressive), and verb + le (past); now we have a reduplicated verb which have the meaning of attempting. Thus we have:

| | |
|---|---|
| kànkan | (to take a look) |
| syǎngsyang | (to think it over) |
| dzwòdzwo | (to do it by trying) |

2.4. When a disyllable word is being reduplicated in a phrase, it is the first syllable and the last syllable before the subordinative suffix -de, or before the optional retroflex suffix -r retain their tones, and those syllables that are in between lose their tones. For examples:

| Disyllable | Meaning | Reduplication | Meaning |
|---|---|---|---|
| chīngchu | (clear) | chīngchingchuchǔ(-r)de | (perfectly clear) |
| gwēijyu | (rule) | gwēigweijyujyǔ(-r)de | (well behaved) |
| kèchi | (polite) | kèkechichì(-r)de | (very polite) |

2.5. *Pronouns as verb objects.*

When pronouns function as verb objects, they become 0-tones; such as:

| | |
|---|---|
| gěi-wo(men) | (give to me/us) |
| gěi-ni(men) | (give to you/you pl.) |
| gěi-ta(men) | (give to him/them) |

So we have rule (15)

(15) $[\alpha T]\ \text{Pro} \rightarrow \begin{bmatrix} - \text{pitch} \\ - \text{contour} \end{bmatrix} / [\alpha T]\ V + \text{———}$

where

$\alpha$ = variables
T = any tones
Pro = pronuon
V = verb

rule (15) means pronouns with various tones become 0-tone, after a verb.



2.6. *Now let's recapitulate the occurrences of 0-tones which are predictable.*

(16) (*a*) nouns derived from 0-one suffixes -r, -dz.
(*b*) verb phrases derived from 0-tone suffixes -le, -je, -gwo.
(*c*) 0-tone suffixes occur in reduplication.
(*d*) 0-tone -de, the subordinative suffix.
(*e*) 0-tone in pronouns as indirect object.

2.7. *Open class of 0-tone.*

In addition to the above 0-tones, almost any formatives in one of the four regular tones can be in the 0-tone; this class of 0-tones are unpredictable, and their occurrences depending on the speaker, and the conditions in which they are spoken. Therefore, they belong to an open class. In modern Mandarin, tones of this type have increased greatly. This is perhaps because people have a tendency to choose the easiest way with the least possible effort to communicate with each other. In English people use contractions and slurring, and in Mandarin-Chinese, the easiest way for speaking is to drop the tones, and to get the meaning from the context of a sentence. For instance, the word syānshēng (Mr.) has two level tones on each syllables. In real speech, the tone of the second syllable is dropped, so syānshēng → syānsheng; here the last syllable becomes 0-tone. When spoken in three syllables, Wáng syansheng (Mr. Wang), the tones of the last two syllables are dropped, and only the tone on the first syllable remains.

2.7.1. (*a*) Voiced to nonvoiced consonants

| | |
|---|---|
| dìba | (the eighth) |
| jīdau | (to know) |
| kànjyan | (to see) |
| syīgwa | (watermelon) |

In case 2.7.1 (*a*) the initial consonant of the second syllable of all the words are nonvoiced; thus, we have rule (17).

(17) $\begin{bmatrix} + \text{cons} \\ + \text{voice} \end{bmatrix} \rightarrow \quad / \begin{bmatrix} \overline{\quad} \\ - \text{pitch} \\ - \text{contour} \end{bmatrix} \text{——}\ C_0\ V$

where $C_0$ = zero or more consonants V = one or more vowels

(*b*) Vowel alternations

| | |
|---|---|
| myánhwa | (cotton) |
| chwānghu | (window) |
| kwàihwo | (happy) |

In case (*b*) the final vowels of 0-tone words become mid-vowel o. Thus rule (18).

$[+ \alpha\ \text{voc}] \rightarrow \begin{bmatrix} + \text{mid} \\ + \text{back} \end{bmatrix} / \begin{bmatrix} \overline{\quad} \\ - \text{pitch} \\ - \text{contour} \end{bmatrix} C(V) \text{——}\ \#$

where C = consonant V = vowel

(*c*) Vowel elision

In 0-tone when syllables beginning with ch-, ch(y)-, f-, s- and ending with -i, yu, or -u, the vowels are dropped, such as the following examples:

| | |
|---|---|
| chūchyu | (to go out) |
| kèchi | (polite) |
| jàngfu | (husband) |
| yìsz | (meaning) |

So we write rule (19) to account for (*c*)

(19) $$\begin{bmatrix} +\text{ voc} \\ +\ \alpha\text{ high}\end{bmatrix} \rightarrow \emptyset \ / \ \begin{bmatrix} \overline{\quad} \\ -\text{ pitch} \\ -\text{ contour}\end{bmatrix} \begin{Bmatrix} \text{ch} \\ \text{chy} \\ \text{f} \\ \text{s}\end{Bmatrix} \text{ —— \#}$$

In this paper we exclude particles, and interjejections as part of the 0-tone domain, because they belong to syntax, and they should be dealt within the syntactical constructions.

This article is the first of its kind to use generative method in investigating tonal phenomena in Mandarin-Chinese. In conclusion, we find that the underlying principles of the Mandarin tonal structure; moreover, the tone features and phonetic features do give better specifications on the occurrences of tonal alternants in connected speech. These phonological rules which we have constructed have been tested both with written data, and with native speakers as well, we find that these rules are adequate and valid in both cases. However, with regard to tone features — high, level, rising, falling, concave — in this paper, they lack physical measurements in order to give a better description on the tonal contours and pitch. These measurements on Mandarin-Chinese tones, especially in connected speech will be in my next paper in that i will present the results of my laboratory research at the Royal Institute of Technology, Speech Transmission Laboratory, Stockholm, Sweden.

Summary of rules

1. READJUSTMENT RULES

(1) $$\begin{bmatrix}\text{level} \\ \text{falling} \\ \text{concave}\end{bmatrix} \rightarrow [-\ \alpha\text{ rising}] / \begin{bmatrix}\overline{\text{CT}}\end{bmatrix}$$ where CT = citation tones

(2) $[\pm] \rightarrow [\alpha\text{ pitch}]$ (*a*)

$$\begin{bmatrix}\text{level} \\ \text{rising} \\ \text{falling} \\ \text{concave}\end{bmatrix} \rightarrow [\alpha\text{ contour}]$$ (*b*)

2. TONE ALTERNATION RULES

(3) Two-tone alternation

$$[-\ \alpha\text{ rising}] \rightarrow [+\text{ rising}] / \text{—} \begin{Bmatrix}[+\text{ falling}] & \text{(i)} \\ \begin{bmatrix}-\text{ pitch} \\ -\text{ contour}\end{bmatrix}[\alpha T] & \text{(ii)} \\ [+\text{ concave}] & \text{(iii)}\end{Bmatrix}$$

$$/ \text{—} \begin{Bmatrix} C_0\ V\ C_0]\ (np)\ (ang) & (a) \\ C_0\ V\ C_0\ V\ C_0]\ vng & (b) \\ C_0\ V\ C_0]ap & (c)\end{Bmatrix}$$



(4) Three-tone alternation

$$[-\ \alpha\text{ level}] \rightarrow [+\text{ level}] / [+\ \alpha\text{ contour}] \text{ —— } [+\ \beta\text{ contour}]_J(\text{ad})(a)$$

3. 0-TONES AND THEIR DERIVATIONS

(5) Nouns derived from 0-tone suffixes

$$\begin{Bmatrix}\begin{Bmatrix}\text{A} \\ \text{V} \\ \text{M}\end{Bmatrix} + \text{r} \\ (\text{N} + \text{r}_1)\end{Bmatrix} \rightarrow \text{N}$$ (*a*)

$$\begin{Bmatrix}\begin{Bmatrix}\text{A} \\ \text{V} \\ \text{M}\end{Bmatrix} + \text{dz} \\ (\text{N} + \text{dz}_1)\end{Bmatrix} \rightarrow \text{N}$$ (*b*)

(6) Verb phrases derived from 0-tone suffixes

$$\text{V} \begin{Bmatrix}\text{past} \\ \text{progressive} \\ \text{perfect}\end{Bmatrix} \rightarrow \text{V} \begin{Bmatrix}\text{le} \\ \text{je} \\ \text{gwo}\end{Bmatrix}$$ (*a*)

$$\text{V} \begin{Bmatrix}\text{je} \\ \text{gwo}\end{Bmatrix} \rightarrow \text{V} \begin{Bmatrix}\text{je} \\ \text{gwo}\end{Bmatrix} + \text{N} + \begin{Bmatrix}\text{ne} \\ \text{le}\end{Bmatrix}$$ (*b*)

(7) 0-tone pronouns

$$[\alpha\ \text{T}]\ \text{Pro} \rightarrow \begin{bmatrix}-\text{ pitch} \\ -\text{ contour}\end{bmatrix} / [\alpha\ \text{T}]\ \text{V} + \text{——}$$

(8) Nasal elision

$$\begin{bmatrix}+\text{ cons} \\ -\text{ ant} \\ +\text{ nasal}\end{bmatrix} \rightarrow \emptyset \ / \ \begin{Bmatrix}\begin{bmatrix}\overline{\quad} \\ +\text{ cor}\end{bmatrix} \\ \begin{bmatrix}\overline{\quad} \\ -\text{ cor}\end{bmatrix}\end{Bmatrix} \begin{bmatrix}+\text{ voc} \\ +\text{ cons} \\ -\text{ ant} \\ +\text{ cor} \\ +\text{ cont}\end{bmatrix}$$

(9) Vowel elision

$$\begin{bmatrix}-\text{ cons} \\ +\text{ high} \\ -\text{ back}\end{bmatrix} \rightarrow \emptyset \ / \ \begin{bmatrix}+\text{ voc} \\ -\text{ cons}\end{bmatrix} \text{——} \begin{bmatrix}+\text{ voc} \\ +\text{ cons} \\ -\text{ ant} \\ +\text{ cor} \\ +\text{ cont}\end{bmatrix}$$ (*a*)

$$\begin{bmatrix}-\text{ cons} \\ +\text{ voc} \\ +\ \alpha\text{ high}\end{bmatrix} \rightarrow \emptyset \ / \ \begin{bmatrix}\overline{\quad} \\ -\text{ pitch} \\ -\text{ contour}\end{bmatrix} \begin{Bmatrix}\text{ch} \\ \text{chy} \\ \text{f} \\ \text{s}\end{Bmatrix} \text{ —— \#}$$ (*b*)

(10) Nasalized vowels

$$\begin{bmatrix} +\text{ voc} \\ -\text{ cons} \end{bmatrix} \rightarrow [+\text{ nasal}] \;/\; \text{——} \; \begin{bmatrix} +\text{ cons} \\ -\text{ ant} \\ -\text{ cor} \\ +\text{ nasal} \end{bmatrix}$$

(11) Vowel alternation

$$[+\,\alpha\,\text{voc}] \rightarrow \begin{bmatrix} +\text{ mid} \\ +\text{ back} \end{bmatrix} \;/\; \begin{bmatrix} \overline{-\text{ pitch}} \\ -\text{ contour} \end{bmatrix} \text{C(V)} \text{——} \#$$

(12) Voiced to nonvoiced consonants

$$\begin{bmatrix} +\text{ cons} \\ +\text{ voice} \end{bmatrix} \rightarrow [-\text{ voice}] \;/\; \begin{bmatrix} \overline{-\text{ pitch}} \\ -\text{ contour} \end{bmatrix} \text{——} \text{C}_0\ \text{V}$$

*Boulder*

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# EINFLUSS DER SOZIALEN FAKTOREN AUF DAS SYSTEM DER EXISTENZFORMEN EINER SPRACHE

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Der unmittelbare Einfluss der sozialen Faktoren tritt in der Entwicklung der Existenzformen der Sprache besonders deutlich zum Vorschein. Dies betrifft sowohl Änderungen im Bestand der Existenzformen der Sprache als auch ihre Stellung im System. So war beispielsweise das Aufkommen und die Entwicklung der städtischen Koine als einer besonderen Art der regionalen Umgangssprache in der Epoche des Feudalismus in vielen Ländern bedingt durch bestimmte wirtschaftliche und politische Faktoren, die eine allmähliche Herauslösung der Stadt aus beschränkten lokalen Bindungen und allmähliche Absonderung der Sprache ihrer Bevölkerung vom Territorialdialekt verursacht haben. Im mittelalterlichen Europa war eine stärkere oder geringere Abhängigkeit der städtischen Koine von sbezifischen Besonderheiten des Dialekts ,in dessen Areal die betreffende Stadt lag, d. h. das Verhältnis zwischen der Koine und dem Ortsdialekt, in jedem Staat bedingt durch das Niveau der wirtschaftlichen Entwicklung der Städte und die soziale Struktur ihrer Bevölkerung. Die interdialektale Koine der grösseren Zentrem mit einer hinsichtlich ihrer Herkunft bunten Bevölkerung bildeten sich auf Grund einer intensiven Wechselwirkung von mehreren mundartlichen Systemen heraus und stellten eine gewisse Etappe der Entwicklung eines verallgemeinerten, über Dialekten stehenden Sprachtypus dar. Dadurch lässt sich die Tatsache erklären, dass der Werdegang einer einheitlichen Standardsprache in der Geschichte vieler Literatursprachen mehr oder weniger mit der städtischen Koine verbunden ist. So hat z.B. bei der Herausbildung des einheitlichen Systems des Russischen die städtische Koine Moskaus die bestimmende Rolle gespielt. Sie entstand auf der Basis der nördlichen und südlichen grossrussischen Dialekte als einer der mittleren grossrussischen Übergangsdialekte. Die Sprache Londons stellte auch eine interdialektale Koine dar, die sich im Laufe der Wechselwirkung von zwei dialektalen Systemen herausgebildet hat. Auf die gleichen Prozesse bei der Herausbildung der einheitlichen Literatursprachen in China und Japan wurde von N. I. Konrad hingewiesen.

Die Herausbildung der städtischen Koine beeinflusste ihrerseits die Stellung des Dialekts und der bearbeiteten Typen der Sprache, deren Charakter sich mit der Etappe der historischen Entwicklung und der Umschichtung in der sozialen Struktur der Gesellschaft ändert.

In der Entwicklung des Dialekts lassen sich drei historische Typen schematisch dargestellt - ansetzen. Der erste Typ ist der Stammesdialekt, der auf den früheren Stufen der gesellschaftlichen Entwicklung in der Gentilgesellschaft existierte. Anzunehmen ist, dass kennzeichnend für die Stammessprache jener Epoche das Feheln der Gegenüberstellung « Dialekt: Sprache » war, d.h. das Fehlen der Gegenüberstellung, deren Gegenglieder ein regional beschränktes, untergeordnetes Subsystem und eine übergeordnete, mehr oder wengier verallgemeinerte Existenzform der Sprache sind. Unter solchen Verhältnissen ist der Dialekt nicht nur die Grund-, sondern auch die einzige Form des Verkehrs und der Mitteilung innerhalb des

Stammes. Schwache Differenziertheit der Kommunikationssphären stand der Absonderung jeglicher überdialektalen Formen, dem Auftreten von sprachlichen Standards im Wege. Das bedeutet doch nicht, dass der Stammesdialekt stets monofunktional blieb.

Die einsetzende soziale Schichtung innerhalb der Gentilgesellschaft förderte die Differenzierung von verschiedenen Kommunikationssphären, somit auch die Polyfunktionalität des Dialekts und seinie stilistische Schichtung. Beim rituellen Zeri-moniell, in epischen Liedern und Rechtssprüchen bildeten sich Merkmale der bearbeiteten Sprache heraus. Die Entstehung von grossen Stammesbünden, den Vorgängern der künftigen Staaten der Antike und des feudalen Europa, war Voraussetzung zum Auftreten von interdialektalen Verkehrsformen. Dieser späteren Periode in der Geschichte der Stammesdialekte scheinen die von Tazit erwähnten epischen Lieder sowie Götter- und Heldensagen der alten Germanen und die von Jordan in seiner « Getica » erwähnte Poesie der Goten angehört zu haben. Zu beachten sind auch Zeugnisse der antiken Autoren über interdialektale Verkehrssprachen. Eine solche war im III.-IV. Jahrhundert das Gotische. Anders gesagt, entwickelt sich in der Epoche der verfallenden Gentilgesellschaft und der aufkommenden gesellschaftlichen Einheiten mit komplizierterem sozialen Aufbau auch eine neue sprachliche Situation, wo neben der dialektalen Umgangssprache noch verschiedene mehr oder weniger überdialektale Formen existieren, denen kompliziertere gesellschaftliche Funktionen zufallen. In diesen Formen wird die Beschränktheit des Dialekts überwunden nicht nur durch Aufgabe von eng-regionalen Besonderheiten, sondern auch durch Entwichlung von besonderen funktional-stilistischen Redeweisen, die der gesprochenen Sprache fremd, für die Sprache der epischen Poesie, sowie für die Kultus- und Volksrechtssprache charakteristisch waren.

Die Weiterentwicklung der gesellschaftlichen Verhältnisse beeinflusste noch stärker die Stellung des alten Stammesdialektes. In Westeuropa war z.B. die Bildung von feudalen Staaten mit der Entstehung von neuen ethnischen Gemeinschaften, den Nationalitäten, auf der Basis der Vereinigung und Vermischung der alten Stämmeentstanden. Die alten Stammesgrenzen wurden duch die Bildung von feudalen Territorien verwischt. Unter diesen Verhältnissen verwandelte sich der Dialekt allmählich in ein territoriales Subsystem eines bestimmten sprachlichen Kontinuums (der Nationalitätsprache), in ein Subsystem, das ausserdem infolge der Entwicklung der intedialektalen und überdialektalen Formen sozial und funktional immer stärkere Einschränkung erfuhr. Neben den städtischen und regionalen umgangsprachlichen Koine gewinnen verschiedene Funktionalstile der bearbeiteten Sprache, die ihrer Natur gemäss stets zum überdialektalen Typus tendiert, an Bedeutung. So darf die geschriebene Literatursprache, die sich in Frankreich des XI-XII. Jahrhunderts in westlichen anglo-normannisch-anjouischen Besitztümern herausgebildet hat und die in solchen literarischen Werken wie Rolandslied, Wallfahrt Karl des Grossen vertreten ist, trotz ihrer landschaftlichen Färbung als einem bestimmten Dialekt angehörend nicht bezeichnet werden. Die Absonderung vom territorialen Dialekt ist auch für die Sprache der deutschen Poesie des XII.-XIII. Jahrhunderts charakteristisch. Sie äussert sich einmal in der Aufgabe von eng- regionalen Merkmalen und in der Vereinigung der Züge verschiedener dialektaler Areale, zum anderen in der Ausnutzung eines besonderen funktional-stilistischen Systems, vor allem aber in der Wortwahl und der Phraseologie. In diesem Zusammenhang ist darauf aufmerksam zu machen, dass der Terminus « Schriftdialekte » in Anwendung auf die Sprache dieser Literatur nicht zutreffend ist. So darf der Feststellung, dass im feudalen Russland « die Sprache des altrussischen Schrifttums, welche stilistische Merkmale sie auch haben möchte, im Prinzip eine dialektale Sprache war », nicht zugestimmt werden. Die Vereinigung des altslavischen und des altrussischen sprachlichen Elements bedingten den überdialektalen Charakter der Sprache dieser Denkmäler, ungeachtet der landschaftlichen Unterschiede, die



sich in der Schreibtradition von Kiew, Nowgorod, Rjasan, Pskow und Moskau feststellen lassen und die mit den bestimmten dialektalen Arealen zweifellos in Beziehung stehen. Analoge Verhältnisse bestanden in der feudalen Epoche auch in anderen Ländern. Die sogenannten « Schriftdialekte » sind in Wirklichkeit landschaftliche Varianten der geschriebenen Literatursprache.

In der Epoche der Bildung der Nationen und der nationalen Kulturen wird die Stellung der lokalen Mundart noch mehr eingeschränkt. Durch das Vordringen der städtischen und regionalen Koine, der Umgangssprache verschiedener Art, durch das Eindringen der Literatursprache in die Sphäre des mündlichen Verkehrs nimmt die soziale Bedeutung des lokalen Dialekts immer mehr ab. Seine Position ist gewöhnlich in ländlichen Gegenden am dauerhaftesten, aber auch dort je nach der Altersgruppe der Bevölkerung unterschiedlich. Auf diese Weise erhält der territoriale Dialekt allmählich Züge eines sozialen Dialekts. Diese allgemeinen Tendenzen setzen sich aber in verschiedenen Ländern mit unterschiedlicher Intensität durch und führen zu unterschiedlichen Ergebnissen. Tatsächlich im heutigen Russisch z.B. lässt sich beinahe volle Verdrängung des Dialekts beobachten, in Frankreich verschwinden allmählich die früheren lokalen Dialekte der zentralen Gebiete (anders ist es im Süden), ihre Spuren jedoch in der Aussprache und Grammatik hinterlassend. Degegenüber erwiesen sich deutsche und italienische territoriale Dialekte als dauerhafter. Auch hierbei haben extralinguistische Faktoren die bestimmende Rolle gespielt, beispielsweise der Zentralisierungsgrad des Staates während der Entwicklung der kapitalistischen Verhältnisse und damit auch der Beständigkeitsgrad der Überreste der feudalen Zergliederung, das Vorhandensein oder das Fehlen des einzigen wirtschaftlichen, politischen und kulturellen Zentrums usw. Der Beständigkeitsgrad des territorialen Dialekts hängt ausserdem vom gesellschaftlichen Status der einheitlichen nationalen Standardsprache und von ihrem Verhältnis zu den verschiedenen Typen der nichtliterarischen Formen des mündlichen Verkenrs ab.

Die einheitliche nationale Standardsprache oder die einheitliche Literaturnorm der Nationalsprache ist eine Abart der bearbeiteten Formen der Sprache. Allen bearbeiteten Formen der Sprache sind Selektivität und relative Regelung eigen, dadurch unterscheiden sie sich von jeder Abart der spontanen Rede. Dies gestattet, verschiedene Typen der bearbeiteten Sprache, gleichviel ob gesprochen oder geschrieben, unter einem (allgemeinen) Begriff « Literatursprache » bis zu einem gewissen Grade zusammenzufassen. Diese Merkmale erlauben, den Begriff « Literatursprache » auf die bearbeiteten Formen der Sprache aller historischen Epochen und verschiedener Typen — ihre poetische und prosaische, mündliche und schriftliche Realisierung — auszudehnen. Immerhin ist die gesellschaftliche Bedeutung der Literatursprache auf verschiedenen Stufen der sozialen Entwicklung unterschiedlich. Ihr Geltungsbereich (Regierungs- und Amtswesen, Wissenschaft, Publizistik, Literatur, Schule, Alltagsverkehr usw.) ihre davon abhängende funktionale Belastung, ihre Stellung unter den anderen Existenzformen der Sprache, d. h. ihr Verhältnis zu den nichtliterarischen Sprachtypen, vor allem zum Dialekt, der Grad ihrer Varianz bzw. Standardisiertheit, der Normalisationsprozesse werden durch die soziale Struktur der Gesellschaft bestimmt, in der die Literatursprache existiert. Dadurch ist auch die Existenz von verschiedenen Typen der Literatursprache zu erklären, die sich I. durch den Geltungsbereich der Literatursprache, 2. durch den Grad ihrer Einheitlichkeit und Standardisiertheit und 3. durch den Grad ihrer Absonderung von der Umgangssprache voneinander unterscheiden. Die Gesamtheit solcher Merkmale wie beispielsweise 1. Polyvalenz, d.h. die Geltung in allen Kommunikationssphären, 2. hohe Standardisiertheit und Normalisierung, die keine Ausnutzung der regionalen Varianten zulassen, stärkere funktional-stilistische Differenziertheit, ist für die Literatursprachen nur in der Epoche der entwickelten Nationen und der nationalen Kulturen charakteristisch, Wobei nicht für alle Literatursprachen in gleichem

Masse. Hingewiesen sei in diesem Zusammenhang auf die Unterschiede in der Stellung und im Typ der Literatursprache aus dem Ende des XIX. dem Anfang des XX. Jahrhunderts in England und Frankreich einerseits, in Deutschland und Italien andererseits. Diese Unterschiede resultieren aus der Tatsache, dass die Herausbildung der Literatursprache, ihre Normalisierung und Standardiesierung in Italien und Deutschland viel langsamer vor sich gingen und sich bis in die Mitte des XIX. Jahrhunderts hinzogen, ihre Anwendung in verschiedenen Kommunikationssphären (ihr Geltungsbereich) durch weite Verbreitung, besonders im mündlichen Verkehr, der regionalen nichtliterarischen Formen eingeschränkt war. Diese Unterschiede waren vor allem durch das Tempo der Entwicklung der wirtschaftlichen, politischen und kulturellen Einheit jeder Nation bedingt. Bezeichnend ist, dass die in den letzten 25 Jahren in verschiedenen Ländern zu beobachtenden Tendenzen zur Annäherung der mündlichen und schriftlichen Abart der Literatursprache, das Eindringen der nichtliterarischen Formen in die Literatursprachen, die allgemeine durch Erweiterung ihrer sozialen Basis bedingte « Demokratisierung » der Literatursprachen werden je nach der Klassenstruktur der Gesellschaft, in welcher die betreffende Sprache funktioniert, mit unterschiedlicher Intensität realisiert.

Was die Literatursprache der Periode vor der Bildung der Nationen betrifft, so bestimmte der Charakter der sozialen Struktur der feudalen Staaten überall nicht nur die Beschränktheit der sozialen Basis der Literatursprache, sondern auch die Intensität des regionalen Variierens und folglich das Fehlen der Einheit und Standardisiertheit. Die Verstärkung der Normalisierungsprozesse, Kodifizierung der Literaturnormen erfolgen erst in der Epoche des Verfalls der feudalen Verhältnisse. Der Typ der Literatursprache und somit der Aufbau des gesamten Systems der Existenzformen der Sprache spiegelt die soziale und politische Struktur der Gesellschaft wieder.

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## PHONETICAL INDICES OF SOCIAL CASSES IN QUÉBEC

Normand Beauchemin

*Résumé*

D'une enquête socio-linguistique faite dans la région de l'Estrie au Québec région maintenant française à 90 %, il ressort que certains traits phonétiques pourraient être considérés comme indices d'appartenance sociale. L'aspiration de l'occlusive sourde (p) en certaines positions, la diphtongaison de quelques voyelles sous l'accent et différentes réalisations de l'archiphonème (R) peuvent être mis en corrélation avec des différences sociales.

Il s'agit là d'une deuxième étape dans les résultats que donne le travail de recherche subventionné par le Conseil des Arts du Canada et qui s'intitule: « Etude d'un comportement sociolinguistique: l'unité linguistique de la paroisse en Estrie ».

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# SOCIOLINGUISTICS, SOCIOLOGY OF LANGUAGE, AND LINGUASOCIOLOGY

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Being often understood as synonyms these terms constitute the following pairs: sociology of language = linguasociology, sociolinguistcs = sociology of language, sociolinguistics = linguasociology.

The aim of the paper is to distinguish theoretically possible field of research within the theme « language and society » on the level of the objects, and in terminology as well. First of all it is necessary to say that there are two aspects in this theme (R. Grosse, 1970). Since the relation between language and society my be reversed as « society → language » or « language → society », out attention must be focused on different objects.

The study of the first aspect presupposes the investigation of language in the social context. Then society is a factor that determines the functioning, and development of language. If the second aspect is under consideration society becomes the object of our research. In this case language is a factor of its functioning and development.

These two aspects are in correspondence with two fields of inquiry linked with two disciplines: the first field * is related to sociolinguistic **, and the second One may be tied to sociology.

Sociolinguistics is in complementary relation to taxonomic linguistics since it studies language in connection with society. Sociolinguistics discovers and concretizes the relationship between society and language with respect to its system and functions. Language is considered as a heterogeneous system (W. Bright, 1966) representing the organized totality of varying linguistic units The heterogeneity of the system reflects the « vertical » structure of society (O. V. Larmin, 1971). The choice and the usage of variants depend upon social factors. Thus, the influence of society is « reflected » in the system of language (R. A. Budagov, 1971), and at the same time determines its realization.

A modern society (with the exception of a tribal organization) is heterogeneous in the sense that it consists of territorial, social-economic, professional, and corporative, communities amalgamated with different co-operative relations (E. D. Polivanov, 1968).

Linguistic communication in society constitutes the continuum of intercourse or in other words disintegrates into a number of subspheres (Ju D. Desheriev, 1966). A subsphere is a part of the continuum characterized by the single communicative task. The continuum of intercourse according to the ethic type of a

* Within the theme « language and society » Sapir-Whorf's hypothesis should not be investigated because it concerns the relation of language and thought.

** The term « social linguistics » was being broadly used by soviet linguists yet in the twenties. See for example the articles written by E. D. Polivanov at that time and reprinted now in the collection « Статьи по общему языкознанию », Москва, 1968.



society may be served by various forms of speech belonging to the same language (in an ethnically homogeneous society) or by different languages (in an ethnically heterogeneous society). It does not matter for us whether these forms of speech are sublanguages or separate languages. However it is important that they all are used by a single society (defined on the base of sociological criterions) or in other words they constitute a system of functionally connected subsystems.

Members of a society (not all, this depends on their social role - J. Gumperz, 1970) make use of these sybsystems and consequently controle them. So these members of a society are characterized by multilingualism or diglossia. Multilingualism, and diglossia spontaneously arise in the process of social interaction. Their essence may be defined as the speaker's ability to realize the same extralinguistic information in different language expressions. Generally speaking this phenomenon means that the subsystems which co-exist in the speaker's language competence and make him to express the same content in different ways, are in the relation of interchangeability. Therefore the totality of these subsystems may be considered in comparison with a totality of sound, graphic and light signal systems reduplicating each other, as a system of means of linguistic expression. In both comparing cases several expressions correpond to the same information. Such a system is based on interchangeability and on the features distinguishing the units of various subsystems. The use of a subsystem depends on societal factors. The choice of a subsystem is determined by its meaningful opposition to other subsystems, and also on societal factors. For instance a Russian is aware of the difference between words g l a v a , g o l o v a , b a s h k a « head » (since there is a difference between them just in the very system) and so a Russian speaker chooses out of the three words only that one which correlates with the style of conversation.

The choice of a subsystem (variants or a variant) is what we may call speech behaviour. In my opinion sociolinguistics has to investigate all speech behaviour including the problems of its changing, under the influence of social factors. This discipline must study not only speech (D. Hymes, 1962), but language too because linguistic choice is also determined by the meaning which a certain subsystem or a variant has within the system.

Therefore sociolinguistics like taxonomic linguistics is also interested in the organization of language system although in absolutely another respect. It is relevant for sociolinguistics that language as a system consists of subsystems implementing different social functions. Describing these subsystems on the level of system sociolinguistics considers the very existance of these subsystems as a preliminary condition for the use of the system to provide intercourse in all subspheres of communication. On this level the task of sociolinguistics consists in distinguishing subsystems with the help of two methods: identification of language units based on their social significance (that it the association of language units with social community, and social role of a speaker - E. D. Polivanov, 1968, J. Gumperz, 1970), integration of the language units which have the same social significance within a subsystem. In short the main task of sociolinguistics on this level is to discover the social distribution of variants in the wide sense of this word.

It is also necessary to designate the level of the realization of language system. On this level sociolinguistics has to study two phenomena: norm as a system which is realized within restrictions imposed by society, and functions of system.

In speech norm is characterized by the co-occurance of language units belonging to the same subsystem (J. Gumperz, 1968). Function we can define as the association of a subsystem with a subsphere of communication. The realized subsystem is a functional style (B. Gavranek, 1967). On the same level sociolinguistics investigates the problem of choosing a style variant depending on three main factors that determine the act of communication (participants, topic and

situation - D. Hymes, 1962). Summing up the aforesaid we may draw a conclusion that sociolinguistics first of all is a linguistic discipline which studies the functioning of language *.

Recognizing the predetermining role of society in the functioning and development of language sociolinguistics tries to observe the relationship between society and language on all the levels of inquiry including the study of system, norm and functions.

Sociolinguistics uses and accounts the data obtained by sociology which, being a science concerned with the general regularities of the functioning and development of society is represented by historical materialism. The historical materialism can give sociolinguistics reliable criterions for defying social groups and classes, the list of social factors, and other necessary information.

But I can not agree to the rather widespread view according to which sociolinguistics must be considered as an interdisciplinary science. I think sociolonguistics is a branch of linguistics in which scientists use as axioms the data yielded by sociology. But these axioms must be concretized and specified because language is a peculiar object. Therefore within sociolinguistics a theory of social factors, which exert influence on language, has the right to exist. This theory must have explaining character, and, accounting the peculiarity of the object, must be in complementary relation to the sociological general theory. This branch of sociolinguistics may be called ecology or sociology of language. It does not matter which name we choose. The main task of this branch involves the investigation of the problem concerned with the social conditionality of language.

In connection with the previous thesis I should note that in my opinion one, who tries to establish and formulate a sociology of language (for instance J. A. Fishman, 1968, 1970) as a discipline which is separate and independent from sociolinguistics, probably will not succeed in such an endeavour. The main obstacle is the fact that language considerably differs from other social phenomena. It is an all-embracing, and all-penetrating phenomenum. Therefore I am doubtful even about the possibility to construct such a discipline on the analogy of sociology of art, sociology of law sociology of education, and so on (also J. Helmer, 1969).

And what is more, if we examine the concrete problems indicated by scientists who are trying to construct this discipline « in order to more fully explain variation in socially patterned behaviors pertaining to language maintenance, and language shift, language nationalism, and language planning, etc. » (Fishman, 1970) we shall see that these problems are not characterized by any peculiarity. And really the language maintenance and lnguage shift refers to the problem of speech behavior, and, besides, this problem can not be thoroughly studied without answering the question about the communicative value of a language. It is obvious that a speech community will not be loyal to their language if it is not used by the speakers in intercourse and another community will not reject their language and will not shift to another one, if this languages serves communication equally with others. A languages shift really takes place only if a community realizes the communicative advantage of another language. The estimation of the communicative value of a language means that we must take into consideration the social functions of this language (Ju. D. Desheriev, 1966). Thus, the language maintenance, and language shift must be studied by sociolinguistics.

As far as language planning is concerned this problem as a whole can not be studied only by sociolinguistics, because there are merely three aspects in it: *a*) sociolinguistic aspect including estimation of a language or a language situation

* In this paper I do not intend to prove that sociolinguistics must also examine the problem of language evolution that is the evolution of its functions and system (M. V. Panov, 1968).



(in the case of multilingualism and diglossia), elucidation of difficulties in communication, spontaneous trends to overcome these difficulties, and elaboration of concrete language measures to maintain and reinforce this spontaneous trend that is compiling an optemum and concrete program of language planning; *b*) implementation of this program with due regard for opinions, and attitudes to proposing language measures of all sections of population, social classes, and political parties. This aspects does not bear direct relation to sociolinguistics, but can be as a whole adequately studied by sociology, since, being in essence a problem of taking decisions, is related to sociology of politics; *c*) research in social and linguistic consequences of language planning; the last one sociology, and sociolinguistic can investigate equally.

Only the problem of language nationism mentioned by J. A. Fishman obtains some peculiarity. Nationism is a tendency to integrate in ethnical, and linguistic respect an ethnically heterogeneous country with the help of a single language (official, state or « national »). In this case language must be viewed as a factor of ethnical, and linguistic integration together with economic and political factors. This problem as it has been said above enters the second aspect of the theme « language and society ». But the examining of this problem presupposes also the investigation of a number of linguistic items (language as a sign of a nation, language as a factor of national integration, typology of national languages, etc.). Therefore it may constitute a special branch of inquiry that I would prefer to call linguasociology (J. Ellis, 1969, A. Vašek, 1969).

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# SOCIOLINGUISTICS AND GRAMMATICAL NEOFORMS

E. A. Krasheninnikova

Contrasting of evolutional and static linguistics, advanced and, correspondingly, denominsted by F. de Saussure as diachronics and idiosynchronics should be revised from the standpoint of modern living languages.

The characteristic feature of a living-language-object is its changeability in its contemporary state, its ability to change and perfect its structures. The pliability of a grammatical system and its tendency to a constant clarification of its structures is one of the features of a highly-developed language. That is why the antinomy of diachronics and synchronics must be linked with the specific nature of the language-object under change, with the tendency of its development.

The tendencies of development of a language structure are determined by a complex of inter- and extralinguistic factors. These tendencies stem from the historically formed regularities of the language, as well from the non-language situation and give ground to forcast the future of a grammatical standard.

The entelechy of many a grammatical structure is indirectly determined by extralinguistic factors of various order, such as the intensification of the stream of information, increasing the tempo of life, appearance of new means of communication, etc. All these and the like circumstances not only stimulate the progressive movement of the language but also create conditions for preferable development of some or others practically chosen structures.

The influence of extralinguistic factors is realized not in the language structure itself, which is its established norm, but at the cross-section of the grammatical system which refers to the modern state of the language. In this connection we should distinguish between macro- and microgrammars of the language. The macrogrammar, covering the historical genesis and modern grammatical norm, deals with the result of interaction between inter- and extralinguistic factors, realized as language regularities. Microgrammar studies actual processes in the language of our day, considering grammar structures « in statu nascendi », and follows the mechanism and tendencies of neoform formation. Microgrammar, in the final count, reveals the reasons of the appearance of neoforms, both of the language proper, and sociopragmatic ones.

The coexistence in the system of modern language of a grammatical norm and various neoforms allows to single out some spectres of synonymical structures, the preferable use of one of which is determined by the permanently changing « taste » of the language speakers and by the efforts and conditions of communication. As a result of interaction of these forces there appears in a living language pragmatically conditioned « scale of values » which places a certain rigid net over the spectre of grammatical synonyms. For example, in the microgrammatical field of modern Germanic numeral, the highest stage of the « scale of values » is taken by a rather progressive model, built on decimal system, fo « funfzigvier » instead of « vierundfünfzig ». The socially defined pragmatical value of this fluctuation consists in that this logically built neoform helps remove misunderstanding of numeral in telephone talks, over the radio, in sporting commentaries, making public the resulta of a lottery, etc.



The second stage of the scale of values in the microgrammatical field of numerals is held by such Germanic neoforms as « zwo », « zwote », « zwoundzwanzig ». This neoform is often met in railway announcements, at railways stations and in broadcasting over the loud-speakers (Bahnsteig zwo, zwote Klasse), as well as in army orders and simply in colloquial speech of young people, up to 25 years of age. This neoform's pragmatical value lies in that this mutation, which revived the old form of feminine, helps avoid mixing in speech the numerals « zwei » and « drei ».

A narrower field of usage is taken at the third stage of the scale of values, by the neoforms of purely « telephone » meaning: « siebenzehn » instead of « siebzehn ». The appearance of the inserted proposition « en » is explained by the tendency to a greater clarity and legibility of speech.

And it is only the fourth, and last, stage of the scale of values, which is taken by the still used models of grammatical norm: zwei, zweite, zweiundzwanzig, which are thought tobe rather imperfect from the point fo view of a modern speaker of this language. It especially refers to the traditional « braid-model » of the complex German numeral.

Extralinguistic factors influence neoforms indirectly, regularities and tendencies of the living language-object.

There exist three main regularities in Modern German (Gegenwartssprache): 1) convergence of literary language with common speech, 2) intensification in the systematic nature and order of the language structure, 3) parallel development of progressive and regressive elements of the grammatical structure with the progressive elements tending to predominate.

A characteristic neoform, showing concrete forms of convergence of literary language and common speech is, e.g. the use of parataxis instead of hypotaxis, supported by the tendency « large-block thinking » (... zehn Seiten, die können schon mal weg). This structure has « open flank » (Kolb) which indicates « expectation » of further information. Another example of neoform of common speech origin may be the structure « werden + Inf. I and II with the meaning of supposition in present or past (Aber eine Mutter werden Sie doch gehabt haben).

After the Second World War this construction got especially widely used and has a tendency of firmly penetrating the literary language, pressing a little the macrogrammatical norm (hypothetical subjunctive mood and even modal verbs with Infinitive I or II). It has by now deeply penetrated the structure of modern language, having considerably changed its own « geography » After World War II Infinite II (together with construction werden + Infinite I and II) shifted from eastern areas westward and spread over the whole territory of both German republics.

The second regularity — intensification of the systematic nature and order of the language structure — revealer itself, e.g. in that the new German language has reestimated the old flexion of dative case — ien (Britannien, etc.) into a wordbuilding affix (Bizonien, Bizonesien, Trizonesien). The social order stimulated the appearance of this neoform of fluctuation type contrary to the historically formed referse grammatical law (usually, in German language history word-building affixes would change into flexions, and not vice versa).

Besides, a striking example of intensification of the systematic nature (Gegenwartssprache) are the attempts to reestablish the missing links of this or that category. In the new language, e.g. cases have become frequent of « reverse word-building », based on a false analogy. For example,

$$\frac{\text{arbeiten}}{\text{Arbeit}} = \frac{\text{x}}{\text{Handarbeit}}$$

where « x » = handarbeiten, a neologism, expressed by scanty forms. Or, for example, on our very eyes are born in the German language some previously missing ways of denominating relations. This, the classical Neuhochdeutsch lacked the specific denomination of the plural for polite formule « Sie ». Now a new, previously unaccepted form is in the process of joining the system of the language. The new opposition, Sg-Sie: Pl-ihr, has come into being.

Both forms have already been recognized both in GDR and the GRF, the fact being reflected in fiction as well. In addressing a number of people, each of whom is welcomed by the polite « Sie », non-less polite collective « ihr » is widely used today. Thus, we find in the I. von Wagenheim's novel « Das Zimmer mit den offenen Augen » a professor, addressing a girl, asking: « Was wollen Sie studieren? » and telling her and her friend: « Ich gebe euch eine Stunde. Geht einen Kaffee trinken » (pp. 560-561) (cmr. W. F. Leopold, « Recent Developments »).

The third regularity is pointing to the parallel development in the German language of progressive and regressive elements, with the progressive ones tending to predominate. It regress are inevitable as well of spoling, and littering the language, a certain devaluation of structure, language fashion. Language also suffers greatly by the overproduction of word-building units, as — mäßig, gemäß, — voll (kulturvoll, etc.). Or, e.g. in the advertising slang of German in GFR, and, partially, in GDR, fashionable are such nonsensical formations as « drehfreudig » (on motors), « maschinengerecht » (on weshing) etc. These one-day words are on the periphery of the word-building of German microgrammar and tend to dye out. An last but not least role in littering the language belongs to the factors of language convergence, leading to distorting indigenous German structures and models. For example, affected by the English « for », the German « für » has lost its clarity of use, and the English stereotype in preposition usage has had a negative effect on the bresch of functioning of the German prepositions « in » and « auf »: Die Vorträge werden in Deutsch (instead the correct « auf Deutsch ») gehalten.

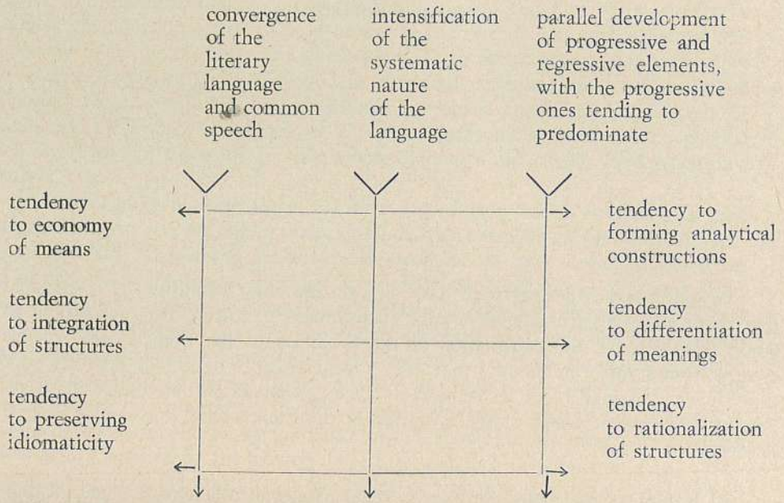
Despite the comparatively great number of such negative « diseases of growth », they do not determine the main trend of language development. On the whole, tendencies of perfecting the language structure are prodominant, clarity and expediency of its structures are intensified and its functions and meanings specified.

Not all the Germanic neoforms will join the future grammatical standard of the language. Forecasting the fate of some neoforms is possible only in case its rolation to socially determined regularities is investigated, as well as the degree of its corresponding to the prodominant grammatical tendencies. If some neoform coincides with the predominant tendency, it is likely to hold its place in the language and join the future grammatical standard. For example, the word-building neoform-model of the type « Das Allein-übrig-gebleiben-sein » may keep in the language, since it corresponds to the two predominant tendencies: the striving to integrate structures and the tendency to economy of means (since one word here substatutes a whole sentence).

For the German language of to day are characteristic such pairs of tendencies as: *a*) tendency to economy of means, on the one hand, and tendency to forming analytical constructions, on the other: *b*) tendency to integrate structures, on the one hand, and tendency to differentiated transference of grammatical meaning, on the other, and, finally, *c*) tendency to preserve the grammatical idiomaticity of the structure, on the one hand, and tendency to rationalisation of structures, on



the other. These pairs of contrasted tendencies in microgrammar seem to, penetrate the regularities of the German language structure development, equally relating to all the three regularities:




Thus, the regularities would throw a bridge between tendencies, having, essentially, interlinguistic nature and extralinguistic factors, stimulating the development of the language structure.

We can, therefore, say with confidence that though the grammatical system is less penetrable for extralinguistic factors then lexics, it, nevertheless, also experiences their considerable effect. In this connction sociolinguistic studies can, more than it was previously the case, make a wider use of the material on the state of grammatical systems of modern languages, inviting data on grammatical mutations and fluctuations, as well as forecasting the dynamics of separate neoforms.

*Moskva*

# ABOUT A PSEUDO LINGUISTIC UNIVERSAL: THAT NASAL VOWELS HAVE A TENDENCY TO LOWER

Bernard Rochet

In most studies dealing with nasal vowels and their evolution, it is assumed that there exists a general tendency for such vowels to lower. Thus, according to André Haudricourt, the explanation of the evolution of the French nasal vowels is to be found partly in the fact that « les voyelles nasales de grande aperture sont plus faciles à distinguer que les fermées » [1]. Georges Straka also attributes the changes in timbre characteristic of the evolution of the French nasal vowel to a general tendency:

> La différence d'aperture entre les voyelles nasales et orales reflète une loi phonétique générale, importante, pour l'appreciation des modifications des voyelles nasales dans l'histoire du français. Une voyelle nasale est toujours plus ouverte que la voyelle orale correspondante, et des qu'une voyelle se nasalise, elle tend aussitôt à s'ouvrir [2].

Straka goes on to provide an articulatory explanation of this postulated tendency which he further refers to as « la loi physiologique ... sous l'effet de laquelle toute voyelle nasale tend à s'ouvrir » (p. 257).

In fact it can be safely said that most historical grammarians who have delt with the French nasal vowels provide the same explanation for their evolution. Martinet, along with Haudricourt explains the lowering of nasalized vowels on perceptional grounds:

> ... l'articulation nasale nuit à la clarté de l'articulation orale simultanée parce qu'elle suppose qu'une partie de l'air s'échappe par le nez et se trouve ainsi perdue pour la cavité orale proprement dite. Cependant, plus l'ouverture de la bouche est grande, plus il y passe d'air, de sorte que, selon toute vraisemblance, les voyelles nasales ouvertes seront plus faciles à distinguer que les fermées. Ceci peut expliquer la tendence, souvent observée, des phonemes vocaliques nasalisés à s'ouvrir de plus en plus ... [3].

Pierre Delattre also finds justification for the lowering of nasal vowels in his acoustical studies [4]. After pointing out that « it has been observed both in French

[1] « EN/AN en français », *Word* 3 (1947), p. 43.
[2] « Remarques sur les voyelles nasales, leur origine etleur évolution en français, « *Revue de Linguistique Romane* 19 (1955), p. 248. In spite of his strong wording in favor of a universal tendency, strake writes. « Il est évident que les modifications, sous l'effet d'une ouverture exagérée, de *ẽ* à *ã*, de *ĩ* à *e* et de *ü* à *oe* ne sont pas inéluctables » (p. 259).
[3] *Economie des changements phonétiques*, 2nd ed. (Berne, 1964), p. 86; see also, « Les Voyelles nasales ou français », *La linguistique* 1: 2 (1965), p. 122.
[4] « Some sound Changes in the light of Spectrographic Analysis and Synthesis » *Omagiu lui Alexandri Rosetti la 70 de ani* (Bucarest, 1965), p. 122.



and Chinese ... that once high vowels become distinctly nasalized, they tend to lower », John Ohala also attempts to explain this fact on acoustical grounds [5].

There is no doubt that, in order to have any explanatory power, phonological universals must be in the last analysis stated in physical terms, and not only as statistical formulations. On the other hand, a statistical count of occurrences of a particular phenomenon seems to be a necessary first step it any real universal tendencies are to be discovered. Only phenomena which occur with significantly more than chance frequency can be viewed as potential candidates for such universal tendencies. Here, synchronic and diachronic universals appear closely related. As pointed out by Joseph Greenberg *et al.*, « no diachronic process can be posited which could lead to a synchronic state which violates a universally valid synchronic norm » [6].

From this point of view alone, the view according to which nasal vowels tend to lower seems to rest on rather snaky grounds. For example, in his study of vocalic nasality, N.S. Trubetzkoy gives several examples of nasal vocalic subsystems. Out of the six he represents through the use of two-dimensional diagrams (Burmese, the Scottish dialect of Barra Island, Northern Albanian, French, the Central Chinese dialect of Siang-Tang, and the dialect of Marchield), only the French nasal vocalic triangle does not include high nasal vowels [7]. To these examples, could be added those of the Assiniboine language which has high nasal vowels, and of some romance *patois* [8]. Furthermore, in Portuguese, where the high nasal vowels [ĩ] and [ũ] exist, the evolution of the nasal vowels shows no lowering, but a raising process which applies to the vowels [ɛ], [ɔ] and [a] [9]. In Gascon [ũ], which is found along with [ĩ] and [ü], is the reflex of Lat. *o* as in *bonum* > [bũ] and therefore reveals a process of raising which is rather puzzling if one considers that nasal vowels (or even *high* nasal vowels) tend to lower.

A statistical investigation may, however, fail to show decisively whether a particular phenomenon can be tentatively explained in terms of universal tendencies. The residue, the so-called exceptions, may be too important to be dismissed without further consideration. It is then necessary to check whether some interfering factors allow us to discard these negative cases as potential counter-examples, or on the other hand to reject the positive cases as accidentally similar results of divergent causes or conditions. This step then constitutes a *study in depth* of the phenomenon in question for each language considered: after the horizontal cut — synchronic and statistical — through the languages of the world, it is a vertical

[5] « The Role of Physiological and Acoustical Models in Explaining the Direction of Sound-Change » (Paper read at the 1st Annual All-California Linguistics Conference, held at Berkeley, May 1-2, 1971), p. 13. The fact that Ohala's phrasing of the purported tendency is slightly different from the other formulations listed above, in that he includes only high vowels, will be ignored in this paper for the two following reasons:

*a*) the observations which have led to the postulation of the tendency in question do not concern only high vowels.

*b*) the number of languages in which high nasal vowels exist is important enough to cast serious doubts on any such tendency, even in its restricted form (see below).

[6] « Memorandum Concerning Language Universals », in *Universals of Language*, 2nd ed., ed. Joseph H. Greenberg (Cambridge, Mass., 1966), p. XXiii.
[7] *Principles of Phonology*, transl. Christiane A. M. Baltaxe (Berkeley and Los Angeles, 1968), pp. 118-121. See also M. A. Isatchenko, « A propos de voyelles nasales », *B.S.L.P.* 38 (1937), pp. 267-279.
[8] See respectively N. B. Levin, *The Assiniboine Language*, publ. 32 of the *International Journal of American Linguistics*, Indiana University Research Center in Anthropology, Folklore and Linguistics (Blomington and The Hague, 1964), pp. 3 and 5-6; Georges Lote, « La Nasalisation des voyelles françaises », *Annales de la Faculté des Lettres d'Aix* 23 (1940-1943), p. 153.
[9] See Aniceit odos Reis Gonçalves Vianna, « Essai de phonétique et de phonologie de la langue portugaise d'apres le dialecte actuel de Lisbonne », *Romania* 12 (1883), pp. 30-32; José Joaquim Nunes, *Compêndio de gramática histórica portuguêsa*, 6th ed. (Lisboa, 1960), p. 151; Frederick H. Jungemann, *La teoría del sustrato y los dialectos hispano-romances y gascones* (Madrid, 1955), pp. 104-105.

probing — diachronic and as exhaustive as possible — into the structure of each language. This second step, which has just been presented as a requirement only if the first step did not lead to satisfactory results, should in fact be an absolute requirement if this were at all possible; the problems are one of time and one of coordination and mutual comprehension in terms of the frameworks used in the case of teams of workers. In a diachronic context, however, it is at least as interesting to know in which conditions a change developed as it is to know what the stages before and after the change were. In our search for diachronic phonological universals, it might be interesting to know which conditions surrounded a change $x > y$ in language $L$ before we can use that particular change as supporting evidence for a universal tendency $U$ $(x > y)$. For example, we would hardly consider $x > y$ in $L$ to provide such evidence for $U$ $(x > y)$, if in $L$ this mutation could be shown to be the result of substratum influence, or to have developed and spread as the consequence of one of the King's speech defects [10].

There is no doubt that French played an important role in suggesting that such a universal tendency as lowering existed for nasal vowels. The earlier statements made about this tendency concern only or mainly French, and the more recent ones, even when they are dealing with other languages or with the study of the tendency from a general point of view, include French as supporting evidence [11]. It seems therefore necessary to examine the lowering of some French nasalized vowel in *depth*.

Straka, after talking about the process of nasalization, remarks that « l'evolution ultérieure des voyelles nasales [françaises] a été surtout dominée par la loi physiologique ... sous l'effet de laquelle toute voyelle nasale tend à s'ouvrir » (p. 257), and he gives $\tilde{e} > \tilde{a}$, e.g. *ventus* > [vã] as an example on such typical opening. The merger *eN-aN* is usually presented as occurring around the tenth and eleventh centuries [12]. It is necessary to note, however, that whereas in the *langues d'oc*, present participles in *-ent* and *-ant* have remained separate, they have merged as *-ant* in the oil dialects. Thus, in the *Vie d'Alexis* (IXth century) which still distinguished lexical items in *-ent* from those in *-ant, vivant* (< *vīvere*) occurs in a strophe in *aN*: *amfant, tant, avant, vivant, Franc.* Therefore, the generalization of *-ant* as the mark of the present participle for all conjugations preceded the phonetic merger *eN-aN*. It is doubtful however that these two developments occurred completely independently. Although no absolute dating is available for the analogical process affecting the present participles, it must have taken place only after the assibilation of Latin *c*, a change which does not appear in inscriptions until the fifth century and is not yet mentioned by grammarians of the sixth century [13]. Therefore, the chronology of the two steps distinguished above within the change *eN* > *aN* seems to indicate that the morphological levelling *-ent* > *-ant* was instrumental in the phonetic merger *eN* > *aN*: the morphological levelling preceded the more general phonetic mutation, and the two steps appear close enough in time for some overlap to be posited [14]. Thus while the levelling was still

[10] For such an example, see Charles F. Hockett, *A Course in Modern Linguistics* (New York and Toronto, 1966), p. 414.

[11] See for example Theodore M. Lightner, « Why and How does Nasalization Take Place? », *Papers in Linguistics* 2: 2 (1970), p. 213, n. 7.

[12] For a structural interpretation of this change, see André Haudricourt, « EN/AN en français », pp. 46-47. For a criticism of this interpretation, see Rochet, « A Morphologically-Determined Phonological Change: The Merger *eN-aN* in Old French », paper presented at the 1971 Conference of the Learned Societies, Canadian Linguistic Association, in St John's, Newfoundland.

[13] See Yakov Malkiel, *Development of the Latin Suffixes -antia and -entia in the Romance Languages with Special Regard to Ibero-Romance* (Berkeley and Los Angeles, 1945), p. 58; Pierre Fouché, *Phonétique historique du français*, vol. II (Paris, 1958), p. 358; Emilio Alarcos Llorach, *Fonología española*, 4 ed. rev. (Madrid, 1965), pp. 235-236.

[14] The presence of lexical items like *tans* (< *temps*), *talant* (< *talentum*), etc., which in the earliest texts are in assonance indifferently with words in *eN* or *aN*, seems to provide evidence for such a period of overlap. See Paul Meyer, « *An* et *en* toniques », *Mémoires de la Société Linguistique de Paris* 1 ([c. 18, 1]), p. 2, 3.



in process, and competing variants in *-ent* and *ant-* existed in the language, the link must have been loosened between such an alternation and the grammatical category « present participle ». As a consequence, this alternation was extended to the rest of the lexicon.

Therefore one of the most striking lowerings of nasal vowels in French and consequently, if we follow the line of reasoning in Straka, Haudricourt, Martinet, etc., one which was influential in leading to the postulation of the lowering hypothesis, can be attributed to morphological levelling and later analogical extension. We find evidence for no physiological necessity, only the convergence of various specific conditions in a particular language at a particular time.

As pointed out earlier, such studies in depth should be an absolute requirement in our search for universals, not only as a safeguard against blunders, but as a matter of consistency within linguistics. If one agrees with Osgood that the « search for universals and our presentation of them should be guided by (1) our general methodology and its constructs, and (2) our present assumptions about their bases » [15], linguists should not on the one hand phonetically conditioned, and on the other hand launch into their search for diachronic phonological universals as if it were.

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[15] « Language Universals and Psycholinguistics », in *Universals of Language*, ed. Greenberg, p. 303.

# ANALYSE CARTOGRAPHIQUE DE LA STRUCTURE D'UN SYSTÈME D'ADJECTIFS

M. Takada

0. Les progrès récents des études dialectologiques ont été accompagnés de recherches dans des directions nouvelles. Ainsi on a vu apparaître les premières études de géographie dialectale structurelle, dans lesquelles les principes de la linguistique structurelle prennent une forme cartographique. Ce nouveau domaine a surtout été exploré pour révéler les structures phonologiques (voir Heerooma, Ivič, Weinreich et surtout Moulton). Un résumé utile des études à ce jour a été publié par Goossens.

1. Ici nous voudrions présenter une tentative de cartographie dialectale appliquée au domaine de la structure sémantique, choisissant un exemple parmi les adjectifs de la langue japonaise. En cours de publication depuis 1966, le « Linguistic Atlas of Japan » nous fournit ici un champ lexical suffisamment limité pour permettre une première tentative.

Il s'agit de trois adjectifs se rapportant à la dimension réduite des objets. Pour fixer les idées, disons d'abord que le parler commun de Tokyo distingue:

[tʃi:saj], petit, par ex. boite de petite dimension, abbrévié T

[hosoj], petit, par ex. baton de petit diamètre, mince, abbrévié H

[komakaj], petit, par ex. mailles serrées d'un filet, abbrévié KK.

Nous nous limiterons ici à la partie de Japon à l'ouest de la ville d'Osaka, y compris la grande île de Shikoku (voir carte 1). Il est facile d'imaginer les trois concepts en question formant une famille sémantique, dont les membres couvrent des aires tantôt identiques, tantôt alternantes et tantôt complémentaires.

1.1. Présentons d'abord les faits au moyen de schémas simplifiés.

Schéma a: (carte 22 de l'atlas): petite boite

A l'est la forme T (langue commune) avance vers l'ouest en faisant pression sur l'aire K (il s'agit ici d'une quatrième forme linguistique [komaj], inconnue de la langue commune), ancienne forme qui couvre tout l'ouest japonais. La forme K elle-même a coupé en deux fragments la forme H, qu'on ne trouve plus que dans deux îlots, le long des côtes.

Schéma b: (carte 24 de l'atlas): petit diamètre

A l'est la forme H (langue commune) progresse vers l'ouest; elle a atteint un front plus avancé que la forme T du schéma a. Les aires H et K ont des dimensions à peu près semblables que sur le schéma a et témoigne donc d'une histoire identique. La situation du schéma b a ceci de particulier que la forme H venant de l'est est sur le point de faire sa jonction avec des ilôts H plus anciens.

Schéma c: (carte 25 de l'atlas): petite maille

Ici aussi nous voyons à l'est la forme KK de la langue commune, mais son isoglosse ne diffère que très peu de celle de la forme T du schéma a. A l'ouest du schéma c, la forme K sépare ici aussi deux îlots H, qui sont cependant assez



différents de ceux que nous avons vu précédemment; celui du nord est réduit à des dimensions minuscules, celui du sud au contraire est nettement plus grand.

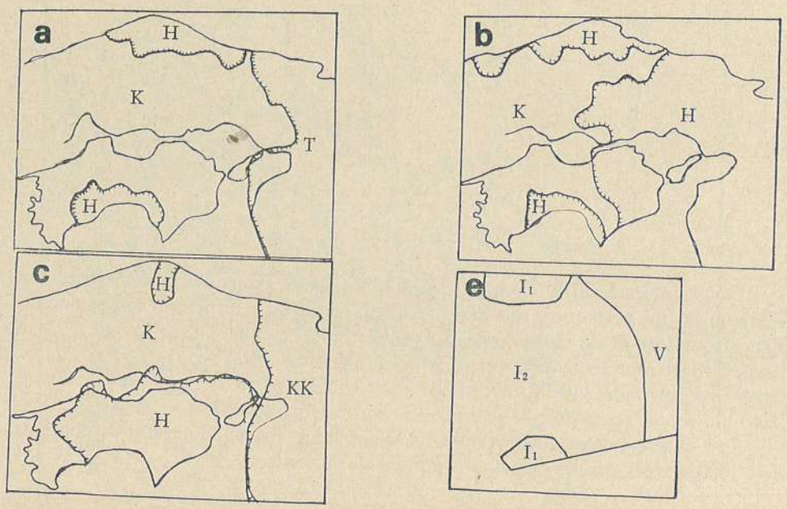



Schéma a. (Carte 22 de l'atlas): petite boite.
Schéma b. (Carte 24 de l'atlas): petit diamètre.
Schéma c. (Carte 25 de l'atlas): petite maille.

Nous terminons ainsi une explication des trois cartes linguistiques menée d'après les méthodes devenues classiques en géographie linguistique. Il faut noter que nos hypothèses sur l'âge relatif des aires laissent plusieurs points en doute. Est-il exact d'attribuer la plus grande ancienneté aux îlots H qu'on trouve sur les côtes nord et sud des trois cartes? Dans ce cas, quel est le rôle de la grande aire H qui apparait sur le schéma b? Comment enfin interpréter la différence entre les limites de la forme du langage commun qui s'avance vers l'ouest sur chacun des schémas a, b, c?

2. Refusons donc de nous arrêter à ce point de vue atomisant; la langue fait ici usage de quatre formes linguistiques seulement, mais elle les combinent en divers types de structure qu'il faut maintenant examiner.

2.1. Pour les trois concepts A = petite boite, B = petit diamètre et C = = petites mailles, la langue dispose donc de quatre adjectifs: T, H, K, KK. Théoriquement ces concepts peuvent être structurés de cinq façons différentes.

I: $A = B = C$ (donc un seul et même adjectif pour les 3 concepts)

II: $A = B \neq C$

III: $A \neq B = C$

IV: $B \neq C = A$

V: $AB \neq C \neq A$

Combinant ces cinq types possibles avec les structures formées par nos quatre formes adjectivales trouvées sur nos cartes, nous pouvons dresser le tableau suivant:

| type \ concept | A (boite) | | B (diamètre) | | C (mailles) |
|---|---|---|---|---|---|
| I 1 | H | - | H | - | H |
| I 2 | K | - | K | - | K |
| II 1 | H | - | H | - | K |
| II 2 | K | - | K | - | H |
| III | K | - | H | - | H |
| IV | K | - | H | - | K |
| V | T | - | H | - | KK |

Nous inspirant de la méthode de Moulton, nous avons établi des signes conventionnels qui permettent de faire ressortir les aires à structure commune. Les signes sont formés de trois éléments (voir carte 1)
l'axe vertical représente le concept A: petite (boite)
l'axe diagonal représente le concept B: petit (diamètre)
l'axe horizontal représente le concept C: petites (mailles).

Les quatre formes linguistiques en usage pour chacun de ces trois concepts, sont représentées par les signes conventionnels suivants:

T c'est-à-dire [tʃi:saj]

H c'est-à-dire [hosoj]

K c'est-à-dire [komaj]

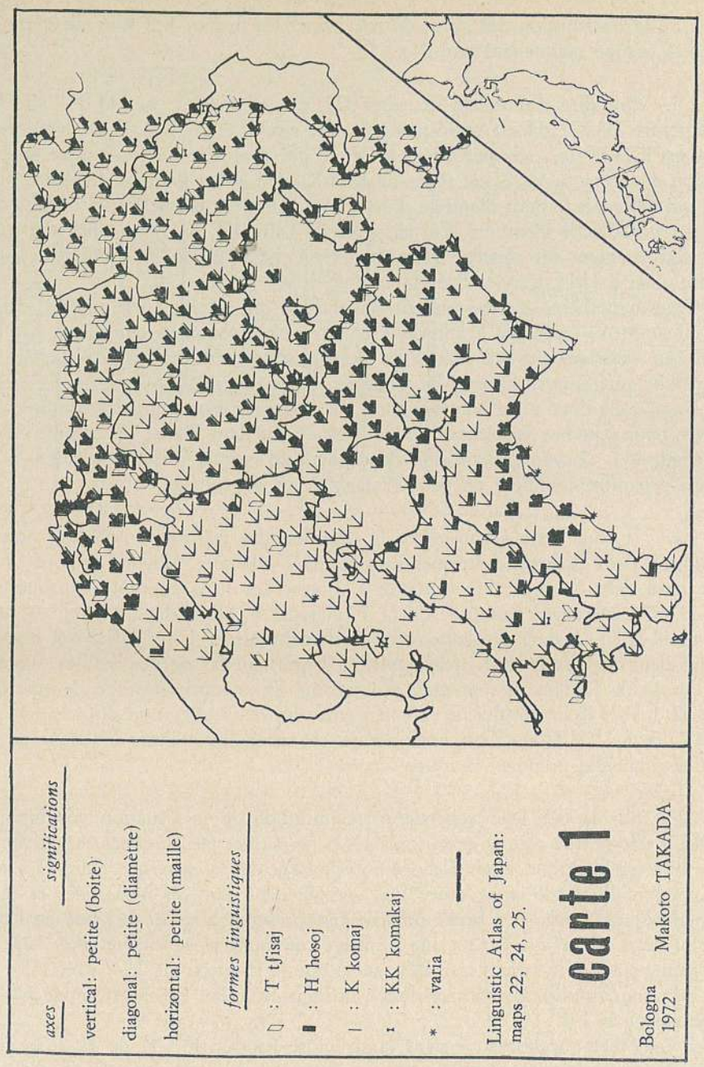
KK c'est-à-dire [komakaj]

2.2. Grâce à ce procédé le regard que nous portions sur le schéma b y découvre immédiatement une nouvelle dimension; l'aire H qui recouvre largement l'est de ce schéma, se révèle maintenant appartenir à trois structures différentes: d'abord V à l'est, puis parallèlement IV et III se succédant du nord au sud (voir le schéma d, simplification de la carte 1).

Cette nouvelle dimension se révèle naturellement aussi pour les autres aires de nos schémas a, b, et c; ce qui semblait être aire continue se révèle ainsi posséder une structure interne complexe.

2.3. Voyons maintenant quelques unes de ces structures révélées par notre carte structurelle et tâchons d'y lire la genèse et l'histoire de celles-ci. Le type V est donc la structure de la langue commune de Tokyo: T — H — KK; en plus de l'aire compacte qui couvre l'est, en regardant la carte dans les détails, on y voit en plusieurs localités des points isolés à l'ouest de l'aire V, où la même structure T — H — KK a cours. Ce sont des avant-coureurs de la l'avance de la langue commune. Vis à vis de l'aire V, la structure 1-2, K-K-K donc l'usage du même mot pour les trois significations, occupe entièrement l'ouest et s'étend vers l'est sous la forme d'une large bande horizontale: ceci serait la structure ancienne de nos territoires. Entre la différentiation « zéro » 1-2 et la triple différentiation, V, toutes les autres structures réprésenteraient des compromis, des collisions ou des stades intermédiaires, donc I 1, II à IV. C'est ce qu'il nous reste à voir maintenant.






2.4. Pour commencer, jetons le regard sur l'aire IV qui est immédiatement limitrophe à l'aire V de la langue commune. Cette dernière a pour le concept de « petit » trois membres T-H-KK; la structure IV par contre ne différencie que le membre central K-H-K. Il semble bien légitime de voir ici le résultat d'un contact entre la structure la plus ancienne (ouest et centre) I 2 sans différentiation. En d'autres mots la structure sémantique K-K-K confrontée avec une langue à différentiation complète T-H-KK a d'abord emprunté le membre central; en termes sémantiques cela signifie que c'est le concept « petit diamètre » qui était le plus disposé à se détacher du groupe lexical, qui éprouvait le plus le besoins d'être désigné par un adjectif propre.

Si cette déduction est exacte, nous pouvons dès lors reconstruire un stade plus

ancien de la distribution des aires, durant lequel les formes I 2 couvraient tout le territoire occupé maintenant par IV.

2.5. Que dire maintenant des aires III, immédiatement au sud de l'aire IV? La structure IV K-H-H est imbriquée dans les aires IV, K-H-K. Il est légitime de voir dans K-H-H un stade postérieur à IV, ce qui veut dire que le lexique après la collision décrite sous 2. 4 (naissance de K-H-K, aire IV) a gardé la tendance originelle qui désignait le petit diamètre d'un baton et le petit diamètre des mailles d'un filet par un adjectif identique. La naissance de l'aire IV, K-H-K a donc été suivie par l'élargissement du concept H au troisième membre de la structure en produisant ainsi K-H-H, c'est à dire III.

Cette hypothèse suppose un fait sémantique qui semble bien naturel, c'est-à-dire que « petit » appliqué à une boite et aux objets compacts considérés par leur dimension extérieure, a été rejeté des domaines sémantiques où il s'agissait des dimensions intérieures, surtout le diamètre (baton ou maille).

Nous voilà donc à un nouveau stade de notre reconstruction historique et sur la carte nous pouvons considérer tout qui est maintenant III et IV comme devant appartenir à I 2,avant la collision de ce dernier avec la forme commune V. Le schéma e montre comment on peut s'imaginer cet état ancien.

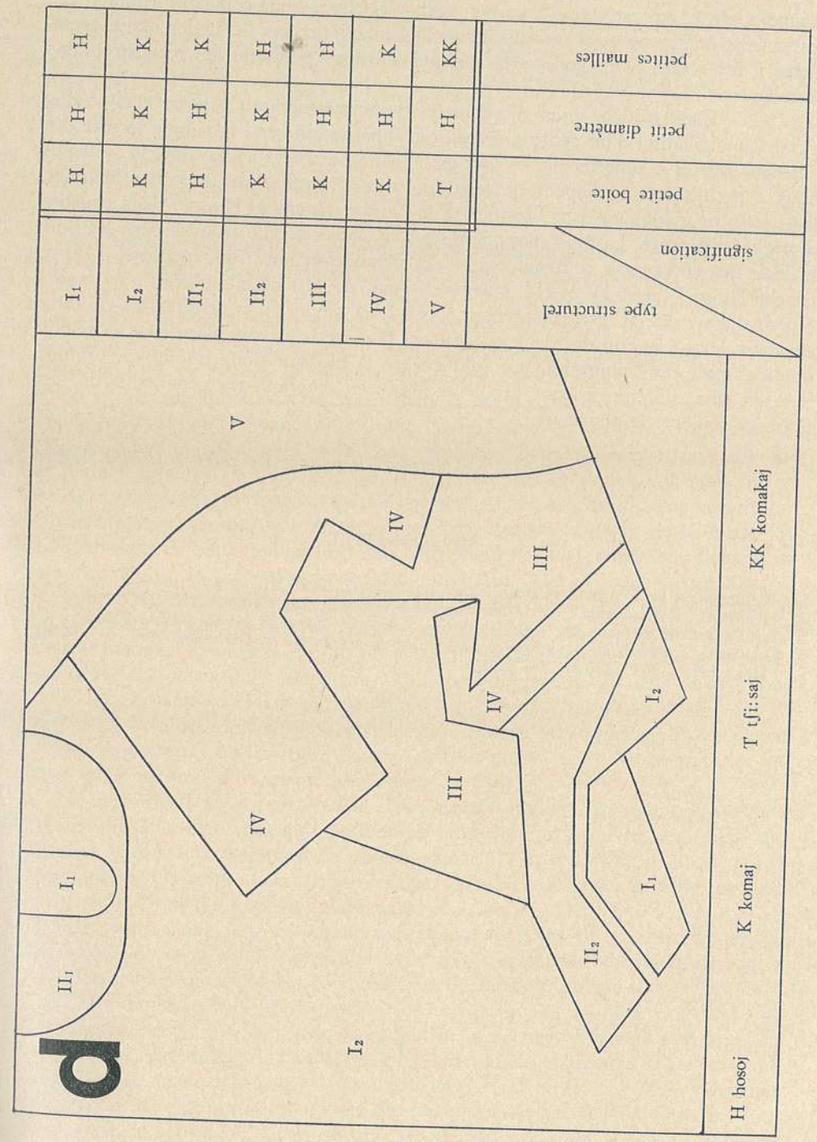
2.6. Il nous reste à considérer la situation des territoires isolés au nord et au sud, où deux îlots concentriques sont appuyés à la côte. Voyons d'abord ce qui s'est passé dans le nord. La structure I 1 avec les trois concepts exprimés par H-H-H est entièrement entourée de II 1 où seuls « petites mailles » ont un autre adjectif H-H-K. Or dans plusieurs localités de cette aire I 1, les sujets ont répondu par les deux formes H et K à la question concernant les petites mailles, ajoutant que l'usage de K dans ce sens était plus récent. Il est donc légitime de voir dans l'aire II 1 H-H-K un résultat du contact entre les deux aires non différentiées I 2 (K-K-K) et I 1 (H-H-H). Ceci nous permet de reconstituer l'aire I 1 dans on son étendue originelle, comme sur notre schéma e.

2.7. Sur la côte sud cependant la similitude de la situation géographique (c-à-d I 1 adossé à la côte et entouré de II 2) ne permet pas de conclure hâtivement à une histoire identique. Tout d'abord on remarque sur la carte que l'aire II 2 a un bon nombre d'îlots de la structure I 2, spécialement dans les montagnes et sur le cap sud-est; ces endroits à accès difficile ont préservé la plus ancienne structure. De plus cette même aire II 2 a une frontière commune assez longue avec l'aire III (elle-même stade plus récent que IV) tandis que la frontière de II 2 avec l'îlot I 1 n'est pas une frontière de contact direct, la ligne frontière est interrompue par des formes relict de I 2.

Il faut bien supposer que dans la structure lexicale K-K-H de II 2, le H en troisième place (« petites mailles ») ne provient pas de l'influence de l'îlot I 1 du sud, mais résulte du contact avec l'aire voisine à l'est et au nord, c'est à dire avec l'aire K-H-H. Ceci au fond est changement assez probable si on postule que le territoire couvert par II 2, K-K-H avait lui aussi à l'origine la structure ancienne I 2, K-K-K.

3. Nous voilà donc à même de complèter la reconstruction de l'ancienne situation lexicale sur toute l'étendu de notre carte. Le schéma e montre donc I 1 au nord (H-H-H) (correspondant au territoire actuel de II 1); I 1 au sud est inchangé; il semble être soutenu par l'influence locale de la ville préfectarale de Kôchi. L'aire de I- 2 du schéma e comprend donc les aires actuelles IV, III et II 2.





Avant l'irruption donc de la forme de la langue commune V à l'est, le centre du Japon occidental connaissait deux systèmes lexicau: H-H-H au nord et au sud, séparés par une grande aire K-K-K. Le facteur commun à ces deux structures est qu'elles ne font usage que d'un seul adjectif pour les trois concepts; c'étaient donc l'adjectif [hosoj] (nord et sud) et l'adjectif [komaj] (ouest et centre). Puisque I 1 est partagé en deux aires séparées, il est naturel d'y voir une structure plus ancienne que I 2, qui est venu l'attaquer; mais à quelle époque cela peut-il remonter? les sources écrites ne nous fournissant pas de matériaux sur l'état des dialectes anciens, il n'y a que la méthode géographique qui nous permette des reconstructions historiques.

3.2. Il est évident qu'en ajoutant les rapport structurels à notre analyse dialectale, une filiation d'un genre nouveau est apparue qui rend la simple lecture des schémas a, b et c superficielle et caduque. La reconstruction des anciens systèmes nous a permis non seulement de regarder sous la surface des rapports lexicaux, mais aussi de distinguer dans l'histoire d'une forme comme H [hosoj] deux couches d'origine différente. La plus ancienne de ces couches est celle trouvée dans les îlots le long des côtes; son contenu lexical est riche, couvrant trois concepts. L'autre couche [hosoj] (aires IV et III, schema d) vient de l'est où elle n'avait que le sens « petit diamètre ». Il reste maintenant à voir quel rapport il pourrait avoir eu entre ces deux [hosoj]: l'un des deux ne pourrait-il pas être né sur place dans la région étudiée, mais alors pourquoi? Ce sont encore là des questions insolubles. Comme le disait déjà Gilliéron, chaque problème résolu en géographique géographie linguistique en soulève de nouveaux.

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# CONTRE LA NOTION D'ARCHIPHONEME

Eric Buyssens

Mon but est de montrer que la notion d'archiphonème n'a pas de fondement théorique et qu'elle ne s'intègre pas dans le système phonologique.

Pour faire ma démonstration je me servirai uniquement des Principes de Phonologie de Troubetzkoy, étant donné que nous trouvons là une theorie d'ensemble.

Comme chacun sait, l'hypothèse de l'archiphonème se rattache au fait de la neutralisation. Il est bon de relire la definition que Troubetzkoy donne de la neutralisation et de l'archiphonème; les voici dans la traduction de Cantineau:

« Dans les positions où une opposition neutralisable est effectivement neutralisée, les marques spécifiques d'un des termes de l'opposition perdent leur valeur phonologique et les traits que les deux termes ont en commun (c'est-à-dire la base de comparaison de cette opposition) restent seuls pertinents. Dans la position de neutralisation, un des termes de l'opposition devient donc le représentant de l'archiphonème de cette opposition: par archiphonème nous entendons l'ensemble des particularités distinctives qui sont communes aux deux phonèmes » (p. 81).

Pour bien discerner le lien qui rattache l'archiphonème à la neutralisation, il faut reprendre l'exemple cité par Troubetzkoy; il s'agit de l'opposition entre les voyelles françaises « é » et « è »; en fin de mot, ces voyelles s'opposent (par exemple *allez/allait*); mais dans les autres positions l'opposition est neutralisée, nous dit Troubetzkoy; et voici son commentaire:

« Ces deux voyelles doivent être considérées comme deux phonèmes seulement en finale ouverte, et au contraire dans toutes les autres positions comme des variantes combinatoires d'un même phonème » (p. 80).

Nous trouvons ici le point faible; Troubetzkoy applique la notion de variante combinatoire à la neutralisation; en d'autres termes, il assimile les phonèmes qui s'excluent parfois aux variantes d'un même phonème; et il appelle ce phonème un archiphonème. Or cette assimilation n'est pas possible; car voici la définition que Troubetzkoy donne des variantes combinatoires :

« Si deux sons d'une langue, parents entre eux au point de vue acoustique on articulatoire, ne se présentent jamais dans le même entourage phonique, ils sont à considérer comme des variantes combinatoires du même phonème » (p. 50).

Il faut remarquer la présence de l'adverbe *jamais*; pour qu'il y ait variante combinatoire, il faut que les sons en question ne se présentent jamais dans le même entourage; or, par définition, les oppositions neutralisables montrent des sons différents dans le même entourage, à savoir en position de pertinence: dans l'exemple choisi par Troubetzkoy, on trouve les deux voyelles en fin de mot. Il n'est donc pas possible de considérer qu'en position de neutralisation on trouve les variantes d'un même phonème; autrement dit, la notion d'archiphonème manque de tout fondement.

Cette notion doit encore être considérée d'un autre point de vue. Il y a lieu de se demander si l'absence de pertinence de certaines marques modifie le phonè-

me ou empêche son identification. Troubetzkoy doit s'être posé cette question, car il a écrit ce qui suit:

« Dans les oppositions neutralisables, la perception est hésitante: dans les positions de pertinence, les deux termes de l'opposition sont nettement distingués, mais par contre dans les positions de neutralisation on est souvent hors d'état d'indiquer lequel des deux termes a été exactement prononcé ou entendu » (p. 81).

Troubetzkoy n'ose pas affirmer qu'on n'identifie jamais le phonème; il se contente de dire que souvent on a de la peine à l'identifier. Mais un fait récent vient contredire cette opinion; il s'agit d'une proposition de réforme de l'orthographe du néerlandais; dans cette langue l'opposition entre consonne sourde et consonne sonore est neutralisée en fin de mot: par exemple, le verbe *hebben* se prononce avec un /b/, mais la première personne du singulier au présent *heb* se prononce avec un /p/. Certains réformateurs proposent que l'orthographe en tienne compte, c'est-à-dire qu'à la fin des mots on n'écrive que les lettres représentant les consonnes sourdes; exemple *hep*. Cela prouve que les locuteurs n'ont aucune hésitation quant à la nature sourde des consonnes finales; ils ne pensent nullement à un archiphonème. On ne voit dès lors pas quelle importance accorder au fait qu'en position de neutralisation certaines marques ne fonctionnent pas; elles ne sont pas absentes.

Et Troubetzkoy l'admet implicitement en identifiant régulièrement ce qu'il appelle « le représentant de l'archiphonème » avec « l'un des termes de l'opposition »; cela se voit déjà dans sa définition; il dit « un des termes de l'opposition devient le représentant de l'archiphonème ». Cela se voit encore lorsqu'il décrit les quatres façons dont se réalise le représentant de l'archiphonème (pp. 82-84). Le 2e cas est décrit comme suit:

« Le représentant de l'archiphonème est identique à la réalisation d'un des termes de l'opposition, le choix de ce représentant étant conditionné extérieurement ».

Le 3e cas est rédigé de même, sauf que le choix est conditionné interieurement. Dans le 4e cas,

« les deux termes de l'opposition représentent tout deux l'archiphonème: un terme dans une partie et l'autre dans l'autre partie des positions de neutralisation ».

Le seul cas ou l'identité n'est pas parfaite, c'est le premier; il est formulé comme suit:

« Le représentant de l'archiphonème d'une opposition neutralisable n'est identique à aucun des termes de l'opposition ».

Il s'agit, évidemment, d'allophones, de variantes combinatoires.

Il reste à montrer que l'archiphonème ne s'intègre pas dans le système phonologique; en effet, dans ce système on trouve des oppositions entre unités de même sorte, à savoir des phonèmes; l'archiphonème, n'étant pas un phonème, ne trouve pas sa place dans ce système.

Les phonologues américains se passent généralement de la notion d'archiphonème; d'autres les imitent. Mais personne — à ma connaissance, du moins — ne s'était jusqu'à présent donné la peine de montrer qu'il y a lieu de rejeter cette notion.

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# TIMING OF SOUND DURATION IN NEGATIVE CORRELATION WITH PHONOTACTIC WORD LENGTH

Antti Iivonen

Some comments are made in the linguistic literature (e.g. by Lehiste 1966) concerning the phenomenon that the sounds constituting a word tend to be shorter in phonotactically longer words. On the basis of systematic experiments it can be shown that with certain reservations this claim is valid concerning the Finnish language. Once this is established it is necessary to consider the treatment of this shortening tendency in the grammar, what explanation may be proposed for this phenomenon, and what consequences it might have concerning the concepts of surface and deep structures.

A list of isolated Finnish words was arranged so that is contained non-compound words varying in length between 3 sounds (e.g. *ote*) and 15 sounds (e.g. *valmistamiseksi*). Each length class consisted of 30 words. The total list of 390 words, arranged in random order, was read by 10 speakers [1], and the 3900 utterances so obtained were then analyzed using a Frøkjaer-Jensen Intensity and Trans-Pitch Meter, and the intensity and duplex oscillogram curves recorded on an Elema Schönander 34 Mingograph. The mingograms were used for the measurement of duration. Instead of measuring single sound segments, the duration of the whole word was measured and the value obtained was then divided by the number of segments in the word [2]. The number of segments corresponded to the number of phonemes, the long vowels, geminates and diphthongs being treated as sequencies of two phonemes (cf. Wiik 1965, p. 41). This method allows the rapid treatment of large quantities of material without the problem of segmentation within the word. Some problems were encountered in determining initial or final word boundaries, since certain sound types (especially *p, t* and *h* initially, *t* and *n* finally) often leave no traces on the mingograms.

The results for 5 speakers are presented numerically in Table I and graphically in Fig. 1. The curves of Fig. 1 show the individual dependence of the mean sound duration on the number of phonemes in the word. It seems clear that there exists a general tendency for the mean duration of sounds to be shortened when the word is phonotactically longer. The results for the remaining 5 speakers showed a similar tendency. Individual differences, similar to those in Fig. 1, were observed. Experiments carried out using a further 10 speakers [1] and a new word list only confirmed this result.

There also seems to exist a tendency toward an absolute minimum mean duration for the sound, so that the shortening tendency is no longer so pronounced in very long words (containing about 13 or more phonemes). The curve depicting the shortening tendency thus resembles in shape that of a logarithmic or hyperbo-

[1] Students of phonetics at the University of Oulu, to whom I am grateful for their participation in these experiments.

[2] A similar method was used by Heinitz 1921 for other purposes.

lic function. It might also be interesting to note in this connection that the mean duration of sounds occurring in whole sentence utterances varied between 62 and msec depending on the speaker (30 sentences by 10 speakers were examined [1]). These values thus lie below the lowest value obtained from words pronounced in isolation (speaker MK, 83 msec; see Table I).

TABLE I. Dependence of sound duration on word length. Mean values for 5 Finnish speakers.

| | number of phonemes in word | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| subject | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | |
| SK | 228 | 182 | 170 | 141 | 137 | 129 | 124 | 118 | 112 | 107 | 104 | 100 | 99 | |
| PV | 193 | 164 | 147 | 138 | 130 | 122 | 117 | 111 | 107 | 103 | 99 | 96 | 95 | |
| ML | 188 | 166 | 154 | 136 | 125 | 117 | 112 | 105 | 101 | 100 | 93 | 91 | 91 | duration msec |
| MLK | 165 | 141 | 139 | 122 | 116 | 111 | 110 | 105 | 103 | 95 | 94 | 90 | 88 | |
| MK | 166 | 136 | 131 | 118 | 107 | 101 | 95 | 96 | 89 | 84 | 83 | 83 | 84 | |

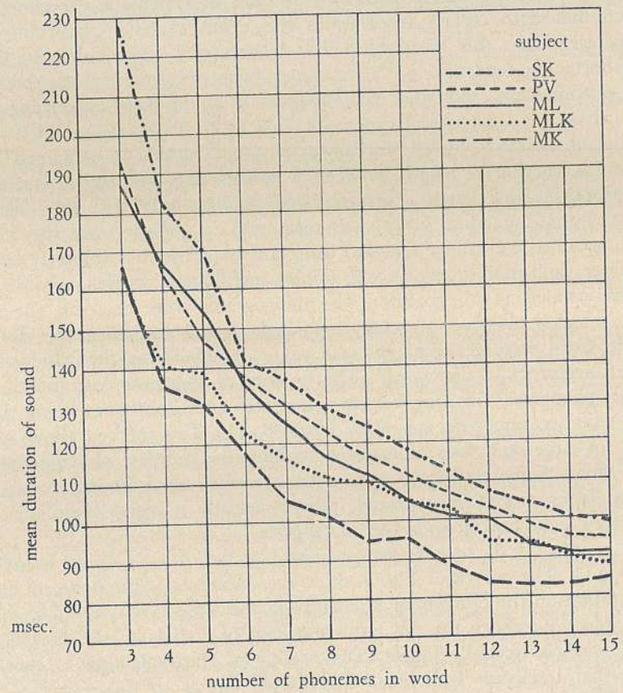



FIG. 1. Dependence of mean sound duration on word length. Graphical representation of data in Table I.

It is justifiable to argue that this method perhaps does not reveal the actual situation, because the length of the sound *segments* is not measured at the first stage in the procedure. In order to verify this the durations of the signalizations of a simple phoneme /s/ were measured. Since it is obvious, that the « inherent » duration of *s* differs in different environments (cf. Lehiste 1966), four environments were considered: 1) word initial (e.g. *suri*), 2) word medial, syllable final (*kestävä*), 3) word medial, syllable initial (*raisun*) and 4) word final *ahdas*). In class 3 the



cases where /s/ is preceded by a plosive (e.g. *syksy, katson*) were excluded, since it was found that *s* tends to be longer in these cases than after other sounds [3]. The length classes of the words varied between 4 and 10 phonemes, and each class contained 30 words. Thus there were 4 environment classes and 7 length classes, each of these containing 30 words, 840 words altogether. This list was read by a male speaker TM. The utterances were recorded on tape and the durations of the *s* segments measured on the basis of mingograms. The results are presented in Table II and Fig. 2. It can be seen that the shortening effect does involve all environments to some degree, but in different ways. The tendency is not so clear in curves 1 (word initial) and 3 (word medial, syllable initial not preceded by a plosive), and less evident in curve 4 (word final) than in curve 2 (word medial, syllable final).

TABLE II. Dependence of duration of *s* signalizations on word length. Mean durations of signalizations for the phoneme /s/ in different environments. One Finnish male speaker TM. Environments of /s/: 1) word initial 2) word medial, syllable final 3) word medial, syllable initial not preceded by a plosive 4) word final.

| | number of phonemes in word | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| environment of /s/ | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
| 1 | 148 | 150 | 153 | 144 | 135 | 130 | 125 | |
| 2 | 215 | 199 | 174 | 152 | 115 | 111 | 104 | duration msec |
| 3 | 112 | 114 | 100 | 86 | 87 | 91 | 87 | |
| 4 | 206 | 189 | 170 | 175 | 168 | 159 | 160 | |

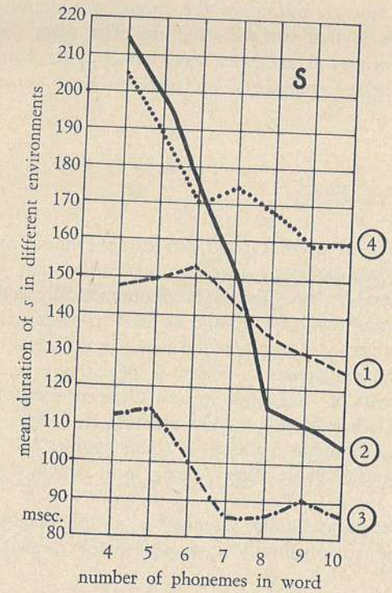



FIG. 2. Dependence of duration of *s* signalizations on word length. See Table II. Environments of /s/: 1) word initial 2) word medial, syllable final 3) word medial, syllable initial, not preceded by a plosive 4) word final. One male speaker TM.

When the experiment was repeated using another speaker, basically the same results were obtained, but some differences were also observed concerning the relative mean duration of *s* segments in the different environments (leading

[3] This phenomenon was observed on basis of one speaker.

to a different placement of the curves on the diagram) and also concerning the slope of the curve. These differences may be explained by individual (idiolectal) or/and dialectal variation [4]. In both speakers the shortening tendency was most obvious in word medial, syllable final position. The lesson learned from these experiments seems to be that the shortening effect in negative correlation to the phonotactic length of the word affects all the *s* sounds in all environments, but the phenomenon is clearer in some than in others. Further experiments should reveal more details concerning the shortening phenomenon [5], but results described above already show that with certain reservations the shortening tendency is a fact in Finnish.

This phenomenon is very suitable for testing the descriptive and explanatory power of linguistic and phonetic theories [6]. A grammar which claims to account for the real utterences must contain an adequate level for representing this phenomenon. In a generative model we can imagine the possibility of locating at a very late stage in the generative process rules to control or govern the timing of sound segments in negative correlation with word length (in addition to other timing rules; of. Lehtonen 1970) [7]. But as in many other aspects (some other examples are mentioned e.g. by Lindblom 1971) the generative model is incompetent to explain why such timing rules exist; in this case it may describe, but not explain the phenomenon. For the explanation we must take into account factors possibly lying outside specifically linguistic territory, e.g. such a factor as *communicative economy* (least effort) as proposed by Zipf and by Martinet.

If we claim that our grammar accounts for real speech utterances, and that the last stage in the generative process is a surface structure, then the measurable segment, which is the acoustic output of the speech production apparatus (i.e. the speech signal), must lie in that surface structure. The rules governing the timing of segments must be located at a deeper level of structure, which must lie below (or before) the articulatory contraints, on some (almost automatic) mental control level.

*Summary and concluding remarks*

Systematic experiments were carried out using Finnish material to eludicate the phenomenon observed by many investigators earlier that the sound segments constituting a word tend to be shorted in phonotactically longer words. It was found that this shortening tendency is valid at least in cases where words pronounced in isolation are concerned and when the mean duration of the sound segments is measured. The shortening seems to follow a logarithmic or hyperbolic function.

Actual measurements of *s* segments in four different environments showed that shortening in negative correlation with the phonotactic length of the word affects all *s* sounds in all environments studied to some degree, but the phenomenon is clearer in some positions than in others, being most obvious in word medial, syllable final position.

An adequate description should account for the phenomenon at least at three different levels: 1) the instrumentally observable level (measurable acoustic output of the speech apparatus), 2) the systematic level, that of rules controlling the timing of segments (obviously the last phonetic, numerically expressable rules of grammar) and 3) the explanatory level (where the causing factor of the phenomenon can be located; communicative economy is suggested).

The rules controlling the timing of sound segments dependent upon phonotactic word length are complicated, since the shortening tendency obviously affects different sound types and different positions in different ways and is dependent also on other circumstances (speech rate etc.).

[4] Dialectal background of speaker TM is the Kuusamo dialect; the other speaker used is native of a Häme dialect area; both of them speak « Standard Finnish ».

[5] E.g. its occurrence in other languages (its possible universal nature); the influence of speech rate; its behaviour in sentences; the role of syllable number and grammatical flexion; its possible functional role in language. Particularly interesting is to examine, how the shortening tendency affects different sound types and different contextual positions including accentual ones.

[6] It also implies consequencies for speech synthesis and the automatic recognition of speech.

[7] Cf. also works by Zwirner, Elert, Hadding, Gårding, Lehiste, and others.



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# MARKEDNESS AND DISTINCTIVE FEATURE HIERARCHIES

MICHAEL SHAPIRO

*Markedness* [1] is a formal semiotic relation expressive of the fundamental asymmetry that characterizes any and all natural sign systems. It is a universal relation that holds between terms of an opposition, e.g. a phonological distinctive feature, such that one term (called *marked*) bears a semiotic value of complexity or differentiatedness, while the other term (called *unmarked*) is evaluated semiotically as denoting the absence of these attributes [2].

One of the chief problems encountered in operating with markedness has been that of the *assignment* of markedness values. Greenberg (1966) has summarized the main criteria utilized to date by linguists in assigning the values M(arked) and U(nmarked) to terms of oppositions. One of these criteria, adjudged particularly important, is *neutralization*. As has been well known from Trubetzkoy on, in positions of neutralization it is usually the unmarked term that appears to the exclusion of its marked counterpart. An oft-cited example is that of devoicing of Russian obstruents in position before pause, e.g. *sad* « garden » [sát], *vožd'* « leader » [vóšt'], etc. One should add, however, that in positions not before pause, where neutralization also occurs, a suspended opposition may have its terms assigned a realization identifiable with the marked rather than the unmarked term, e.g. Russian *prós'ba* « request » [próz'bə], *volšbá* « sorcery » [vʌlžbá], etc. Trubetzkoy ([1936] 1964) distinguished between these two kinds of neutralization by calling the former « internally conditioned », the latter « externally conditioned » [3].

In what will undoubtedly prove to be a signal contribution, Henning Andersen (1972) has *inter alia* shown that a unitary understanding of neutralization which overcomes the discrepancy inherent in Trubetzkoy's conception can be reached through the notion of *markedness assimilation* [4]. Markedness assimilation is a process whereby the marked term of an opposition is manifested in a marked (concomitant or sequential) context and the unmarked term is manifested in an unmarked context. This process, common to any natural semiotic system, can be observed to operate on both redundant and distinctive features in phonology. In English, for example, vowels are nondistinctively [- oral] (i.e. nasalized) before nasal consonants: the marked nasal vowels are the product of assimilation to the marked nasal consonants. In German, syllable-final obstruents are neutralized with respect to the feature *tense/lax* such that only the tense member is allowed. Since tenseness is the marked value in obstruents (Jakobson *et al.*, 1963), one would expect rather the lax realization in a position of neutralization. However, as analyzed by

[1] For a concise account of how the Prague School conception of markedness arose and has been utilized, see Cairns 1969.

[2] It will become clearer below that my conception of markedness differs somewhat from both the Prague and the MIT-oriented notions (cf. Chomsky and Halle 1968, Postal 1968).

[3] This view has been criticized by Trnka 1958; cf. Andersen 1969: 167.

[4] The notion is foregrounded by Andersen 1968. I have adopted it in Shapiro 1972.



Andersen (1972), syllable-final position is marked with respect to the coda/onset dichotomy; and markedness assimilation in this position effects a *reversal* of the values whereby the unmarked term (lax) is replaced by its marked counterpart (tense) in the context of a marked syllabic position.

It is in a similar light that the « externally conditioned » Russian voicing neutralization phenomena must be viewed. The rule which states that obstruent clusters must be voiced, resp, voiceless throughout, depending on the value of the last member of the cluster, is a markedness assimilation rule. Before a [+ voiced] final member of an obstruent cluster only voiced obstruents can appear. Hence any basically [− voiced], obstruent, which is [U voiced], will change to [M voiced] before a [+ voiced], i.e. [M voiced], obstruent, e.g. *próz'ba, volšbá*, etc. By the same token, a basically voiced obstruent will become [− voiced], i.e. [U voiced], before a [+ voiced] obstruent, e.g. *vezti* « convey » [v'is't'í], *trúbka* « little pipe » [trúpkə], etc. Both the devoicing of basically voiced obstruents before voiceless obstruents and the voicing of basically voiceless obstruents before voiced is to be viewed as markedness assimilation:

$$M + U \rightarrow U + U \text{ (devoicing)}$$

$$U + M \rightarrow M + M \text{ (voicing)}$$

It is important to understand these processes as fundamentally semiotic. This is facilitated by Andersen's (1966)notion of *iconic function* (cf. Shapiro 1969, 1972), which is to say that phonological rules mirror the relations underlying the distinctive feature hierarchy, relations which are expressed by markedness values.

Returning to the connected problem of markedness assignment, recourse solely to neutralization rules has so far been insufficient. If one assumes that markedness is a *formal universal* inherent in any natural semiotic, it is but a short jump to the theoretical assumption that markedness values, like all forms of universals, exist as part of or are generated by an *a priori system*. Such a system has been elaborated by me in a recent publication (Shapiro 1972). It will be recapitulated here, in part, and an attempt will be made to further corroborate it by analyzing some Russian dialect data.

I have speculated, first of all, that markedness values for the polar opposites of phonological distinctive features are assigned by *complementarity*; and, further, that the plus/minus specifications of a feature determines both the plus/minus specification of the feature immediately subordinate to it in the hierarchy as well as the markedness values of these subordinate feature specifications. The operations thus characterized define the chief formal universals by which a distinctive feature hierarchy is elaborated.

The operations differ, in a complementary fashion, depending on the basic phonological subdomain to which they apply. When applied to the consonantal subhierarchy, i.e. the branch topped by the node designated [+ cons] = U, they assign markedness values both by *complementation* and *replication*.

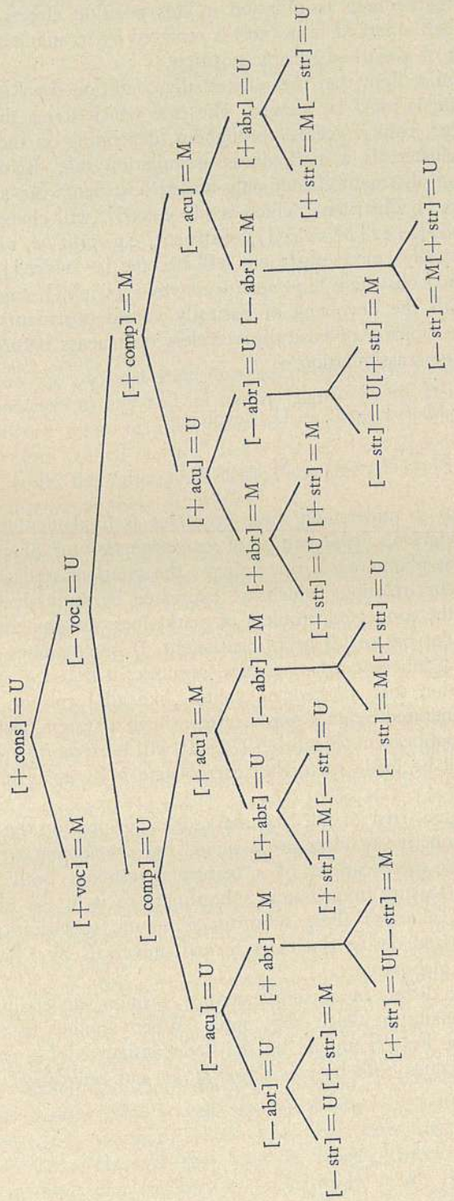



FIGURE 1a.



In the consonantal subhierarchy (fig. 1a), if a superordinate node is constituted by a feature with a plus specification, then the markedness value of the subordinate node will be the opposite of that assigned to the superordinate feature. This is not true of the subhierarchy dominated by the node designated [− cons] (Fig. 1b). In this (vocalic) subhierarchy, the presence of a plus specification in a superordinate

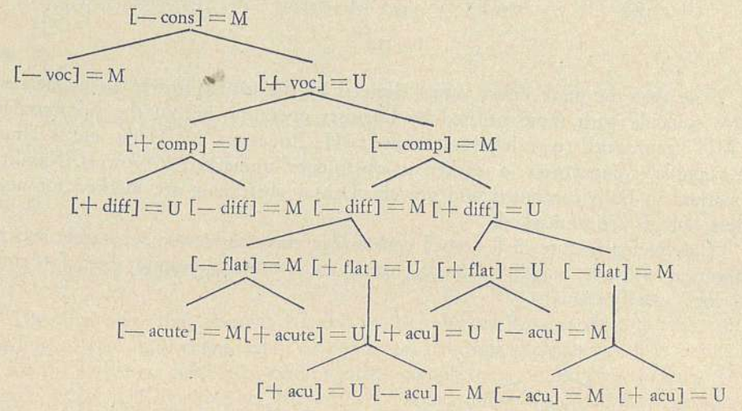



FIGURE 1b.

node will occasion the replication of its markedness value in the immediately subordinate node. In both subhierarchies, consonantal and vocalic, furthermore, the presence of a minus specification for a superordinate feature will entail the assignment of the identical markedness value in the subordinate feature. This means that the vocalic subhierarchy assigns markedness values exclusively by means of replication, whereas the consonantal subhierarchy assigns them by means of complementation and replication, depending on the feature specification. The formal universals which develop the hierarchy, therefore, also conform to the principle of complementarity.

Taking the *substantive universals* of Jakobson and Halle (1971) and a modified order of their appearance in child language (cf. Jakobson [1941] 1968) as a basis for the postulated hierarchy of Figs. la and 1b, I designate [+ cons] as U(nmarked), [− cons] as M(arked). Subsequently, to all subordinate features, plus/minus specifications and markedness values are assigned in accordance with the formal universals delineated above.

The significant effects of complementarity on the workings of the formal universals which elaborate distinctive feature hierarchies in this hypothesized phonological system can be summarized as follows. The consonantal subhierarchy replicates feature specifications; it alternates markedness values in the case of plus specifications, replicating markedness values in the case of minus specifications. The nonconsonantal subhierarchy replicates both feature specifications and markedness values. In short, the complementarity which these formal universals exhibit is itself hierarchical.

The features *nasal/oral* and *tense/lax* have a special status within the system in that they are directly connected to the primal features consonantal/nonconsonantal [5]:

[5] I follow Kuipers 1970 in according consonants primordial status over vowels.

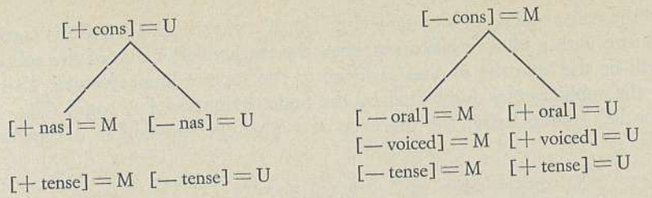



FIGURE 2.

Note that the markedness values derived by the formal universals enunciated above coincide with those utilized by linguists operating within the Jakobsonian or MIT framework (e.g. Jakobson himself, H. Andersen, M. Halle, etc.). Thus, for example, compactness is marked in obstruents, unmarked in vowels. Nasality is marked in both consonant and vowels. Dental obstruents are marked for acuteness; labials are unmarked.

The voicing feature in [— voc] consonants must be viewed separately and in connection with the nasality feature (nasals are sonorants despite their [+ cons [— voc] specifications):

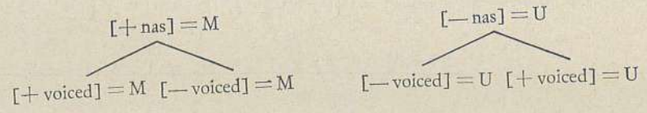



FIGURE 3.

Voicing is thus unmarked in nasal consonants but marked in (non-nasal) obstruents.

As a brief exemplification of the system enunciated above, I turn now to the formulation of a set of linguistic rules governing the realization of *a* and *o* after plain (nonpalatalized) consonants in position immediately preceding the stress in some South Greath Russian dialects [6]. The facts (Avanesov and Orlova 1965: 38-9) are familiar to students of Slavic linguistics under the label « dissimilative akan'e ». Briefly, they conform to three types of vowel reduction, schematized in the following manner (*ê* and *ô* are distinctively tense, *e* and *o* distinctively lax):

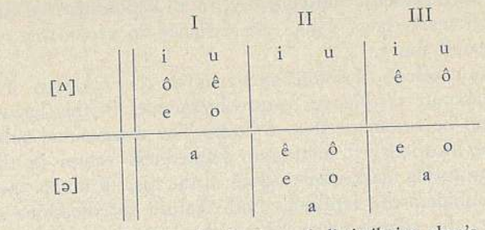



FIGURE 4. The three basic types of dissimilative akan'e.

In Type I, a relatively more compact and less diffuse vowel [ʌ] appears instead of *a* or *o* when the stressed vowel is [— comp]; otherwise a relatively less compact and more diffuse vowel [ə] appears in this position. In Type II, [ʌ] occurs when the stressed vowel is [+ dif]; otherwise [ə] occurs. In Type III, [+ tense] and [+ dif] stressed vowels occasion [ʌ] ,[— tense] and [+ comp] vowels occasion [ə].

[6] For some different views of the dialect data, see Halle 1965, Davis 1970, and Lightner 1968.



The three types of vowel reduction can be accounted for by the following set of ordered markedness assimilation rules ($\alpha$ denotes a variable ranging over + and —):

TYPE I

Vowel → [U comp]/ ——— [U tense]
Vowel → [$\alpha$ M dif]/ ——— [$\alpha$ M comp]

TYPE II

Vowel → [U dif]/ ——— [U tense]
Vowel → [U comp]/ ——— [U dif]
Vowel → [M dif]/ ——— [M dif]

TYPE III

Vowel → [U comp]/ ——— [U tense]
Vowel → [$\alpha$ M comp]/ ——— [$\alpha$ M dif]

The rules state that pretonis *a* and *o* in the relevant Russian dialects will vary according to the markedness value of the stressed vowel. If that vowel is unmarked for the tenseness feature or one of either compactness or diffuseness, then the pretonic vowel will likewise be realized as a variant unmarked for either compactness or diffuseness. The converse realization of *a* and *o* obtains in the presence of a marked vowel under stress.

The theoretical framework sketched in this report is clearly not without knotty points: suffice it to mention the role of redundant features in determining markedness values for distinctive features. Nevertheless, it represents an attempt to deal rigorously and deductively with the problem of markedness assignment and to reify the rather abstract notion of a distinctive feature hierarchy.

Perhaps it would not be altogether amiss to conclude by demonstrating the apparent applicability of the framework—specifically, the conception of distinctive feature hierarchy and markedness advanced therein—to problems of grammar outside phonology. In examining the semiotic characteristics of *metaphor*, for instance as displayed in the phrases *hot jazz, cool jazz*, the semantic relationships can be schematized:

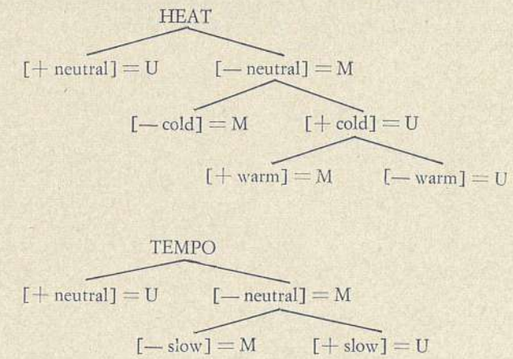



FIGURE 5.

Here, [ − warm] = *cool*, [ − slow] = *fast*, [ − cold] = *hot*.

Since *hot* and *fast* are both doubly marked, an equivalence relation is established between them which gives rise to *hot jazz*. Conversely, the doubly unmarked *cool* and *slow* give rise to *cool jazz*. This sort of semantic transference phenomenon can, naturally, be viewed as a result of the iconic function.

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# ARE AUTONOMOUS AND SYSTEMATIC PHONEMICS REALLY CONTRADICTORY? THE OUTLINE OF A NEW SYNTHESIS

VALERIE BECKER MAKKAI

*Abstract*

The current dispute between autonomous and systematic phonemics is reviewed in its essentials. It is demonstrated that both brands of phonological description have considerable merit, and that in fact each one contributes something which the other does not to the awareness of the sound structure of a language. It is argued that yet a third system, which is able to incorporate the advantages of both types of phonemics, is the solution to the problem. It is shown that this third system is not only able to do what both autonomous and systematic phonemics are able to do, but in fact has further advantages above and beyond either of the others. Both synchronic and diachronic phonological information can be incorporated into the same system, with no loss of clarity or accuracy of description of either aspect. And yet the synchronic description need not be, as it must be in systematic phonemics, dominated by historical or grammatical facts, although on the other hand it can be made to reflect these aspects of the language if the facts warrant it.

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# GLOSSÉMATIQUE OU TAXÈMATIQUE?

A. P. Yevdošenko

La glossématique est conçue comme une métalangue propre à servir pour la description de n'importe quelle langue naturelle. Les adeptes aussi bien que les adversaires de cette théorie reconnaissent également que dans son état actuel la linguistique est encore dépourvue de fondements vraiment scientifiques et que tout effort dans cette direction est digne d'attention. Aussi, se mettent-ils d'accord à apprécier la conséquence logique impeccable de la conception du fondateur de la glossématique, L. Hjelmslev.

Selon Hjelmslev l'objectif de la théorie linguistique c'est la découverte du système qui est à la base du processus. Les termes « système », « langue » et « axe paradigmatique » deviennent synonymes, Cf.: « langue — axe paradigmatique » (définition 88); « axe paradigmatique — système sémiotique » (def. 67); « système — hiérarchie de corrélation » (def. 4)[1]. Citons un fragment des Prolegomena, où l'auteur établit certains rapports entre les notions fondamentales de la glossématique.

« En principe nous devons nous contenter de ne mentionner que ce fait jusqu'alors négligé par les linguistes, que l'ensemble des taxèmes « ordonnés en système » implique logiquement la division ultérieure du taxème. Admettons que nous avons marqué une catégorie comprenant 9 taxèmes et que, suivant des règles spéciales de divisibilité, ces derniers peuvent être distribués dans un système à 2 dimensions comprenant 3 membres dans chacune des dimensions, de sorte que 9 se présente comme 3 x 3. De cette manière les membres des dimensions seront eux-mêmes des parties de taxèmes, puisque chacun des taxèmes est considéré comme une unité qui contient un membre d'une dimension et un membre de l'autre. Par conséquent, 9 taxèmes peuvent être décrits comme les dérivés de $3 + 3 = 6$ invariants, membres des dimensions. Les deux dimensions seront solidaires comme catégories et chaque membre d'une dimension formera une combinaison avec chaque membre de la deuxième. De cette manière les membres des dimensions seront présentés comme parties de taxèmes et comme invariants indivisibles ... Si un tel arrangement peut être éffectué, ce seront les membres des dimensions et non les taxèmes qui deviendront les termes finals de l'analyse; ces termes, nous les appelons *glossèmes*. Et si l'on estime qu'un taxème de l'expression peut se manifester par un phonème, un glossème de l'expression peut donc se manifester par une partie de phonème »[2].

Le système (« langue », plus précisement métalangue), appelé à décrire d'une manière non contradictoire et à faire comprendre un texte de n'importe quelle

[1] Traduit de l'édition russe: Л. Ельмслев, « Пролегомены к теории языка (перевод с английского издания) ». **Новое в лингвистике**, вып. I, Москва, 1960, стр. 382 и след.

[2] Op. cit., pp. 355-356.



langue, doit naturellement être non-contradictoire. Mais le fondement non-contradictoire d'un système ne peut être démontré que par une interprétation précise de ce système[3]. Il est facile de se convaincre qu'une figure géometrique assez simple offre une interprétation précise du système ci-dessus de L. Hjelmslev, (v. fig. 1). Aussi en résulte-t-il que la description de L. Hjelmslev, qui correspond pleinement à la description de la figure 1, n'implique point « ce fait logique jusqu'alors négligée par les linguistes »: « la division ultérieure du taxème ».

En effet, « un système de deux dimensions ayant trois membres dans chacune des dimensions » et à l'intérieur duquel « chaque membre d'une dimension entre en combinaison avec chaque membre de la deuxième » est isomorphe à la fig. 1. Les 9 taxèmes de ce système sont en correspondance univoque avec les 9 points de la fig. 1, ayant les coordonnées (0,0), (0,1), (0,2), (1,0), (1,1), (1,2), (2,0), (2,1), (2,2).

En remplacant le terme « taxème » par le terme « point » dans la description du système de Hjelmslev, nous recevrons la description de la fig. 1. Or, la conclusion de Hjelmslev, que l'arrangement, qu'il propose, une fois effectué, ce sont les membres des dimensions et non pas les taxèmes qui seront les points finals de l'analyse et que la conséquence logique en est « une division ultérieure du taxème », ne ressort point de sa description. Cette conclusion est contradictoire à l'isomorphisme des deux systèmes. (« le système des taxèmes » et « le système des coordonnées ») de même qu'aux notions géométriques les plus élémentaires.

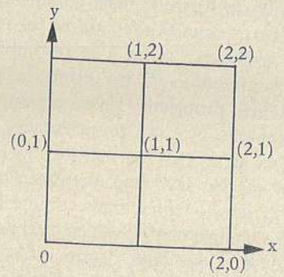



Fig. 1.

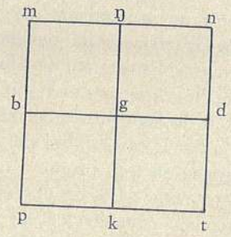



Fig. 2.

Selon les notions de la géométrie dont le fondement logique ne saurait être contesté[4], un point n'est pas divisible en parties. C'est encore Démocrite qui estimait les points comme atomes indivisibles de l'espace[5]. Et la première définition d'Euclide affirme que « le point est ce qui n'a pas de parties »[6].

Comment expliquer alors la contradiction logique entre la description proposée par Hjelmslev et sa conclusion sur la divisibilité du taxème? On pourrait peut-être l'expliquer en tenant compte des résolutions que trouve le problème de l'intégrité. Déjà dans la philosophie classique allemande on distingue les entités non-organiques des entités organiques évolutives auquelles se rapporte aussi la langue. L'étude d'une entité organique ne peut se réduire à une analyse et une synthèse élémentaires. Cet étude nécessite une analyse et une synthèse complexes notamment quand il s'agit de l'ascension de l'abstrait au concret[7].

Examinons cette « ascension » sur l'exemple d'un fragment du système des consonnes (fig. 2). Ainsi de même que la description citée de Hjelmslev, ce système

[3] П. С. Новиков, « Элементы математической логики », 1959. **Введение.**

[4] Н. В. Ефимов, **Высшая геометрия**, Москва, 1961, стр. 38.

[5] Э. Кольман, **Четвертое измерение**, М., 1970, стр. 38.

[6] Н. В. Ефимов, **Цит. соч.**, стр. 10.

[7] М. К. Мамардашвили, « Процессы анализа и синтеза ». **Вопросы философии**, 1958, № 2. А. П. Шептулин, **Система категорий диалектики**, М., 1967, стр. 338-346.

des consonnes occlusives contient deux dimensions « solidaires comme catégories »: la sonorité et la localisation [8].

Chacune des marques d'une catégorie entre en combinaison avec chacune des marques de l'autre [9]. Le phonème (p), par exemple, résulte de la combinaison des marques « sourde » et « labiale », le phonème (k) — des marques « sourde » et « gutturale » etc.

La sourdité, la labialisation etc., « manifestations des glossèmes de l'expression », en tant que marques phonologiques se présentent comme des abstractions théoriques correspondant à certains traits anthropophoniques [10]. La logique formelle envisage de telles abstractions (notamment: n'importe quelles proprietés générales qui forment le substrat gnosséologique des abstractions proprement dites) comme des points finals de notre étude. C'est justement du point de vue de la logique formelle, qu'on peut expliquer la conception des glossèmes comme « points finals de l'analyse » chez Hjelmslev. Contrairement à la logique formelle, la logique dialectique envisage l'abstrait non pas comme un point final de l'analyse, mais comme une étape qui doit conduire au concret formé d'un ensemble d'abstractions [11].

La contradiction relevée dans la description du système de taxèmes de Hjelmslev peut être évitée, si l'on recourt à la notion de « classe », empruntée par l'auteur des Prolegomena à la logique contemporaine. « Vu que l'axe paradigmatique, écrit-il, n'est pas envisagée simplement comme une somme de ses membres (*une classe comme un ensemble* selon la terminologie de Russel), mais comme quelque chose qui se distingue de ses membres (*une classe comme une unité*), elle se pré sente comme un syncrétisme résoluble de ses membres; grâce à la résolubilité du syncrétisme la *classe-unité* devient une *classe-ensemble* » [12]. En effet, la marque phonologique « manifestant le glossème », est une propriété (classe comme unité) d'une série de phonèmes. La sourdité, par exemple, est une propriété des phonèmes p, k, t; la sonorité, celle des phonèmes b, d, g etc. La marque qui devient ensemble « par la résolubilité du syncrétisme » est par là même envisagée non seulement comme un trait propre à toute une série de phonèmes, mais comme l'ensemble de cette même série de phonèmes. Un tel « changement » est en parfait accord avec le modèle géométrique du système analysé. Une ligne droite (plus précisément un segment) peut être considérée d'une part comme une propriété des points situés sur elle, d'autre part comme leur ensemble. Par conséquent, le glossème aussi devrait être considéré comme une propriété de certains taxèmes et comme leur ensemble.

Ainsi, en étudiant l'arrangement des 9 taxèmes proposés par Hjelmslev, dans un « système de deux dimensions avec trois membres dans chacune », nous arrivons à des conclusions différentes de celles de l'auteur. Les membres des dimensions nous apparaissent non comme des parties de taxèmes et invariants indivisibles, mais comme des ensembles de taxème ou plus précisément, comme des classes de taxèmes. La division ultérieure du taxème n'incombe pas comme une conséquence logique de l'arrangement analysé. Le taxème apparait comme un invariant indivisible.

[8] Voir: А. П. Евдошенко, **Проблема структуры языка**, Кишинев, 1967, p. 131.

[9] La sonorité comprend les marques: « sourde » (pour les phonèmes p, t, k) et « sonore » (pour b, d, g), « sonante » (pour m, ŋ, n); la localisation comprend les marques « labiale » (p, b, m), « gutturale » (k, g, ŋ), « dentale » (t, d, n).

[10] Sur la question de l'abstraction théorique en partant de la généralisation des perceptions concrètes voir: « Категории материалистической диалектики » (под ред. М. М. Розенталя и Г. М. Штракса), М., 1957, pp. 52, 80, 340.

[11] Voir « Категории материалистической диалектики », p. 340: « Dans l'histoire de la philosophie Hegel fut le premier à définir l'abstrait non pas comme un point final du processus de la connaissance, qui de l'abstrait doit évoluer vers le concret, car le processus de l'analyse doit être suivi par le processus de la synthèse ».

[12] Op. cit., p. 348.



Les glossèmes sont définis chez Hjelmslev comme « formes minimales fondamentales, établies par la théorie, et aussi comme des invariants indivisibles » (déf. 65).

Mais si la glossématique reçoit son nom d'après celui des formes minimales qui lui servent de fondement, et puisque ce sont les taxèmes et non pas les glossèmes qui deviennent ces formes minimales, il faudrait lui donner le nom de « taxèmatique » au lieu de « glossématique ». Mais il ne s'agit pas seulement de terminologie: quand il est question des formes minimales fondamentales d'une théorie, tout changement qui les concerne ne peut passer sans répercussions sur cette théorie.

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# PROBLEMES ET METHODES DE LA DESCRIPTION SYNTACTIQUE

F. R. Adrados

## I

Une description syntactique actuelle ne peut plus se baser sur les méthodes traditionnelles qui mélangent synchronie et diachronie et qui partent d'un corpus de données extrèmement incomplet, dans lequel des faits trés latéraux et peut importants acquièrent un grand relief. Elle ne doit pas davantage, à notre avis, s'appuyer sur le parti pris, provenant de la Syntaxe traditionnelle et quelques fois parvenu aux plus modernes descriptions à travers l'école de Copenhague, de postuler une unité de sens dans les termes des différentes catégories et fonctions. Elle ne peut ignorer l'étude distributionnelle, l'étude des oppositions ni celle des transformations; elle doit tenir compte de tous ces critères et non seulement de l'un d'entre eux, se privant ainsi de la possibilité de comprendre les faits à cause de positions de principe, telle que le fait d'établir une diffèrence radicale entre les oppositions privatives et les oppositions équipolentes, alors qu'il en existe certaines qui représentent des transitions.

L'observation de tout ce programme suppose déjà une tache longue et difficile; mais, encore, toute description d'une langue doit partir du fait formel pour aboutir au fait significatif puis au fait syntaxique proprement dit, c'est à dire les pures relations. Mais cette étude de la forme présente de graves difficultés lorsque nous descendons à des niveaux syntaxiques moins généraux et que nous devons travailler avec des sous-classes de mots, non formalisées internement, mais, par contre, établies sur une base syntaxique. C'est à dire, nous risquons de tomber dans un cercle vicieux et nous buttons sur un problème qui n'a pas été étudié de façon exacte: celui des sous-classes de mots. Un autre problème grave se pose encore, celui de l'unicité ou non unicité du sens des catégories et des fonctions. Nous estimons qu'il faut l'aborder avec un esprit ouvert et à l'aide d'une méthode inductive, postulant à priori que cette unicité peut exister ou non dans chacun des termes d'une certaine catégorie ou fonction; que seuls les faits peuvent parler; et, que en tout cas, ce n'est qu'àu moyen d'un généralisation que l'on accède éventuellement à un signifié pouvant expliquer tous les autres en tant que pures réalisations. Car il y a deux risques équivalents et contradictoire à c'est égard: l'attitude de ceux qui soutiennent sans plus cette unicité, qui est défendue non seulement par la théorie traditionnelle mais aussi par des ouvrages qui apparaissent tous les jours, et qui s'expose à des critiques faciles sur tel ou tel autre exemple qui ne s'ajuste point à la définition proposée. Et d'autre part, l'attitude de ceux qui ont tendance, par réaction, à dissoudre le signifié au maximum et, finalement, ne le définissent pas. Nous pouvons dire que le signifié d'un teme syntaxique ou d'un mot ou lèxème a, s'il ne s'agit pas d'un cas d'homonymie, un noyau et des marges; il s'agit de ne sacrifier ni l'un ni les autres.



Toutes ces réflexions proviennent non seulement d'une considération théorique des doctrines et des études antérieures, que nous avons parfois mises en relief dans certaines de nos publications [1] et dans nos cours mais aussi de travaux concrets que nous avons dirigés dans le domaine de la Syntaxe Grècque [2] et même de la Sémantique [3] et de la Stylistique [4] et d'autres que nous avons réalisés nous mêmes [5]. Tous ces domaines, relatifs en somme, à des systèmes de signifiés découverts à travers la forme linguistique, sont apparentés et chacun d'eux nous aide à l'étude des autres, malgré les importantes différences qui les séparent; ainsi, les faits syntaxiques présentent une formalisation et une régularité plus grandes; leurs oppositions ont un caractère plus restreint et plus fermé, leurs signifiés s'éloignent de ce qui est purement sémantique. C'est à patir de la confrontation de la théorie et les études concrètes réalisées que nous avons été amenés à proposer une révision et une systématisation de la théorie et, quelques fois, son perfectionnement. A tître d'essai nous allons exposer ce que pourrait être un programme de recherche syntaxique qui se voudrait complet; nous faisons abstraction, quelques fois, de la facilité ou de la possibilité matérielle de réussir en certaines circonstances.

Le terme « syntaxique » a ici le sens ample qui lui est habituel et qui, de toute évidence, ne s'accorde pas à son étymologie; nous appellerons donc Syntaxe la description du signifié des catégories et des fonctions de la Grammaire et, bien sûr, sa trascendence ou répercussion dans la chaîne parlée.

En premier lieu, nous estimons possibles trois sortes de descriptions syntaxiques selon le point de départ choisi:

*a*) On peut constituer un corpus complet relatif à un auteur, ou à un genre littéraire dans un époque déterminée, ou encore à toute une époque. Il s'agit d'adopter un point de départ qui empêche la confusion entre synchronie et diachronie et qui permette de tenir compte des fréquences puisqu'elles constituent un élément très important dans la définition syntaxique.

*b*) On peut aussi procéder au moyen d'échantillons homogènes en plusieurs coupes diachroniques. C'est à dire, choisir un certain nombre de pages d'un auteur déterminé puis autant de plusieurs autres auteurs à une intervalle convenable. Les textes choisis seront homogènes quant au genre littéraire. La description syntaxique se répète ainsi plusieurs fois, à différents niveaux temporels; chacune d'elles est, bien entendu, plus sommaire que si l'ón adopte la méthode antérieure, mais aussi systématique et attentive aux fréquences (bien que le hasard risque d'y intervenir); par contre on arrivera à décrire plusieurs niveaux temporels et, en outre, on pourra étudier les faits diachroniques à travers lesquels un système se substitue à un autre.

*c*) Finalement, on peut essayer de faire une description générale, quoique provisoire, de la Syntaxe de toute une langue, à partir du matériel rassemblé dans les descriptions totales ou partielles déjà publiées. Il s'agirait de réorganiser ces données en essayant, autant que possible, de tenir compte de la fréquence et d'iso-

[1] Cf. surtout *Estudios de Linguistica General*, Barcelonne 1969, et *Linguistica Estructural* Madrid 1969, Egalement d'autres travaux postérieurs, encore inédits, « La investigación del significado, tarea de la nueva Linguística » (doit paraître dans *Homenaje a Rafael Lapesa*); « Subclases de palabras, campos sémánticos y acempciones » (sous presse dans la *Revista Española de Linguística*); « Rasgos semánticos, rasgos gramaticales y rasgos sintácticos ».

[2] Javier López Facal, « Los casos adverbales en Heródoto » (sous presse Angeles Martínez Valladares, « Estudio de las preposiciones en Tucídides » (en preparation).

[3] Elvira Gangutia, « El campo semántico Vida/Muerte de Homero a Platón » (sous presse); Carlos Roura, « El campo semántico del tiempo en Griego arcaico y clásico »; José Calvo, « El campo semántico de la acción sacral en Griego antiguo », etc.

[4] Esperanza Rodríguez Monescillo, « El estilo de Aristófanes » (en préparation); Assela Alamillo, « Los recursos fónicos en el estilo de Sófocles » (en préparation).

[5] « El campo semántico del amor en Safo », *Revista Española de Linguística*, I, 1971, pags. 1-23; « Lengua, Ontología y Lógica en los sofistas y Platón », *Revista de Occidente* 96, 1971, 340-365 y 99, 1971, pags. 285-309; etc.

ler les différents niveaux diachroniques; mais surtout, d'appliquer les critères distributionnelles, transformationnelles, d'oppositions et de neutralisations, qui sont essentielles pour toute étude syntaxique. Bien entendu, ces critères se trouvent déjà appliquées en partie dans les descriptions traditionnelles. Mais il faut les systématiser davantage, il faut en finir avec la Syntaxe « à étiquettes » qui se fonde sur des typifications hâtives sans une base formelle solide, et il faut essayer de percevoir inductivement quel est le signifiés central et quels sont les signifiés marginaux, s'il y a homonymie ou s'il y en a pas.

## II

En effet, quelque soit l'échelle employée pour l'étude syntaxique dans ces trois propositions de base, la marche à suivre sera axée sur les trois critères énoncés, et en outre sur les fréquences. Nous allons à présent considérer ces critères un par un.

1. - *Etude des distributions.* Dans la chaîne parlée, un terme est caractérisé dans une catégorie ou dans une fonction syntaxique par une certaine distribution: ainsi, le Nominatif se caractérise, dans sa fonction fondamentale, par le fait d'être le sujet d'un verbe. Mais si nous voulons approfondir davantage et voir les « acceptions » sémantiques ou fonctionnelles d'un de ces termes, il faudra en étudier la distribution plus minutieusement. Pour nous en tenir à notre exemple — le Nominatif dans certaines langues Indo-européennes ou autres — il faudra considérer d'abord les distributions où ce cas n'est pas le sujet d'un verbe; ensuite, s'il l'est, sa présence à côté de groupes homogènes de verbes. Autrement dit dans la distribution il faut tenir compte des nous-classes de mots, reliées à la parcellation du sens, parfois jusqu'à l'homonymie, des catégories et des fonctions. Mais il ne s'agit pas seulement des sous-classes, il faut également tenir compte des classes de mots et aussi des groupes plus complexes.

A vrai dire, la gradation de distributions est trés grande, en réponse à la gradation des signifiés et des fonctions syntaxiques. Pour obtenir des schémas clairs il faut typifier les distributions et établir concrètement un système de sous-classes de mots dans la langue étudiée (ou la période, ou l'auteur, etc.). L'idéal serait de parvenir à une formalisation des types distributionnels et des sous-classes de mots; ceci permettrait une exposition tabulée, facile à saisir, de la distribution des divers termes d'une catégorie ou fonction. Il y a des difficultés, celà est évident. On fixe les sous-classes de mots à l'aide de la construction syntaxique; puis celle-ci grâce aux sous-classes de mots: celà constitue, en effet, un cercle vicieux; on ne peut le rompre qu'au moyen d'approximations successives à partir de l'un et l'autre point de départ jusqu'à parvenir à un système cohérent pouvant expliquer le maximum de faits. D'autre part, les sous-classes ne sont pas stables, même pas dans les limites d'une époque. Il y a des sous-classes apparaissant dans une distribution, mais neutralisées dans d'autres. On, sur la base d'une étude des données, ce problème aussi peut être résolu et faire l'objet d'une symbolisation.

En réalité, les travaux que nous citions au début donnent l'impression qu'on peut parvenir, pour le nom et le verbe, à établir un système de sous-classes relativement simple et valable dans toute la langue, bien qu'il unifie parfois des sous-classes ailleurs indépendantes. Celà devient plus complexe dans le cas de l'adjectif, de même que la typification des groupes de mots est, parfois, complexe parce que trés nuancée. De toutes manières, il faut remarquer que les sous-classes subissent des reclassifications dans un but stylistique, de l'amplification des capacités de la langue: elles appartiennent à la région la plus ouverte dans le système.



Un autre problème se pose encore: la dénomination ou définition des sous-classes (les groupes de mots peuvent se définir de façon plus aisée formellement). On pourrait faire le répertoire des mots inclus dans chacune d'elles, sans faire allusion au contenu; celà a été proposé quelques fois. Mais cette solution n'est pas satisfaisante. On commence enfin à perdre la crainte qu'inspirait tout ce qui a trait à la sémantique; crainte, sans doute due à l'abus qu'on en avait fait antérieurement au dépents de la forme; on oserait donc proposer la définition des sous-classes par le contenu, dans la mesure du possible, mais, évidemment en ayant grand soin de les établir préalablement sur une base syntaxique. Quand la Grammaire traditionnelle nous parlait de verbes « d'entendement, langue et perception » qui se caractérisent, en Latin ou en Grec par certaines constructions, elle agissait correctement, à notre avis. Il faut ajouter que certains verbes se trouvent aux limites d'une sous-classes et que, quelques fois, ils peuvent fonctionner comme appartenant à une autre sous-classe, avec, dans ce cas, une autre construction et un sens différent.

Il convient aussi de remarquer qu'il y a une hiérarchie dans les distributions: on peut parler de sous-distributions hiérarchisées de la distribution supérieure, désormais purement grammaticale. Ceci est trés important pour la procèdure inductive à l'aide de laquelle nous essayons de reconstruire le signifié central ou les divers signifiés d'un terme: à une plus grande différence entre les distributions d'un terme correspond une plus grande différence de sens, tandis que les sous-distributions font réfèrence aux aceptions ou aux nuances.

2. - *Etudes des transformations.* Tout le matériel ainsi rassemblé et classifié peut être réduit et il peut nous fournir de nouvelles précisions au moyen de l'étude des transformations. Nous estimons qu'il faut porter notre attention sur deux sortes différentes:

*a*) La phrase se transforme mais le terme étudié reste stable. Ainsi, le cas adverbal se maintient fréquemment quand le verbe se transforme en nom verbal (nom d'action, abstrait, d'agent) ou en adjectif. Il importe, de notre point de vue, de remarquer qu'il n'y a pas de symètrie exacte entre les distributions ainsi mises en rapport. Il peut arriver que la transformation du verbe en nom soit impossible, ou qu'elle ne s'applique qu'à un nombre très restreint de mots, ou très rarement encore. On peut expliquer ces différences diachroniquement bien parce que le cas ne s'appliquait originellement qu'au verbe et que, peu à peu, il a commencé à être employé avec le nom par le procédé que nous avons appelé inertie transformative [6]; ou bien parce que, au contraire, le cas a pu se développer avec le verbe au-delà de ses limites originelles. Synchroniquement la différence de la distribution peut se traduire en une différence de sens. En tout cas, ils s'agit d'une donnée de plus à inclure dans le dossier de chaque terme étudié; il est également possible de représenter cette donnée symboliquement dans un tableau. Mais ce n'est pas toujours facile: tel est le cas lorsque, dans une sous-classe, seulement quelques verbes admettent la transformation en nom avec un cas déterminé. Si la fréquence est faible, les facteurs de hasard ou les faits stylistiques peuvent intervenir. Quoi qu'il en soit, la considération des fréquences est fondamentale pour une étude syntaxique.

*b*) Il peut arriver aussi que le cas étudié se transforme en même temps que la phrase. Il faut alors admettre une zone de synonymie ou de neutralisation des deux cas; cette zone de synonymie ou de neutralisation peut être plus ou moins ample pour l'un ou l'autre des deux cas. Celà peut être traduit dans le tableau de chacun d'eux par des réfèrences à l'autre ou aux autres dans les circonstances citées.

[6] Dans un travail (sous presse) que publiera la *Revista Española de Linguística* sur « Origen y estructura de las categorias nominales del Indoeuropeo ».
[7] *Linguística Estructural*, Madrid 1969, p. 875.

3. - *Etude des oppositions et neutralisations dans la même distribution.* L'étude paradigmatique est connue de tous, mai il serait convenable de souligner quelques uns de ses aspects. L'opposition d'un terme à chacun de tous les autres termes ne peut être conçue qu'àbstraitement et de façon générale; notament s'il s'agit d'une opposition de plusieurs termes, les vraies opposition n'ont lieu que dans une distribution. Et il faut faire extrèmement attention aux faits de neutralisation. Or il y a toute une série de problème qui se posent:

*a*) Il n'est pas toujours aisé de distinguer entre les cas de neutralisation et les cas de sens polarisé. Quelques fois il s'agit de faire la distinction entre des nuances très subtiles, au sujet desquelles même les informants peuvent avoir des doutes; et à plus forte raison lorsqu'il s'agit de textes anciens. Diachroniquement il y a parfois des neutralisations à partir d'oppositions originaires; d'autres fois on constate le contraire.

*b*) Le projet de retrouver les oppositions à l'intérieur d'une même distribution se révèle souvent dans la pratique une utopie. Encore une fois nous devrons nous satisfaire avec des types de distributions et, au moment de les établir, on ne peut échapper à une certaine subjectivité. De toutes façons, et à des effets purement pratiques, nous pourrons agir de la sorte et obtenir des résultats suffisament satisfaisantes.

*c*) On doit se défendre d'adopter des attitudes trop tranchantes sur les différentes sortes d'oppositions. Il existe toute sorte de gradations entre les privatives et les équipolentes; car ce fait reflète dans la synchronie la substitution diachronique des unes aux auters. Une opposition pouvant, en général, être considérée privative peut présenter quelques rares exemples de neutralisation dans le terme positif. L'indication des fréquences est essentielle dans ces cas-là.

*d*) Il ne faut pas non plus être excessivement rigide quant à la structure des systèmes oppositifs ni quant aux traits qui y interviennent. Il ne faut pas souscrire au binarisme et on ne doit pas davantage essayer de signaler une différence sémantique constante entre les traits des oppositions grammaticales et les traits des oppositions lexicales puisqu'ils coincident parfois avec les traits qui séparent les catégories et les fonctions. En somme, il existe des oppositions partielles en certaines circonstances, la synthèse finale est parfois possible, mais, en d'autres occasions celà ne peut être réalisé si ce n'est à titre indicatif et de façon purement partielle.

Laissant de côté de possibles essais de tabulation totale du système d'oppositions d'une certaine catégorie ou d'une fonction, et, aussi, la représentation graphique ou symbolique des aceptions d'un terme avec les oppositions où s'intègre chacune d'elles, on peut faire état dans la tabulation des distributions des oppositions où chacune de ces aceptions apparaît. Le matériel pourra donc être présenté sous trois formes différentes: sur une base distributionnelle avec des réfèrences aux transformations et aux oppositions; sur une base oppositive avec des réfèrences aux distributions et aux transformations; finalement, on pourra dresser le tableau des aceptions d'un terme appartenant à une catégorie ou à une fonction déterminée en indiquant ses circonstances distributionnelles, transformationnelles et oppositives.

4. - *Etude des fréquences.* Nous avons déjà fait allusion plusieurs fois à cet aspect que nous estimons essentiel pour une étude syntaxique. Le sens ou la fonction apparraissant dans les distributions ou dans les oppositions minoritaires — voire rarement même dans celles-ci —, ne peut pas avoir la même portée que le sens ou la fonction qui se trouve dans le secteur mayoritaire. La tabulation complète du matériel syntaxique d'une langue, quel que soit le point de vue adopté, doit indiquer la fréquence dans le dossier utilisé à la base. La plus grande fréquence correspondre aux distributions les plus amples, aux oppositions les plus systématiques et régulières. A l'aide des fréquences et de ces autres éléments nous pourrons dessiner, pour ainsi dire, une espèce de carte en relief reflètant un « panorama » du signifié total d'un terme syntaxique.



## III

Sur cette base complète, on peut parvenir finalment, à travers successives étapes d'induction, à essayer de saisir le noyau et les marges des termes dans les différentes catégories et fonctions; de même les cas où il y a plusieurs noyaux, c'est à dire les cas d'homonymie; et également les systèmes dans lesquels les oppositions partielles s'organisent soit pour une distribution ou une hiérarchie de distributions, soit pour la totalité de ces distributions. Il s'agit de la pyramide dont nous avons parlé ailleurs en soulignant en même temps le caractère d'unité fictice, purement supposée que le signifié fondamental présente dans la meilleur des cas. L'ascention à travers la hiérarchie des distributions, des rapports transformationnells établis entre ces distributions, des oppositions partielles, des fréquences, est souvent pénible et difficile. Il peut arriver que le signifié ou la fonction ait été complèment déplacée: tel l'accusatif complèment d'objet direct a fini par se neutraliser avec le nominatif lors de la transformation du verbe personnel en infinitif. Il peut arriver encore que le signifié se soit complèment vidé de sens et que les catégories n'aient plus qu'un but purement classificatoire avec une trascendence sémantique (syntagmatique). Et il y a encore bien d'autres possibilités.

Il ne faut ni se méprendre ni s'offusquer sur un sujet: il n'y a pas de coupes nettes ni entre les distributions, ni entre les transformations ou les oppositions (faits de neutralisation et de polarisation), ni entre les fréquences. Il y a toujours une zone de transition, qui diachroniquement est un héritage des anciens déplacements et qui synchroniquement est une zone où les sens et les fonctions s'éstompent. Cette zone peut être très petite si les aceptions etc. sont nettes; elle peut être plus ample en d'autres occasions. De toutes manières, étant donné que la syntaxe utilise plusieurs procédés, que nous avons soulignés, ils peuvent supléer les uns aux autres quand l'un d'eux a été employé de façon insuffisamment claire: la redondance de la langue peut se réduire parfois sans risque d'ambiguité.

Il faudrait insister sur ce que chacun des trois types détude que nous proposions au début comporte des déficiences et des limitations, bien qu'on puisse y rémédier en bonne mesure à l'aide des deux autres procédés. L'idéal serait de pouvoir les combiner tous les trois pour obtenir une représentation synchronique et diachronique, oú quelques zones se trouverait amplifiées, de la totalité de la syntaxe d'une langue. On pourrait ainsi la connaître bien davantage en améliorant les considérations générales, d'où nous partons en somme.

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# OUTLINE OF AN INTEGRATED THEORY OF LINGUISTIC DESCRIPTION

ELWIN H. FLINT

The theory outlined below was developed as a framework for descriptive procedures applicable to the spoken and the written medium of languages as diverse as English, French, Chinese, Indonesian, and Japanese; to non-standard English dialects (e.g. Australian Aboriginal English; to varieties of style; and to various stages in the development of child language.

The problem of developing a theory which permits the syntactical, semantic, lexical, and phonological properties of language to be viewed as functioning in a total integrated system has been approached by linguists from different theoretical standpoints. The relation of syntax and semantics has received particular attention in this connection. The controversy between generative and interpretative theories of semantics is, according to Bach (1971: 2, 4, 12), unresolvable without development of theory and widening of the relevant range of data to include facts about a variety of languages.

The theory stated below is an extension and development of Halliday's outline of general linguistic theory (1961: 241-246, revised Halliday, McIntosh, and Strevens, 1964: 18-55; Halliday, 1966: 1-41), taking account also of Halliday's later work (e.g. 1967a, b, c; 1968; 1970). The theory postulates three general levels of substance, form, and context. Context is the relation of the form (the structuring of substance so that it becomes a meaningful communicative medium) to relevant « non-linguistic features of the situations in which language operates, and to linguistic features other than those of the item under attention ». To the general level of substance corresponds the specific level of phonetics; to that of form correspond the specific interrelated levels of grammar and lexis; and to that of context corresponds the specific level of semantics. Phonology and graphology are interlevels relating spoken or written substance to formal pattern.

Language has both formal and contextual meaning. The formal meaning of a linguistic item or category, either grammatical or lexical, derives from its relation to other formal units and categories within the larger structural pattern. A formal item, whether grammatical or lexical, may also have contextual meaning, deriving from its relation, through the formal linguistic network, to relevant features or items of the language situation. The statement of formal meaning logically precedes the statement of contextual meaning.

Grammatical structure is conceived in terms of a hierachy of abstract units, each with its own internal structure, and ordered by rank, where a sentence consists of clauses, a clause of groups or phrases, a group or phrase of words, and a word of morphemes. Starting from the top (potentially structurally most inclusive) unit of the hierarchy, each unit consists of one, or more than one, unit of the rank next below (next less inclusive). Thus a word may consist of one, or more than one, morpheme. The morpheme is the minimal, non-inclusive unit. Units do



not necessarily occur in communicative discourse in this hierarchical order. Thus a clause may be embedded in a nominal group unit.

The categories of class and system are important features of this theory. Grammatical classes of units are defined consistently by operation in the structure of the unit next above. The category of system applies to formal patterns where there is a restricted set of contrastive mutually exclusive possibilities.

The theory stated below extends Halliday's theory by recognizing ranks of units above sentence: for written English, discourse, paragraph group, paragraph, and sentence group; for spoken English, discourse, utterance, and sentence group. Halliday had indeed suggested this extension (1961: 253 n. 30; 1964: 16). Reasons why it is important to consider discourse structure even when determining the semantic interpretation of particular sentences are indicated by Chomsky (1971: 205), in his discussion of focus and presupposition, and McCawley (1968: 136 and 1971b: 228), when discussing choice of pronouns and verbs. The increasing frequency of recent published studies of discourse structure emphasize its importance (e.g. Longacre, 1968 and 1970; Gleason, 1968).

The theory stated below develops Halliday's theory by defining and enlarging the concept of « language situation », with the consequent recognition of additional psycholinguistic and sociolinguistic levels in the theoretical frame; by specification of the grammar-lexis relationship; and by enunciating principles of the grammar-semantics relationship through the conjunction of formal and grammatical-semantic classes of units at every level of structure. Halliday had indeed suggested that a development of the theory and methods of contextual description was an urgent necessity (Halliday, McIntosh, and Strevens, 1964: 40). The recent extensive studies of the syntax-semantics relationship from the standpoint of transformational-generative grammar have furnished insights into the problems associated with this development.

Contextual description includes all statements of the relationship of the formally patterned grammatical and lexical units to the relevant features of the language situation between which they signal meaningful relationships. The structure of the perceived world is conceived in terms of items or entities (conceptual as well as material) and relationships (e.g. temporal and spatial) between these items. The use of language consists in mutual communication between speaker and hearer (or writer and reader) of perceived relationships between relevant items of a language situation, whether this is physically present and observed, recollected from past experience, or evoked by the use of structured language, as when a novelist describes the setting and attendant circumstances of a particular act of communication between his characters.

Language, moreover, provides a means of communication, not only of perceived relationships between items which are conceived as external, but also between those which are conceived, by introspection, as internal (e.g. feelings and abstract concepts). Furthermore, memory, association, and sometimes inference play an important part in the perception of the meaning of language signals.

Thus the recognition of a psycholinguistic level in the theory is necessary. Language communicates relationships between items as they are perceived to exist, not as they physically exist (compare here McCawley, 1968: 138); and between those items of the situation of which speaker and hearer take cognizance (compare similar reasoning by Lyons, 1963: 83-85).

The recognition of a sociolinguistic level is a natural development of the theory. Language situations are part of the pattern of the social life of the community to which the speaker and hearer belong, and the use of language is therefore related at some points to social context (cf. Lyons, 1963: 55).

One of the problems of contextual description is that the distinction between grammar and lexis cannot be sharply defined, formally or contextually. The signals

of formal relationship are not only contrastive syntactic patterns of order and grouping, but also individual signals consisting of certain classes and systems of lexical units — function (or « structural » or « grammatical ») words and bound morphemes. These individual unit signals operate at specific levels of structure and at specific places within the structure of the units at that level. They therefore belong to formally defined classes.

The essential distinction between function words (e.g. English prepositions) and bound morphemes is structurally defined: the former are separable from the units to which they are most closely related in sentence structure, the latter are not (cf. Ullmann, 1962: 47).

No clear differentiation between grammatical and lexical units can be made on the basis of their having/not having contextual meaning. In any case, no sharp borderline between formal and contextual meaning can be drawn. The relation between them is rather in the nature of a « cline » or continuum (Halliday: 1961: 248-249).

Most lexical units (other than function words and bound morphemes) have contextual meaning deriving from reference to relevant features of situation, as well as the formal meaning deriving from the structure of the sentence in which they occur. However, embedded in the meaning of certain lexical verbs additional elements of formal meaning may be distinguished. These are not signalled by formal means. Thus Fillmore (1971: 50) analyses the meaning of *kill*, in *John killed the rat*, as *by doing something cause to die*. The causative voice element of formal meaning is not signalled in word structure or by function word auxiliaries (cf. also examples in McCawley, 1971a: 24-25). Certain verbs corresponding in Indonesian to English verbs with an embedded causative meaning (e.g. *introduce* in *I introduced my friend to the professor*) signal this causative meaning by a bound morpheme suffix *-kan* (*mengenalkan*, cause to know).

On the other hand, though function words are primarily signals of formal relationship and therefore have formal meaning, certain classes of function words (e.g. English locative prepositions such as *in*) have also a kind of contextual meaning. This meaning is however of a different order from that of the contextual referential meaning of nouns, verbs, and adjectives. It is based upon a perceived locative relationship between at least two perceived items, as in the sentence, The *book* is *in* the *library*. It involves a conceptualization of what is perceived, and occupies an intermediate place in the continuum of formal and contextual meaning. It is thus on the borderline of form and context, of grammar and semantics. Lyons (1963: 55-56) recognizes this type of meaning. He subsumes it under his term « application », which includes reference in the narrower sense and covers all the relations between formal units and relevant situational features.

The first step in the application of these principles to descriptive work was to make a complete six-level description of stretches of English discourse material, starting with the interrelated levels of grammar and lexis, semantics, and phonology. A fourth parallel level noted elements of paralanguage (e.g. certain intonation-bearing phonemes or phoneme sequences in spoken discourse sometimes classed as « interjections »), and also kinesic features such as gesture relevant to meaning. McCawley (1971b: 228) has interesting comments in this connection on the semantic function of conjoined gesture and stress accompanying deictic pronouns.

A fifth parallel level of description noted relevant psycholinguistic factors which are « beyond grammar, in the broadest sense of the concept grammar », such as sentence focus in a presupposition-sharing response in discourse structure (Chomsky, 1971: 205-206). A sixth parallel level noted relevant sociolinguistic features relating to register differences and reflected in linguistic choice.

The description of emotive language, which employs grammatical as well as lexical and phonological devices (Stankiewicz, 1964) and which is related to the



psycholinguistic and sociolinguistic levels as well, is made separately, as is stylistic description.

The aim of the grammatical description was to distinguish and represent symbolically all abstract grammatical units (including function words), together with their formally defined primary (and where relevant) secondary classes, in the whole range of language structure from discourse to morpheme.

Eleven primary formal classes were thus distinguished. With these were combined, in the symbolized description, their associated contextually defined grammatical-semantic categories and classes.

The conjoined formal and grammatical-semantic classes and systems of abstract units at all structural levels were listed, and their number was found to be comparatively large (538).

When similar methods of description were applied to discourse material in languages other than English, a notable result was that similar formal and contextual classes of abstract units were established, and their number was found to be remarkably constant. Few additions to the original number established for English had to be made for the description of each successive foreign language. This would suggest that universals of language are to be sought in conjoined formal and grammatical-semantic class correlations.

What differed radically, of course, from language to language was unit structure (e.g. predominance of premodifier group unit structure in Japanese, compared with the optional pre- and postmodifier structure of English nominal groups). Substitution of one unit for another of similar formal function was sometimes found to occur. For example, those secondary classes of « auxiliary particles » (*joji*) corresponding in Japanese to the class of function word units in English which are commonly called « prepositions » are bound morpheme units in Japanese, being structurally inseparable from the unit in sentence structure to which they most closely relate. They are, moreover, postposed, the term « postposition » often being used by Western linguists (Harada, 1966: 119-122). Yet their formal meaning in sentence structure remains the same.

The description of actual texts incorporated and represented symbolically generalized lexical-semantic classes of referential words and the co-occurrence restrictions which related to them. The lexical-semantic description was based upon a conceptual generalization of the essential perceived attributes of these referential words, hierarchically ordered in a network of binary systems of progressively greater delicacy. The incorporation of this description with the grammatical description brought to light many correlations between the grammatical and lexical signalling systems, e.g. selection from function word systems such as *nobody/nothing*: *nothing* can co-occur in a suitable context with *plant*, which belongs to a class of lexical units with essential features concrete/inanimate, whereas *nobody* cannot.

Formal meanings embedded in lexical items (as exemplified above) were distinguished from contextual referential meanings in the conjoined grammatical and lexical-semantic descriptions.

Phonological description included, in addition to relevant statements of segmental phonology, statements of grammatically relevant features of intonation and stress, of the kind described, for example, in Halliday (1967a) and exemplified in Chomsky (1971: 202-205).

This method of description proved arduous and time-consuming, but satisfying, in that it promised progress towards viewing a language as an integrated structured communicative system.

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# CASE IN THE LEXICON

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This paper will suggest that (1) to account for certain cross-linguistic generalizations, a syntactic model must include an inventory of universal case realization units as well as an inventory of case relations, and (2) that these realization units and relations are best included in a grammar as features of lexical items.

The paper explores some of the properties of the lexicon of a generative case grammar formulated in such a framework. In particular, it describes the role of lexical redundancy rules as case marking devices, and suggests that grammars written in this framework, since they minimize the use of the powerful transformational component, make a correspondingly stronger claim about the nature of human language.

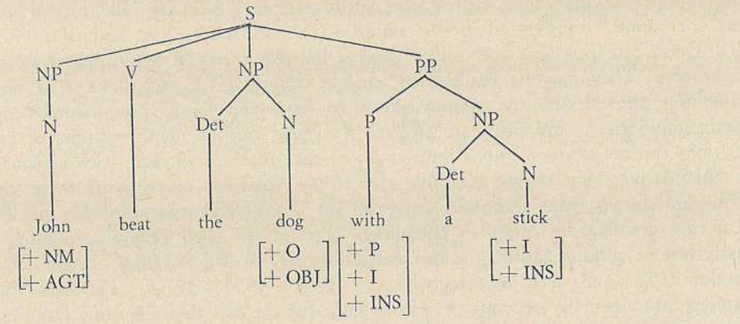
In the following discussion, I will refer to two types of case category, case *relations* and case *forms*. Case relations may be defined as « grammatical relations contracted by nouns which express the nature of their "participation" in the "process" or "state" represented in the sentence (or noun phrase) » (Anderson 1971: 10). These case relations are drawn from a limited universal set supplied by the metatheory. They may be realized in various languages by such devices as noun inflection, prepositions and postpositions, coverbs, voice and focus, word order, "noun auxiliaries", and pronoun suppletion. These various manifestations of case relations can be grouped into a limited set of case forms, including such categories as Nominative. Accusative, Genitive, Locative, Ablative, etc. Again, these case forms are drawn from a limited universal set. Such categories must be included in a case grammar in order to adequately account for such general processes as passivization, causativization, and intransitivization (Starosta 1971a, b; Taylor 1971; Manley 1971) and verb subcategorization (Taylor 1971: 33-34). The case form elements are especially necessary (1) to account for the fact that the same groupings of case relations can be neutralized by a single case form in a variety of languages; and (2) to account for John M. Anderson's observations about the close relations between locative and syntactic cases (Anderson 1971; Starosta, 1972a).

The case marking system described below assumes a base component which is a drastically simplified version of Chomsky's 1965 *Aspects* base component (Chomsky 1965). It contains a true constituent structure component, one which includes only syntactic constituents, and treats all grammatical categories such as Tense, Aux, Q, Imp, etc., as features of lexical items. Thus it comes much closer to a formalization of structuralist immediate constituent analysis than the treatments of phrase structure in previous generative grammars. All syntactic representations are generated directly by this component, and thus there is no necessity for a distinct deep structure or for transformations to relate deep structures to surface structures. In one sense, it neutralizes the distinction between the generative semantic and lexicalist models; since all lexical insertion necessarily takes place at one

level, the level of the (surface) syntactic representation, this approach satisfies the main defining criterion of lexicalist generative grammars. On the other hand, since there is no significant level between the semantic representation and the surface structure, it also satisfies one of the defining criteria of generative semantics. The elimination of deep structure and transformations places a very strong limitation on the set of possible grammars, and thus grammars formulated within this framework make a much stronger claim about the nature of human language.

Such a grammar could be seen as the result of carrying the ideas of the lexicalists to their logical extreme. The primary raison d'être for deep structures in lexicalist grammars now, according to Chomsky (lecture, Linguistic Society of America Summer Linguistic Institute, Buffalo 1971) is to represent « thematic relations », equivalent to Fillmore's cases; and since a « lexicase » grammar represents such relations at the surface level, deep structure becomes superfluous (Taylor 1971: 8).

In a lexicase framework, both case relations and case forms are marked directly in the surface syntactic representation. Thus, all the speaker's knowledge of the syntactic structure of a particular sentence is reflected in a single representation. Both case forms and case relations are represented as features of nouns and prepositions, and are assigned to lexical items by lexical redundancy rules, with case relations being mapped onto case forms. This approach has certain similarities to the traditional treatment of case, in which cases were identified according to surface form and semantic function, thus giving rise to such terms as « dative of personal agent », etc. The fact that subjects, objects, genitive, etc., are neutralizations of various case relations can be shown directly by marking nouns both for case form and case relation. For example, the noun phrases of the sentences, « John beat the dog with a stick » and « The dog was beaten with a stick by John » would be marked both for case form and case relation in the surface structure as shown in Figure 1:



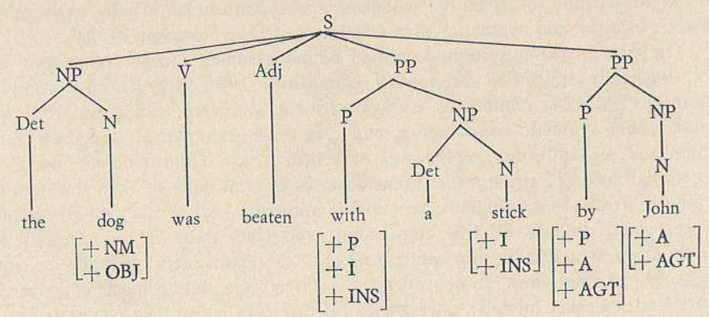




FIGURE 1.



In general, the mapping of forms will be skewed in both directions; that is there will rarely be a single case form uniquely representing a single case relation. Rules 1-6 in Figure 2 are an oversimplified example of how lexical redundancy rules can be used to assign case to nouns.

1. [+ N] → [± NM]
2. [+ NM] → [± AGT]
3. [— AGT] → [± EXP]
4. [— EXP] → [± INS]
5. [— INS] → [± LOC]
6. [— LOC] → [± OBJ]

FIGURE 2.

The use of such rules automatically establishes a feature hierarchy, as illustrated in Figure 3:

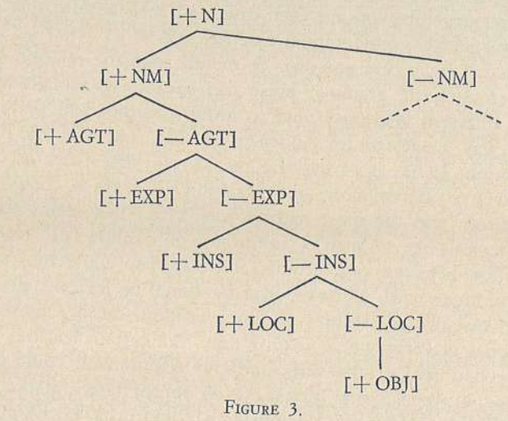



FIGURE 3.

It is a simple matter to express the subject choice hierarchy in terms of such rules. The fact that the treatment of case as features automatically forces the establishment of such a hierarchy while a Fillmorean treatment in terms of pseudo-syntactic nodes does not automatically result in such a hierarchy may be significant in terms of the appropriateness of this formalism for the representation of the grammar of natural languages.

This notation also makes it possible to mark a given noun for more than one feature. As John M. Anderson and Sheldon Harrison have pointed out (Anderson 1971; Harrison 1971), such a multiple specification is especially necessary for marking actants in various cases for features of location and direction. However, as Harrison noted, it is probable that we are dealing with two different kinds of features here, on two different levels. For example, [+ AGT] is probably a true case relation, satisfying Fillmore's requirement of one case per actant and participating in the sort of hierarchical breakdown exemplified in Figures 2 and 3, whereas « ablative » in Anderson's sense (cf. Fillmore's S(ource)) is an auxiliary feature which although it does serve to subcategorize verbs, is nevertheless not an independent case relation in the same sense as [+ AGT], and may be marked in an actant in addition to a regular case relation feature (cf. Taylor 1971: 336-409). Although Anderson did not make this distinction, he does note that for purposes of subjectivization, « erg » (Fillmore's « A ») takes priority over « abl » (Fillmore's S(ource)) (Anderson 1971: 163). Anderson suggests that it may even be possible

for features corresponding to Fillmore's Source and Goal to both be marked simultaneously on the same constituent, thus accounting for the case relation David Bennet has recently referred to as « Path » (Bennet 1970, cited in Fillmore 1971), realized in English by such prepositions as « along », « across », « through », and « down ».

So far, Fillmore's case grammar has only made a beginning toward solving some of the problems connected with case forms and simultaneous components. He has introduced labels such as Nom and Acc, case nodes which do not appear at the deep structure level, thus recognizing the existence of theoretically significant case categories other than case relations, and providing a means for the representation of at least some of the neutralizations observed by Anderson, Taylor, Manley, Tran (Tran 1972) et al. However, many of the other neutralizations have yet to be accounted for in his framework. He has also recognized the fact that it is sometimes necessary to consider a single actant to be marked simultaneously for two different cases. Because his formalism allows him to mark only one case per actant in the deep structure, however, he is forced in such situations to set up two identical actants in the deep structure, one for each case, and then require that one of them be obligatorily deleted by « coreferential case deletion ».

It is not enough for a case grammar to merely map the relation onto the correct case form; an adequate grammar must also be able to explain why the same case relations in different languages tend to group together and share an identical realization. The way suggested by Anderson (1971), and also by Fillmore (personal communication, 1970), is to indicate that certain cases such as Goal, Dative, Direction, Benefactive, Experiencer, and Location all share a component of, say, direction or location; and the most natural way to do this seems to be in terms of features of lexical items. Such a solution would allow us, for example, to explain the relation between case actants and adverbs; while most (but not all) nouns could occur freely with all cases, adverbs would be lexical items permanently marked for such case-related features as time, location, means, instrument, and so on. The case frames of verbs would require only that certain features occur marked on some sister constituent of the verb, and this requirement could be met either by a noun phrase, a prepositional phrase, or an appropriately marked adverb.

In « Some Problems for Case Grammar » (Fillmore 1971), Fillmore has objected to the treatment of case as a feature of lexical items for two reasons: 1) case is not a feature of nouns, but rather represents a relation between a noun phrase and the rest of the clause, and 2) this approach would force all sentence embeddings to be treated as instances of adjunction to nouns in deep structure (Fillmore 1971: 262). Neither of these objections is particularly convincing. Clearly, Fillmore is right in stating that case is a relation between noun phrases and predicators, but this does not preclude the possibility that it is also a feature of lexical items. Inflection and agreement evidence indicates that if gender and number are features of nouns, then case should also be a noun feature.

Psychological evidence may ultimately have a bearing on the solution of this particular problem, since introspection suggests that it is not possible to utter a noun in or out of context without marking it as bearing some case-like relation to an unspoken predication. It has been argued in a recent article (Ingram 1971) that something like predication and case relations are present even in the one-word utterances of children in the early stages of language acquisition. As for embedding, treating case as a feature of lexical items certainly does not require the treatment of all embedded sentences as adjuncts to nouns. First of all, a lexicalist grammar will treat many nominalized sentences as being generated directly as noun phrases with a nominalized verb as the head of the construction. These nominalized verbs are listed in the lexicon, and thus be marked for case in the same way that other



nouns are. For most other embeddings, the complementizer itself will carry the case, just as the preposition carries the case in prepositional phrases. In non-nominalized sentences without complementizers, the situation is less clear-cut; however, there is some reason to believe that they may not even be markew for case at all.

Whatever notation is decided on, it must, as Anderson has stated, capture the relational character of case (Anderson 1971: 28). According to Anderson, a representation must be chosen which both marks case as a terminal category and indicates the case function of the noun phrase as a whole. Case features are well suited to satisfy these requirements. By marking case on lexical items, we can have case as a terminal category; and by requiring all the constituents of a construction to agree in case, that entire constituent is in effect marked for a particular case. The case frame of the verb identifies it as an argument of one or more binary verb-noun phrase case relationships, and the case features on the noun phrases identify them as the other arguments of these relations.

The use of case features is not particularly new in terms of the short history of generative grammar. Both Emmon Bach (Bach 1967: 480-1) and Uriel Weinreich (Weinreich 1966: 419, 423, 425, 429) suggest that a grammar contain features or categories that bear a strong resemblance to the ones I am proposing here. Fillmore himself used case features in « Toward a Modern Theory of Case » (Fillmore 1969) to handle lexical insertion. His case features were assigned by a convention which referred to the case node dominating the lexical items in question. At this stage, he might have chosen to adopt some sort of feature notation and abandon the case node formalism. However, his later works make no further mention of case features, at least not until « Some Problems for Case Grammar » (Fillmore 1971), and rely instead completely on case nodes.

Finally, it seems far less ad hoc to mark case as a feature of lexical items which manifest it than to derive all the varied manifestations of case relations from a kind of pseudo-preposition « K », as Fillmore proposes in « The Case for Case » (Fillmore 1968), or to mark nouns for features such as pointness, surfaceness, part-of-a-surface-or-volumeness, etc., as Fillmore rather halfheartedly suggests in « Some Problems for Case Grammar » (Fillmore 1971: 260), in order to condition later preposition insertion transformations.

Case frames can be represented rather conveniently as selectional features referring to case features of sister constituents. This has an advantage over Fillmore's pseudo-strict-subcategorizational case frames in that the case frame need not be handled as a single unanalysable unit, but can be broken up into components which can be handled by redundancy rules in accordance with usual conventions for feature rules. Thus in place of a Fillmorean case frame feature such as [+ —— A(I)O], we might have a feature matrix such as that represented in Figure 4:

*capture*

$$\begin{bmatrix} +\text{V} \\ +\begin{bmatrix} +\text{NM} \\ +\text{AGT} \end{bmatrix}___ \\ +___\begin{bmatrix} +\text{O} \\ +\text{OBJ} \end{bmatrix} \\ +___(\begin{bmatrix} +\text{I} \\ +\text{INS} \end{bmatrix}) \end{bmatrix}$$

FIGURE 4.

Certain features might be predictable in terms of others, and this would allow the simplification of lexical entries. Thus if we found the rules in Figure 5 to apply to

English (actually they don't), the lexical entry could be simplified accordingly:

RR.1. $[+___\ \begin{bmatrix}+\text{O}\\+\text{OBJ}\end{bmatrix}] \rightarrow [+\ \begin{bmatrix}+\text{NM}\\+\text{AGT}\end{bmatrix}\ ___]$

RR.2. $[+\ \begin{bmatrix}+\text{NM}\\+\text{AGT}\end{bmatrix}\ ___] \rightarrow [+___(\ \begin{bmatrix}+\text{I}\\+\text{INS}\end{bmatrix})]$ *capture* $\begin{bmatrix}+\text{V}\\+___\ \begin{bmatrix}+\text{O}\\+\text{OBJ}\end{bmatrix}\end{bmatrix}$

FIGURE 5.

Such a system has been implemented in some detail for Japanese by Taylor (Taylor 1971) and for Vietnamese by Tran (Tran 1971).

It is perhaps inevitable that a paper such as this should raise more questions than it has answered. In particular, the crucial questions of embedding, markedness, derivation, and the role of the lexicon in a « lexicase » grammar deserve a far more detailed examination than could be given here. I can only refer the audience to the works cited in the Bibliography, especially those by Taylor, Manley, Tran, Ramos, and Starosta, for theoretical discussions and descriptive exemplification of the system I am proposing, and express my willingness to discuss these question with anyone who may be interested.

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## RESTRICTIONS INTRADÉRIVATIONELLES ET RESTRICTIONS INTERDÉRIVATIONELLES

BERND SCHWISCHAY


*Résumé*

Il sera démontré que les restrictions interdérivationelles proposées par G. Lakoff — là où elles ne reposent pas simplement sur un traitement incorrent des faits linguistiques — sont superflues: il est, en effet, logiquement possible de classer les restrictions intradérivationelles en deux groupes, selon que la contrainte se réfère à un stade dans la dérivation transformationelle qui est (a) déjà passé ou (b) pas encore atteint.

Ce sont précisément les prétendues restrictions interdérivationelles qui constituent la catégorie (b).

*Lilienthal (W. G.)*

# SOCIOLINGUISTIQUE ET CHANGEMENT LINGUISTIQUE: QUELQUES CONSIDÉRATIONS SCHÉMATIQUES

TULLIO DE MAURO

1. Au début du siècle, Ferdinand de Saussure a mis en lumière l'hétérogénéité de la matière même qu'étudient les linguistes. Soixante ans après, nous sommes obligés de constater le caractère épistémologiquement hétérogène des sciences qui s'occupent de faits linguistiques.

Nos connaissances de la réalité linguistique appartiennent à des domaines qui, si on les considère du point de vue épistémique, apparaissent comme bien distincts. Tout d'abord, ces connaissances prennet 1eurs sources dans des processus qui se différencient par plusieurs aspects (socio-culturel, psychologique, gnoséologique): l'introspection intuitive, l'étude philologique des documents de langue, l'élaboration de modèles théoriques de nature hypothético-déductive, la simulation et l'expérimentation. Ensuite, ces connaissances trouvent leur justification dans les critères de rejet et de falsification différents du point de vue formel: la conviction intuitive, par voie d'argumentations et de discussions non formalisées, l'étude rigoureuse, dans ses procédés, comme dans ses limites, des documents historico-philologiques, l'application cohérente de postulats donnés, la falsificabilité factuelle.

Durant ces dernières années, l'on a beaucoup discuté quant à la primauté d'un type épistémologique d'étude linguistique ou d'un autre, et une grande partie des linguistes se sont divisés en humanistes et anti-humanistes, scientistes et anti-scientistes, rationalistes et empiristes etc. Nous eroyons, au contraire, que la réalité linguistique est très étendue et extrêmement complexe. Locke la comparait avec raison à une province entière du réel, égale, par son extension, comme par son importance, aux deux autres grandes provinces: la réalité physique et la réalité humaine dans sa totalité. Devant l'étandue de la réalité physique, la pluralité de sciences distinctes au point de vue épistémologique est un fait admis. Ainsi nous sommes obligés de reconnaître que pour les recherches linguistiques, la voie la meilleure n'est pas celle de l'exclusivisme et des divorces qui en résultent, divorces entre théorie et expérimentation, ou entre celles-ci et la philologie ou la discursivité non formalisée. Bien au contraire: la voie qui convient est celle qui est constituée par des approches multiples des faits linguistiques, celle de l'utilisation de multiples instruments de connaissance et d'organisation des connaissances. En somme, il vaudrait mieux parler de « sciences linguistiques » (« language sciences ») que de « linguistique » tout court.

Sur le plan mondial, la valeur de cette direction « pluraliste » a été indiquée aux linguistes, tout d'abord par Saussure, ensuite par Roman Jakobson et André Martinet. En Italie, cet enseignement a été renforcé par l'autorité de savants comme Pagliaro et Luigi Heilmann.

Il vaut également la peine de rappeler que si dans beaucoup de ses écrits, Chomsky a apparemment privilégié les raisons de l'intuition et la validité de modèles hypothético-déductifs, Chomsky lui-même et Morris Halle, dans la préface-



manifeste de *Cartesian Linguistics*, ont mis en lumière l'opportunité d'approches épistémologiquement divergentes de la chose linguistique. L'école linguistique anglaise semble procéder dans cette direction, et des théories comme celles d'Eugenio Coseriu et Sebastian Saumjan représentent l'effort d'une recherche de systématisation métathéorique et théorique quant à la reconnaissance du caractère épistémiquement multiple des recherches possibles et nécessaires autour du langage, des langues et de la parole.

2. Le caractère hétérogène des sciences du langage n'empêche pas que celles-ci s'échangent continuellement des résultats, des stimulations, des projets de travail. Aucun secteur de la recherche, même pas ceux qui le prétendent, ne travaille *in vacuo*, dans des conditions d'asepsie théorique et culturelle. Pour la direction à laquelle nous nous référons, c'est là un fait qu'il faut considérer comme hautement positif.

La contamination entre des directions épistémologiquement hétérogènes coûte son prix et nous incite à une certaine prudence. En effet, on assiste à un glissement continuel de termes-clefs d'un secteur à un autre, d'une acception à une autre. Il suffit de penser à la polysémie de termes comme *transformation* (sens historique non formel, sens diachronique et formel, au moins deux sens en linguistique dynamique et générative), ou comme *forme* (sens formel, sussurien et hjelmslévien, sens matériel de la linguistique bloomfieldienne et chomskienne) ou encore comme *générer* (sens formel et mathématique, sens non formel, plus ou moins influencé par le premier, qui circule largement aujourd'hui).

Il résulte de tout cela la nécessité d'une prudence tant terminologique que conceptuelle. Pur cela, devant le thème de cet exposé, il nous semble opportun de déplacer l'attention vers les termes et vers ls concepts qui sont en jeu, et de nous consacrer uniquement à proposer à l'attention des présents — et à leurs critiques — quelques distinctions terminologiques et conceptuelles de portée générale.

3. Placer le discours sur un plan théorique, voilà qui pourrà susciter quelques déceptions. « Encore de la théorie! » crieront certains. Et de rappeler qu'un linguistes attentif et intelligent comme Georges Mounin a plusieurs fois manifesté, au cours de ces dernières années, un certain énervement devant la prolifération de théories plus ou moins formalisées.

Toutefois, il nous semble juste de souligner au moins deux autres raisons qui justifient un discours théorique.

Dans le cadre de ce Congrès, oú l'on confronte des expériences très éloignées et qui souvent ne sont pas au courant les unes de l'existence des autres, il serait facile d'exhiber des données et des résultats concrets (ou moins abstraits). Seulement, cela ne servirait en rien l'intercompréhension, ou — plus exactement — il ne nous serait possible de nous comprendre qu'à condition de disposer de termes de réference communs. Puisque ces termes manquent, il n'est pas inopportun d'en faire le sujet même de cette discussion: les termes de référence communs, et donc généraux et théoriques.

En second lieu, les théories qui ont proliféré au cours des années soixante — avec même une tendance à la surabondance — ont surtout eu pour objet le système linguistique comme réalité abstraite, les universaux subastanciels, certaines parties du mécanisme linguistique, comme la syntaxe et la sémantique. L'étude de la parole, de l'execution, sur un plan théorique et générale, a été négligée. L'on peut dire, d'ailleurs, que l'étude théorique de tout ce que Saussure appellait la « linguistique externe » a été laissée de côté. Dans le manuel de John Lyons, qui reflète d'une façon exemplaire les orientations les plus acréditées de la linguistique des années soixante, on ne trouve pas un seul paragraphe consacré à la dimension sociale des faits linguistiques. La pauvreté de perspective théorique, autrefois assez générale dans les sciences du langage, reste encore aujourd'hui dans la « province » de la

recherche qui s'occupe des interrelations de Saussure à ce propos. Ce sont des indications qui visent à intégrer le caractère social et temporal de la langue à la motion formelle de langue. Mais, exception faite des exégètes saussuriens attentifs comme Engler, de Coseriu et aurtout des chercheurs de la seconde génération genevoise, spécialement Robert Godel, l'on ne peut pas dire que, pour le reste, les linguistes théoriciens se soient engagés très loin dans cette direction, même pas dans ces pays socialistes où la prédominance politique et culturelle du marxisme aurait pu et du rendre les linguistes plus sensibles à cette problématique.

Voilà donc un second motif — décisif — pour que l'on propose un débat de nature générale et théorique sur les rapports entre sociolinguistique et changements linguistiques.

4. Des deux termes en jeu dans le thème de cet exposé, nous pouvons supposer que le premier est certainement le moins problèmatique. C'est-à-dire que nous pouvons proposer sans hésiter d'accepter la délimitation des objets d'étude de la sociolinguistique telle que nous la présentent les spécialistes américains. Selon Fishman, l'on peut dire que ces objects sont: les variétés linguistiques, les caractéristiques de leur fonctions, et celles de leurs usagers.

Ces objects d'étude ont-ils un rôle dans les changements linguistique? Et si oui, quel est ce rôle?

Pour répondre à ces deux questions, il faut arrêter notre attention sur l'autre terme qui est en jeu dans cette discussion, c'est-à-dire sur ce que M. Halle et N. Chomsky on appelé « the still puzzling phenomenon of linguistic change ».

5. La notion de « changement linguistique » est profondément ambigue, avant tout à cause de l'ambiguité inhérente, dans beaucoup de langues, à des adjectifs comme *linguistique* ou à des substantifs comme *Sprache, language, jazyk*. Un adjectif comme *linguistique* nous sert à faire référence, selon les cas, à ce qui est relatif à la faculté de parler ou à se qui est relatif à l'idiome employé pour parler. Même dans un texte classique comme le *Cours* de Saussure, où ces deux domaines sont tenus bien distincts, grâce à la différentiations terminologique et coneptuelle entre *langage* et *langue*, l'adjectif *linguistique* est employé d'une façon ambiguë. Et, comme l'a mis en lumière un jeune chercheur genevois, René Amacker, ce manque de distinction est une base théorique pour les disciples de Chomsky qui unissent faculté et idiome dans la notion unique de *competence*.

Puisque aucune justification critique de ce manque de distinction n'a été avancée,et quisque l'on n'en voit pas les avantages, il nous semble préférable de continuer à observer la distinction conceptuelle et terminologique saussurienne entre « faculté du langage » et « langue ». C'est justement sur la base de cette distinction que la notion de « changement linguistique » peut être analysée et substituée par des motions plus précises.

6. Ce que Saussure appellait *faculté du langage*, la « verbalisation » de J. H. Jackson, se révèle comme un ensemble de capacités. Chez l'être humain, ces capacités sont liées à l'activité des centres corticaux, et nou pouvons dire, en synthèse, que, toujours chez l'être humain, ces capacités déterminent celle d'utiliser une série infinie de classifications qui se trouvent en interrelation (ou, du moins, qui sont susceptibles d'être mis en interrelation), chacune de ces classifications permettant d'associer un nombre infini de sens a un nombre tout aussi infini de signalisations de sens (phonies, graphies etc.).

Nous nous trouvons maintenant devant la première question centrale de notre discours. C'est-à-dire qu'il faut se demander s'il j a un sens à affirmer qu'il existe des changements intratemporels de la faculté du langage et si la sociolinguistique peut nous enseigner quelque chose à se propos.



Il nous semble possible de répondre par la négative à la première partie de la question, exception faite de quelques réserves d'ordre empirique. Evidemment, nous n'avons de documents sur la façon dont la verbalisation a eu lieu que pour les quelques milliers années qui sont les plus proches de nous. Nous ne savons rien de direct, au contraire, sur la langage humain durant ce que Vico appelait « le sterminate antichità » (la nuit des temps), c'est-à-dire durant plus d'un million d'années de l'histoire de l'espèce humaine. Mais à partir de ce que nous savons et de ce que nous pouvons raisonnablement conjecturer, il semble possible de ne postuler aucun changement essentiel dans l'ensemble des capacités linguistiques. La confrontation des capacités des verbalisation dans des sociétés profondément différentes, des sociétés antiques à celles contemporaines, de celles qui encore aujourd'hui sont fondées sur l'économie de pêche et de chasse aux sociétés industrialisées, néo-capitalistes, socialistes, ne révèle pas de changements correspondants (formels et essentiels) appréciables dans les capacités linguistiques.

Tout ceci semble renforcer la thèse, si autorisée aujourd'hui, de l'innéisme biologique et de l'universalisme néo-cartésien. Les capacités linguistiques ne changent pas intratemporellement dans la mesure où elles constituent une partie du patrimoine génétique de l'espèce humaine.

Toute contribution de la sociolinguistique dans cette direction semble donc a priori exclue. C'est pourtant justement d'un point de vue sociolinguistique que partent des travaux qui nous portent à réexaminer la question, à la problematiser.

Nous nous référons à des contributions relatives à des communautés en voie de désintégration sociale (des communautés paysannes du Sud de l'Italie, par exemple), à des groupes de déracinés sociaux (sous-prolétariat des slums, des bidonvilles), ou de prolétaires ethniquement déracinés et projetés, en une position subalterne, dans des sociétés avancées (noirs, portoricains, grecs, turcs, italiens etc.). A côté des phénomènes connus de la mimésis des langues qui ont un plus grand prestige, à côté de la formation de langues mixtes, nous assistons dans ces cas-là à des phénomènes impressionants de privation linguistique. Entraînés hors de l'usage des idiomes qui ethniquement et/ou socialement leur sont traditionnels, coupés de l'usage des idiomes qui circulent dans le milieu dominant, une grande partie des locuteurs se présentent pas tellement et pas seulement des défauts dans la capacité d'employer une langue déterminée, mais finissent plutôt par se trouver gravement lésés dans la capacité même de verbaliser quoi que ce soit eu quelque langue que ce soit. Par exemple, les paysans miséreux du Basento (Italie) qui ont fait l'objet d'une étude de la part de Lidia De Rita ne savent littéralement plus parler. Ils sont affectés d'un déficit profond et radical de la verbalisation.

Ces donnés sociolinguistiques coincident avec des données de nature ethnologique et pédagogique. Les cas connus des enfants sauvages, des enfants-loups, comme ceux moins éloignés des enfants des slums et des faubourgs qui encerclent les mégalopoles modernes, montrent que si, à l'intérieur d'un niveau d'âge très restreint, le processus d'acquisition du noyau de base d'au moins un idiome n'est pas porté à son terme, l'individu va à l'encontre d'une situation dramatique de privation et même de perte complète des capacités linguistiques générales, avec des retombées sur toute la personnalité.

A la différence des capacités senso-motorielles qui sont héréditaires, les capacités constitutives du langage sont graveemnt affectées et compromises, une fois pour toutes, par le manque de contact ou le contacte insuffisant avec des êtres humains qui parlent déjà.

Ces données ne trovent aucune place, ni aucune explication dans le cadre de l'innéisme universaliste et biologique tel que le conçoivent Chomsky, Lenneberg et d'autres encore.

La sociolinguistique n'a pas la possibilité de prouver que le changement de conditions sociales de base provoque ou se conjugue avec des changements de la faculté du langage. Mais elle est en état d'affirmer que les capacités linguistiques, si

elles sont innées, le sont d'une façon absolument exceptionnelle: à la différence d'autres aspects de l'hérédité biologique, elles ne se manifestent qu'a condition qu'il y ait une insertion sociolinguistique de l'individu de l'espèce humaine dans une communauté de locuteurs.

D'autre part, il est bien vrai que cette insertion n'à d'effect qu'à l'intérieur de limites anagraphiques très précises. La stimulation sociale à elle seule n'explique (comme Chomsky l'à souligné) ni ne détermine, s'il arrive au-delà d'une limite d'âge précise (comme le montrent les mêmes cas cruciaux des enfants-loups ou sous-prolétaires) le fonctionnent effectif des capacités linguistiques. L'associationnisme, tout comme l'innéisme, est incapable de fournir une théorie d'ensemble qui raccorde les données d'observation que l'on à évoquées ici dans une hypothèse unitaire et de façon non contradictoire.

7. Devant la seconde question centrale de notre exposé, la sociolinguistique fournit encore une fois une contribution propre, autonome et problématique, si l'on confronte ses résultats avec des interprétations théoriques générales.

Comme nous l'avons dit avant, changement linguistique peut signifier et signifie de fait, outre à changement de langage, également changement de langue.

La notion de « changement de langue » se présente à son tourt comme double. La lecture du *Cours* de Saussure donnée par L. Hjelmslev et portée à sa pleine expression théorique surtout part E. Coseriu, a conduit à la reconnaissance, dans ce que Saussure appellait *langue* de deux notions distinctes: la notion de langue comme système et la notion de langue come norme d'usage du système.

Nous pouvons préciser la première notion en définissant la langue comme un système d'élements analysables en traits pertinents (caractéristiques différentielles de nombre fini, que l'on peut assembler en combinaisons à nombre fini d'éléments). grâce auxquels nous distinguons (nous générons) un nombre infini de signes biplanaires (à face signifiante et face signifiée).

Pour préciser la seconde notion de langue, on peut affirmer que les différents aspects du système, pris séparément, peuvent être privilégiés de façon différente par les usagers, qui peuvent, de diverses façon, les associer à des traits non pertinents, et, enfin, les mettre en interrelation avec des systèmes formellement différents également adoptés par les mêmes usagers.

En nous référant à la langue comme système, nous ne pouvons parler de changement de langue qu'en présence de changements du système de traits pertinents Par référence à la langue comme norme, tous les changements de préférence pour certains parties du système, les changements de traits non pertinents, ceux enfin des modalités des coexistence entre systèmes différents sont des changements de langue.

Les changements de la langue comme norme sont identifiable statistiquement et peuvent s'expliquer comme des effects de la variation de la stratification socioculturelle et socio-économique des usagers. Ces changements reflètent la variation des rapports de force entre le différents groupes sociaux et ont donc un caractère superstructural (au sens marxiste de ce terme).

Les changements de la langue comme système ne sont pas nécessairement identifiés par voie statistique, dans le sens que l'analyse d'un corpus, aussi vaste soit-il, peut ne pas les révéler. Ils ne s'identifient au contraire qu'en transportant l'analyse sur le plan de la fonctionnalité potentielle, en abstraction de l'effectualité de l'usage (suivant les indications déjà présentes dans Saussure et Hjelmslev, et reprises de façon différente par Coseriu et Chomsky), c'est-à-dire par la constatation sur ce plan-là de la difformité qu'il y a entre deux systèmes fonctionnels.

On peut donc raisonnablement s'attendre à ce que l'analyse sociolinguistique ne puisse nous donner aucun résultat dans cette direction. En effet, les tentatives d'explication en termes socioculturels (c'est-à-dire de sauts du type d'économie, de culture et de mentalité) de la diversité qui existe entre systèmes linguistiques différents ont donné lieu à des constructions fantaisistes qui ont été facilement rejetées.



Toutefois, si la sociolinguistique ne peut pas donner d'analyses explicatives des changements de système fonctionnel, elle n'est pas pour autant privée de toute tâche à cet égard. Comme l'a très bine montré un linguiste italien peu connu à cause de sa disparition précoce, Mario Lucidi, la diversité entre deux systèmes fonctionnels est toujours d'ordre absolu. La confrontation entre deux systèmes en succession, la diachronie, ne peut trouver de justifications dans la similarité des deux systèmes, qui sont nécessairement différents et réciproquement non commensurables. Si cette confrontation (que le linguiste fait continuellement) est possible, c'est en vertu du sentiment de continuité, de filiation réciproque entre les deux système, sentiment qui est justement une donnée d'ordre sociolinguistique.

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# ON THE USE OF THE PRESENT TO EXPLAIN THE PAST

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Just ten years ago, at the Ninth International Congress of Linguists, Jerzy Kuryłowicz issued the following strong statement on the independence of linguistics from worldly considerations:

> Once we leave languages *sensu stricto* and appeal to extra-linguistic factors, a clear delimitation of the field of linguistic research is lost. Thus, e.g., the physiological (articulatory) aspect may be a consequence of social factors, the latter being themselves due to certain political or economic facts (conquest, migrations involving bilingualism) ... It seems that the field of linguistic explanation in the literal sense must be circumscribed by the *linguistic* aspect of the change in question, i.e. by the actual state of the system before and after the change (« l'état momentanée des termes du système ») — Saussure (1964: 11).

Kuryłowicz urged that we purify linguistic argument by renouncing all support from dialect geography, phonetics, psychology and cultural anthropology. Our reconstructions of the history of language would then rise to a « higher conceptual basis » (1964: 30).

This position departs from the older tradition of historical linguistics, which had established deep roots in all of these areas. Kuryłowicz projects into diachronic studies the synchronic tradition of Saussure and Baudoin de Courtenay: linguistics is to be restricted to abstract operations upon emic units defined by referential contrasts. This was of course a fruitful restriction, and we admire the good use made by extending it into historical matters by Martinet (1955) and Kuryłowicz. And one can fully appreciate the motivation behind their linguistic *apartheid* policy in reviewing the mass of sociological, physiological and genetic arguments that they were reacting against (Sommerfelt 1930).

But a retreat once started is not easily checked. If we study the various restrictions imposed upon linguistics since Saussure, we see more and more data being excluded in a passionate concern for what linguistics is *not*. Every field of substance has come under attack at one time or another: semantics, phonetics, social factors, and finally speech itself. The culmination of this puristic program is the generative view of linguistics as the study of an ideal homogeneous structure, revealed in the intuitions of the most highly sophisticated members of the community who create through introspection both the theory and the data.

At the same International Congress of 1962, Chomsky delivered his important paper on « The logical basis of linguistic theory » which sharply criticized the taxonomic work of previous decades and opened a whole new perspective for many linguists. In his comments on « objectivity of linguistic data » he stated that the subject matter of linguistics was to be the speaker's introspective judgments:

> ... One might ask how we can establish that ... « John's eagerness to please ... » is well-formed while « John's easines to please ... » is not, and so on. There is no very satisfying answer to this question; data of this sort are simply what constitute the subject matter for linguistic theory ... Operational tests, just as explanatory theories, must meet the condition of correspondence to introspective judgments (1964: 939).



This development represents the most complete exploitation of what I have called « the Saussurian Paradox ». If we carry to its logical extent Saussure's notion that *langue* represents the knowledge of the language in the possession of all members of the speech community, it follows that we can study *langue* through intuitions of any one member, even the linguist himself. He can then examine the *social* aspect of language in the privacy of his office; but *parole*, the individual aspect of language, can only be pursued through a sociological survey of the population.

One must look with admiration and astonishment at the boldness of linguists who have thus discarded the great body of data produced by ordinary citizens arguing, conversing, orating, corresponding, etc., proceeding with full confidence to recreate linguistics out of their own intuitions. And indeed, linguistic theory of the past decade has flourished in this otherwordly setting: it has produced a vast corpus of deep argumentation which makes the theory of previous decades seem shallow by comparison.

But this philosophical mode of investigation is quite unsuited to the study of change, where we have no intuitions at all. We have not inherited the intuitions of the eighteenth century, and it is unlikely that the twenty-first century will accept ours, intermingled as they are with our theoretical persuasions. It is clear that the study of history must rest on some point outside of the linguist's mind, in the secular world. When generative linguists turn to historical questions, they must deal with the same residual data as anyone else, perhaps leaning more upon the reported intuitions of grammarians than others would. But they share with Kuryłowicz the firm determination to wrest this data from its social setting, analyzing the successive emic structures without regard to the social factors which produced it. In recent years, generative grammar has been applied to this program, beginning with Halle's article on « Phonology in generative grammar » (1962) and followed by the work of Kiparsky (1968), King (1969) and many others. They proceed in the conviction that operations with distinctive features, markedness conventions, and rule re-orderings can solve the fundamental problems of linguistic change.

But it seems to us that the most notorious mysteries of linguistic change remain untouched by such abstract operations and become even more obscure. King argues that rule simplification is the explanation for a wide range of historical events, even for the challenging phenomenon of language drift over millenia which Sapir thought was so puzzling (1969: 202).

As Wang has pointed out, there is a profound contradiction in this reliance upon simplicity: for if rules regularly change to simpler and simpler forms, it follows that the least probable form is the one that happens first. Our own studies of sound change in progress make it clear that explanations must be rooted in physiological and acoustic fact as well as the social matrix in which the speech act is embedded. In this paper, I will attempt to defend this claim by considering some of the long-standing puzzles of historical linguistics in a broad context, bringing both phonetic and sociological data to bear upon the issues [1]. The first issue bears

[1] The studies reported here were carried out in connection with « A Quantitative Study of Sound Changes in Progress », a research project supported by the National Science Foundation under contract NSF GS-3287 at the University of Pennsylvania. The instrumental spectrographic analyses were carried out with the help of Malcah Yaeger and David DePew, at the University of Pennsylvania and Benji Wald and Virginia Hashii at Columbia University. I am greatly indebted to these researchers for the many insights they have contributed to the analysis. The historical investigations have been carried out as part of a larger project, investigating the possibilities for the mutual interpretation of data on past and present sound changes. As noted at several points in the text, I am greatly indebted to Geoffrey Nunberg, who has reviewed the original texts of the English orthoepists as well as the secondary sources.

on the general questions: are mergers reversible? We will consider the issue of Early Modern English *meat* and *mate*, which appear to have merged in the sixteenth century and re-separated in the seventeenth.

To attack this problem, I will introduce data on other English sound changes and acoustic data from our instrumental studies of sound change in progress. I will then re-consider the problem of the regularity of sound change in the light of this data and broader sociolinguistic investigations of change in progress. In the course of this discussion, I will also outline general sociolinguistic principles which allow us to detect linguistic change in progress from purely synchronic data. For rich data that we need to interpret the historical record is to be found in the present, and we must have fuller access to the present if we are to make progress on the deeper problems of historical explanation. When we are truly at home in the present, we will be more at home in the past.

## 1. The reversal of irreversible mergers

In the history of the English language, there is no issue which is more puzzling than the behavior of the vowel spelt *ea* in Early Modern English. This word class is derived from Middle English long open e, in turn derived from Old English long æ₂ Since the class is spelled fairly consistently with *ea*, I will refer to it as the *ea* words: *meat, mead, meal*, etc. The great majority of these words now rhyme with the reflexes of ME long close e in [i:]: *meet, seed, feel*, etc. There are five well-known exceptions that still have mid vowels, along with reflexes of ME long ā and *ai*. Thus *great, break, yea, drain* and *steak*, have the same vowel as *made, mate, may, maid* and *main*. The sub-class of *ea* words before *r* is split almost down the middle: *fear, tear, near, dear* vs. *bear, tear, wear, pear*, etc. The issue is whether or not the whole class of *ea* words were once merged with long ā and/or ai words, and if so, how did they separate?

I have followed the debates and historical evidence on this case with the help of Geoffrey Nunberg, of the University of Pennsylvania, who observes that the only thing on which philologists agree on is that sometime around the end of the sixteenth century all of these word classes showed long mid-front vowels. For theories of language that depend upon the model of a homogeneous speech community, this is a particularly difficult and confused case. It involves many of the features that we are now familiar with in the study of normal, heterogeneous speech communities: widespread systematic variation, asymetrical word classes, regional dialects, class stratification, and finally the reversal of a reported merger. It is a comfortable situation for those who study language in its social context, but very awkward for those who would prefer to ignore that context.

Nevertheless, Halle took this case as an important example in the first article that applied generative thinking to historical questions. In « Phonology in generative grammar » (1962) he considered the sixteenth century merger of long ā and *ea* words as an accepted fact and showed how the re-organization that merged *ea* with *ee* could be accomplished by a simple change in the rule system. The underlying forms with long ā, long open e and long closed e are preserved throughout. But since there were no grammatical alternations of long ā and long open e, it is not easy to see how successive generations of speakers learned and preserved these underlying forms.

Halle accepted the historical account put forward by Wyld (1936) and Kökeritz (1953) (as opposed to Jespersen, Luick, and others who argued that long ā had never merged with long ē). But Halle did not refer to the work of Wyld and Kökeritz which motivated their acceptance of this merger. They accounted for the later re-separation by the competition of two distinct class dialects in London. Kökeritz argues that there was a conservative dialect which held to the merger of



*ea* with long ā, and was finally extinguished in favor of an innovating dialect that had never merged *ea* with long ā, but raised it instead to merge with *ee*. This dialect was concentrated among middle-class speakers and received its main impetus from migration into London from the Southeastern area where Old English long ǣ had been raised to mid position quite early. Thus Kökeritz and Wyld allow the evidence for both mergers without having to claim that a merger re-separated. At the same time, they document once more Wyld's thesis that regional dialects are often transformed into a class dialect in large cities.

The main body of evidence put forward by Wyld and Kökeritz is that of rhymes and puns. The evidence of mispellings is not as clear as in other cases, such as the merger of *ai* and long ā, and many historians of English continue to disbelieve in a merger of long ā and *ea*. In Chomsky and Halle's later treatment (1968), they take John Hart (1569) for their view of sixteenth century English. He reports a very open pronunciation for long ā, which plainly does not merge with *ea*. The Chomsky-Halle study examines successive states of the English vowel system in agreement with the program suggested by Kuryowicz. These states are separated by fifty to seventy-five years, and no data is sought for the transitions between them. Chomsky and Halle are thus no longer concerned with the problem of the *ea* words [2].

Nevertheless, the problem exists. The weight of the evidence comes down clearly on the side of « merger » of ā and *ea* for at least some speakers in sixteenth century London [3]. Not only do rhymes and puns show that ā and *ea* were heard as the same, but the majority of the sixteenth century observers indicate that they too heard these sounds as merged. Hart (1969) appeared to have a low ā, but Bellot (1580), Bullokar (1580), the Laneham Letter (1575) and Delanothe (1592) all give evidence that ā was raised and rhymed with *ea*—not in a poetical sense, but in the grammarian's meaning of rhyme. It is not until the seventeenth century that the orthoepists begin to register clearly distinc ā and *ea classes*: Florio (1611), Wallis (1653) and Miege (1661).

Returning to Hart (1569) we find that *ea* and ā were distinct, but ME *ai* in *maid* seems to have been monophthongized and raised to the level of *ea* in mead. Here there is even clearer evidence for two distinct dialects. Mulcaster (1582) reports this higher pronunciation of *ai* as feminine trait:

> Ai, is the mans diphthong, and soundeth full: ei, the womans, and soundeth finish in the same both sense, and use, *a woman is deintie, and feinteth soon, the man fainteth not bycause he is nothing daintie.*

Gil (1621) gives the clearest evidence for two marked social dialects in London speech. He stigmatizes an affected or effeminate pronunciation of the *Mopsae*, using an « Eastern Dialect », saying *kēpn* for « capon » instead of *kāpn* and *mēdz* for « maids » instead of *maidz*. Later in the seventeenth century, we follow evidence for lexical diffusion as orthoepists like Cooper (1687) show the migration of *ea* words into the *ee* class.

The over-all picture shows extraordinary confusion and disagreement in both early testimony and twentieth century interpretation. It was possible for Luick

[2] The Chomsky-Hall approach to the history of English appears to be the realization of Chomsky's approach to synchronic linguistics: that we are concerned only with the study of the ideal speaker-listener and that all social variation (« data-flux ») is to be disregarded. Thus Hart, Cooper, Wallis, etc. are taken as exemplars of the language in this sense, and history is written as a series of successive models. The Saussurian Paradox can then be exploited in historical as well as in synchronic linguistics.

[3] It should be noted that Wolfe (1969) also reviews some of this evidence from a different point of view and comes to the conclusion that there is no solid evidence for a sixteenth century merger of *meat* and *mate*. Her review includes some of this evidence, though it does not cover all the items cited above, and necessarily sets aside certain interpretations as improbable. Wolfe's work is extremely helpful to anyone studying this period, and should be consulted in addition to the originals for a deeper view of early Modern English.

(1921) and Jespersen (1909) to conclude that ā and *ea* had never merged, on the principle that if they had merged, they could not afterwards have separated. Zachrisson was at first of the same opinion (1913) but in later writings he saw that there were some dialects in which ā, *ai* and *ea* had merged. The early authorities show the same vacillation: Bullokar (1580) gives us two different views. When Wyld and later Kökeritz introduced evidence for dialect mixture, it became easier to admit the evidence for merger in part of the population .This argument for competing dialects is strongly supported by evidence in Thomas Tuite's *Oxford Spelling Book* (1726) showing social differentiation of *ea* pronunciation in London over a hundred years later.

Tuite observes that there were differences among English speakers on a large number of *ea* words, and gives a list which are (for him) basically mid vowels but which are pronounced as high vowels by many, « especially Londoners ».

The (ea) variable was still active a century and a half after the period where it was first detected by Wyld and Kökeritz. The basic mechanism which advanced London speech over the general standard was still operating, and the (ea) was now associated with the social values attributed to London as a whole.

The situation thus corresponds closely to the view of linguistic change put forward by Sturtevant (1948) which is developed in our studies of sound change in progress in Martha's Vineyard and New York City (Labov 1963, 1965).

A linguistic change begins as a local pattern characteristic of a particular social group, often the result of inmigration from another region. It becomes generalized throughout the group, and becomes associated with the social values attributed to that group. It spreads to those neighboring populations which take the first group as a reference group in one way or another. The opposition of the two linguistic forms continues and often comes to symbolize an opposition of social values. These values may rise to the level of social consciousness and become *stereotypes*, subject to irregular social correction, or they may remain below that level as unconscious *markers*. Finally, one or the other of the two forms wins out. There follows a long period when the disappearing form is heard as archaic, a symbol of a vanished prestige or stigma, and is used as a source of stereotyped humor until it is extinguished entirely. If the older pronunciation is preserved in place names or fixed forms it is then heard as a meaningless irregularity.

The model which proceeds from our empirical investigation of change in progress agrees with Sturtevant's observations of the historical record; but he, like Bloomfield, attempted to distinguish between the origin of a change and its propagation. Sturtevant constructed elaborate arguments based on slips of the tongue, searching for the beginnings of linguistic change in the aberrations of individual speakers. Though these raw materials are interesting and deserve further study for many reasons, they have not yielded the strong explanation Sturtevant hoped for. We do not find much weight in any of the general principles advanced so far on the so-called origins or causes of change, all essentially negative, like the principle of least effort, or the asymetry of the organs of speech. These arguments have failed—so far—to explain the general constraints on sound change we have discovered, such as uni-directional movements of chain shifts. We need more powerful explanations rooted in physiological and social fact.

But the main problem here is the attempt to distinguish « origins » from « spread » of a change, which seems to us a serious failure to grasp the social character of language (Weinreich, Labov and Herzog 1968). If idiolects were the basic units of linguistic description, then change in idiolects would be change in language. But language is not a collection of idiosyncrasies. It is a means of communication by the use of social conventions. The language does not change when you pronounce a word in a strange way, but it does change when I imitate your pronunciation, even as a joke. The spread of a linguistic feature *is* the linguistic change, as a new social convention enters the language.



As the case of long ā and *ea* shows, the input to a linguistic change is often a social input in a given community, in which whole groups of speakers are imitated. The change must be seen of course as a relative acceleration of processes that had already been operating, off and on, for more than a thousand years.

It seems that the raising of long ā and monopthongization of *ai* gained momentum in the sixteenth century London stimulated by speakers arriving from the Southeast. Those Southeastern speakers had no problem of merger with *ea* words, since theirs had long since been raised to the level of *ee*. But we can assume that when other Londoners began to follow in the raising of long ā and *ai*, the possibility of merger with *ea* arose. The reported merger would then be characteristic of London speakers who followed the Southeast in raising long ā but without raising *ea*. We then have a three way distinction:

| conservative Londoners | Londoners under Southeast influence | generalized Southeastern type |
|---|---|---|
| ee | ee | ee, ea |
| ea | ea, a | a, ai |
| ai \| a | ai | |

Hart might then represent the first type, Bellot the second, and of course Cooper the third. In the seventeenth century the new pronunciation of *ea*, long ā and *ai* was stigmatized by conservative speakers like Wallis as symbolic of an obstreperous younger set and they attempted to restore the low pronunciation of ā as the proper social norm. The situation is quite parallel to the correction of tense raised /aeh/ in New York City at present (Labov 1966). The attempt failed, and in a further step the *ea* class was detached from long ā and re-assigned to *ee*. This too was a variable operation for some time, but the higher forms distincly won out in the long run. Besides the five irregularities mentioned above, and the words ending in *r*, there are only place names (in America *Preakness, Leakey*) which are now seen as brute irregularities in English spelling.

This view seems to fit the data we have quite well. But it does not solve the theoretical problem that led Jespersen, Luick and others to object to a merger of long ā and *ea*. There is a great deal of evidence to support the claim that once a merger, always a merger. It is easy enough for someone to lose a distinction, not so easy to gain one. It would mean memorizing a long list of words that are « different » though in terms of their original vernacular system they are « the same ». The overwhelming body of evidence from dialect geography shows that mergers expand. In his study of Yiddish in northern Poland, Herzog (1965) puts forward the general principle: whenever an area which makes a distinction is in contact with an area that does not, the second will expand at the expense of the first.

In the United States we find many examples to support Herzog's principle Mergers are expanding rapidly in the case of */hw-/* vs. */w-/* as in *which, witch*· /or/ vs. /ɔr/ as in *four, for*; /-in/ vs. /-en/ in *pin, pen*; /a/ vs. /ɔ/ as in *cot, caught*; /a/ vs. /æ/ as in *aunt, ant*. This is true even when social pressures are strongly supported by spelling as with *which* vs. *witch*. There is one contrary movement taking place in all the Eastern *r*-less areas, where final and preconsonantal

*r* in *car, guard*, etc. is being restored. Here we normally have the support of morphophonemic alternations [kɑ: ~ kɑr# #ænd] and vowel quality (e.g. *god* vs. *guard* as [gɑd ~ gɒ: d]) as well as the influence of absolutely regular spelling. These factors are absent in the case of *mate* ~ *meat*. Granted that one segment of the population was in contact with another which made the distinction, we would normally expect the merger to expand. We still have no plausible explanation as to how this re-separation was accomplished, especially when we note that the re-assignment of *ea* to *ee* is not reported until the middle of the next century.

*The case of line and loin.* Though we have not exhausted the rich data on *ea*, it is clear that no decisive answer can be given. The actual state of affairs is no longer accessible to us. But to throw further light on the problem, we can examine a parallel case of merger and re-separation where current evidence is still available. This is the merger of *oi* and long *i* which may have begun in the fifteenth century, reached completion in the seventeenth and eighteenth centuries, but was reversed in the nineteenth.

Present day /oy/ includes the reflexes of at least two ME diphthongs, *oi* and *ui*, and perhaps more. The *oi* type is found in words ultimately derived from Latin *au+i* (*joy, choice, noise*); *ui* from Lat. *ŏ+i* (*annoy, oil*) or from Lat. *ō/u+i* (*point, join, toil*). (The commonest /oy/ word, *boy*, is of obscure origin and seems to have had a close labialized onset in Early Modern English [*bwoi*]). The first signs of merger with ME long *i* words appear in fifteenth century mispellings; the general tendency appears in the late seventeenth century when Coles (1679) identifies *line* and *loin, bile* and *boil, isle* and *oil*, including both *ui* and *oi* types, and a wide variety of words are shown as merged by other phoneticians of the period. Free variation appears in the rhymes of Dryden, Butler and Pope. The traditional theory of Sweet connects this merger with the unrounding and lowering of short *u* which became identified with the centralized nucleus of long *i* words. But as Jespersen points out, this is a mid-seventeenth century phenomenon, and some of the earlier confusion of the two classes involves the *oi* type as welle as *ui*. There is some evidence for the special place of *ui* words since *boil* and *join* are given a special place in eighteenth century descriptions and are the most common non-standard relics of this cross-over. Just as with *ea*, the */oy/* merger became a social stereotype in its advanced stages; we see this in the often cited remark of Kenrick (1773) that it would be affected to pronounce *boil* and *join* otherwise than as *bile* and *jine*, but the same pronunciation in *oil* and *toil* is a « vicious custom which prevails in common conversation ».

There is thus good testimony that the /oy/ class had fully merged with the descending long *i* words by mid-eighteenth century, but that is was re-separated in the nineteenth century. The standard explanation is that spelling was responsible.

> The disappearance of *ai* for *oi* in polite speech is no doubt due to the influence of spelling.
>
> (Jespersen 1949: 330).

This argument is put forward because it is the only conceivable one, but it is not convincing. The general problems raised for *ea* hold here as well. If spelling could reverse the merger of /ay/ and /oy/ in the nineteenth century, it could reverse the merger of /ɑ/ and /ɔ/ in the twentieth. But out observations of speakers who learned English with this merger in their vernacular system find it almost impossible to reverse, even under pressure from teachers and peers who regularly make the distinction. The irreversibility of mergers has not ended with the rise of literacy.

But beyond this, we find that the merger and separation of /ay/ and /oy/ is not confined to polite society: throughout the local vernaculars of England and



America /ay/ and /oy/ are distinct. In the south of England /ay/ is often backed and raised to the original position of /oy/ [ɔᴵ] but at the same time /oy/ moves upward in a chain shift to high position [uᴵ]. It is hard to explain this clear separation, even under the pressure of a chain shift, by the effect of standard spelling in London speech. Figure 1 shows the vowel system of a working class speaker in the Eeast End of London, taken from our current studies of sound change in progress. The vertical axis shows the position of the first formant, and the vertical axis the second formant of the position; these acoustic representations correspond quite closely to the auditory impressions which we utilize for phonetic transcription. Though /ay/ is raised to a lower mid position, /oy/ is quite distinct with a high back nucleus.

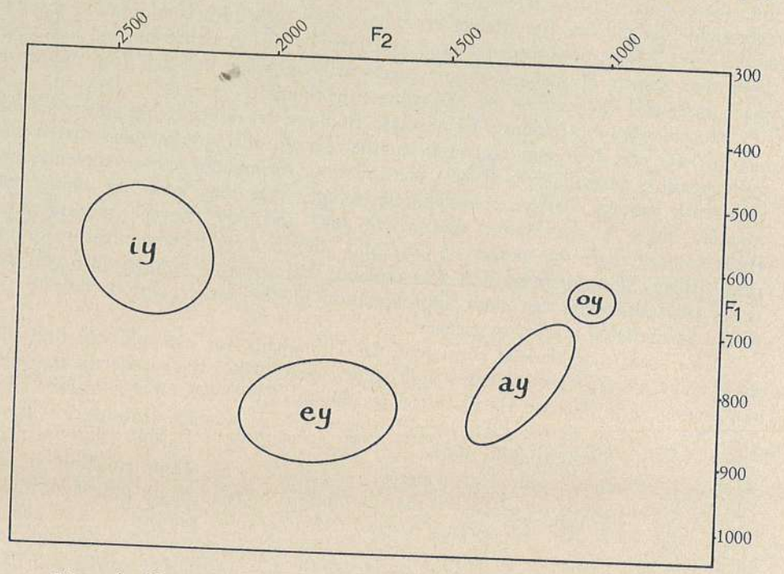



FIGURE 1. Vowel system of Marie Colville, 39, Hackney (London), England.

This dialect is the direct inheritor of the « common speech » stigmatized by Kenrick for its merger of /ay/ and /oy/. The same pattern appears in many other dialects that seem to have once shown a merger. How do we account for this situation? The evidence of merger seems clear; the evidence of re-separation seems equally clear; the principle that mergers are irreversible is still in effect. Until recently we would have put it down as one more unsolved mystery of historical linguistics. But our current work on sound change in progress has uncovered many other cases in which reports of merger fail to account for phonetic behavior. The intuitions of the native speaker, once considered an infallible guide to all significant linguistic distinctions, turn out to be fallible indeed. The process of labelling two sounds as « different » under conscious reflection does not necessarily distinguish patterns that determine the future course of linguistic change. Speakers can hear two vowels as the same, fail to distinguish them in commutation tests, and yet go on producing them as distinctly different phonetic forms.

We originally encountered this phenomenon in New York City, where every informant heard *r*-less *source* and *sauce* as the same. But our instrumental studies showed that the nuclei of these two classes had different slightly overlapping distributions with *sauce* regularly lower and/or more central than *source*—the sa-

me difference that we find in *r*-pronouncing dialects. We found the same relation between *fool* and *full* in Albuquerque, New Mexico. The two vowels were approximated in minimal pair tests, but in connected speech the class of *fool* had distinctly higher second formants (Labov 1970). In Boston, we found that many younger working-class speakers heard *beer* and *bare, cheer* and *chair* as « the same », but these word classes showed up with distinct distributions in their speech. In Norwich, England, we found speakers who scored zero on a commutation test for T-W-O vs. T-O-E, pronounced [tʻvu] and [tʻvu̯]. This evidence has led us to believe that reports of mergers are not necessarily reliable, and that true merger is much rarer and slower than we had previously thought.

Considering the implications of these findings, we argued that the re-separation of /ay/ and /oy/ may not represent the reversal of a true merger: that it was quite possible that the two vowels were distinct throughout the seventeenth and eighteenth century, despite contemporary reports that they were the same. Fortunately, there is one dialect area where /ay/ and /oy/ never re-separated in Essex County; here the merger of /ay/ and /oy/ is a well known feature of the rural dialect. We wondered if it was possible that the two vowels were still distinct, still preserving the close approximation of the earlier period, despite the steady and reliable reports of merger.

The reports are indeed consistent. In Tillingham, for example, we find that every /ay/ word reflex of long *i* and every case of /oy/ shows exactly the same representation in Volume III of Orton and Dieth's SURVEY OF ENGLISH DIALECTS (1970): a simple /ɔI/. Neighboring towns show some fronting in various words, but no differentiation of the two classes. The field worker heard this as a merger, it is well recognized as a merger, and there is no reason to doubt it as a merger. Nevertheless, we suspected that the nucleus of /oy/ might indeed by higher and further back than the nucleus of /ay/: that is, more peripheral. The general picture is that speakers are quite sensitive to first formant position (roughly, vowel height) but not at all sensitive to second formant position (fronting and backing). The field worker for that area had kindly allowed us to do a spectrographic analysis of his tapes, and from the limited data it appeared that /ay/ may indeed have been less peripheral than /oy/ [4]. To investigate this possibility, I visited eastern last summer, and interviewed older speakers in the town of Tillingham in the center of the area of merger. In my interviews, I elicited as many /oy/ words as possible in natural conversation, and succeded in getting the unreflecting pronunciation of such pairs as *line* and *loin, voice* and *vice*. The results are shown in Figures 2 and 3.

Figure 2 shows the over-all system and /ay/-/oy/ resolution for Jack Cant, 85, a retired farm laborer and the brother of one of the original informants for the Orton survey. In response to direct questions about minimal pair *loin - line*, he reported them « the same ». But the actual distribution of the two sets of words in his speech is quite different: /oy/ is clearly higher than /ay/; the only overlap is found with the word of *point* in the minimal pair question. (Note that *point* is a lexical item that has crossed over to the /ay/ class for many speakers in this area).

As he began to think about the minimal pair, his *line* moved up, closer to *loin*, as shown by the solid triangle + his *loin* down, as shown by the solid circles. We find the same phenomenon in New Mexico, where *fool* and *full* were more different in natural speech than in minimal pairs and in New York City for *source* and *sauce*. This means that the act of labelling the two forms as « the same » is not due to an inability to hear the difference; rather the speaker appears to have an intuitive norm that they are the same sound, and approximates that norm in

[4] I am greatly indebted to Howard Berntsen for the use of his Essex materials, and for drawing my attention to the problems involved in this merger.



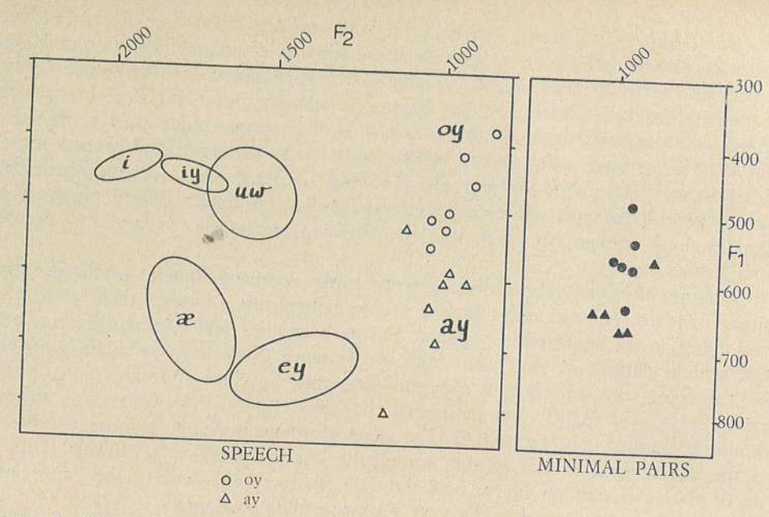



FIGURE 2. Distribution of /ay/ and /oy/ in the vowel system of Jack Cant, 85, Tillingham (Essex), England.

his minimal pair test, eliminating most of the difference found in natural speech.

Several of the /ay/ form sare found along the less peripheral path, and the only /ay/ form which is a high as /oy/ is differentiated by its less peripheral position. This fits in with our previous view of /ay/ with a lax nucleus and a less extreme second formant position than /oy/. Figure 3a shows the vowel system of Mrs. Leonard Raven, of the same age group, a retired domestic worker. Again we find that /ay/ and /oy/ are quite distinct; even the minimal pairs show /oy/ higher and further back than /ay/. Though the over-all distribution of /ay/ is lower than /oy/, they would not be clearly separated if it were not for the second formant difference.

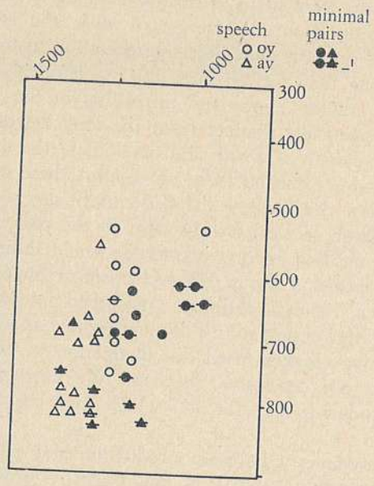



FIGURE 3a. Distribution of /ay/ and /oy/ in the vowel system of Mrs. Leonard Raven, 69, Tillingham (Essex), England.

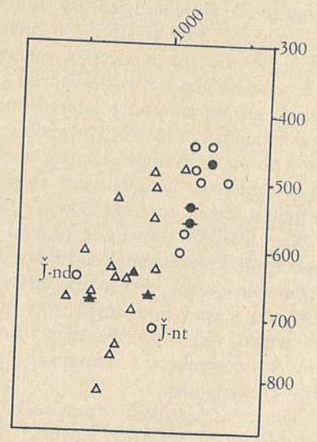



FIGURE 3b. Distribution of /ay/ and /oy/ in the vowel system of Leonard Raven, 70, Tillingham (Essex), England.

Mrs. Raven also found *loin* and *line* « the same », though in her case they became even more distinct in pronunciation: the solid circles show *loin* shifting back and the solid triangles *line* shifting down, still heard as « the same ». On the other hand, she clearly heard a difference between *voice* and *vice*. In natural speech, the difference betwen *voice* and *vice* is of the same order as *loin* and *line*, but the second were « the same » while the first was different, and became more different as she repeated the pair. (It /ay/ and /oy/ are now re-separating in Essex, it would be expected that the merger would last longer before nasals. We find in the Southwestern U. S. that the on-going merger of /a/ and /ɔ/ occurs first before nasals).

Figure 3b shows the vowel system of Mr. Leonard Raven, a retired farm superintendant, 72 years old. His speech is in general less « Essex » than his wife's, and closer to the standard in grammar and he heard *line* and *loin* as different, but the general pattern of /ay/ and /oy/ is the same. Note that the higher vowels on the chart for each class in *buy* and *boy*, and the close approximation of the two; *buy* is still slightly less peripheral than *boy*. Again, the two sets of vowels would be merged if it were not for the second formant position. The one exception is the word *joined*, which appears among the less peripheral /ay/ vowels. This is on of the two common items, *boil* and *join*, that crossed over to the /ay/ class and were perfectly natural in the /ay/ class according to Kenrick in 1773.

This data clearly shows the disjunction between normative, intuitive reactions to phonological pairs and the reality of language as it is used. We find that words pronounced as minimal pairs are more closely approximated than in natural speech, and the speakers' judgments indicate that they cannot *label* the word classes as different. If they were to write reports of their language for some future generation, they would have to state plaintly that *line* and *loin* are the same. But they are not; these classes are plainly maintaining their separate paths even after several centuries of near merger. This data has to be given more weight than most, because it is not an accident that it came to our attention. I went to Essex to investigate this phenomenon, led by previous findings to the conclusion that the reported merger of *line* and *loin* may not have been a merger in fact, it seems to be a conclusive demonstration that the intuitions of the native speaker about contrast do not necessarily give us reliable information about the sound system of the language and cannot be used alone as a secure base for a theory of linguistic change.

We cannot come to a firm conclusion about the merger of *mate* and *meat* reported in the sixteenth century. But we can give a credible interpretation to these events, which seems as strong as anything that we can hope for in historical linguistics. Despite the reports of merger, rhymes, puns and mispelling in the sixteenth century, the *ea* words stayed phonetically distinct from the long ā words, and their raising a century later to merge with *ee* words did not violate the principle that mergers (1) are irreversible and (2) expand. We can support these principles with many examples of real mergers which follow them in current day sound changes; but true merger is not as common as we have throught in the past, and takes much longer to come about than the first reports of merger would indicate.

We can come to a more general conclusion about the mechanism of linguistic change from these examples. In my own linguistic training, I absorbed the unstated principle that if two word classes differ systematically by any particular sound feature, no matter how small, then native speakers used this distinction to distinguish words. We now see that this is not necessarily the case. We have many examples of speakers systematically producing a distinction which they are quite unable to recognize.

The most dramatic example of asymmetry between production and perception occurred in Norwich, England. There the class ME of long open o words has risen to high position and the nucleus fronted to mid position; for some speakers, coinciding with the nucleus of ME long close o words. Thus *t-w-o* and *t-o-o* are



pronounced [t'vu] and *t-o-e* is pronounced [t'vʉ]. Impressionistically, the distinction is a subtle one, though the outside phonetician can hear it consistently after a few minutes practice. Spectrographically, it appears as a distinct difference in the direction of the glides. The *t-w-o* class glides up, and the *t-o-e* class glides up and to the back. Figure 4 shows the differentiation of the vowels used in a commutation test, a random alternation list of *t-w-o* and *t-o-e* as spoken by two 14-year-old Norwich boys. The second boy, Keith, was totally unable to hear the distinctions being made by David in Figure 4a though David was trying as hard as possible,

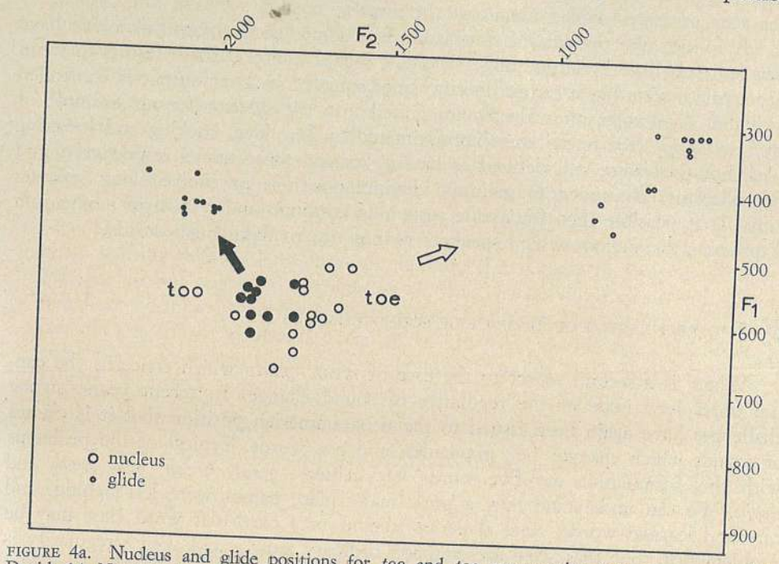



FIGURE 4a. Nucleus and glide positions for *too* and *toe* commutation test as pronounced by David, 14, Norwich, England.

face to face, to get it across to him. But when Keith read the list off himself, he produced the clear pattern shown in Figure 4b, which Bryan deciphered without

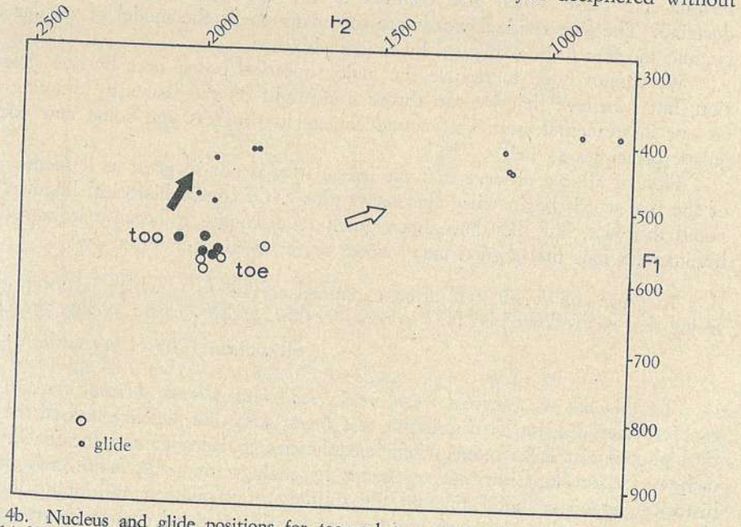



FIGURE 4b. Nucleus and glide positions for *too* and *toe* commutation test as pronounced by Keith, 14, Norwich, England.

any trouble. Thus Keith could produce the distinction but could not use it to distinguish words. We should not then be surprised to find vacillation in the reports of sixteenth century observers, since there are apparently great personal differences in the ability to label such marginal pairs even when the productive rules are the same.

We do not yet know in all these cases mentioned whether native speakers distinguish such pairs under optimal conditions but we find that outsiders can frequently hear the difference between marginal word classes better than insiders, who seem to have labelled them as « the same ».

It follows the the role of contrastive function is not as powerful as we have been led to believe by structuralist theory. I would interpret these results to mean that a rule system has a certain inertia, since some of its later output is controlled by higher level rules more deeply integrated into the system. In our example of /ay/ and /oy/, the nuclei were approximated by low level backing and lowering rules, but they were still defined as having lax and tense nuclei respectively, and they therefore continued to maintain distinct positions or evolve along separate paths. It is possible then for a rule system to continue under its own momentum to produce distinctions which speakers cannot use to distinguish words.

## 2. The regularity of irregular sound changes

There is a second aspect to the case of *meat - mate* which concerns the central unresolved issue of the regularity of sound change. In recent years, strong challenges have again been issued to the neogrammarian position that it is classes of sounds which change: i.e., phonemes, and not words. Typical of the problems with this formulation are five words left behind—*great, break, yea, steak* and *drain*. We can understand how a great many place names were left behind, and rare and learned words, since their assignment to a particular word class may be problematical, but these five are common ordinary words, and their irregularity is puzzling. If the shift of *ea* words to high position was the product of irregular dialect mixture, why did it work so regularly for all but these five? On the other hand, if sound change is basically regular, why do so many sound changes show residua like these which give comfort to the opponents of the neogrammarian doctrine? The five residual words are too many to fit the model of regular change, and too few to be explained by random bixture.

We cannot hope to resolve the major question posed here by one investigation, but I believe that we can throw some light on the issues by drawing again on our instrumental studies of sound change in progress and some new sociolinguistic principles as well.

First of all, we observe that the irregularity is not so great as it seems. Three of the five words begin with consonants plus *r*. Of course historical linguists have noted this fact, but they have been quick to discounte it because it immediately becomes obvious that a great many words were raised after initial /r/.

In *great* and *break* it is often explained as due to *r*, which is not probable, seeing that *r* is followed by [i: ] in *read, treason, breach, grease, cream, preach*, etc.

(Jespersen 1909 (1949 edition: 338)).

To this list we can add *ream, real, reap, rear, dream, bream, scream, treat*, etc. Jespersen did not let the matter rest there, since the primary task of the historical phonologist is to reduce such irregularities to rules or account for them somehow. He develops intricate arguments by analogy for *great, break,* and *yea*. But historical linguists underestimated the subtlety of phonetic conditioning in sound changes such as the raising of *ea*. Our own work on sound change in progress has



steadily increased our respect for the power of phonetic factors to differentiate word classes in the middle stages of a change.

At the beginning of our work on sound change, we found naturally enough that the major influence on English vowels was the following consonant, especially /l/ and /r/, but more recently we have discovered that there are dialects in which initial /r/ has just as strong an influence as final /r/. For example, in Glasgow, we find that the vowel of short /e/ in *rest* winds up in exactly the same position as short /e/ in *person*, somewhat lower than the main body of short /e/ words. And in every dialect, a preceding *post-consonantal* /r/ has a strong effect on the vowel nucleus. In our studies of the tensing and raising of short *a* in various American cities, we find that words like *grab* are lower and more central than *stab*. This on-going sound change is worth raising of long ā; [mat] having been lengthened in open syllables to [ma: tə], and reduced to [ma: t]. It was then gradually raised to [mæ: t] and [mɛ: t] and [me: t]. In the present situation, short *a* as [æ] is being tensed and lengthened by a separate rule to /æh/, [æ: ] and then raised to a mid and even high ingliding vowel: [ɛ:ə], [e: ə] and [ʉ: ə]. We will refer to this variable class as (æh).

This raising of (æh) follows the first of three uni-directional principles of chain shifting that we have located: in chain shifts, tense or long vowels rise. Somewhat to our surprise, examination of this change in progress throughout the Northern tier of cities in the United States—Rochester, Buffalo, Detroit, Chicago—has not yet shown us lexical irregularities. Instead, we see the extraordinarily regular phonetic process illustrated in Figures 5 and 6 for a father and son from Detroit. Figure 5 shows the vowel system of James Adamo, 55, interviewed in

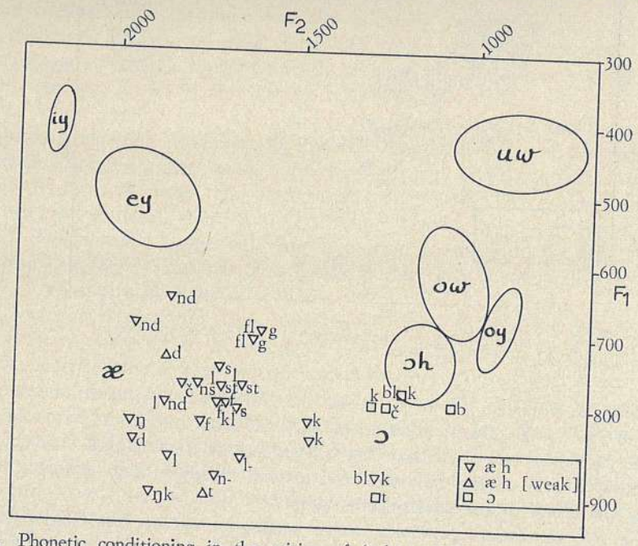



FIGURE 5. Phonetic conditioning in the raising of (æ h) and fronting of (ɔ) in the vowel system of James Adamo, 55, Detroit.

the sociolinguistic survey carried out by Roger Shuy, Walt Wolfram and William K. Riley (1966). Adamo shows short *a* in a low front position, ranging from lower low to upper low. But the sound change is already in progress: we see the characteristic fine-grained phonetic differentiation which arises when (æh) begins to move upward. The highest and most peripheral vowels are those before front nasal consonants, as we now expect, with the velar nasal in a lower position. (From this point on I will use the expression « velar stop » to indicate « vowels before velar

stop »). Voiced stops are lower; voiceless fricatives are lower yet and more central, with /f/ lower than the others; and the voiceless stops are lowest of all. Among the voiceless stops, the palatal /č/ is relatively highest and /k/ is the lowest and well back to a central position.

The effect of preceding and following /l/ can be seen in a subtly graded series of restraints on the raising of (æh): initial /l/ has some effect in *land* and *last*; next, post-consonantal pre-vocalic /l/ in *Italian* and *challenge*. Returning to the voiced stops, we see that *flag* is more central than *bad* with a velar final and post-vocalic /l/. In a word, the relative position of almost every item can be accounted for by phonetic conditioning. This spacing out of phonetic sub-classes is characteristic of the intermediate stages of change in progress, like the spacing out of runners in a race; at the beginning they are all bunched together; in the midst of the race, they are strung out according to their individual abilities and speeds; at the finish, they are brought together again.

Figure 6 is a view of (æh) in the system of the thirteen-year-old son, Chris Adamo, where we see even greater phonetic dispersion. The sound change has advanced until the words ending in front nasals are lower high position; the rest are in upper and lower mid position. Voiced stops are just behind the nasals; be-

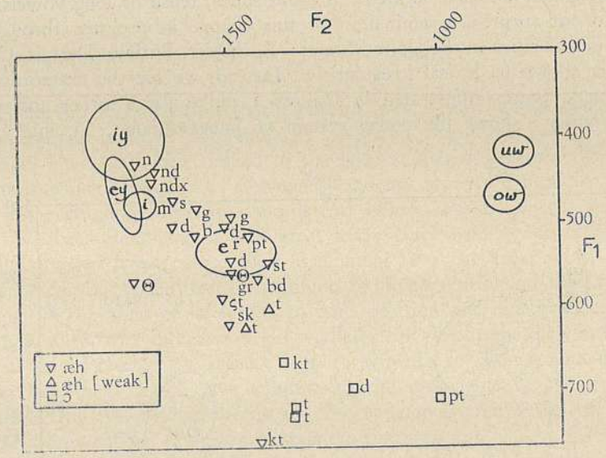



FIGURE 6. Phonetic conditioning in the raising of [æh] and fronting of (ɔ) in the vowel system of Chris Adamo, 13, Detroit.

low them the voiceless fricatives, then the voiceless stops, and one lone word ending in /k/ in the lowest position of all. And most importantly for our analogy with the case of *great, break* and *drain*, there is one item ending in a voiced stop well below all the others, in lower mid instead of lower high position: *grabbed*, showing the effect of the postconsonantal /r/.

The two crucial irregularities in the raising of *ea* are *great* and *break*, since these are regular reflexes of ME e e from OE *æ*. (*Drain* is often set aside by historical phonologists as a different case, not because of the re-spelling to *ai*, but because it had two different OE origins, *drēhnigean, drǣhnian*). Not only are *great* and *break* preceded by post-consonantal /r/, but they are followed by voiceless stops so that both initial and following change—if the EME raising of *ea* operated on the same general principles as our twentieth century raisings[5]. Thus

[5] We must be particularly cautious about interpretations involving /r/, since it is possible that Early Middle English speakers used a tongue-tip /r/, flapped or trilled, especially in post-consonantal position, and this may have less influence on neighboring vowels. We are exploring this question with English speakers who use such an /r/; but as noted above, the Scots patterns seem to show essentially the same relative influence.



we might compare *great* and *break* only with words in comparable environments:

| | | |
|---|---|---|
| not raised: | great | break |
| raised: | treat | streak<br>creak<br>freak |

We now find that the words that were raised all had voiceless initials before the *-r-*, and we have some evidence that voiced clusters, *dr-, gr-, br-* have the heaviest effect. Here we are perilously close to asserting that every word is indeed its own class, absorbing a complete phonetic determinism which would ultimately betray. There is a probabilistic character to these events, because as Jespersen notes, we have plenty of evidence that *great* often had [i:] in the eighteenth century.

> Doubtless the pleasure is as great
> In being cheated as to cheat
>
> — Hudibras

We are asserting then that the fluctuations in the pronunciation of *great* and *break* were resolved in favor of the low pronunciation and that this was favored by the fact that when *great* and *break* were raised, phonetic factors arranged them at the bottom of the list, not far from words that were not raised at all.

We may now be willing to consider that *yea* followed a special history, as various forms of *yeah* do today; not only because the lower form rhymed with *nay*, but because such discourse particles normally range over five-sixths of the vowel spectrum. This leaves *steak* (from ON *steik*) as a true exception which we cannot give any rationale or probabilistic account for. Since this was [e:] in the sixteenth century, it should now have a high vowel.

One might wonder why we should be concerned over the small irregularities in *ea* words when there is apparently massive irregularity in *ea* words ending in *r*: *fear, beard, dear, hear, clear, near, tear, year* with high vowels as against *bear* (vb), *bear* (n=) *pear, tear, wear*, and *swear* with mid vowels. But as Jespersen noter, these five low words all stem from OE short è (*beran, bere, peru, teran, werian, swerian*). There seems to be only one exception to the rule for this sub-class: *spear* from OE *spere*. Thus the irregularity in this class is comparable to the low degree of irregularity in other *ea* words.

*Where does lexical diffusion come from?* The finegrained phonetic conditioning that we observed in the raising of (æh) is characteristic of this raising rule in city after city. Some of the principles operating are quite general across dialects, as the effect of front nasals on (æh): others are specific and may be reversed in other dialects as in the low position of words ending in /f/. But we have not yet detected lexical diffusion. Aside from the liquids, we see little effect of the initial consonant, so that it is not true either that each word is its own word class. In Chris Adamo chart, we see that *man, sand* and *stands* all cluster together; so also *tag* and *bag, bad* and *stab*.

But these observations do not account for the important body of findings by Wang and his associates (Wang 1969, 1970; Chen and Itsich 1971; Cheng and Wang 1970; Chen 1971) that show large-scale lexical diffusion in the history of Chinese dialects. The massive data of the Dictionary-on-computer (DOC) leaves not a doubt that the neogrammarian principles fail to apply to the long-range evolution of Chinese. The most convincing results of recent work on homonyms

shows massive splitting of words with the same consonants, vowels and tones. Wang, Chen and Hsich argue that sound change applies to individual words rather than to sounds, and they show how competing sound changes can interfere with and prevent the completion of this lexical diffusion. One cannot doubt this evidence on the over-all history of Chinese dialects. We are then faced with the problem of reconciling these two large bodies of empirical observations. On the one hand, irreducible irregularities in completed sound changes; on the other, the striking phonetic regularity for sound changes now in progress. The first step is to re-examine a wider range of current sound changes to see where irregularities are now located.

The examples of short *ă* raising considered above were typical of the Northern tier of Rochester, Buffalo, Detroit and Chicago. In the middle Atlantic States, there are many apparent irregularities in the raising of short *ă*; these are not from the operation of the raising rule but from the previous operation of the tensing rule which shifts /æ/ to /æh/: this is now completed and frozen in most areas which included some curious exceptions and lexical sub-classes. Three of them are worth examining here. First, there is tense *man, Dan, ham, Camden,* etc., but lax *ran, swam, began*; that is, the grammatical class of irregular ablaut verbs ending in front nasals. Second, there is tense *mad, bad, glad,* but lax *sad, dad, pad.* Three of the four common adjectives ending in *-d* are selected by the rule. Finally there is tense *pass, mass,* but *lass, alas.* All words ending in front sibilants are tense except such learned words.

The principles that motivate lexical exceptions thus show both grammatical and sociolinguistic motivation. The commonest affective adjectives were the first and only *-d* words to be raised; uncommon words acquired later in life, are usually not raised; and irregular verbs, perhaps on analogy with the lax auxiliaries *am, can,* etc., are held down. The Philadelphia system has many irregularities that would not be considered regular sound change by neogrammarians, but only because of their preconceptions about what was regular. We can see the seeds of lexical diffusion here, as common words are selected more than uncommon ones, early acquisitions more than late ones. The same principles had operated in the American tensing and raising of short *ŏ,* which result (in my own dialect) in the opposition of *wrong, song, long* to *ping pong* and *King Kong; cloth* and *moth* to *Goth*; *off* and *cough* to *doff* and *scoff.* We conclude that in the course of a sound change, the most common words in a class will move first and uncommon ones, learned later in life, will move later or behind if the rule is frozen before it finishes. But none of these factors show us common words moving downward, like *steak, break* or *great* as opposed to *freak* or *sneak.* The basic process here is the raising of tense vowels in a uni-directional, highly governed pattern; what factors could lead to a reverse movement, with common words moving downward, against the stream?

We can find such a process in the more advanced stages of a sound change. The early stages of change from below, that we saw in Figures 5 and 6, usually occur without any overt social recognition. But when a change begins to reach completion, it often rises to social awareness and becomes stigmatized by society, as associated with a specific social group. As we saw in reactions of Mulcaster to the raising of *ai* of Gil to the raising of long ā, and Kenrick to the unrounding of /oy/. Under such influence, we get abrupt reversals of the sound change to an earlier norm. We do not get the regular and predictable treatment of a word class characteristic of the vernacular; instead, the word class is broken up in an irregular and unpredictable manner.

In New York City, the tensing rule and raising of (æh) has reached this stage of irregular social correction characteristic of speakers from all social groups. The sub-classes of short *ă* words that is tensed and raised in the vernacular is broken up in formal styles, as in the reading of word lists, to give such irregular patterns



as [bɛ: d, pɛ̄: s, kæʃ, mɛ̄: n, hæ: m, lɛ: f, bæΘ, hæ: f] etc. Even in connected speech, the careful style of an interview will show such correction.

Figure 7 is the (æh) pattern for a twenty-three-year-old working class man from New York City, reading a standard passage. Note that *can* (noun), *jazz* and *bag* are in their expected position as upper mid vowels, with the nasals in the most peripheral position. Among the corrected forms that are abruptly lowered are *can't, tag, ask,* and three pronunciations of *bad* in the lowest possible position. There is no way to predict which of these forms will be lowered, though our sociolinguistic structures do state the probability that some will be lowered, more in reading style than in careful speech, more by workin-class speakers than lower-class. Notice that it is the most common words, *bad* and *ask,* which are lowered most dramatically.

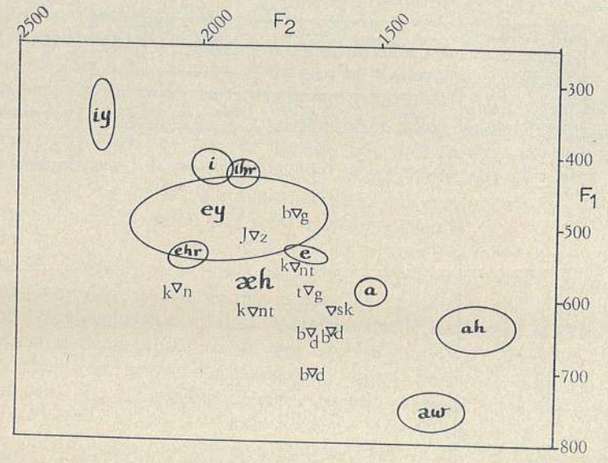
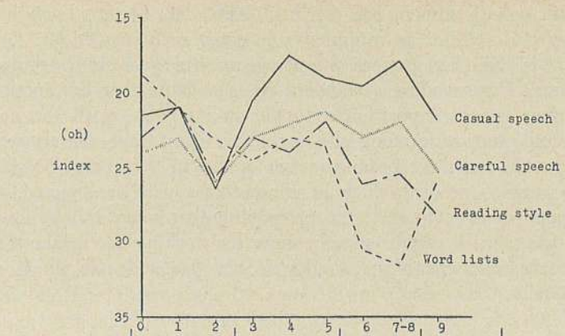



FIGURE 7. Correction of (æh) in reading style by Chester Wollner, 23, New York.

In some cases, we can see early and late stages of a sound change spread out in a single speech community. Historians of English have over-estimated the time necessary for a sound change to take place. Within three generations, we can see a vowel move from the bottom of the vowel system to the top, as when New York City (æh) moves from low [æ:] to high [i: ə] or long open /ɔh/ from [ɔ:] to [v: ə]. The entire sound change may take a much longer period, but in the first half-century of its progress we can see it spread out before us as the change spreads outward from its originating group to various levels of society. Figure 8 shows the stylistic and class stratification of the (oh) variable in New York City: that is, the raising of long open o in *caught, talk, off, bought, office, all,* etc. The vertical axis represents the height of the nucleus, from [ɔ] to [və]. The horizontal axis shows socio-economic classes, broken down into four groups: lower class, working class, lower middle-class, and upper middle class. Four distinct styles are shown on the graph, the values for each style connected along straight or dashed lines. These styles range from *casual style* closest to the vernacular, to *careful speech, reading style* and the most formal, reading of *word lists.* Figure 8 is strikingly different from comparable charts for long-standing, stable sociolinguistic variables. These normally show a linear pattern in which the values of the variables are aligned systematically with the socio-economic hierarchy, as in Figure 9. Here we see the systematic pattern for (ing), the frequency with which the *-g* is deleted in uns-




| Socio-economic class | "Lower class" | "Working class" | "Lower middle class" | "Upper middle class" |
|---|---|---|---|---|
| Stylistic stratification | None | Slight | Extreme | Moderate |
| (oh) in casual speech | Low | High | High | Low |

FIGURE 8. Style and class stratification of (oh) in *caught, off, lost*, etc., in New York City (from Labov 1966).

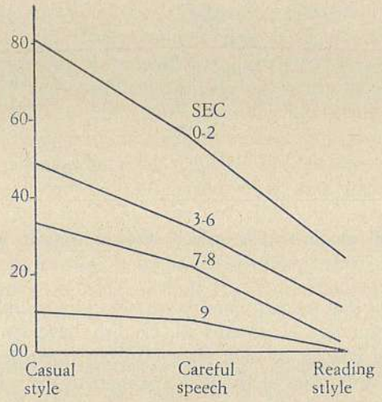



FIGURE 9. Class and style stratification of (ing) in *Working, nothing*, etc., in New York City (from Labov 1966).

tressed *-ing* in *nothing, working*, etc. In this stigmatized variable every group shows a regular pattern of style shifting: higher values in informal styles, lower values in formal styles; and for every style we see a regular pattern of class stratification, as the lines move regularly downward across the page. The same pattern for (ing) has been found in many sociolinguistic studies, including the recent work of Trudgill in NØrwich, England (1971). But figure 8 for (oh) is a curvilinear pattern, in which the highest values are shown by the intermediate classes. Let us examine the pattern of each class group, moving across from left to right. The lower class groups SEC 0-2 show only moderate values of the variable, and no stylistic stratification at all: it is evident that the raising of (oh) has not yet reached this group. The



working-class groups, socio-economic classes 3-5, show high values of (oh) in casual style, but no particular stylistic stratification in more formal styles. This is a characteristic early stage of a change. The lower-middle class also shows very high values of (oh) in the most casual style, but in addition, a dramatic pattern of stylistic stratification in which careful speech, reading style, and the reading of word lists are successively lower. Let us consider the kind of pattern which results in the very low values for word lists. It is not a regular lowering of all forms to values of about (oh)-30, which would give us [pɔ̀ː·l, ɔ̄ː·l, bɔ̀ː·l, ɔːˑ·fəl, ɔ̄ː·fʊs, kɔ̄ː·fi, tʃɔː·klit]. Instead we get such as this, for unpredictable fluctuation like [po˂·ɬ, ɔː·l, bvəl, ɔ̄fəl, ɒfʊs, kɔː·fi, tʃaklʊt ...]. Again, our sociolinguistic studies can locate a probable average value for (oh) in style D, as in Figure 8; but it can not predict which words will be affected.

We are beginning to see some general principles in this irregular social correction. We know that it focuses on individual words, rather than general sound patterns, and never on whole structural relations like chain shifts. The most common words that are prominently affected by the change are often the most heavily stigmatized; on the other hand, these words are more firmly governed by automatic motor habits which are not consistently or easily altered by audio monitoring. Learned words acquired late in life are not prominently affected by vernacular sound changes, and benefit by co-occurrence restrictions in formal style which favor conservative forms. We may therefore find in the corrected residual pattern a mixture of very common and very uncommon words.

But we have yet to trace in detail the process by which this irregular fluctuation settles down to an invariant situation, with re-apportionment of the lexicon. We know from the case of *ea* that it may take several centuries for the exceptions to lose their membership in class A and be firmly reassigned to class B. In order to establish general principles we will have to follow a number of sound changes through their intermediate and advanced stages, beginning with variables in the state of (oh) and proceeding onwards to follow variables in the later stages. It therefore become crucial to locate on-going sound changes in a wide variety of dialects and to broaden our view of this process. In the final section I would like to consider the general principles that can guide us in this investigation.

## 3. The location of changes in progress

The first and most brilliant study of sound change in progress was carried out by Gauchat in 1899-1904 in the Swiss French of Charmey (1904). From the distribution of sound features through various age levels in Charmey, he concluded that six linguistic variables were in process of change. In 1929, Hermann returned to Charmey and confirmed that at least four of the six items had indeed changed in real time. In my own studies of Martha's Vineyard and New York City, I was able to use distributions in age levels—or apparent time—to infer the existence of change in real time, in each case with the help of some prior report in real time to eliminate the possibility that age-grading was responsible for the patterns we observed. It is of course rare for studies made thirty or sixty years before to focus on the same issues we are no winterested in, but there were always some points that could be compared. Thus in Martha's Vineyard, the interviews of Guy Loman in 1933 showed a variation of [aᵒt] ~ [æᵒt] rather than [aᵒt] ~ [əᵒt] as in 1963, and the complete absence of centralization in the earlier report showed that we were dealing with change in real time.

But there are many communities that we would like to investigate where no reliable reports exist. How can we locate change in progress whe nwe enter a new community? There is an important sociolinguistic principle which has emerged

from recent studies which should enable us to recognize change in progress. The usual pattern is to find a linear pattern, like Figure 9, as we see in various sociolinguistic studies (Labov 1966, Shuy, Wolfram and Riley 1966, Anshen 1969, Wolfram 1969, Cedergren 1970, Trudgill 1971). But occasionally we find a curvilinear pattern like Figure 8 for (oh), where the linguistic variables do not match any social hierarchy. This pattern generally indicates change in progress, since long standing sociolinguistic variables are aligned by the social hierarchy by stigmatization, imitation, and other forces of social control. On the other hand, new sound changes do not normally arise in the highest or lowest social groups, for various reasons, thought this it not impossible (Bright and Ramanujan 1964; Wyld 1936; Labov to appear).

On the contrary, such sound changes often appear first in one of the intermediate groups in the social structure, and then spread to neighboring groups in the fashion outlined above. The innovating group will normally show the most advanced stage of the change, not only in its vernacular forms, but also in the degree of stylistic stratification and the extent of social correction. We will therefore expect to find correlated with Figure 8 a distribution through age levels in which the most advanced forms are shown by the lower middle class, with other groups showing progressively lower forms. Thus the abstract model that we would predict in a matrix of social groups and age levels would resemble Figure 10, where a

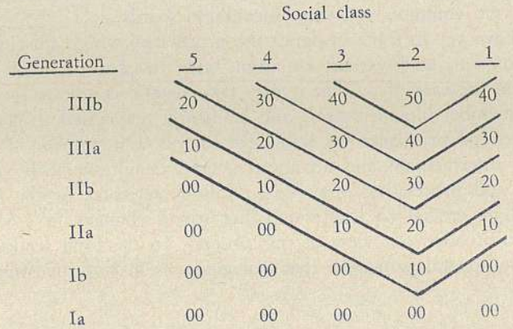



FIGURE 10. Hypothetical model of a change from below originating in Generation Ib of the second highest social group.

sound change spreads in a wave outward from the originating group, and at each age level the strength of the change is proportional to the distance from the origin. A curvilinear social stratification seems to predict a wave model in apparent time, and the correlation between these two patterns appears to be a good indicator of change in progress. This correlation was found for two sound changes in the New York City study—the raising of (æh) and of (oh). It appeared again in the study of Panamanian Spanish by Cedergren (1970). Table 1 shows the distribution of five sociolinguistic variables in Panamanian Spanish.

The linguistic variables may be defined briefly as follows:



TABLE 1. Social stratification of five spanish variables in Panama. [from Cedergren 1970]

| SOCIAL GROUPS: | I | II | III | IV |
|---|---|---|---|---|
| (R) | 1.62 | 1.88 | 2.29 | 2.29 |
| (PARA) | 1.11 | 1.37 | 1.39 | 1.69 |
| (ESTA) | 1.26 | 1.56 | 1.62 | 1.71 |
| (S) | 2.03 | 2.24 | 2.31 | 2.36 |
| (CH) | 1.88 | 2.24 | 2.13 | 2.00 |

TABLE 2. Development of five spanish variables by age groups. [from Cedergren 1970]

| AGE: | 11-20 | 21-30 | 31-40 | 41-50 | 61-70 | years |
|---|---|---|---|---|---|---|
| (R) | 2.28 | 1.90 | 1.95 | 2.23 | 1.46 | |
| (PARA) | 1.31 | 1.34 | 1.48 | 1.33 | 1.39 | |
| (ESTA) | 1.64 | 1.50 | 1.67 | 1.57 | 1.41 | |
| (S) | 2.34 | 2.22 | 2.15 | 2.18 | 2.19 | |
| (CH) | 2.15 | 2.29 | 2.05 | 1.81 | 1.31 | |

(R): the devoicing, fricativization, pharyngealization, and deletion of syllable-final /r/, with values ranging from 1 to 6 in the direction of these processes.

(PARA): the alternation of the full form of the preposition *para* with *pa*, with values of 1 and 2 respectively.

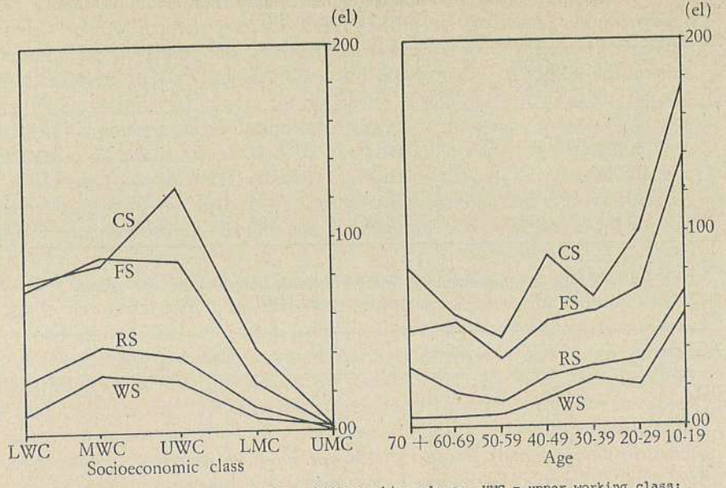
(ESTA): alternation of the full form *esta* with *ta*, assigned values of 1 and 2 respectively.

(S): the syllable-final alternation of [s], [h], and [Ø], with values of 1, 2 and 3 respectively.

(CH): palatal vs. retroflex and reduced stop onset of /c/, with values of 1 and 2 respectively.

One of these variables, (CH), shows a curvilinear distribution, with a peak in social group II (second highest). The sound change therefore consists of a movement towards the retrofiex sound centered in the second highest socio-economic group. Table 2 shows the age distributions for each socio-economic group. No particular trend appears except for (CH), where it is immeidately evident that the younger the speaker, the higher the value of the variable.

A fourth example of this correlation appears in the recent study of Norwich, England by Trudgill (1971). Figure 11 shows the pattern of stylistic stratification for the (el) variable in Norwich the progressive backing of short /e/ before /l/ in *help*, *belt*, etc., which moves from [e] to [3] to [ʌ]. The index is constructed as the numerical average (x 100) of values: [e] = 1, [3] = 2, [ʌ] = 3. Whereas all other variables in Norwich showed a linear pattern of social stratification, this is curvilinear, with a peak in the uppear working class. Note that the groups immediately neighboring to the originating group show a marked pattern of stylistic differentiation, though not as steep as the upper working class. The middle middle class is the most remote from the point of origin, and shows no significant trace of this backing. The pattern of Figure 11 leads us to predict a wave model of distribution in apparent time, and Figure 12 shows that this is indeed the case. Trudgill demonstrates that (el) is in an early stage of change




LMC = lower working class; MWC = middle working class; UWC = upper working class; LMC = lower middle class; UMC = upper middle class. CS = casual style; FS = formal style; RS = reading style; WS = word list style.

FIGURE 11. Class distribution of (el) in *belt, help*, etc., in Norwich (after Trudgill 1971).




FIGURE 12. Age distribution of (el) in belt, help, etc., in Norwich (after Trudgill 1971).

in progress. In all styles there is a regular progression upward of (el) values, reaching a maximum in the 10-19 age group. There is some sign of correction in the middle-aged speakers, since their values are a little lower than the oldest speakers, but the sudden upward movement in the younger groups is an unmistakeable. We carried out instrumental studies in Norwich to follow up Trudgill's reports, and found clear sprectrographic evidence of the move to [ɜ] and [ʌ] in the different age levels of the working-class population.

These four convergent cases indicate that the basic sociolinguistic principle can be relied on to locate change in progress: it is not likely that it will apply in every case we encounter in future research, but in now seems clear that a curvilinear social distribution carries a strong indication of a wave pattern in apparent time, and the combined pattern is good evidence that we are viewing the early stages of achange in progress. This finding should illustrate the fact that sociolinguistic stratification. This is one of several abstract principles which arise from the quantitative study of sociolinguistic structure. We can expect that even deeper findings on principles will arise as our quantitative methods gain in linguistic and sociological sophistication.

## 4. On the way of the transgressor

We began this discussion by confronting the barriers imposed by Kuryłowicz and others upon linguistic investigation. We recognize that these limitations have served a useful purpose, and enabled linguists to develop a keener awareness of structural relations. In this sense, we are the direct benefactors of the structural insights of Martinet, Haudricourt, Juilland, and Moulton who have greatly advanced our understanding of structural factors in sound change. Indeed, the general principles of chain shifting have been one of our first targets in the study of sound change.

In Figures 5 and 6 we observe the shift of short *o* to the front in Detroit behind the raising of short *a*, a phenomenon which is now part of our basic understanding of systematic change. We hope to build upon Martinet's insights by explicating the internal structure of these chains. Each of the thirty or forty chain shifts we are now studying displays the functional pressures explicated by Martinet, and we see the constant and inescapable tendency of each element to preserve its margin of security, its definition as *not* all other elements. These are nevertheless weak forces, which are often overridden and seldom decisive at any one point in the history of a language. How otherwise could we explain the history of Greek in which seven phonemes have ultimately merged in one phoneme, /i/? Like the weak force of gravity, functional pressures eventually triumph because they are always present; the need to distinguish words can never disappear.

Functional explanations are part of a solution to the embedding and evaluation problems in the explanation of change (Weinreich, Herzog and Labov 1968). But at any given point in history, we must also cope with the problems of transition and actuation, as well as the general constraints upon the direction and nature of change. Here we have offered solutions to the transition problem for the reassignment of *ea* words from acoustic evidence, as well as some insight into the general constraints on phonetic change. In the course of this discussion, we have seen that the phonemic principle must be taken even more seriously than ever before.

The phoneme is, as Daniel Jones pointed out, an important family of sounds; as Saussure pointed out, distinctly different from all other sounds; and as all linguists recognize, it is the categorization which the native speaker imposes upon the underlying phonetic continuum. To understand the phoneme we must examine empirically the boundary between what is a phoneme and what is not, and be prepared to identify marginal cases which are not fully distinct in all these respects. It is not enough to study norms alone; or behavior alone; but as George Homans proposes, our goal is to explain the extent to which behavior deviates from the norms. That is exactly the problem that we have addressed in the case of *mate - meat*, and the analogous case of *loin - line* where we attempt to distinguish reported merge from true merger. Our application of acoustic data has revealed the important sub-type of a marginal phoneme, not distinct enough to be easily recognized by the native speaker, but distinct enough fo the rule system to maintain its integrity and evolve as a separate element. We recognize then that the phoneme is a cluster of correlated properties, not an essence uniquely defined by some invariant attribute; that there exist boundary cases which share only some of these properties; and many historical puzzles have been debated without resolution because of the failure of the theory to recognize these facts.

We also have entered into the record a body of data on the social contex of the sound changes involved, again transgressing an important limitation on linguistics *sensu stricto*. Here we have followed a good precedent of older historical scholars like Wyld, but hoping to integrate our social data into newly gained structural insight. We have attempted to show that mere « dialect mixture » is not enough to explain the shift from one linguistic structure to another. Rather we recognize the existence of more complex sociolinguistic structures supported by opposing norms, one overt and the other covert. The reports of grammarians normally show the overt norm imposed by the dominant forces in society, and through them we can recognize the irregular forces of social correction exerted in the late stages of a change.

We have also indicated the way in which the linguist can enter the speech community and systematically locate evidence of sound change in progress. By studying ongoing change with all of the observational and experimental tools at hand, he can confidently expect to throw light on the past; and by returning to the past he can find surely an understanding of the present. This program implies a uniformitarian principle, similar to that which has operated successfully in geology

for several centures: the factors are operating in current sound changes are the same as those which operated to produce the historical record.

We are of course guilty here of transgressing the boundaries between historical and synchronic linguistics, as well as the barriers against phonetic, sociological and cultural data. Many scholars have a keen interest in defining the limits of a proper linguistics, and I respect their concern. But it seems to me that we cannot escape the demands of the secular word. When we enter this world, and look for this-wordly explanations, we cannot deal with pure relations. For a secular linguistics, aboundary can only be an invitation to cross over and discover what is on the other side.

I hope that this paper will encourage other linguists to enter the way of the transgressor and look for explanation wherever it may be found. They may be severely indicted for this action, and charged by some colleagues with carrying out improper linguistics. If so, allow me to enter in advance this brief in their defense.

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# MARKEDNESS IN VOWEL SYSTEMS

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1. In this report I will discuss a number of questions concerning the relative symmetry of vowel systems.

At the very beginning of the structuralist period, Trubetzkoy demonstrated that a great variety of vowel systems can be reduced to a small number of types governed by simple laws (1929). Since his work was a first step towards a systematization, it was perhaps natural that Trubetzkoy would emphasize symmetry where he found it and deemphasize asymmetry. It is a fact, however, that although very many vowel systems can be represented graphically as two-dimensional, symmetrical patterns, when they are analysed in terms of the binary oppositions that define their members, most of them turn out to be asymmetrical in one or more respects.

These asymmetries, however, far from diminishing the systematic character of vowel systems, clearly manifest universal laws that determine the structure of such systems. Trubetzkoy formulated some of these, such as those in (a), but a number of factors — among them the identification

(a) (i) If a vowel system has three timbre classes, they will all be represented in its high vowels (1969: 111f.).

(ii) In systems with three timbre classes, the intermediate timbre class cannot contain more vowels than either of the extreme classes (ibid.).

of phoneme inventory with system, which is characteristic of early structuralism — prevented a correct appreciation of the extent and importance of asymmetry in the sound pattern of language.

2. The fact that phoneme inventories — and vowel systems in particular — show both symmetry and asymmetry was first given due attention by Martinet, who made this one of the major explananda in his work on phonology. In Martinet's view, which has gained wide acceptance, there is a constant interplay between the tendency of the human mind to integrate phonological units into symmetrical patterns, on the one hand, and the inertia and intrinsic asymmetry of the human vocal appartus, on the other (1955: 98 et passim). This reference to human anatomy as a direct determinant of linguistic form I consider a grave methodological error, not least because it ignores the fact that the apparent tension between symmetry and asymmetry in phonology has an exact counterpart in the other articulation of language, on the plane of content. Explanations which, like this reference to physiological factors, obscure the isomorphism of phonology and grammar delay rather than promote progress in our understanding of the basic



principles that determine the structure of both the content plane and the expression plane of language.

It would seem more apposite to assume that both the symmetry and the asymmetry of a sound pattern are consequences of the nature of the relations into which phonological units enter. Indeed one may safely assume that asymmetry in a sound pattern is due to the fact that phonological relations are asymmetrical; and that the appearance of symmetry is a consequence of the fact that phonological relations are binary.

3. In the following it is assumed that the phonology of a language is a semiotic system, constituted by a set of signs and rules for their combination and concatenation. The signs with which we will be concerned here are phonemic « feature values » (« plusses » and « minuses ») or, speaking traditionally, terms of phonological oppositions. These signs enter into two kinds of relations, paradigmatic and syntagmatic.

Each phonemic feature value forms together with its opposite term a minimal (binary) paradigm, for the relation between them is such that the presence of one term implies the absence of the other. Each such paradigm is defined by the perceptual parameter of the sign vehicles (signantia) of the two signs that constitute it, and in turn — by excluding one when the other is present — defines the two signs as distinct from each other, that is, gives them their meaning (signatum) of « phonemic otherness » (cf. Jakobson 1939).

The terms of phonological oppositions do not occur in isolation, but are obligatorily combined into syntagms of various extent. The smallest such syntagms which can be realized are the simultaneous syntagms called phonemes. These simultaneous sign complexes are not aptly described by their traditional definition as « bundles of distinctive features ». Rather, they are hierarchical structures, analysable into immediate constituents in relations of subordination (pace Hackett 1955: 90).

The organization of phonological terms into the simultaneous syntagms which constitute the phoneme inventory of a language can be described by means of a set of ordered phoneme structure rules which generate all the permissible simultaneous combinations of phonological terms. Each such rule, which may be of the form « X → ± opposition », introduces a phonological opposition into the segments defined on the left side of the arrow and can be said to expand the syntagms to which it applies with the subordinate terms it introduces. For example, with considerable simplification, the rules of (b) generate the combinations of phonological terms in (c), which define the vowels of Lezghian.

(b) (i) (−consonantal+vocalic) → ± compact
(ii) ... −compact) → ± grave
(iii) ... +compact) → ± grave
(iv) ... −compact)−grave) → ± flat.

(c) (i) ((((−consonantal+vocalic)−compact)−grave)−flat - /i/.
(ii) ((((−consonantal+vocalic)−compact)−grave)+flat) - /ü/.
(iii) (((−consonantal+vocalic)−compact)+grave) - /u/
(iv) (((−consonantal+vocalic)+compact)−grave) - /e/
(v) (((−consonantal+vocalic)+compact)+grave - /a/.

4. Asymmetries in vowel systems can be understood on the basis of the generalizations discussed in this and the following four sections.

The paradigmatic relations that define the terms of phonological oppositions are asymmetrical in that one of the terms of any phonological opposition is more narrowly defined or, in other words, more marked than the other. It should be

noted that markedness relations pertain to the form of language. They should be consistently distinguished from such notions as relative articulatory complexity, relative optimalness, or relative text frequency, which are facts about the substance of language. For even though it is often the case that, for instance, the unmarked term of an opposition involves less articulatory complexity and occurs more frequently than the corresponding marked term, this is not necessarily so. Markedness is a matter of conceptual complexity and as such is to a considerable extent independent of the substance of language. One of the principal goals of phonology is to determine the precise extent of this relative independence.

With respect to the oppositions used in vowels, it may be assumed that *−compact*, *+diffuse*, *+nasal*, *+grave*, *+flat*, *−tense* are the basically marked terms of these various oppositions (cf. sec. 7) [1].

Note that although in their paradigmatic relation *+compact* is the unmarked and *−compact* the marked term of the opposition, when the *±compact* opposition is to be expanded with a subordinate diffuseness or tonality opposition, as it is in almost all languages, the two terms of the *±compact* opposition are evaluated differently: both a differentiation with respect to diffuseness and a tonality differentiation are more compatible with the dispersion of acoustic energy over a relatively wide frequency range which is associated with non-compactness than they are with the concentration of energy associated with compactness (cf. Jakobson and Halle 1956: 39 ff.). From the point of view of its combination with the oppositions *±diffuse*, *±grave*, *±flat*, therefore, *+compact* is defined narrowly as « maximally compact » and evaluated as the marked term of the opposition.

5. When phonological terms are combined into simultaneous syntagms, it is generally the case that the terms of a subordinate opposition are not combined with the marked term of a given opposition unless they are also combined sith its unmarked term. This is Brøndal's « principle of compensation », which is applicable in phonology as well as in grammar (1943: 105 ff.). It explains, for example, why a *±diffuse* opposition in *+compact* vowels implies a *±diffuse* opposition in *−compact* vowels, but not vice versa — cf. (d) (i); why a *±grave* opposition in *+compact* vowels implies a *±grave* opposition in *−compact* vowels, but not vice versa — cf. (d) (i); why a *±flat* opposition in *±compact* vowels implies a *±flat* opposition in *−compact* vowels, but non vice versa — cf. (d) (ii); why a *±grave* opposition in *−diffuse* vowels implies a *±grave* opposition in *+diffuse* vowels, but not vice versa — cf. (d) (iii); why a *±flat* opposition in *−diffuse* vowels implies a *±flat* opposition in *+diffuse* vowels, but not vice versa — cf. (d) (iv); why a *+grave* opposition in *+flat* vowels implies a *±grave* opposition in *−flat* vowels, but not vice versa — cf. (d) (iii); or why a *±flat* opposition in *+grave* vowels implies a *±flat* oppositioni in *−grave* vowels, but not vice versa — cf. (d) (iv).

| (d) (i) Japanese | (ii) Russian | (iii) Mixteco | (iv) Middle Greek |
|---|---|---|---|
| i − − u | i − − u | i − ɨ u | i ü − u |
| e − − o | e − − o | e − − o | e − − o |
| − − a − | − − a − | − − a − | − − a − |

6. When a simultaneous syntagm is not expanded with a certain opposition, it will be redundantly characterized by the properties associated with the unmarked term of that opposition; or the properties of both terms of the opposition may be assigned in complementary distribution, those of the marked term in a narrowly defined (simultaneous or sequential) environment, or set of environments, those of the unmarked term elsewhere (cf. the notions of concomitant neutralization and markedness assimilation in Andersen 1972). This is relevant to the remarks in the following section.

[1] Here and in the following, the names of phonological oppositions are italicized. Non-phonemic features are enclosed in brackets.



7. When the terms of an opposition are subordinate to the marked term of another opposition, their normal, or basic, markedness values (cf. sec. 4) may be reversed (cf. Andersen 1972). Thus, for example, while *+flat* is the marked term of the opposition in *−grave*, *−compact* vowels, it is the unmarked term of the opposition in *+grave*, *−compact* vowels. Hence, according to sec. 6, in languages where the *±flat* opposition is not phonemic in *+grave*, *−compact* vowels, these vowels are as a rule redundantly [+flat]. For another example, while *+grave* is the marked term of the opposition in *−compact* vowels, it is the unmarked term of the opposition in *+compact* vowels. This is why a *+compact* vowel for which the *±grave* opposition is not phonemic is normally redundantly [+grave].

Markedness reversal regularly applies to the *±flat* opposition when it is subordinate to the *±grave* opposition; it applies to the *±grave* opposition when it is subordinate to the *±flat* opposition (cf. sec. 8); and it applies to the *±grave* opposition when it is subordinate to the *±compact* opposition. But it does not seem to apply to the *±grave* opposition when it is subordinate to the *±diffuse* opposition: *+grave* is the marked term of the opposition both in *+diffuse* and in *−diffuse* vowels — hence the parallel manifestations of the principle of compensation in the tonality oppositions of the high and the mid vowels of, for instance, French. Nor does markedness reversal seem to be relevant for the *±flat* opposition whether it is subordinate to the *±compact* opposition or the *±diffuse* opposition; in either case, *+flat* is invariably the marked term of the opposition.

The different markedness values of the terms of the *±grave* opposition in *−compact* and *+compact* vowels is important evidence in languages with three or more height distinctions that there is a primary division of the compact — diffuse parameter into *+compact* (maximally compact) and *−compact*, and a secondary subdivision of the non-compact part of that parameter into one or more diffuseness oppositions.

8. We have considered the asymmetry of paradigmatic relations (markedness, sec. 4) and have seen how markedness values are relevant to the combination of phonological terms into simultaneous syntagms (compensation, sec. 6), and how in simultaneous syntagms markedness values in one opposition may determine markedness values in a subordinate opposition (markedness reversal, sec. 7). Let us now turn to the simultaneous syntagms themselves and consider the relations that hold among their constituents.

It seems to be the case that the syntagmatic relations into which phonological terms enter are asymmetrical, that is, that the relation that holds between any two immediate constituents of a simultaneous syntagm is such that they are not of equal importance in the segment, but one of them is more central — or, as we will say, has higher rank — than the other.

Just as it is possible to define universally valid markedness relations (cf. sec. 4), so, one may assume, it is possible to define laws of ranking which are valid for all languages. To a considerable extent, however, rank relations are determined on a language particular basis. This is particularly easy to illustrate from the use of tonality oppositions in vowels. Vowel systems with only one tonality opposition utilize either the *±grave* opposition or the *±flat* opposition. Vowel systems with a three way tonality distinction utilize both these oppositions, but in some the *+grave* opposition has higher rank than the *±flat* opposition, in others the *±flat* opposition has higher rank than the *±grave* opposition. When languages of the

first type expand only −*grave* vowels with the ±*flat* opposition, the resulting triad of high vowels consists of /i/ : /ü/ : /u/; e.g. (d) (iv). When the two terms of the ±*grave* opposition are subordinate to the unmarked term of the ±*flat* opposition (−*flat*), the resulting triad of high vowels consists of /i/ : /ɨ/ : /u/; e.g. (d) (iii).

9. If it is a fact that the same phonological oppositions can yield different vowel systems depending on how they are ranked, one may assume that differences in ranking account for such differences among vowel systems which cannot be attributed to the utilization of different phonological oppositions. Let us consider, for example, some of the ways in which nasality interacts with the other phonological oppositions that define vowels.

As is well known, many languages which distinguish nasal and oral vowels present in their nasal vowels a smaller number of phonological oppositions than in their oral vowels. This is yet another manifestation of the principle of compensation. It is remarkable that in languages where +*nasal* segments are less fully expanded than −*nasal* segments, two distinct types can be discerned. There are languages in which nasal vowels show fewer sonority distinctions than oral vowels without any reduction in the number of tonality distinctions; cf. (e) (i-ii). And there are languages in which nasal vowels show fewer tonality distinctions than oral vowels; cf. (e) (iii-iv). The existence of these two types of nasal vowel subsystems suggests that in some languages, tonality oppositions are ranked above the secondary sonority opposition(s) of diffuseness, while in other, much less numerous, languages they are ranked below them. This inference is corroborated by the existence of two distinct types of three vowel systems, the triangular one, in which −compact segments are expanded with a tonality opposition — cf. (e) (v), and the much rarer linear type, in which −compact segments are expanded with a ±diffuse opposition — cf. (e) (vi).

(e) (i) Barra

| | |
|---|---|
| i y – u | ī y – ū |
| e ø – o | – – – – |
| æ – – ɔ | æ – – ɔ |
| – – a – | – – ã – |

(ii) Winnebago

| | |
|---|---|
| i – – u | ī – – ū |
| e – – o | – – – – |
| – – ā – | – – ã – |

(iii) Marchfeld

| | |
|---|---|
| i ü – u | ī – – ū |
| e ö – o | ẽ – – õ |
| ę ǫ – ǫ | – – – – |
| äi äü – au | aī – – aū |
| – – a – | – – ã – |

(iv) Siang-tang

| | |
|---|---|
| i ü u u | ī – – – |
| e – – o | ẽ – – – |
| – – a – | – – ã – |

(v) Arabic

i u

a

(vi) Adyghe

ə

e

a



10. From the preceding discussion it should be clear that the relative lack of symmetry in vowel systems follows from the intrinsic asymmetry of the paradigmatic and syntagmatic relations into which phonological terms enter. But if asymmetry is such a fundamental characteristic of phonological relations, one may well wonder why symmetrical vowel systems are indeed found.

It seems that symmetry in vowel inventories is a simple function of the fact that paradigmatic relations in phonology are binary: expand any set of simultaneous syntagms with a subordinate opposition, and you have two symmetrical sets. It may perhaps seem that this is taking the venerable notion of pattern symmetry too lightly. But in fact, asymmetry is so basic to phonological patterning that it is evident also in symmetrical vowel systems. It is manifested in synchronic pronunciation rules which assign phonetic realizations to parallel series of vowels in a way that belies their apparent symmetry (see, for instance, the rich data on phonetically skewed « symmetrical » vowel systems in Vysotskij 1967). And it can be observed in diachrony whenever symmetrical sets fail to develop symmetrically, as for instance in qualitative differentiation (of long and short vowels, or of nasal vowels), in diphthongization, or in phonemic mergers. One can expect the study of these manifestations of asymmetry to add considerably to our understanding of the laws of phonological structure.

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# ON THE NEED FOR BOTH PARADIGMATIC (AUTONOMOUS) AND SYNTAGMATIC (SYSTEMATIC) COMPONENTS IN PHONOLOGY

W. L. Ballard

## Introduction

Traditional generative phonology made great strides in legitimatizing morphophonemics and ordered rules as valid elements in a grammar that differentiates deep structure from surface structure and derives the latter from the former. But in so doing it adopted an exclusively syntagmatic stance: it attempted to explain all of the phonological properties of a language in terms of elements in strings and not as elements of Saussurian systems. At the same time the systemic, paradigmatic properties of language have continued to intrude on the neatness of homogeneous, syntagmatic structures resulting in proposals for redundancy rules, morpheme structure conditions, marking conventions and linking rules, and phonological conspiracies (Cairns 1969, Chomsky and Halle 1968, Lehman 1970, Stanley 1967), all tending to demonstrate the importance of paradigmatic contrast and structure in fully explaining the linguistic competence of native speakers, as well as, God forbid, the history of language change (Shane 1971). This is not the place to detail the inadequacies generativists have found in each others' formulations; rather it is necessary to examine some of the basic theoretical and real language problems that require, in my view, a richer phonological apparatus than that available to date.

The essential block within generative phonology to a proper formulation of paradigmatic values is the notion that the phonological entities comprising lexical representations constitute a system. Since the underlying forms of the lexicon are based on accurring allomorphs and the attendant rule ordering to derive the latter, it follows that generative lexical representations are comprised of entities that are at varying degrees of abstraction from their systematic phonetic representation. It therefore follows that those entities are not all at a given « level »; this, I take it, is one of the points Chafe (1968) makes in calling for partial ordering; Shane (1971: 508) in effect admits to as much in his description of Nupe palatalization and labialization: some underlying representations are virtually equivalent to the phonemic; others are much deepr. This confusion over regarding systematic phonemic representations as comprising a level and hence, implicitly, a system, I regard as an unfortunate carryover from structuralism.

To remedy these and other inadequacies detailed elsewhere (Ballard 1969, 1971) I have pointed out the need for a paradigmatic component in the grammar that would, parallel to the base component in syntax, generate the phonological structure of syllables (and perhaps larger units), as well as the system of phonological contrasts used in a language. Sampson (1970), besides discussing many of the same inadequacies of present theory, has given us an explicit model of such



a phonological base. I find much to agree with and, indeed, highly commend in Sampson's proposals; of what little I disagree with [1], the most important and crucial is this: he throws out the baby with the bathwater. There is no need, and only harm, as I see it, in attempting, once again, to attain a singularly, homogeneous model of phonology. While we do need a phonological base, we also do need the central syntagmatic tenets of present generative theory: underlying forms and ordered, process-oriented phonological rules. I find all to the good Shane's contention (although he restricts himself to the traditional generative stew with a dash of phonemics) that one cannot adequately explain many of the facts of language without exploiying the notion of phonemic contrast, i.e., implicitly, the paradigmatic facts of phonology.

There are two kinds of arguments that demonstrate that paradigmatic phonology is part of the competence of a native speaker. The first is the importance of the unit syllable in phonology. This argument is peripheral to the data in this paper and I shall not review the many studies pointing to the role of the syllable. Some worth mentioning here are those by Ballard (1971), Bickerton (1971), Fromkin (1971, 39), Lehman (1970) and Pike (1947). Studies of this sort are legion in the history of linguistics. Suffice it to say that the notion syllable cannot be captured meaningfully in the tradional syntagmatic model.

The second argument is that only the notion of contrast or of paradigmatic system can explain the ways in which native speakers have elected to change their languages. It is the purpose of this paper to detail some changes in actual languages that require a paradigmatic explanation; these data will also demonstrate that the function of paradigm in historical change goes beyond Shane's notion of phonemic contrast and also that « phonological change » must be extended beyond the kinds of change in a syntagmatic grammar allowed for by King (1969); but they also demonstrate the need to retain the advantageous aspects of the syntagmatic model.

## Wu [u/əu]

In the Wu dialects the number of vowel contrasts is always greatest in the context C__#; then Codas (nasals, off-glides and [ʔ]) reduce the number of possible vocalic contrast. Due to historical syntagmatic changes, some dialects have kept an [ɑ/ɔ] contrast in the context C__#; others have lost it. All of the northern dialects have merged [o] and [ɔ] before nasals leaving just an [ɑ/o] or [ɑ/ɔ] contrast in that context. But before *-k>[ʔ] some dialectis have kept [ɑ/ɔ/o], whereas others have lost the [ɔ/o] distinction. There may be physiological explanations for the vocalic merger occurring before nasals and not [ʔ] (a lowered velum obscures vowel quality (House and Stevens 1956 via Ohala 1971)). But that does not explain which dialects merge [o] and [ɔ] before [ʔ] and which do not. It is the paradigmatic fact of which dialects keep the [ɑ/ɔ] distinction in the context C__# that precisely parallels which dialects do not show the [o/ɔ] merger before *-k>[ʔ]. The only explanation for whether a dialect submits to this change or not, then, is paradigmatic.

[1] I also find his generative process and features uncomfortable. An alternative partial model is contained in the appendix. I could argue about his features in detail, but this is not my major concern here. Suffice it to point to a problem which cannot be handled in any of the feature systems I have seen: in certain African languages, there are high or low pitches associated with each syllable (Carrington 1971). These pitches are symbolized directly in high and low gong pitches in the so-called drum languages. When vocables are substituted for gongs among one group of drum language users, the syllables chosen are [ki] for a high pitch, [ke] for a low; among other groups, the substitutes are [ko] for a high and [ku] for a low! The only apparent explanation is in the relative pitch of the second formant for these vowels; any system of features known to me, however, classifies [u] to [o] as [i] to [e] and hence is inadequate to explain these native speakers' knowledge of their language.

Wu [u/əu]

The same northern Wu dialects show, generally, the following distribution of the syllable finals [u] and [əu] (Chao 1934):

u/P, K__ [2]

əu/T, TS__

so that the two finals are in complementary distribution. If they are phonemicized as one unit, either /u/ or /əu/, then the changes from Proto-Wu to the lexical representations cotaining /u/ or /əu/ would be (in part):

| Proto Form | Historical Rule | Systematic Phonemic Form | Synchronic Rule | Systematic Phonetic Form |
|---|---|---|---|---|
| *u, əu | > | /u/ | > | [u]/P, K__<br>[əu]/T, TS__ |
| *u, əu | > | /əu/ | > | [u]/P, K__<br>[əu]/T, TS__ |

These two alternative are both non-sensical; moreover the choice of one or the other is arbitrary. Besides, neither « explains » the changes.

If the paradigmatic base generates both [u] and [əu] and then describes the complementary distribution with a rule such as:

/u, əu/→ [u]/P, K__
[əu]/T, TS__

then the lexical representations may contain both /u/ and /əu/ with no loss of generality in the grammar and the historical changes become:

(*a*) *u> /u/P, K__
>/əu/T, TS__

(*b*) *əu> /u/P, K__
>/əu/T, TS__

Not only are these more plausible than the earlier rules, but also the existence of the paradigmatic rule explains why the given historical change occurred. Once either change (*a*) or (*b*) had occurred syntagmatically then the other contrastive entity was left in limbo as the only entity not showing the extant complementary distribution.

## Shuang Feng Tones

Tones in Chinese dialects generally derive as follws: four tones, I, II, III, IV, are reconstructed for Proto-Chinese. Tone IV syllables ended in voiceless stops.

[2] Throughout this paper a capital letter stands for a series of consonants that differ in manner of articulation but share the same position of articulation. Thus « P » stands for the labials, « TS » for the dental affricates, etc.



Each tone had two allotones, a, b, where *a*) occurred with syllables having voiceless initial consonants and *b*) with syllablbes having voiced initials.

Modern Shuang Feng shows tones Ia, Ib, IIa, IIIa and IIIb, but there is an historical problem: unlike *Ib, *IIIb shows some partial devoicing and shift to IIIa. Why is *IIIb different in this respect fro *Ib?

It would appear that the Shuang Feng tones devolved as follows: *IVb syllable initials devoiced and the allophonic a/b distinction became constrastive. Then *IV syllables lost their final stop and *IV>Ib, *IVb>IIIa. This merger occurred on the basis of a contour similarity between the tones involved. In addition *IIb>*IIIb. Now Ib contans syllables with both voiceless and voiced initial consonants; hence the Ia/Ib distinction is contrastive. Also Ia, IIa and IIIa occur with voiceless consonant only. This makes the paradigmatic distinction IIIa/IIIb unstable — is it allophonic (since it is still complementary distribution with voicing in the initial consonant) or is it contrastive (since Ia/Ib and IIa are)? This paradigmatic instability apparently led to the sporadic devoicing of some *IIIb initials and a shift to IIIa — a change which was blocked in Ib by its contrastive status due to the presence of devoiced *IVa initials.

## The Mandarian Palatals

The Mandarian have been a perennial problem (Ballard 1970, Cheng 1968, Hartmen 1944). The basic problem is how to phonemicize the palatals ([TC]), which are in complementary distribution with three othr series, the dental africates ([TS]), the retroflexives ([TS]), and the velars ([K]), before high front vowels, vis-à-vis lexical representations for forms containing [TC]. It should be noted that in Mandarin the palatals originated historically from distinct palatalizations of *K and then *TS [3]; the original palatals became [TS] (generally). It should also be noted that some residual morphophonemic alternation of [TS~TC] and of [K~TG] still remains in Mandarian as a residue of these changes.

Marking conventions via the linking rules (with physiological correlates) as in Chomsky and Halle (1968) nicely « explain » the syntagmatic velar palatalization, *K>[TC], as assimilation in backness to a following [−back (/high)] vowel. They do not, however, choose the [TS] series, as opposed to [T] or [TS], that then also palatalized (assimilated in highness) to a following [+high (−back)] vowel and the consequent merger of *TS>[TC]<*K. This is explained paradigmatically as follows.

[TS] and [TS] ar both [+delayed release] and [+strident], as is [TC] and as [T] is not, so that [TS] and [TS] are much more similar to [TC] in shared feature specifications than is [T]. In addition [TS] and [TS] probably differ in a Chomsky and Halle feature description as [−distributed] ([TS]) to [+distributed] ([TC]). [TC] is also, presumably, [−distributed]. Therefore after the change *K>[TC] had occurred and there was an at least allophonic [TC] in the system before $\begin{bmatrix}+\text{high}\\-\text{back}\end{bmatrix}$ vowels, then [TS] differed fro [TC] in only two features (high: [−] versus [+], and anterior: [+] versus [−]), and it was the only segment differing in just two features. Also note that changing one feature ([−high] → [+high]) automaticall yentails the linking rule change [+anterior] → [−anterior].

But this same simple change ([−high] → [+high]) would also convert [T] → [TC] as in Chomsky and Halle's description of Slavic palatalization. So neither syntagmatic phonology nor the linking rules explain why [TS] palatalized

[3] Most Chinese dialects show *K > [TC] and then some of these show *TS > [TC].

and [T] did not. Only paradigmatic phonology correctly predicts that the most similar systemic entity will change [4].

This example illustrates how a synchronic phonology may differ in its syntagmatic and paradigmatic descriptions of the same phenomena. Incidentally, within this view, the [TC] morphemes should be lexically represented with a [TC] unless they show allomorphy with [TS or [K].

## Types of Changes

It is unlikely that some known changes ever rules in a syntagmatic grammar. The most striking examples come from Grimm's Law: the shifts of PIE *p, t, k to Germanic *f, o, h, and PIE *(*b*), d, g Germanic *p, t, k apparently never produced allomorphic alternations [5]. Therefore these changes do not fit the generativists' view of change (King 1969). Rather they seem best postulated as first optional and then obligatory rules in the paradigmatic generation of Germanic phonological contrasts — unlike Verner's Law, which is best formulated as a syntagmatic P-rule. Thus changes may differ in whether they are added as allomorphy producing rules in the syntagmatic component or as « phonetic » shifts added in the paradigmatic component [6].

## Structural Dialectology

The existence of both a paradigmatic base and syntagmatic rules in a phonological description has another important fringe benefit. Weinreich (1954) and Moulton (1962) have identified two basic theoretical issues in structural dialectology:

a. identity: since in a Saussurian system entities are defined by their relationship to every other element in that system, systems can only be said to be exactly the same or different; there is not gradient or degree of similarity — nor can parts of systems (including single entities) be said to be exactly equivalent unless the entire systems are; and

b. incidence: the lexical incidence of entities even in two systems which are exactly the same in the sense of (a) above may still differ greatly due to the accidents of history.

These two crucial issues for phonology have been lightly passed over by generativists such as King (1969), who is justly criticized by Campbell (1971: 192-5) on this point. In a discussion of the theoretical issues involved I have shown how

[4] Note that the syntagmatic synchronic P-rules must contain two rules, one each palatalizing [TS] and [K] to describe the existing [TS ~ TC] and [K ~ TC] allomorphy, but the paradigmatic base will have on rule

$$\begin{bmatrix} \alpha \text{ delayed release} \\ \alpha \text{ anterior} \\ \alpha \text{ coronal} \end{bmatrix} \rightarrow \begin{bmatrix} + \text{high} \\ - \text{back} \end{bmatrix} / [\text{——}] \begin{bmatrix} + \text{high} \\ - \text{back} \end{bmatrix}$$

to explain the complementary distribution of [TS], [TS] and [K] with [TC] before high front vowels—despite the fact that neither history nor allomorphy support a process rule [TS] → [TC]. This paradigmatic rule should not be interpreted as changing any entities but as expressing a neutralization of possible syllable types.

[5] Note Kiparsky's (1968) proposal for an alternation condition on the well-formedness of phonological rules (via Smith (1969) via Sampson (1970)).

[6] Andersen (1969) makes a similar distinction between rules which effectuate morphophonemic alternations and rules which are truly phonological in that their input is non-morpheme specific.



an historically broadened version of a syntagmatic phonology can handle the problem of incidence (Ballard 1969). A paradigmatic base will answer the identity problem quite neatly: systems will all have the same starting point in their generation (S for syllable, parallel to S for sentence?), so that generative bases are directly comparable. They are then more or less similar in the number, kinds and ordering of rules in each.

## Conclusion

A word about the much abused term « explanation » is in order here. Ultimately any competence model is an attempt to describe a structure that exists in human brains. Hence any truly explanatory model must account for all of the data and must work in a way similar to the operation of the human brain. Lacking better criteria ,simplicity, mathematical logic and a concern for a scientifically minimal and non-redundant system may be necessary antidotes to teleological, introspective imagination. But the mind does not necessarily obey these sorts of principles in its essential operations and we must be on the lookout for dubious oversimplification. And the brain is very redundant. It is sometimes said that we do not use half of our brains; in a sense this is true with respect to the asymetrical dominance of one hemisphere. But dominance does not mean that the subordinate half atrophies; indeed recent research into the differential functions of the two hemispheres of the brain has been quite interesting. In one study, it was suggested that the subordinate hemisphere (which is organized spatially, paradigmatically (Bower 1970)) holds the context within which the dominant hemisphere «which is organized temporally, syntagmatically) generates sequential and purposeful activity (Corballis and Reale 1971). It was suggested that the asymmetry may be linked to the use of toolswhere one hand holds some tool or object which the other hand manipulates [7]. The parallel to the view of phonology expressed in this paper is obvious.

To put it another way, if two models of some object each « explain » a majority of its properties but neither explains all of its properties, and if the overlap of the two models produces total coverage, and if the two models cannot be collapsed, then it may be that both models are required for a complete and valid description of that object. Since such a contradictory situation exists in physics (Heisenber's Principle of Indeterminancy, wave theory versus particle theory for light) where the discrepancy way reflect basic epistemological problems and not real physical facts, we probably should expect such dual models in descriptions of the activity of the human brain.

I shall conclude with a much used position in linguistic papers: the arguments above show that the question of whether to have both a paradigmatic and a syntagmatic component in a ponology is no longer an interesting one. The really interesting questions are of this sort: What is the relationship between the two components? Is it parallel to that between the essentially paradigmatic base component and the syntagmatic transformations in syntax? Are all of the facts for which redundancy rules, morpheme structure conditions, marking conventions and the like were designed to be covered by the phonological base? How are the two components to be integrated in the description of a language and in the generation of utterances? Investigation of these and other kinds of language problems with a dual component model should prove most fruitful.

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[7] Note the following correlations: only humans have *a*) complex tool behavior, *b*) strong hemispheric dominance, and *c*) true language.

## Appendix

I present here part of a possible model of the phonological base for WuXi, a northern Wu dialect. This model contains rules 1-3 that describe the basic syllable structure of the dialect; rules 4-12 that are possibly equivalent to the lexical rules that fill in feature matrices for major syntactic nodes; rules 13-15 that are equivalent to Sampson's (1970) R rules and that reduce the number of possibly contrastive syllable types; and rules 16-17 that specify minor phonetic details (Postal 1968). The ordering of rules 6,7 and 12 is justified as follows: the following environments show decreasing numbers of vowel contrasts:

$$\underset{1}{C_\#} \geq \underset{2}{C_Coda} \geq \underset{3}{Glide_Coda} \qquad C = \text{consonant}$$

Hence the contrastive vocalic matrices for context 2) can be expressed as a subset of those in 1), similarly 3) as a subset of those in 2). Note in this regard that Chao (1934) points out that in Chinese finals such as [an] are in some respects parallel to finals like [ej] in English and that both may be regarded as single phonological entities. This reinforces the notion that the relationship between the vowel nucleus and its Coda is closer than that of the nucleus and any preceding Clide.

1. $Syl \rightarrow I + F$
2. $F \rightarrow (G) + Rim$
3. $Rim \rightarrow V + (Coda)$
4. $V \rightarrow \begin{bmatrix} VCol \\ \alpha\ high \\ \beta\ low \\ \gamma\ back \\ +\ tense \end{bmatrix}$

Syl = syllable
I = initial consonant
F = final
G = glide
Rim = rimene
V = vowel
VCol = vowel coloration

Note that feature combinations such as $\begin{bmatrix} +high \\ +low \end{bmatrix}$ are vacous as per Chomsky and Halle (1968).

This rule generates the archiphonic pattern:

| | |
|---|---|
| i/y | ɾ/ʃ/ɥ̈/ɳ/u/ |
| e/ø | ə/o |
| a/œ | ɑ/ɔ |

5. $\begin{bmatrix} +high \\ +back \end{bmatrix} \rightarrow [\alpha\ \text{distributed}]$

This use of the feature « distributed » extends Chomsky and Halle's (1968) notion to cover the gingival vowels, [ɾ, ʃ, ɥ] and [ɳ]. Some other feature such as strident might be more accurate.

6. $[VCol] \rightarrow [\alpha\ \text{round}] / \left\{ [+\ \overline{\text{distributed}}], \begin{bmatrix} \overline{\beta\ high} \\ -\beta\ back \end{bmatrix} \right\}$

$$\rightarrow [\alpha\ \text{round}] / \begin{bmatrix} \overline{\alpha\ back} \\ -distributed \\ elsewhere \end{bmatrix}$$



The two subparts of this rule are disjunctively ordered. The wovel system is now:

| | | |
|---|---|---|
| i | y | ɾ, ɥ̈ u |
| e | | əo |
| a | | ɑɔ |

7. $Coda \rightarrow \begin{bmatrix} -nasal \\ -vocalic \end{bmatrix} / \begin{bmatrix} -high \\ \left\{ \begin{matrix} [+back] \\ [+low] \end{matrix} \right\} \end{bmatrix} [\text{——}]$

(əʔ, oʔ, ɑʔ, ɔʔ, aʔ)

$$\rightarrow \begin{bmatrix} +vocalic \\ -nasal \end{bmatrix} / \begin{bmatrix} -high \\ -low \\ -round \end{bmatrix} [\text{——}]$$

(eG, əG)

$$\rightarrow \begin{bmatrix} +nasal \\ -vocalic \end{bmatrix} / \begin{bmatrix} -high \\ [+low] \\ [-low] \\ +back \end{bmatrix} [\text{——}]$$

(aN, ɑN, əN, oN) N = nasal

8. $[+nasal] \rightarrow [-\alpha\ \text{segment}] / [\alpha\ low]\ [\text{——}]$

(ã, ɑ, əN, oN)

9. $[-nasal] \rightarrow [+segment]$

10. $\begin{bmatrix} +nasal \\ +segment \end{bmatrix} \rightarrow [\alpha\ back] / [\alpha\ round]\ [\text{——}]$

(ən, oŋ)

11. $[+vocalic] \rightarrow \begin{bmatrix} \alpha\ back \\ \alpha\ round \end{bmatrix} / [\alpha\ back]\ [-nasal]$

(ei, əu)

12. $G \rightarrow \begin{bmatrix} \begin{bmatrix} -back \\ -round \end{bmatrix} \\ \begin{bmatrix} +back \\ +round \end{bmatrix} \end{bmatrix} / [\text{——}] \begin{bmatrix} \left\{ \begin{matrix} [+back] \\ [-low] \end{matrix} \right\} \\ -high \\ -round \\ \begin{bmatrix} \alpha\ low \\ \alpha\ back \end{bmatrix} \end{bmatrix} [\#]$

(iə, iɑ, ie, ue, uɑ)

$$\rightarrow \begin{bmatrix} \begin{bmatrix} -back \\ -round \end{bmatrix} \\ \begin{bmatrix} +back \\ +round \end{bmatrix} \\ \begin{bmatrix} -back \\ +round \end{bmatrix} \end{bmatrix} / [\text{——}] \begin{bmatrix} [X] \\ [-round] \\ \begin{bmatrix} -low \\ -round \end{bmatrix} \end{bmatrix} [+nasal]$$

(iã, iɑ, iən, ioŋ; uã, uɑ, uən; yən)

$$\rightarrow \begin{bmatrix} -\text{back} \\ -\text{round} \end{bmatrix} \Big/ /[\text{——}]\ [\text{X}] \begin{bmatrix} +\text{back} \\ +\text{vocalic} \end{bmatrix}$$

(iəu)

$$\rightarrow \left[ \begin{bmatrix} -\text{back} \\ -\text{round} \end{bmatrix} \begin{bmatrix} +\text{back} \\ +\text{round} \end{bmatrix} \begin{bmatrix} -\text{back} \\ +\text{round} \end{bmatrix} \right] \Big/ [\text{——}] \left[ \begin{Bmatrix} [+\text{low}] \\ [-\text{round}] \end{Bmatrix} \begin{bmatrix} \alpha\ \text{low} \\ -\alpha\ \text{back} \\ -\text{round} \end{bmatrix} \begin{bmatrix} -\text{round} \\ -\text{low} \end{bmatrix} \right] \begin{bmatrix} +\text{segment} \\ -\text{nasal} \\ -\text{vocalic} \end{bmatrix}$$

(iɑʔ, iɔʔ, iaʔ, iəʔ; uəʔ, uaʔ; yəʔ)

13. $[\alpha\ \text{back}] \rightarrow [\alpha\ \text{round}]/[\text{C}]\ [\overline{+\text{low}}] \begin{bmatrix} +\text{segment} \\ -\text{nasal} \\ -\text{vocalic} \end{bmatrix}$

Only the contrast [Caʔ/Cɔʔ] exists; there is no [Caʔ].

14. $[+\text{round}] \rightarrow [-\text{low}]/[\text{C}]\ [\text{——}] \begin{bmatrix} -\text{segment} \\ -\text{nasal} \end{bmatrix}$

or

$[+\text{low}] \rightarrow [-\text{round}]$

There are only [Ca#, Cɑ#]; there is no [Cɔ#].

15. $[+\text{round}] \rightarrow [+\text{low}]/\begin{bmatrix} \text{G} \\ -\text{back} \\ -\text{round} \end{bmatrix}[\text{——}] \begin{bmatrix} +\text{segment} \\ -\text{nasal} \\ -\text{vocalic} \end{bmatrix}$

There is only [iɔʔ], there is no [ioʔ].

16. $\text{ə} \rightarrow \wedge \quad /__\#$

17. $\text{iən} \rightarrow \text{in}$.

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# METARULES AND UNIVERSAL CONSTRAINTS IN PHONOLOGICAL THEORY *

MATTHEW CHEN

## 1. INTRODUCTION

It is fairly obvious that the descriptive apparatus developed in the current framework of generative phonology is far too powerful. The phonological rules (henceforth P-rules) which are allowed to change feature values fairly freely are capable of making completely absurd statements as well as perfectly natural and recurrent ones. Suppose a playful were to scramble the distinctive features or to systematically replace [αF] with its opposite value [−αF] of the P-rules formulated in the *Sound Pattern of English*, the outcome, as all would agree, would be an aggregate of impossible rules: impossible, or at least highly unusual, because the y violate certain « basic principles governing human languages » (cf. Chomsky-Halle 1968: 400). While we can recognize the effect of the type-setter's mischief, there is precious little in linguistic theory to prevent violations of a similar nature.

The free feature-changing mechanism of linguistic description must somehow be constrained. A linguistic description is constrained only (*a*) by the range of possibilities offered by the formal device for expressing grammatical processes, and (*b*) by the evaluatory measure which selects the « simplest », namely shortest, account as the preferred statement. Generative grammar offers an exceedingly rich array of descriptive devices, but a pitifully poor evaluatory measure (cf. Kiparsky 1971). Linguists have generally become aware of the inadequacy of a simplicity metric based on a simplistic feature count as a formal criterion of the naturalness of P-rules. The theory of markedness in essentially an effort to preserve and restore the positive correlation between naturalness of linguistic processes on the one hand, and the simplicity of their expression on the other. Markedness theory in its various versions and revisions fails in serious ways to reflect the naturalness of phonological statements, as I argued elsewhere (Chen 1971b).

The failure of formal constraints such that of simplicity even when coupled with marking conventions compels us to continue the search for a model of linguistic description that reflects more closely the « basic principles governing human languages ». One reasonable direction of research seems to be a typological survey of recurrent phonological processes in the hope that we may sort out, from the mass of language-specific variations, certain universal tendencies or basic common patterns

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Thanks are also due to the faculty and students of the University of California, San Diego, for fruitful exchange of ideas, and to the Linguistic Department on the same campus for providing secretarial help.



(cf. Ferguson 1971). I have examined a number of sound changes with particular reference to nasals and nasalization on the basis of a fairly representative sample (about 600) of Chinese dialects. A number of recurrent patterns which emerged from the Chinese data were checked against evidence from other unrelated language groups. Those patterns that seem to hold true crosslinguistically are then proposed as candidates for substantive phonological universals. This strategy of investigation seems to be promising. The following is a report on some initial results. (For more extensive documentation cf. Chen 1972).

## 2. SUBSTANTIVE UNIVERSALS

2.1. Palatalization. A servey of Chinese dialects shows that palatalization spreads from the back to the front prevocalic consonants. Thus the Mandarin group of Chinese dialects have been traditionally subdivided into two major types depending on the extent of palatalization: Type A, the so-called « sharp vs. round contrasting » variety, including 41 points of linguistic survey in the Jiangsu province, palatalizes the velars only; Type B, on the other hand, labelled in Chinese linguistic parlance as « sharp vs. round non-constrasting » dialects, including 44 points of survey in the same Jiangsu province, and about 4/5 of all North Mandarin dialects, palatalizes both velars and dental fricatives. Thus, whereas in Mandarin type A dentals ≠ palatals (from velars), the two initial series collapsed in Mandarin type B, as illustrated in the following diagram (1):

| (1) | Middle Chinese | /tsian/ | /kian/ | /sian/ | /hian/ |
|---|---|---|---|---|---|
| | Mandarin-A | tsian | tɕian | sian | ɕian |
| | Mandarin-B | tɕian | | ɕian | |

Ultimately, the domain of palatalization will extend to the labials, as is the case both in pre-Middle Chinese and in Russian. The relative chronology of the various phases of palatalization diagrammed in Fig. 1 (reproduced here from Chen 1972: 63) follows a very definite pattern: in two successive cycles of palatalization, the phonological domain extends invariably from velars to dentals and finally to labials (Internal as well as external — based on historical records — evidence on which Fig. 1 is based is presented in Chen 1972: 51-64).

There is another parameter along which palatalization progresses: namely from high to low vowels. Palatalization takes place only before high front vowels /i, y/, as is the case in the vast number of Chinese dialects as well as in Phrygian, Dalmatian Vegliotic, etc. (cf. Dressler 1971). In a number of Romance languages, on the other hand, palatalization extends to high and mid front vowels, as one may observe in Spanish and Italian. Thus *c* in Span. *Cicerón* has become [θ] via palatalization, whereas *c* in *cadena* remains a velar stop. French seems to represent the most unrestricted case, where palatalization occurs before *all* front vowels, regardless of the degree of opening, including the low /a/. Thus from Lat. *catena*, *cantare* we have Fr. *chaîne*, *chanter*, etc.

Palatalization seems to follow two implicational relations: the palatalization of a more forward consonant implies that of a more backward consonant; and the palatalization before a vowel of a given height implies that before a vowel of a higher degree of closure.

2.2. Weakening. Palatalization is part of a more general pattern that underlies such processes as lenition, spirantization, sonorantization, deletion, etc., processes commonly characterized as « weakening ». The relatedness of these weakening

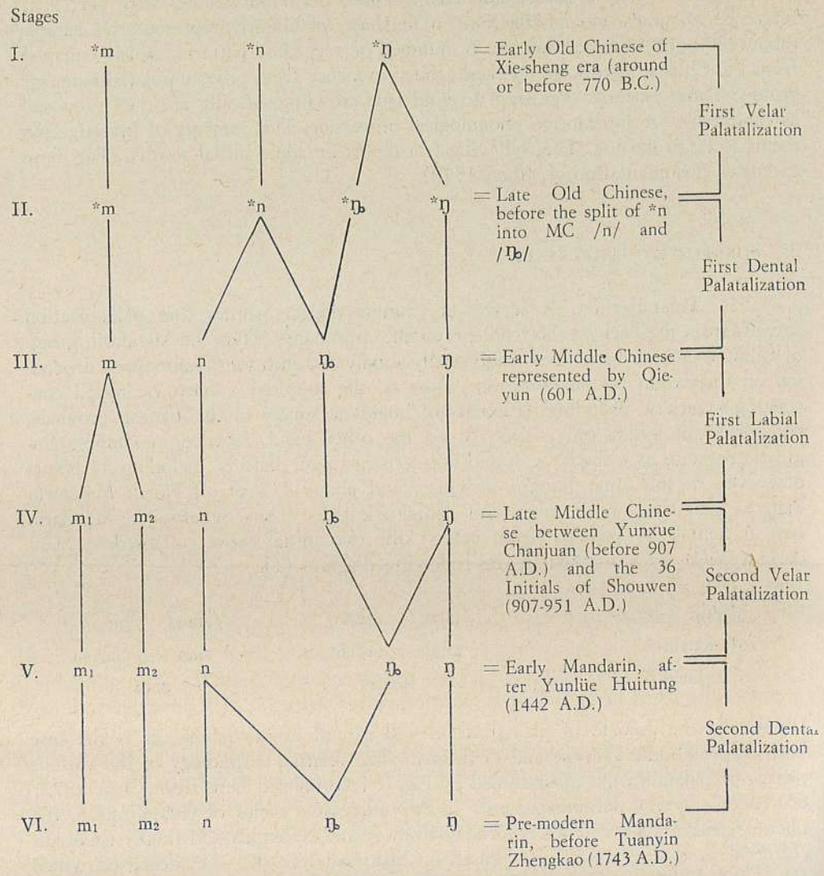



FIGURE 1. Relative Chronology of Velar, Dental and Labial Palatalizations (Nasals represent all consonantal series).

processes, and the relative change-resistance of consonantal series to these processes can best be illustrated with the following example from the Fuzhou dialect of Chinese (Fig. 2; analogous situation can be found in Putian, another Min dialect also spoken in Fukien province). In intervocalic positions resulting from compounding, consonants have undergone « weakening » to varying degrees depending on the point of articulation. Fig. 2 shows that whereas all three series of obstruents underwent voicing and spirantization, only the dentals and velars further went through sonorantization ([w] is intended as a symbol for the velar counterpart to the dental sonorant [l]), and the velars alone were subjected to the ultimate fate of deletion.

The Fuzhou case finds many interesting parallels in a great variety of languages: the velars are the most likely to undergo weakening, then the dentals, and lastly the labials, in that order. Thus, intervocalically, the voiced velar stop /g/ alone undergoes spirantization and deletion in (2) and (3) respectively, the dental and bilabial series /d/ and /b/ remaining intact. (4) and (5), also illustrating processes of spirantization and deletion respectively, show the greater « change-resistance » of /b/ relative to /d/ and, a fortiori, to /g/:



(2) Northern German:

| | |
|---|---|
| sagen > sayen | « say » |
| baden = baden | « bathe » |
| beben = beben | « shake » |

(3) Kasem:

| | | | |
|---|---|---|---|
| sing. naga | pl. ne | (from *nagi) | « leg » |
| diga | di | (from *digi) | « room » |
| babia | babe | | « grave » |
| kukuda | kukudi | | « dog » |

(4) Danish:

| | |
|---|---|
| kage > kaye | « cake » |
| bide > biðe | « bite » |
| købe = købe | « buy » |

(5) Spanish:

| | | |
|---|---|---|
| Lat. lego | Sp. leo | « read » |
| credo | creo | « believe » |
| habere | haber | « have » |

| underlying represent. | p | t | k |
|---|---|---|---|
| 1. voicing | b | d | g |
| 2. spirantization | β | z | ɣ |
| 3. sonorantization | — | l | (w) |
| 4. deletion | — | — | Ø |

FIGURE 2. Intervocalic weakening in compounds in the Fuzhou dialect (North Min spoken in Fukien province, China).

Sample derivations:

| /toey # pʰau/ « fire-cracker » | /kʰak # tʰiaŋ/ « living room » | /pʰak # kiɛk/ « to rob » | underlying forms gloss |
|---|---|---|---|
| toey pʰau | kʰa tʰiaŋ | pʰa kiɛk | depletion of cons. endings |
| toey bau | kʰa diaŋ | pʰa giɛk | voicing |
| toey βau | kʰa ziaŋ | pʰa ɣiɛk | spirantization |
| — | kʰa liaŋ | (pʰa wiɛk) | sonorantization |
| — | — | pʰa iɛk | deletion |
| toey βau | kʰa liaŋ | pʰa i k | surface forms |

(data of (2-5) are taken from Foley, Ms). From evidence such as instanced above emerges a clear dimension along which the velars, dentals, and labials are ranked in that order of increasing change-resistance.

2.3. Direction of merging. The Middle Chinese had six consonantal endings: /—m, n, ŋ; and —p, t, k/. Some contemporary dialects have preserved the system intact, while others exhibit various patterns of merging and neutralization. The basic direction of merging of the consonant endings is unmistakable: invariably from the front to the back, a tendency that is clearly illustrated in Fig. 3 and 4:

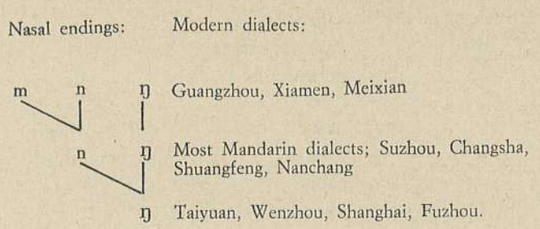



FIGURE 3.

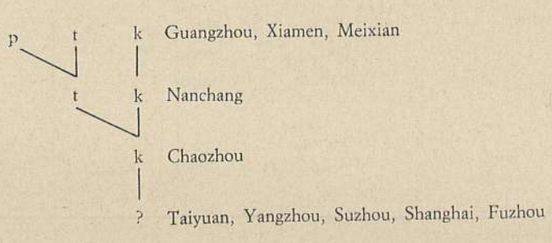



FIGURE 4.

In this connection it is interesting to note that the backward shift of *m* to *n* has occurred in Indo-european, Common Germanic, Modern German, and Spanish, as instanced by (6), taken from Foley (1971):

(6) Indo-European: Lat. lupum : Gk. lukon
Common Germanic Lat. tum : Goth. þan
Modern German Eng. bosom : Germ. Busen
Spanish: Lat. Adam. : Sp. Adan

Good examples of the continuation of the front-to-back consonantal shift are more difficult to come by. Curiously enough, though, Standard German final *−t* shows up as *−k* in Ripuarian dialects, as reported by McCawley (1967). Thus for *Hund*, *Kind*, *Leute*, *Zeit* we have the dialectal pronunciations [huŋk, kiŋk, lük, tˢik] respectively.

2.4. Nasalization and denasalization. Both synchronic and diachronic evidence from Chinese dialectology points to a clear-cut pattern of nasalization progressing from front to back, and from low, through mid, to high vowels. Fig. 5 tabulates the occurrences of nasal vowels and their percentages against the total number of the same vowels in the eight Chinese dialects which have nasal vowels in their sound systems and for which computerized data in quantitative terms are available. In all 20,829 forms were examined, of these 3,056 were occurrences of nasal vowels, i.e. 15% of the total. There are 2,689 nasalized vowels of the front variety vs. 367 for the back vowels ,that is 18% vs. 7%. Regardless of the front/back distinction of vowels, the frequency of nasalization and the vowel height are inversely related: the percentages of nasal vowels are 24% (1,385 out of 5,782), 12% (1,017 out of 8,493) and 10% (654 out of 6,554) for low, mid, and high categories respectively.

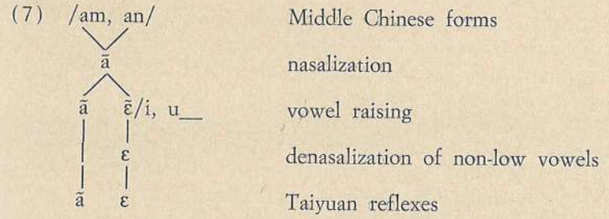


| | front | | | back | | | front and back | | |
|---|---|---|---|---|---|---|---|---|---|
| | total | V | | total | V | | total | V | |
| high | 4,672 | 620 | 13 % | 1,882 | 34 | 2 % | 6,554 | 654 | 10 % |
| mid | 5,206 | 850 | 16 % | 3,287 | 167 | 5 % | 8,493 | 1,017 | 12 % |
| low | 5,367 | 1,219 | 23 % | 415 | 166 | 40 % | 5,782 | 1,385 | 24 % |
| high, mid and low | 15,245 | 2,689 | 18 % | 5,584 | 367 | 7 % | 20,829 | 3,056 | 15 % |

FIGURE 5. Distribution of nasalized vowels according to front/back distinction and vowel height. Data based on eight Chinese dialects.

The indirect evidence based on the distribution pattern of nasality with respect to vowel height is strengthened by the diachronic evidence. A systematic comparison between the reconstructed Middle Chinese forms on the one hand and modern reflexes in a vast number of Chinese dialects on the other indicates an unambiguous pattern: taking the Middle Chinese forms as the point of reference, the nasalization of a vowel of a given degree of opening implies the same for any vowel of a lower degree of opening, other things being equal (these other things being the front/back distinction of vowels, and the nasal endings). This is equivalent to saying that the phonological environment of nasalization extends from the low to the high vowels. The gradual extension of the domain of nasalization is graphically represented in Fig. 6. In this chart the downward curve of the horizontal lines reflects the inclusive or implicational relations. Thus, whereas for Taiyuan, a North Mandarin dialect, nasalization affected only the low vowel *a*, for South Western Mandarin dialects such as Jinggu, nasalization involved the high vowel *u* and all vowels lower than *u*, namely *all* vowels.

Denasalization, on the other hand, pursued exactly the opposite direction: it progressed from the high to the low vowels. This is best illustrated with the Taiyuan example in (7):




The mirror picture of nasalization and denasalization of Chinese dialects finds an uncanny parallel in the phonological history of French nasal vowels (cf. Rochet 1970, with abundant bibliography). I will cite only one source, namely M. K. Pope (1934). She suggests that nasalization in Old French took 400 or 500 years to complete, the process beginning with low, then mid, and finally reaching the high vowels. Specifically, the dates for the distinctive nasalization the low *ã*, front mid *ɛ̃*, back mid *ɔ̃*, and the high vowels *ĩ*, *ỹ*, *ũ* are 10th, 11th, 12th and 13th centuries respectively. The opposite direction of denasalization beginning with high vowels and ending with the high ones was suggested by Pope and Posner (1971). It is hardly conceivable that the exact mirror images found in both Chinese and French can be a mere coincidence.

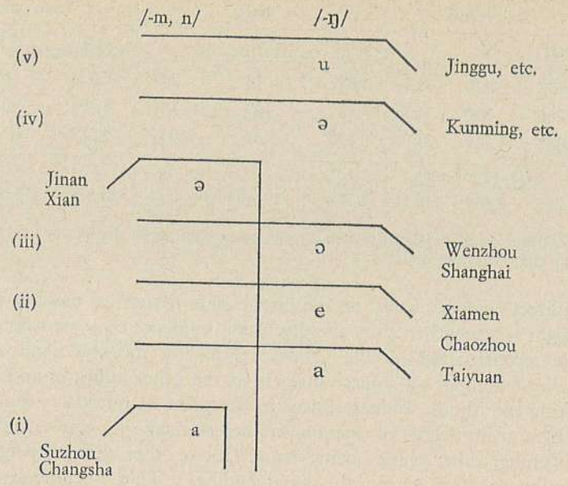
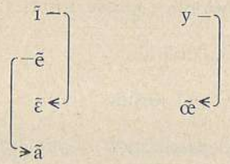



FIGURE 6. Gradual extension of the phonological domain of the nasalization rule across dialects.

2.5. Vowel shift. The nasalization of vowels has a further side effect: nasalized vowels tend to fall. The descending tendency of nasal vowels is perhaps one of the best known substantive universals put forward by linguists. French provides a classic example. Nasalized vowels fall by two degrees along the parameter of height (see 8). Examples easily come to mind, cf. by way of illustration the alternations given in (9).

(8) The lowering of nasal vowels in French




(9) iN ~ ɛ̃ e.g. *im*minent ~ *im*possible
*fin*ir ~ *fin*
eN ~ ã *em*inent ~ *em*pire
ils pre*nn*ent ~ il pre*nd*
yN ~ œ̃ parf*um*er ~ parf*um*
*un*e fille ~ *un* fils

Other cases attesting to the falling tendency of nasal vowels can be found in Old Church Slavic, Old Norse, etc. (cf. Lightner 1970).

Contrary to the substantive claim about the falling tendency of nasal vowels, in a vast number of Chinese dialects, particularly those of the Wu variety (spoken in the East Central maritime provinces of Jiangsu and Zhejiang), to Middle Chinese forms ending in /-am, -an/ reguarly correspond contemporary reflexes such as [ã, ae, ɛ̃, Ẽ, ẽ, Ĩ]. The present-day reflexes of Wu bear witness to a reconstructible trajectory of gradual vowel shift in the rising direction: -am, an → aen →



ae → ɛ̃ → Ẽ → ẽ → Ĩ, each intermediate step being attested in one or more Wu dialects. Similar rising tendency is observable also in many other dialects, e.g. those of Hebei province, surrounding Peking (for details, cf. Chen 1972: 178-190).

In view of the massive counter-evidence in Chinese dialectology, one may declare the falling tendency of nasal vowels a « pseudo universal » (cf. Rochet's paper to be delivered at the same XIth International Congress of Linguists, 1972: *About a Pseudo Linguistic Universal*: *That Nasal Vowels have a Tendency to Lower*). Alternately, and more interestingly I think, one may see this substantive universal in the context of other, possibly contravening, universal tendencies. In particular, the tendency for tense vowels to rise and for the lax ones to fall has long been observed and richly documented by Labov (Ms, to appear) on the basis of an impressive corpus of data drawn from various local dialects of contemporary America. The vocalic tensity is manifested principally in two phonetic correlates: characteristic length and extreme peripheral position, that is extreme fronting or backing of the tongue. Let us look at the consequences of fronting and lengthening, in that order.

It is not unusual to se vowel assimilation to the front/back position of the consonantal ending. On the other hand, the eskewed vowel triangle is well known for its bias in favor of the front series: thus front vowels represent a more radical departure from what we may regard as the central tongue position than the back vowels do. It is not, then, surprising that fronting constitutes in some cases a condition sine qua non for vowel raising. The Peking Mandarin illustrates this point very nicely:

| | | | |
|---|---|---|---|
| (10) | /ian/ | /iaŋ/ | Early Mandarin |
| | iaen | ([iɑŋ]) | assimilation to the consonantal ending |
| | ien | — | vowel raising for the front series only |
| | ien | iaŋ ([iɑŋ]) | modern Peking pronunciations |

The other phonetic correlate of the tenseness feature is the extra duration that characterizes the tense vowels. The question whether the vocalic duration is a consequence of compensatory lengthening or complete assimilation of the nasal segment to the vowel is not crucial for our purposes (for discussion on this point cf. Lightner 1970); it is sufficient to note that a nasal vowel resulting from a sequence consisting of V+N is typically long (tense). Long vowels develop off-glides, as instanced by the well-known Great Vowel Shift in English. Alternately, a long vowel can be analyzed as a sequence of geminate vowels, the second member turning into a off-glide. The subsequent raising of the vowel can be seen either a process of coalescence of two vowels or of assimilation of the vocalic nucleus to the height of the off-glide. This concatenation of events is best illustrated by actual data taken from a number of Northern Mandarin dialects spoken in Hebei province (Fig. 7).

If my analysis of the raising of nasalized vowels in Wu and Mandarin dialects is correct, we must regard the raising rule such as (11) as a misleading pseudo linguistic statement resulting from the telescoping of two, perhaps three, phonological processes such as (12, 13, and 14):

(11) $V \rightarrow \text{raised} / \left[\frac{\quad}{+\text{nasal}}\right]$

(12) Nasalization with (compensatory) lengthening

$VN \rightarrow V$

(13) Glide formation (optional intermediate step)

$$\emptyset \rightarrow \begin{bmatrix} -\text{cons} \\ +\text{high} \\ \alpha\ \text{back} \end{bmatrix} \Big/ \begin{bmatrix} \text{V} \\ +\text{long} \\ \alpha\ \text{back} \end{bmatrix} \text{———}$$

(14) Vowel raising

$$\text{V} \rightarrow \text{raised} / \left[\frac{\quad}{+\text{long}}\right] \left(\begin{bmatrix} -\text{cons} \\ +\text{high} \end{bmatrix}\right)$$

| | | | | |
|---|---|---|---|---|
| I. | an | en | aŋ | = Peking, reflecting the Early Mandarin sound system |
| II. | ã | ẽ | ã | = Nasalization w. compensatory lengthening |
| III. | ãĩ | ẽĩ | | = glide formation |
| IV. | ɛ̃ | | ãẽ | = vowel raising/contraction |
| V. | ɛ̃ | | ãẽ | = vowel length neutralization |
| VI. | ɛ | ei | | = denasalization |

FIGURE 7. Vowel raising through (compensatory) lengthening and off-glide formation in some Northern Mandarin dialects spoken in Hebei province.

In this perspective, we are in the presence of two opposite forces at work, one being the rising tendency of tense vowels, the other being the lowering influence of nasality. One may logically ask: what are the precise conditions and relevant factors which determine which of the two (or more) opposite trends prevails in the end? The question is intriguing as it is difficult to answer. Future research in substantive universals will have to look for answers to questions of this sort.

## 3. Metarules and Universal Constraints

While admittedly tentative and exploratory, the foregoing typological survey points to the fact that phonological processes, far from straying about in random fashion, proceed along fairly well defined directions and follow broadly delineated patterns. Stated in another way, phonological processes obey a number of universally valid constraints.

It is, of course, possible that one or the other substantive universals that I have proposed in the preceding section may eventually turn out to be false, when our empirical basis is broadened and a more balanced perspective is gained. At the moment for the sake of discussion, assuming that there are indeed universally valid directions and patterns of sound change, we want to consider next how phonological theory may accommodate the existence of such universals, and integrate such a notion into the theoretical framework of linguistics.



Let us suppose that just as there is a finite set of language universal phonetic features, there is a finite set of language universal phonological metarules. The universality and finiteness of phonetic features are consequences of the commonality and finiteness of the speech producing capabilities of the human vocal apparatus (cf. Chomsky-Halle 1968: 297). For the same reason, it is not a priori implausible to hypothesize a finite set of language universal P-rules which reflect the totality of possible — or at least recurrent — processes of sound change given the limitations of the speech producing capabilities of man. Furthermore, just as all phonological processes can be stated in terms of a finite set of universal phonetic features, the myriad language specific P-rules can be stated in terms of particular manifestations of a finite set of more abstract, higher order, metarules.

I wish to suggest a possible way to formulate the hypothetical set of metarules. Suppose we wer to uniquely specify the sound units involved in the phonological processes by arranging these units along two multivalued parameters [back], and [high] as diagrammed in Fig. 8 and Fig. 9, we can state the palatalization rule discussed in section 2.1 as (15):

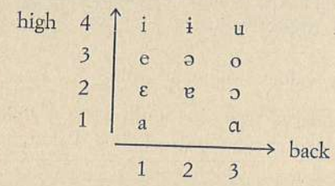



FIGURE 8.

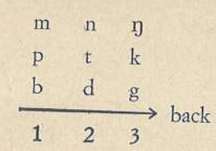



FIGURE 9.

(15) $$\begin{bmatrix} \text{C} \\ \alpha\ \text{back} \end{bmatrix} \rightarrow \text{palatalized} / \text{___} \begin{bmatrix} \text{C} \\ 1\ \text{back} \\ \beta\ \text{high} \end{bmatrix}$$

(15), stated in quite abstract terms, says that consonants of a certain place of articulation ([α back]) undergoes palatalization before a front ([1 back]) vowel of a given degree of openness ([β high]). This rule-frame or rule-skeleton, as it stands, may infact also describe non-languge-like — or at least highly idiosyncratic — processes, until we further specify the variables α and β. We can further specify the variables α and β by tagging on to (15), as part of its formal statement a language universal constraint (16) which limits the scope of its potential operation. The language universal constraint will take, in this case, the form of an implicational statement:

(16) language universal constraint: $\alpha \geq m$

(16) says in effect, that *if* a consonant of a given point (m) of articulation along the back parameter undergoes palatalization, *then* any consonant occupying a point further back along the same parameter (i.e. $a > m$) must also undergo palatalization.

We can be more specific. It seems to be also universally true that (i) *if* a consonant undergoes palatalization before the low front /ae/, *then* the same process must take place also before a mid front /e/; (ii) furthermore, *if* a consonant palatalizes before a mid /e/, *then* it must also palatalize before a high /i/. The transitive relation of (i) and (ii) results in another implicational statement formalizable as (17), interpretable in an analogous way to (16):

(17) language universal constraint: $\beta \geq n$

The general and probabilistic, if not absolute and exceptionless, validity of (16) and (17) has been discussed in section 2.1. It would be very surprising, if not impossible, to find a language where /k/ becomes /č/ (or /š, s, θ/ by subsequent spirantization etc.) before /a/ or /e/, but remains /k/ before /i/ or /y/.

The various forms the phonological process of palatalization assumes in individual languages such as Chinese, Russian, Spanish, French, can be regard as « language specific value assignment rules » which further convert the variable *m* and *n* into constants. Thus (18) and (19) are language specific value assignment rules for (16) and (17) respectively:

(18) language specific value assignment rule:

| | | |
|---|---|---|
| m=3 | e.g. | Mandarin type A (South East Mandarin) |
| m=2 | | Mandarin type B (including Peking dialect) |
| m=1 | | Russian |

(19) language specific value assignment rule:

| | | |
|---|---|---|
| n=4 | e.g. | Mandarin |
| n=2, 3 | | Spanish, Italian |
| n=1 | | French |

In summary, the palatalization rule, diversified as it may be in different language systems, may be stated as (20):

(20)
$$\begin{bmatrix} C \\ \alpha \text{ back} \end{bmatrix} \rightarrow \text{palatalized} / \underline{\quad} \begin{bmatrix} C \\ 1 \text{ back} \\ \beta \text{ high} \end{bmatrix}$$

lg-un. constraints: $\alpha \geq m$
$\beta \geq n$

lg-sp. values:

| | | |
|---|---|---|
| m=3 | e.g. | Mandarin-A |
| m=2 | | Mandarin-B |
| m=1 | | Russian |
| n=4 | | Mandarin |
| n=2, 3 | | Spanish, Italian |
| n=1 | | French |

(20) is, in part, only one aspect of a more general pattern discussed in section 2.2. If we wish to include the other sound changes such as lenition, spirantization, sonorantization, deletion, etc. ..., processes which are not obviously correlated with vowel height or front back distinction and yet share with palatalization the same general pattern with regard to the point of articulation, we may take advantage of the angled brackets convention (indicating simultaneous expansion) to express the partial similarity by revising (2) as (21):

(21)
$$\begin{bmatrix} C \\ \alpha \text{ back} \end{bmatrix} \rightarrow \left\{ \left\langle \begin{matrix} \langle \text{palatalized} \rangle_i \\ \text{lenified} \\ \text{spirantized} \\ \text{sonorantized} \\ \text{deleted} \\ \ldots \end{matrix} \right\rangle_j \right\} / \langle V \rangle_j \underline{\quad} \begin{bmatrix} V \\ \left\langle \begin{matrix} 1 \text{ back} \\ \beta \text{ high} \end{matrix} \right\rangle_i \end{bmatrix}$$

lg-un. constraints: $\alpha \geq m$; $\beta \geq n$

lg-sp. values: m=1, 2, 3 in $L_{x,y,z}$ etc.
n=1, 2/3, 4 in $L_{a,b,c}$ etc.

Similarly, summarizing the discussions in sections 2.3-5, we may state the other phonological processes as (22-26):

(22) $\begin{bmatrix} C \\ \alpha \text{ back} \end{bmatrix} \rightarrow [\beta \text{ back}] / \underline{\quad} \#$

lg-un. constraint: $\alpha < \beta$

lg-sp. values:

| | |
|---|---|
| $\alpha=1, \beta=2$ | Most Mandarin dialects; Suzhou, Changsha, Shuangfeng, Nanchang |
| $\alpha=2, \beta=3$ | Chaozhou |
| $\alpha \leq 2, \beta=3$ | Taiyuan, Wenzhou, Shanghai, Fuzhou |

(23) $[-\text{nas}] \rightarrow [+\text{nas}] / \begin{bmatrix} \overline{\quad} \\ V \\ \alpha \text{ high} \end{bmatrix} \begin{bmatrix} C \\ +\text{nas} \\ \beta \text{ back} \end{bmatrix}$

lg-un. constraints: $\alpha \leq m$
$\beta \leq n$

lg-sp. values:

| | | |
|---|---|---|
| m=1 | e.g. | Suzhou, Changsha, Taiyuan |
| m=2 | | Xiamen, Chaozhou |
| m=3 | | Taiyuan, Shuangfeng |
| m=4 | | Yangzhou |
| n=1 | | no example |
| n=2 | | Suzhou, Xian, Jinan |
| n=3 | | Wenzhou, Xiamen, Chaozhou, Shuangfeng, Taiyuan, Yangzhou |

(24) $[+\text{nas}] \rightarrow [-\text{nas}] / \begin{bmatrix} \overline{\quad} \\ V \\ \alpha \text{ high} \end{bmatrix}$

lg-un. constraint: $a \geq m$

lg-sp. values:

| | |
|---|---|
| $\alpha \geq 3$ | Taiyuan |
| $\alpha \geq 1$ | Suzhou, Wenzhou |

(25) $\begin{bmatrix} V \\ +\text{nas} \\ \alpha\ \text{high} \end{bmatrix} \rightarrow [\beta\ \text{high}]$

lg-un. constraint: $\beta = \alpha - m$

lg-sp. values: m=1 e.g. Old Church Slavic, Old Norse
m=2 French
m=3 Some Chinese dialects of Hubei and Yunnan (South West Mandarin)

(26) $\begin{bmatrix} V \\ +\text{tens} \\ \alpha\ \text{high} \end{bmatrix} \rightarrow [\beta\ \text{high}]$

lg-un. constraint: $\beta = \alpha + m$

lg-sp. values: m=1 e.g. points 12, 15-17, 24, 28, 29
m=2 points 13, 14, 21, 32
m=3 point 12

(points = localities surveyed by Y-R. Chao, 1928, in the Wu-speaking region of Central East China)

(22-26) are, by an large, self-explanatory. The language-universal constraints of (22) insures that the directionality of merging is uniquely from front to back. (23) states that the phonological domain of nasalization extends from low to high vowels and from the anterior /m, n/ to the back /ŋ/, while (24) formalizes the mirror image of denasalization progressing from high to low vowels. (25) and (26), finally, are explicit expressions of the two antagonistic tendencies of rising and falling for tense and nasal vowels respectively.

## 4. Assumptions and implications

The list of metarules and universal constraints such as those examplified in the foregoing section can be considerably lengthened, when additional cross-linguistic evidence becomes available. The strict limitation of time and space rules out any extended discourse on the substantive universals proposed here. Instead I will briefly discuss certain assumptions and implications of a model of linguistic description suggested here.

(*a*) A finite set of metarules such as (21-26) with their corresponding language universal constraints define what is a possible — at least plausible or natural — form of linguistic change in its phonological aspects; they define, in other words, the subset of language-like behavior — or at least the most common linguistic processes — as distinct from the total set of logically possible processes. To the extent that metarules and universal constraints define what is a possible or plausible phonological process, they contribute substantially to our understanding of the nature of langugage in its phonological aspects.

(*b*) Just as there is a finite set of phonetic features in terms of which all phonological processes can be stated, there is a finite set of higher order rules such as (21-26), in terms of which the phonological history of any particular language can be described. The diachronic rules of a particular language can be



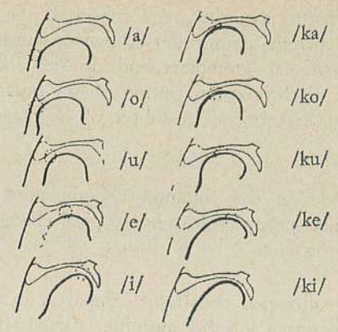
considered as particular forms assumed by a subset of the abstract norms stated as metarules. Since the current assumption is that language universal rules need not be specified for particular grammars and do not increase the « cost » of particular grammars, the diachronic description of any given language will consist of and will be evaluated in terms of a subset of language sepcific value assign ment rules.

(*c*) The metarules define the common denominators or universal patterns underlying the superficially quite diverse phonological changes occurring in natural languages.

(*d*) The notion of universal constraints imparts to the traditional concept of « sound law » (Lautgesetze) a valid meaning, though not necessarily a meaning originally intended by the Neogrammarians. Linguistic changes do not wander off, so to speak, in all directions and take just whatever form, but obey certain universal patterns. In other words, sound change is a « law »-governed linguistic process.

(*e*) Undoubtedly, exceptions to our universal constraints will occur. In other words, certain attested phonological processes will violate or seem to violate the universal constraints stated as part of a finite set of metarules. Sporadic exceptions will not invalidate either the theoretical foundation or the substantive claims about the directionality of phonological change — just as the presence of « oxen » and « children » does not invalidate either the descriptive model of generative phonology in general or the regularity of the plural formation rule of English in particular. In fact, anomalous sound changes are not detectable in the absence of an explicit formulation of universal constraints — just as the type-setter's tampering with the *Sound Pattern of English* will pass unnoticed unless we have some idea how a « plausible » phonological rule should look like. Furthermore, phonological oddity, just as syntactic irregularity and semantic anomaly is significant only against the background of true linguistic generalizations. On the other hand, it goes without saying, if counterexamples accumulate from an examination of an ever larger number of language systems and prove the universal pattern of sound change to be quite different from the one we have posited, then it is only appropriate to revise the metarules and their universal constraints accordingly. The correctness of the formulation of metarules is entirely an empirical question.

(*f*) Finally, the universally valid patterns of sound change strongly suggest that sound change is ultimately phonetically motivated (cf. Wang 1972). The identical or similar patterns observable across a large number of unrelated languages cannot be explained as mere coincidence of independent innovations, but point to the universal basis of speech and hearing mechanism that is common to all speakers of human languages. While admitting nonphonetic conditions in phonological processes, the directionality of sound change is determined primarily by a number of physio-acoustic constants. To quote but one example, that palatalization extends from high to low front vowels is predictable and finds an explanation in the physiological terms of coarticulation. Fig. 10 illustrates the vocal tract shapes of /k/ coarticulated with the five vowels /ɑ, o, u, i, e/. The more forward point of co-articulation of /ki/ as compared to /ke/ is evident from Fig. 10, and explains in part why /i/ favors palatalization more so than does /e/ or any other vowel.




from Wada *et al.*

FIGURE 10. Vocal tract shapes of [k] coarticulated with [a, o, u, e, i] (Courtesy of John Ohala).

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# СООТНОШЕНИЕ ФУНКЦИОНАЛЬНОЙ И УНИВЕРСАЛЬНОЙ ФОНОЛОГИИ

**Н. А. Катагощина**

Нет достаточных оснований для отождествления функциональной фонологии с описательной (descriptive phonology) — направлением, в последнее время часто называемым в работах представителей порождающей грамматики « автономной фонологией ». Это название имеет свой raison d'être, если принимать во внимание тот факт, что « автономная фонология » ограничивает овои исследования одним уровнем — фонетическим.

« Автономная фонология » представлена преимущественно американскими лингвистами (Harris, Glesson, Hockett, Pike и др.). Их методы исследования не во всем совпадают, но исходная предпосылка одинакова — фонематическая структура какого-либо языка может быть выведена в результате сегментации и классификации его фонетической структуры. Понятие фонемы отодвигается на задний план и является для представителей этого направления периферийным.

Они не выходят за пределы фонетического уровня. Такие понятия, как морфемная граница, морфологические чередования, грамматическая категория несущественны для « автономной фонологии ». Представители этого направления в процессе фонологического анализа стремятся не вводить понятия « значение », смыслоразличительная функция звука языка не является критерием при вычленении фонем из речевого потока. « В принципе значение стоит привлекать лишь постольку, поскольку это необходимо для определения того, что является повторением », писал Хэррис (Z. Harris) [1].

Определение природы фонемы не представляет, по Хэррису, особого значения, достаточно знать, как определять фонему [2]. Главный критерий при определении контрастов — это позиционное распределение (введение понятия дополнительной дистрибуции).

Позиционное распределение (дистрибуция) как основа вычленения и классификации фонем не могла удовлетворить такого исследователя, как Ч. Хоккет. Он применяет метод НС при вычленении фонем и увеличивает число критериев, на основе которых устанавливается фонемный состав того или иного языка.

Однако он, как и Хэррис, остается в границах фонетического уровня, не признавая в качестве единиц анализани слов, ни морфем, что позволило ему не прибегать открыто к семантическому критерию — критерию значения. « Автономную фонологию » с полным правом

[1] Z. Harris, *Methods in Structural Linguistics*, Chicago, 1951, стр, 7 (сноска).
[2] Z. S. Harris, [Рец. на кн.:] N. S. Trubetzkoy, *Grundzüge der Phonologie*, Language, 1941, v. 17, n. 4.



можно назвать таксономической (классифицирующей). Между тем, термин « таксономическая » нередко употребляется представителями порождающей грамматики также и в отношении функциональной фонологии. Это вызывает недоумение, так как методологические основы и методы фонологического анализа, характеризующие это направление, совершенно отличны от тех, которые свойственны « автономной фонологии ».

Функциональная фонология не замыкается лишь в пределах фонетического уровня. Для нее основной критерий выделения фонемы — это смыслоразличительная функция. Она, а не фонетическая характеристика, играет решающую роль при идентификации фонемы. Именно поэтому представители функциональной фонологии признают пересечение фонем (overlapping). На этой основе возникло понятие архифонемы (Н. Трубецкой), и гиперфонемы (Московская фонологическая школа). Для них фонетическое сходство еще не означает принадлежности к одной и той же фонеме.

Фонетическая близость понимается функционалистами совсем не так, как представителями « автономной фонологии ». Согласно концепции функциональной фонологии фонетическая близость двух звуков выражается в том, что тот и другой противопоставляются другим звукам по одинаковым дифференциальным признакам (Мартине).

Функциональная фонология за единицу фонологического анализа принимает не только слово (Мартине), но и морфему (например, Московская фонологическая школа) и признает важное значение морфологии, т.е. роль фонем в оформлении определенных грамматических категорий.

Если задачей « автономной фонологии » является вычленение и классификация фонем, то функциональная фонология стремится раскрыть, фонологическую систему языка в ее динамике, в ее функционировании. Она не ограничивается узкой задачей — установлением состава фонем, а пытается выявить: 1) парадигматические связи фонем, 2) правила (закономерности) сосочетаемости фонем (как один из факторов, определяющих их позиционное распределеиие), 3) особенности позиционного распределения фонем, свойственные данной грамматической системе, 4) дифференциальные признаки, на основе которых возникают противопоставления, характерные для данного языка, 5) соотнесенность этих противопоставлений (доминирующие, сопутствующие), 6) структуру слога (со стороны ее состава как численного, так и качественного). Словом, функциональная фонология сосредоточивает свое внимание на всех тех явлениях, которые могут показать функционирование фонологической системы во всех ее звеньях.

Именно функциональная фонология дала много ценных и интересных работ, в частности, по романскии языкам [Мартине, Мальмберг (различные романские языки), Гугнэм (французский язык), Бадиа-Маргарит, Аларкос Льорак, Приэто (каталанский), Аларкос Льорак (испанский), Поррю, Лихэм (итальянский), Матозу Камара, Морайш-Барбоза (португальский) и многие другие].

Методы анализа, применяемые функциональной фонологией, направлены, главным образом, на выявление специфики фонологической системы того или иного языка, на обнаружение тех особенностей, которые отличают данную фонологическую систему от других. Эти методы особенно продуктивны при сравнительно-фонологическом изучении близкородственных языков. Они особенно ярко выявляют, что

сходство звуковой материи не определяет сходства фонологических систем. Все решает характер функционального использования тем или иным родственным языком звукового материала. Конкретный пример: все романские языки в серии носовых имеют смягченное n /ɲ/, но функционирует оно в различных романских языках неодинаково, оно неодинаково даже в иберо-романских языках, близость, которых довольно очевидна. Так, в испанском фонема /ɲ/ не встречается ни в абсолютном начале, ни в абсолютном исходе. Сочетаемость ее минимальная, она входит лишь в группу ɲl'. Португальский не терпит /ɲ/ ни в абсолютном начале, ни в абсолютном конце, в отличие от испанского совсем не может быть составным элементом какой-либо группы согласных. Что же касается каталанского, то он не часто, но допускает, фонему /ɲ/ как в абсолютном начале, так и в конце слова. Причем она встречается как в качестве простой согласной, так и в двучленных группах конца слова. И не только в конце слова, но и в двучленных медиальных группах (-ɲš-, ɲž-).

Во французском языке фонема /ɲ/ в начале слова имеется лишь в арготических словах, а также в небольшом количестве слов, принадлежащих фамильярному стилю. В конце слова ее наличие обычно, но в группах конца слова ее встречаемость ограничена (одна группа -rɲ).

Методы анализа функциональной фонологии особенно действенны при обнаружении особенностей функционирования фонологических систем, одновременно выявляя общие черты.

Универсальная фонология ставит перед собой совершенно иные задачи. Основная проблема, стоящая перед ней, — это проблема универсальных законов, определяющих структуру фонологических систем. Ее внимание сосредоточено на изучении универсальных инвариантов на фонологическом уровне. Система двоичных дифференциальных признаков, выработанная Р. Якобсоном в значительной мере отвечает этим задачам, давая возможность сравнительного изучения фонологических систем самых разнообразных языков мира. Ряд дифференциальных признаков двоичной шкалы одинаково приложим и к гласным, и к согласным, что опять-таки облегчает сравнение, давая возможность выявить черты, общие всем языкам мира.

Направленность на выявление общего универсального в языке весьма очевидна при анализе родственных (в данном случае романских) языков на основе двоичных дифференциальных признаков Р. Якобсона.

Сравни: испанский язык (по Аларкосу Льораку)

плавный/неплавный: l, l', r̄, r/все остальные согласные

ртовый/носовой: b/m, d/n, y/n'

периферийный/непериферийный: p/t, k/č, b/d, g/y, f/Θ, χ/s; m/n, n'

диффузный/компактный: p/k, t/č, b/g, d/y, f/χ, Θ/s, m, n/n', l/l'

прерывный/непрерывный: p/f, t/Θ, č/s, k/χ, r̄,r/l-l'

глухой/звонкий: p/b, t/d, k/g, č/y, f/b, Θ/d, χ/g

напряженный/ненапряженный: r̄/r

каталанский язык (по Бадиа-Маргарит)



плавный/неплавный: l, l', r̄, r/ все остальные согласные

ртовый/носовой: b/m, d/n, y/n'

периферийный/непериферийный: p/t, p/dz, k/č, k/dž, b/d, g/y, f/s, f/z, w/š, w/y, m/n,n'

диффузный/компактный: p/k, t/č, t/dž, č/dz, dz/dž, b/d, d/y, f/w, s/š, z/ž, m,n/n', l/l'

прерывный/непрерывный: p/f, t/s, dz/z, č/š, dž/ž, k/w, r̄,r/l, l'

глухой/звонкий: p/b, t/d, t/dz, s/z, s/d, č/dž, č/y, š/ž, š/y, k/g, k/w

напряженный/ненапряженный: r̄/r

При сравнении по дихотомической шкале испанский и каталанский оказываются близкими, тогда как при анализе функционирования этих фонем, выступает на первый план значительное фонологическое различие этих языков.

Универсальная фонология представляет собой высшую ступень абстракции, но для своих выводов широко использует данные и результаты исследований представителей функциональной фонологии (см., например, «Фонологическую грамматику» Соль Сапорта и Контрера).

Противопоставление универсальной фонологии, к которой приближается «системная фонология» (Systematic phonology) представителей порождающей грамматики, и функциональной фонологии, неправомерно. Каждое из этих направлений ставит перед собой свои задачи, и соответственно этим задачам различаются и их методы исследования.

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# THE SYLLABLE NUCLEUS AS A UNIT OF TIMING

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Resonants share many characteristics with vowels, among which is potential syllabicity. Many Indo-European languages, for example, have known periods in their historical development during which their sound inventories have contained syllabic liquids or nasals. Frequently such syllabic resonants have later developed into sequences of vowel + resonant or resonant + vowel; there seems to be a tacit assumption that in such sequences, only the vowel is syllabic, and the resonant has a consonantal function.

There are a few instances in which sequences of vowel+resonant function as equivalent to long vowels and diphthongs. Such sequences can, for example, serve as the domain of tonal patterns. The question seems not to have been raised whether sequences consisting of resonant + vowel can likewise function as complex syllable nuclei. In this paper, I shall summarize the results of an extensive study dealing with English monosyllabic word sets in which a resonant may either precede or follow o vocalic syllable nucleus. A complete report of the study is presented elsewhere (Lehiste, 1972).

156 words were analyzed in the study. The words contained five segmental slots, symbolized $C_1\ R_1\ V\ R_2\ C_2$ (consonant — resonant — vowel — resonant — consonant). The slots could be filled by the following sounds. $C_1$ was either a voiced or voiceless plosive; in the latter case, aspiration was present. $R_1$ was either /r/ or /l/. V was either short or long; for purposes of this study, all English vowels and diphthongs were considered long with the exception of [I ɛ U ʌ]. $R_2$ was either /r/, /l/, /m/, or /n/. $C_2$ was either a voiced or voiceless obstruent (plosive or fricative).

Each of the test words, presented in random order, was produced five times by three native speakers of English. The total recorded material thus consisted of $15 \times 156 = 2340$ words. The utterances were processed by means of a Frøkjaer-Jensen Trans-Pitchmeter and Intensity Meter; the curves were displayed on an Elema-Schönander Mingograph, operated at a speed of 10 cm/sec. Segmentation of the curves was based mainly on duplex oscillograms. The duration of the segments was established according to techniques described in Lehiste (1971) and Naeser (1969).

Average durations of segments in all word types were established after the measurements were completed. The results will be discussed with reference to two summary tables.



TABLE 1

| | N | (Asp. + $R_1$ +) V | $R_2$ | C | SN | SN + C |
|---|---|---|---|---|---|---|
| Words ending in voiced plosive | 465 | 323.72 | 141.44 | 61.28 | 465.16 | 526.44 |
| Words ending in voiceless plosive | 480 | 236.20 | 87.48 | 101.06 | 323.68 | 424.74 |
| Ratio Vless/Vd | | 0.73 | 0.62 | 1.65 | 0.69 | 0.81 |
| Ratios obtained by Chen (1970) | 96 | 0.73 | 0.60 | | 0.66 | |
| Ratio obtained by Peterson and Leniste (1960) | 236 | 0.66 | | | 0.66 | |

Table 1 presents, first of all, average durations (in milliseconds) of segments in words ending in either a voiced or a voiceless plosive and containing a sequence of vowel + resonant. N shows the number of productions used for averaging. The second column shows the average duration of the span from the release of the initial plosive to the onset of the postvocalic resonant. Since various word types were combined in this table, the values here represent an average of long and short vowels, occurring after voiced and voiceless plosives, and in some word types preceded by a resonant. The next column shows the average duration of the postvocalic resonant. The column headed C represents the average duration of the closure period of the final voiced or voiceless plosive. The next column gives the duration of the total span from the release of the initial plosive to the formation of the closure of the final plosive; the last column shows the duration of the whole word (with the exception of the duration of the initial consonant, which in the case of voiceless plosives was not measurable from acoustic records).

The observation has been made some time ago by several researchers that in English, vowels are shorter before a voiceless obstruent than before a voiced one (for a recent summary of available information, cf. Chen, 1970). A study of the average durations presented in Table 1 shows that sequences consisting of vowel + resonant function as unitary syllable nuclei with respect to this timing rule: the vocalic part as well as the resonant are subject to either shortening or lengthening, depending on the voicing of the following consonant. The extent of this shortening is shown in the third row of the table, wich presents segmental duration ratios between segments occurring in words ending in voiceless and voiced plosives. Ratios obtained in the study by Chen (which was largely devoted to a different problem) are included for comparison. These ratios are quite similar to the ratio obtained for vowels occurring in minimal pairs differing in the voicing of the final consonant, established in a 1960 study by Peterson and Lehiste (presented in the fifth row of Table 1). It is obvious that as regards the timing rule under consideration, syllable nuclei consisting of vowel + resonant do indeed function as if the whole sequence constituted the syllable nucleus, not just the slot filled with the vowel.

TABLE 2

| Vowel-resonant combination | N | Asp. | $R_1$ | V | $R_2$ | C | SN | SN + C |
|---|---|---|---|---|---|---|---|---|
| V + R | 210 | 77.90 | — | 168.05 | 86.20 | 103.40 | 332.15 | 435.55 |
| R + V | 240 | 94.75 | 44.35 | 191.70 | — | 122.60 | 330.80 | 453.40 |
| R + V + R | 45 | 97.25 | 31.65 | 186.60 | 72.65 | 82.00 | 388.15 | 470.15 |
| V + R | 255 | — | — | 259.55 | 157.75 | 75.20 | 417.30 | 492.50 |
| R + V | 120 | — | 83.40 | 326.50 | — | 76.80 | 409.90 | 486.70 |
| R + V + R | 30 | — | 90.65 | 292.55 | 122.65 | 44.20 | 505.85 | 550.05 |

Table 2 presents the average durations (in milliseconds) of segments in several word types involving resonants preceding and following the vocalic part of the syllable nucleus. The first three rows present averages for words in which the vowel-resonant combination was preceded and followed by voiceless plosives; the second set of three rows shows comparable data for word beginning and ending in voiced plosives. Long and short vowels are combined in the averages.

Some differences in the average durations are apparent: however, in judging the significance of the observed differences, it is necessary to inquire whether the difference can be perceived. Just noticeable differences (DL, or difference limens) in duration have been established in several previous investigations (summarized in Lehiste, 1970). For reference durations of 200 msec, Stott (1935) established an absolute DL of 28.4 msec, for 400 msec — 48.0 msec, and for 600 msec — 69.0 msec. Henry (1948) obtained similar results: for a reference duration of 277 msec, the absolute DL was found to be 47.64 msec, and for a reference duration of 480 msec, the absolute DL was 68.64 msec.

Table 2 should be studied with the perceptibility of durational differences in mind. It appears that most of the differences — with some clear exceptions — are below the percentual threshold for the duration range characteristic of the durations of the syllable nuclei and words. A systematic exception is provided by words in which two resonants were present. These seem to be longer than the other words by the average duration of a resonant. There is no question that the sequences vowel + resonant and resonant + vowel are equivalent with regard to their overall timing patterns.

A number of other interesting observations may be made regarding the temporal structure of words of this type. For example, the duration of final consonants compensates regularly for the duration of the syllable nuclei, with the result that differences between the average durations of words are much smaller than those between syllable nuclei. The final consonant is especially short in words with two resonants. The duration of resonants following the initial plosive depends on the voicing of the plosive: after a voiced (unaspirated) plosive, the duration of the resonant is equivalent to the duration of the aspiration of a voiceless plosive, but in a sequence in which a voiceless initial plosive is followed by a resonant, aspiration is longer and the duration of the resonant is shorter. The duration of the sequence aspiration + resonant is thus not equal to the sum of aspiration and resonant occurring alone.

Observations regarding temporal compensation within the word are interesting, but let us return to the question presented at the outset of this study: to what an extent is the sequence vowel + resonant equivalent to the sequence resonant + vowel? It is clear from Table 2 that the duration of the two sequences is almost identical and the differences are below the perceptual threshold. This evidence certainly does not contradict the hypothesis that for timing purposes, it does not matter whether the resonant precedes or follows the vowel. It is tempting to speculate about the implications of this hypothesis.



Let us assume that sequences of resonant + vowel and vowel + resonant do indeed function as a segmentally complex syllabe nucleus. The syllable nucleus is programmed, at some level, in terms of three separate elements: vowel, resonant, and sequential order. The timing of the two sequences calls for the same duration for either order of the segments. The relative susceptibility of vowel + resonant (and resonant + vowel) sequences to metathesis could then be explained as the weakening or loss of the ordering component within the syllable nucleus. The vowel and resonant would of course still be there, but their order, in a certain sense, does not matter — as it does not matter in programming the duration of the articulatory gestures needed for producting the two sequences. Metathesis of this type would then be a linguistic change conditioned by the fact that both the vowel and the metathesizing resonant function as part of the same syllable nucleus. It would be clearly different from metathesis affecting, for example, consonant clusters consisting of obstruents. The special status of the type of metathesis discussed in this paper is further evidenced by the fact that only resonants are found to metathesize with the vowel between two obstruents. Surveys of various types of metathesis (Grammont, 1933; Ultan, 1970) show that while changes like TERT ≶ TRET are fairly common, alternations of the type TEST ≶ TSET do not seem to occur.

The resonants found in vowel + resonant and resonant + vowel sequences between obstruents have to be considered as possessing a higher degree of syllabicity than consonantal resonants. It may well be that there are three degrees of syllabicity for resonants, as these are three ways in which they may function: as consonants, as part of a segmentally complex syllable nucleus, and as independent syllable nuclei.

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# GRAPHISCHES BEWEISMATERIAL IN DER HISTORISCHEN PHONOLOGIE

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## 1. GRAPHISCH-PHONEMISCHE BEZEICHNUNGSENTSPRECHUNG.

In der historischen Sprachwissenschaft sind die Schreibungen der Handschriften das wichtigste Beobachtungsmaterial für die Phonologie. Synchronisch hat man aus den Schreibungen die Lautwerte und das Phonemsystem, diachronisch aus ihrem Vergleich phonetische und phonemische Änderungen zu erkennen versucht. Fragestellung und Interpretation wechseln je nach der theoretischen Einstellung des Forschers. Wir wollen hier am Beispiel der altgermanischen Schreibungen die Frage aufwerfen, ob historisches Schreibungsmaterial sich besser in den Rahmen der Annahme eines von Morphologie und Syntax autonomen (« taxonomischen ») Phonemsystems oder in den einer phonologischen Komponente der Grammatik, der sogenannten « systematischen Phoneme » einfügt. Einen besonderen Vorteil unseres altgermanischen Materials sehen wir in seinem Bestehen am Anfang einer Schreibungstradition, in dem noch Anpassungsfähigkeit und große Freizügigkeit für Individualschreibungen innerhalb des Gesamtsystems vorhanden waren, was für spätere Zeiten und gar die Gegenwart nicht mehr zutrifft.

Wenn wir vom runischen Alphabet absehen, kennen wir die « Ursysteme » der germanischen Schreibung: in den westgermanischen Sprachen das lateinische Alphabet, für Wulfilas Gotisch das griechische Alphabet des 4. Jahrhunderts. Die vermutlichen ursprünglichen Lautwerte ihrer Zeichen ergeben sich aus Beschreibungen der Grammatiker für die klassische Zeit. Wenn wir eventuelle spätlateinische und romanische, bzw. für das Altenglische auch irische Aussprache der lateinischen Zeichen berücksichtigen, ergibt sich die Möglichkeit einer allerdings begrenzten Lautbestimmung für die meisten der in altgermanischen Sprachen verwendeten Buchstaben.

Mit dem Strukturalismus kam in die historische Phonologie die Streitfrage, ob altgermanische Schreibungen nur Phoneme oder auch Allophone bezeichnen können. Man wies darauf hin, daß sich wie bei Sprechern der Genenwart (Kranzmayer 1953, S. 216) wohl Schreiber nur in seltenen Ausnahmen der Allophone ihrer Phoneme bewußt gewesen sein können (Hockett 1959, S. 579, Moulton 1961, S. 26, Lehmann 1962, S. 76)[1]. Solche Überlegungen führten demnach zu folgenden Annahmen, die eine Art Arbeitshypothese für die Analyse von historischen Schreibungssystemen und Individualschreibungen wurden: (1) Altgermanische Schreiber neigen dazu, Phoneme ihres Idiolektes mit je einem einheitlichen Zeichen (Graphem) auszudrücken. (2) Also drücken im allgemeinen in einem Text gleiche Zeichen (Grapheme) die gleichen Phoneme und verschiedene Zeichen auch verschiedene Phoneme aus.

[1] E. Kranzmayer (1953), *Zeitschrift für Mundartforschung* 21, 197 ff.; W. G. Moulton, 1961, « Zur Geschichte des deutschen Vokalsystems », *PBB* (*T*) 83, 1 ff.; C. F. Hockett, 1959, « The stressed syllabics of Old English », *Language* 35, 575 ff.; W. B. Lehmann, 1962, *Historical Linguistics: and Introduction.*



Aus dieser Hypothese einer graphisch-phonemischen Bezeichnungsentsprechung, einer phonemischen « Isographie », ergaben sich diese weiteren Folgerungen: (3) Allophone eines Phonemes sind nur ganz ausnahmsweise von Schreibern durch verschiedene Grapheme ausgedrückt worden. (4) Graphische Überbezeichnung und Unterbezeichnung phonemischer Oppositionen im Schreibungssystem eines Textes kann vielfach auf zeitlich (diachronisch) oder räumlich (dialektisch) verschiedene Phonementsprechungen zurückzuführen sein, was oft aus abweichenden Individualschreibungen der Schreiber hervorgeht.

## 2. ÜBER-, UNTERBEZEICHNUNG BEI WULFILA, NOTKER.

Die strukturalistische Forschung hat vielfach im Falle Wulfilas, wo für das geschaffene gotische Schreibungssystem nicht die Spur einer vorhergehenden internen Schreibtradition besteht, eine vollkommene graphisch-phonemische Bezeichnungsprechung angenommen. Wulfila schrieb unter dem Einfluß der griechischen Orthographie das velare Allophon des Nasals als *g* vor velarem Verschlußlaut: got. *briggan* « bringen », *siggwan* « singen », *juggs* « jung » usw. Es haben daher Forscher z. B. Marchand 1959[2], angenommen, daß auch in got. — *bliggwan* (ahd. *bliuwan*) « schlagen », *skuggwan* (Akk. Sing., aisl. *skugge*) « Spiegel », *triggws* (aisl. *tryggr*) « treu » nicht Verschärfung, sondern Nasaleinschub vorliege. Es zeigen aber gelegentliche Schreibungen mit *n* wie z. B. *bringiþ*, *bringandans*, *inqis*, *pank*, in denen die Schreiber vom System abwichen, daß die phonemische Überbezeichnun von /n/ zur graphischen Überschneidung bei *gg* geführt hat (vgl. Penzl 1950)[3]. Wulfilas vom griechischen y abgeleitetes Zeichen für /w/ findet sich auch für griech. *u* in Lehnwörtern und Eigennamen: z. B. *swnagoge*, *Twra* (Akk.) « Tyros », *Lwstrws* (Dat. Pl.) « Lystra » usw. Bennett (1959)[4] sah darin ein Allophon für /w/; es ist aber wahrscheinlicher, daß hier ein graphisch motivierter Fall von Unterbezeichnung vorliegt, also *w* auch [ü] mit lexikalisch beschränktem Vorkommen bedeuten kann. Es scheint, daß auch Wulfila in seinem Schreibungssystem nicht den Idealfal einer vollkommenen graphischphonemischen Bezeichnungsentsprechung schaffen konnte.

Wulfilas gab allerdings durch *gg* in *briggan* unter griechischem, wenn auch nur orthographischem Einfluß ein Beispiel für Allophonbezeichnung. Zweisprachigkeit, d. h. der Einfluß des dem Schreiber geläufigen Lateinisch, mag in vielen Fällen auch in westgermanischen Sprachen, z. B. im Althochdeutschen, dazu geführt haben, daß in Texten bei Verschlußlauten Lenis- und Fortisallophone (*b p*; *g k*) graphisch unterschieden wurden. Ich habe angenommen, (Penzl 1971, § 9.14)[5], daß z. B. Notkers rätselhafter Anlautswechsel (*prûoder brûoder*, *táz dáz*) einen im engen Anschluß in Konsonantengruppen noch in Schweizer Gegenwartsdialekten beobachteten Mittelwert, eine Halbfortis oder Halblenis, widerspiegelt. Nichtzeitgenössische Schreiber von Notkers Werken, z. B. die seiner Psalmenhandschrift, konnten diese Systematisierung der Schreibung nicht mehr wiedergeben, da sie der phonemischen Grundlage entbehrt. Es bestand keine graphischphonemische Bezeichnungsentsprechung, sondern allophonische « Überbezeichnung ».

## 3. DIAGRAPHISCHER VERGLEICH.

Für das Erkennen von Lautwandel ist der Vergleich der Schreibungen gleicher oder paralleler Morpheme in diachronisch oder diatopisch verschiedenen Texten die

[2] J. W. Marchand, 1959, « Über *ai au* im Gotischen » *PBB* (*H*) 81, 436 ff.
[3] « Orthography and phonemes in Wulfila's Gothic », *JEGP* 49, 218 (§ 1).
[4] W. H. Bennett, 1959, « The phonemic status of Gothic *w hv q* », *Language* 35, 427 ff.
[5] H. Penzl, 1971, *Lautsystem und Lautwandel in den althochdeutschen Dialekten*, München, Hueber.

vorherrschende Methode: z. B. finden wir im Ahd. *cotan, coot* (Wessobrunner Gebet), *goates* (Exhortatio A), *cuat* (Benediktinerregel), *guat, guetemo* (Otfrid), *gûot, kûot* (Notker) « gut ». Entstehung und Gebrauch von neuen Zeichen (*oa ua ue uo*), zuerst in direkter Variation mit Altzeichen, z. B. Isidors *boohhum* neben *buohhum* (Dat. Pl.) « Büchern », deutet man als Eintritt eines Phonemwandels, in diesem Falle der « althochdeutschen Diphthongierung ». Phonemverschiebung ist durch Zeichenwandel wiedergegeben. Die einzelnen Typen des Phonemwandels, auch bloß phonotaktische Änderungen wie z. B. gewisse Assimilationen (ahd. *stimna, stimma*), sind durch Wandlungen des Schreibungsinventars, bzw. dessen verschiedene Verwendung zu erzennen, z. B. durch Schreibungszusammenfall (ahd. *gesti, erda*), Schreibungsspaltung (*so, guot*), Schreibungswandel (*thaz, daz*). Der diagraphische Vergleich der Einzeltexte zeigt diese Änderungen einfach und deutlich, wenn noch die Anpassungsfähigkeit der Schreibung besteht. In späteren Perioden mit fester Schreibungstradition, besonders in der Neuzeit, kann sich das System nicht mehr ändern. Im Frühneuenglischen zeigen oft nur gelegentliche, « naive » Schreibungen, auch « umgekehrte » Schreibungen, die Abweichung der Phonologie von der seit dem Mittelenglischen vielfach schon feststehenden graphischen Norm.

## 4. Ist Tendenz zur Isographie « panchronisch »?

Für die Hypothese einer allgemeinen Tendenz zur phonemischen « Isographie » gibt es mancherlei Möglichkeiten der Beweisführung, die man noch wenig ausgenützt hat. Man hat aber darauf hingewiesen, daß die Schreibfehler von « Ungebildeten » und Schulkindern in der Gegenwart, deren geringe Vertrautheit mit dem modernen Schreibungssystem eine Parallele zur Lage der altgermanischen Schreiber abgibt, gerade solche Abweichungen vom System zeigen, die eine Erklärung aus dem Phonemsystem ihres Idiolekts nahelegen. Das beweist z. B. die Arbeit von Hanna (1966)[6] für das moderne amerikanische Englisch. Eine teilweise graphisch-phonemische, nicht etwa nur graphischphonetische Bindung hat man sogar bei modernen Exploratoren eines Sprachatlas trotz ihrer ausgezeichneten phonetischen Vorbildung beobachten können. Die Umschrift der Wenkersätze in Lokaldialekte für den Deutschen Sprachatlas im letzten Vietzten Viertel des 19. Jhds. zeigte die durch die eigenen Phonemunterscheidungen bedingte « isographische » Tendenz der in Transkriptionen unerfahrenen deutschen Lehrer. Bremer (1908)[7] wies seinerzeit in einem Buch auf die Gefahren einer unkritischen Auslegung dieser Schreibungen ohne genaue Berücksichtigung der Aussprache der Lehrer selbst. Die Forschung ist übrigens in der phonetischen Bewertung eines noch viel früheren Beispiels von linguistischer Geländearbeit, nämlich Busbecqs Aufzeichnung des Krimgotischen im 16. Jhd., im allgemeinen auch recht unkritisch gewesen.

Sapir (1949)[8] lernte am Beispiel seiner indianischen Gewährsleute, denen er z. T. das Schreiben ihrer Muttersprache beibrachte, daß für sie nicht die Allophone, die er selbst hören und aufzeichnen konnte, sondern nur die Phoneme « psychologische Realität » besaßen, denn sie schrieben in ihrem eigenen Schreibsystem nur diese. Die Segmentierung nach Lauteinheiten bedeutete an und für sich keine Schwierigkeit.

[6] Hanna, Paul R. u.a., 1966, *Phoneme-grapheme correspondences as cues to spelling improvement*, Washington, Office of Education, Vgl. auch Herbert Penzl, 1971, « Scribal practice, phonological change, and biuniqueness », *German Quarterly* 44, 305-10.

[7] O. Bremer, 1908, *Beiträge zur Geographie der deutschen Mundarten in Form einer Kritik von Wenkers Sprachatlas des Deutschen Reiches.*

[8] E. Sapir, 1949, « The psychological reality of phonemes », D. G. Mandelbaum, ed., *Selected Writings of Edward Sapir*, S. 46-60.



Damit kehren wir zu unserer Frage zurück, die wir am Anfang aufwarfen. Die Hypothese von der graphisch-phonemischen Bezeichnungsentsprechung hat sich nicht nur als nützliche Arbeitshypothese für die synchronische und diachronische Analyse altgermanischer Schreibungen erwiesen. Bestätigendes Beweismaterial aus « gelegentlichen » Schreibungen und Schreibfehlern späterer Perioden, vor allem aus der Lautperzeption der eigenen und fremder Sprachen weist auf eine wirkliche psychologische Realität des Phonembegriffes. Die ideale Orthographie, die der muttersprachliche Sprecher am leichtesten lernen kann, ist demnach die mit dem größten Grad von phonemischer Isographie oder graphisch-phonemischer Bezeichnungsentsprechung.

## 5. « Komponentenphoneme » und Schreibmaterial.

Nach der Ansicht der generativen Grammatik sind die psychologisch realen Phoneme zwar nicht die phonetisch beschreibbaren Laute der « Oberflächenstruktur », », aber sie sind als Bündel distinktiver Merkmale vor allem eine Komponente der Gesamtstruktur. Wie verträgt sich nun das Schreibungsmaterial mit dieser Theorie? Der behauptete Komponentencharakter erhöht die Wichtigkeit ihres Vorkommens in morphophonemischem Wechsel. Dieser ergibt sich aus diachronischem Wandel: man hat oft auf diese Gemeinsamkeit von generativistischer « Tiefenstruktur » und historischer Vorstufe hingewiesen. Es ist nicht zu verwundern, daß die moderne englische Orthographie, in der die Diphthongierung der (mittelenglischen) Langvokale, zum Unterschied von einer parallelen Wandlung im Mittelhochdeutschen, nie graphisch bezeichnet wurde, Langvokal und Kürzungsprodukt in manchen « gelehrten » Wörtern gleich schreibt, also *divine* und *divinity, profane* und *profanity* usw. Chomsky und Halle (1968)[9] sehen aber in dieser Schreibungseigenheit die Wiedergabe der identischen « Tiefenstruktur » der Morpheme.

Gibt es nun am Anfang der germanischen Schreibungstradition auch einschlägiges Material? In Wulfilas Gotisch fallen /b/ und /f/, /d/ und /þ/, auch /z/ und /s/ im absoluten Auslaut und vor *s* zusammen, z. B. *hvas* « ver » aus **-z* und *was* « war » aus **-s*. Dazu gibt es individuelle Abweichungen der Schreiber, z. B. *hlaib, hlaibs* statt *hlaif, hlaifs* « Brot », *þiubs* statt **þiufs* « Dieb », gods statt *goþs* « gut » usw[10]. Die Verteilung dieser Schreibungen in den Handschriften, d. h. ihr häufiges Vorkommen nur an bestimmten Stellen, z. B. in den ersten sieben Kapiteln der Übersetzung des Lukasevangeliums usw., legt aber die Vermutung nahe, daß hier einzelne Schreiber am Werke waren, die in ihrem (ostgotischen?) Dialekt die « Verhärtungsregel » nicht besaßen. Die schreibung im Nominativ könnte auch bloße graphische Übertragung aus den übrigen Flexionsformen (*hlaibis, þiubis, godis* usw.) bedeuten. In anderen Fällen zeigt sich, daß die Schreibung den morphophonemischen Wechsel, nicht die angebliche Einheitsform der Tiefenstruktur wiedergibt. Im erwähnten Falle von Notkers graphischem Anlautswechsel kann es sich nur um Allophone, nicht einmal um Phoneme, geschweige denn, trotz Lehmanns (1971)[11] Erklärung, um morphophonemische Verschiedenheit handeln.

Die Erklärung des ahd. *i*-Umlauts hat in der phonologischen Forschungsgeschichte eine gewisse Rolle gespielt (Twaddel 1938, Penzl 1949). King (1969)[12]

[9] N. Chomsky und M. Halle, 1968, *The Sound Pattern of English.*

[10] W. Streitberg, 1920, *Gotisches Elementarbuch*, § 25, W. Braune und E. A. Ebbinghaus, 1966, *Gotische Grammatik*, 17, Aufl., §§ 56, Anm. 1, 2, 74, Anm. 1, auch Penzl 1950 (Fußnote 3), § 3.

[11] W. P. Lehmann, 1971, *Grammatischer Wechsel and current phonological discussion*, Maria Tsiapera, *Generative Studies in Historical Linguistics*, S. 9-43.

[12] R. D. King, 1969, *Historical Linguistics and Generative Grammar*, S. 208 ff.; W. F. Twaddell, 1938, « A note on Old High German umlaut », *Monatshefte für deutschen Unterricht* 30, 177-81, H. Penzl, 1949, « Umlaut and secondary umlaut in Old High German », *Language* 25, 223-40.

sah in der Unterbezeichnung der ahd. Vokalphoneme, z. B. ahd. *hūt*, Pl. *hūti* « Häute »; *holz*, *holzīn* « hölzern »; *loub*, *loubir* « folia », den graphischen Beweis für Mangel an « systematischem » Phonemcharakter. Solche Unterbezeichnung findet sich aber sporadisch noch in frühnhd. Texten, also Jahrhunderte nach der von King angenommenen « Umstrukturierung », die nach ihm zu wirklichen Umlautsphonemen, also auch deren Schreibungswiedergabe geführt habe. Soll denn die *e*-Schreibung in *gesti* neben *gast*, *lembir* neben *lamb*, in der sich Umlauts-*e* graphisch (auch phonemisch?) mit « germ. *e* » überschneidet, wirklich nur rein phonetisch motiviert sein?

Es läßt sich abschließend sagen, daß das historische Schreibungsmaterial der ältesten germanischen Texte wichtige Hinweise auf graphisch-phonemische Bezeichnungsentsprechung (Isographie) enthält, wobei « phonemsich » durchaus nicht mit phonetisch oder « komponentenphonemisch » gleichzusetzen ist. Diese Tendenz in Schreibsystem und Schreibgebrauch spricht für die psychologische Realität der konstitutiven phonologischen Lauteinheiten, der Phoneme. Das graphische Beweismaterial fügt sich also in den Rahmen eines strukturellen Phonembegriffs. Das haben auch erfolgreiche positivistischstrukturelle Analysen der Phonologie der Texte gezeigt, deren Umscheibung in generativistische Terminologie und Annahmen sich nicht immer leicht bewerkstelligen läßt. Schreibungen begünstigen materialbezogene, nicht theoriebezogene Analyse.

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# IN SEARCH OF PHONOLOGICAL UNITS

Anatolij S. Liberman

The main problem of synchronic phonology lies in the ordering of the rules. How are we to start the analysis of the sound continuum not yet divided into phonemes and what shall we do next? According to Trubetzkoy, we must first find oppositions (e. g. *bin* ~ *pin*), then phonemes (/b/ ~ /p/), and finally, distinctive features (voiced ~ unvoiced). But a comparison of the words *bin* ~ *pin* will not yield their segmentation; consequently, we shall never learn how exactly they differ.

In the hierarchy of linguistic units the phoneme occupies a higher place the distinctive feature, and an ideal phonological analysis should begin with discovering the distinctive features. However, this ideal is impossible to realize, for we cannot obtain a set of features without some definite procedures; but if we are only making our first step, the desired procedures are nowhere to be got. Another popular device for discovering phonemes is to find elements (sounds) which occur in non-intersecting contexts and to assign them to one unit. But again it is obvious that distribution of any elements cannot be studied before they are separated from one another in the continuum. Besides, the notion of phonetic context is vague and itself depends on the results of the phonological analysis.

Despite the great differences in the methods of Ttrubetzkoy, Bloomfield, or Hjelmslev, they all (and many others) wanted to discover phonemes without leaving the precincts of the phonological level. But the experience of more than half a century has shown that the hope to single out phonemes without turning to grammar is one of the greatest linguistic utopias.

It is a well-known tact that Russian Phonology (both as represented by Ščerba and his disciples and by the Moscow school) has always begun the study of language with morphology [1]. In my report I am trying to develop this tradition. Let us compare the Russian words *dom* « house » (Nominative case) and *doma* (Genitive). It is of paramount importance that the morphological boundary in *doma* does not coincide with the point of syllable division in it (*dom-a* vs. *do-ma*). This non-concidence which turns a syllable-final sound into a syllable-initial one, without thereby affecting the meaning of the root, severs it from /do/ and makes it a separate unit [2]; cf. the English word *reader* (morphologically: *read-er*, phonetically: *rea-der*).

[1] See for example, L. R. Zinder, *Obščaya fonetika* [General Phonetics], Leningrad State University Publishing House, 1960, pp. 33-38; A. A. Reformatsky, *Iz istorii otečestvennoy fonologii* [From the History of Russian Phonology], « Nauka » Publishers, Moscow 1970, passim.

[2] Cf. M. V. Gordina, « O različnyx funkcional'nyx zvukovyx yedinicax yazyka » [On Different Functional Sound Units of Language], in *Issledovaniya po fonologii* [Studies in Phonology], « Nauka » Publishers, Moscow 1966, pp. 176-179.

At the first step of the analysis of Russian or English we come to the conclusion that both languages possess sound units smaller than the syllable. The element getting into the vice between two boundaries (*do-m-a*, *rea-d-er*) is indeed the shortest possible unit, indissoluble into any number of consecutive, nonsimultaneous components; it is the phoneme.

To sum up. All paradigmatic operations on phonemes must follow a primary segmentation of the sound continuum in morpheme-final positions, and the first step of analysis will yield the phoneme as the shortest unit of natural segmentation. It is quite evident that the phonemes acquired in this way will be all non-syllabic (i.e. Consonants). Phonemes, characterized only as minimal units of segmentation lack distinctive features, and we can neither compare, nor recognize them. Thus, we do not yet kno wthat *reader* and *feeder* have identical stem-final consonants or that *deed* begins with and ends in the same phoneme. The main aim of our further analysis is to learn to identify phonemes in all contexts.

Let us consider the paradigm of the Russian noun *pol* « floor »: *pol* (Nominative) — *pola* (Genitive) — *polu* (Dative) — *polom* (Instrumental). All the forms consist of the stem *pol-* and an inflexion; their stem-final consonants and stressed vowels slightly differ in pronunciation. Baudouin de Courtenay called such [o]'s and [l]'s divergents and explained that divergents constitute one phoneme. As a matter of fact, the phoneme was first introduced to linguistics as the invariant of positionally alternating sounds within the bounds of one and the same morpheme. It may seem that in order to study different varieties of /l/ we do not need morphemes and that it is simpler to compare *la* ~ *lu* than *pola* ~ *polu*. But without morphemes we cannot discover the pair *la* ~ *lu*? The answer is that they form a minimal pair. But it is too early to know which pair is minimal and whic his not, because we cannot yet identify phonemes and cannot guess that *la* and *lu* have similar initial consonants or consist of the same number of phonemes.

Our first troubles will appear, when we add to our paradigm the form of the so-called Prepositional case: *(o)pole* « about the floor ». Indeed, the string *pola* is — from the morphological point of view — uniquely divisible into the formatives *pol* + *a*. But the string *pole* is morphologically ambiguous: it is either *pol* + *e* or *pol'* + *e* (e. g. the Prepositional case of *pol* « floor » or *Pol'* « Paul »; the apostrophe everywhere stands for palatalization); two different non-homonymous morphemes are drowned in it. This ambiguity testifies to the fact that we have broken through the dispersion field of /l/. We have acquired a new meanig, which could not have happened, if the variants of the same phoneme went on alternating as before.

Alternation of divergents within the morpheme allows us to view the phoneme as sound invariant, as a code unit independent of its context. Besides, we come naturally to the idea of a relevant feature. We see for example, that velarization (as in *pola*) or labialization (as in *polu*) does not change /l/ into another phoneme, whereas palatalization does. Similarly, the final element of the morpheme *rod-* (*rod* « gender ») is retained as the same phoneme in *roda* (Genitive), *rodu* (Dative), because no new meaning is added, but becomes something different in *rode* (**rod'* is quite a good potential Russian word: cf *grud'* « chest »); so again velarization and labialization are irrelevant for it, while palatalization is relevant. The form [rot] which resolves itself into two Nominatives: *rod* « gender » and *rot* « mouth » proves that voice is relevant for it too. Of special interest is the alternation *rod* « gender » ~ *rožat'* « engender ». The string [rož] may represent three morphemes at once: *rod-* (cf. *rožat'* « engender »), *rož-* (cf. *rož* « rye », spelt traditionally with the sign of palatalization in Russian, or *rož-a* « face, mug ») and *rog-* (cf. *rožok* « little horn », from *rog* « horn »). So it is not enough to say that the final element in *rod-* is plosive, while in *rož-* it is fricative: in *rog-*, if we compare it with *rož-*, the final element is also plosive, but *rod-* and *rog-* are different morphemes and ought to be characterized differently. By this devious way we come to the conclusion that the place of obstruction is functionally singificant for /d/ and for /g/.



So, remaining within one and the same morpheme, we find that the final element of *rod-* is phonologically non-palatalized, voiced, plosive, and dental. Now we can speak of the Russian phoneme /d/ as of a bundle of the four distinctive features.

But our successful analysis of the phoneme /d/ cannot conceal the fact that morphemic alternations do not always yield the complete set of distinctive features. Let us compare *lob* — *lba* — *(o) lbe* « forehead » (Nominative, Genitive, Prepositional) and *lov* — *lova* — *(o) love* « catching, hunting » (the same cases). It is easy to state, reasoning as above, that /b/ is voiced and non-palatalized. But /v/ will get just the same features. As the two phonemes never alternate, we cannot say how they differ. This result is important and symptomatic, because it calls for a stratification of the phonological system. The system appears to contain a compact nucleus, which is sufficiently described by morphemic alternations, and a large periphery. Since we know all nuclear phonemes and possess the set of their distinctive features, we may try to distinguish peripheral phonemes from one another by ascribing to them some features from this set. We may call /b/ plosive and /v/ fricative, but it will be an arbitrary solution, and we shall have to remember that the opposition of /b/ to /v/ is quite different from that of /d/ to /ž/, because the plosiveness of /d/ and the fricativeness of /ž/ naturally emerge from the morphonemic structure of the language, while /b/ and /v/ got corresponding features at the last moment from the hands of the investigator.

It is customary to draw the consonant system of Russian, as well as that of other languages, on the plane. But it would be more to the purpose to represent them in the form of several concentric circles. For Russian, the innermost circle would contain the nuclear phonemes, the second one the phonemes /b p v f/ and their palatalized correlates, the third /l m n r/ and their palatalized correlates, and the outermost /r r'/. That the circles furthest from the centre would be filled with sonorants was easy to predict. The most conspicuous non-inherent feature which distinguishes them from all obstruents is syllabicity. But Rusian sonorants do not alternate with obstruents or with one another. As regards /n/, for example we can only say that it is non-palatalized. The same is true of /l m r/, though they are different phonemes. It is worthy of special note that from the phonological point of view such terms as nasal. lateral, vibrant, uvular, and so on are sheer tautology: it is quite all the same, whether we call /r/ vibrant or say that /r/ is /r/. In the feature list of Russian consonants we do not find « nasal », « lateral », or « vibrant », and it will be more consistent to call /n/ a dental sonorant, /m/ a sonorant for which the position of the tongue is irrelevant, and /l/ a fricative sonorant; /r/ will be then defined negatively (neither /l/, nor /m/, nor /n/).

If the « circular » representation of phonemes were accepted, phonemes of different languages, though outwardly similar, would have to be put in different circles; languages would also differ in the number of circles. Comparison of such orbital schemes may be better suited for typological research than traditional tables on the plane which are very much alike in all languages, except that they differ in the number and nomenclature of elements.

Thus, the second step of our analysis has given us a multilayer system of phonemes, described as bundles of distinctive features (i e. the code), and the set of those features. We can now go on to the last step.

The phoneme /d/ has been defined above as a bundle of four quite definite distinctive features. As a result, we can easily recognize its manifestations in any position, e. g. in the word *dom* « house », though this /d/ does not enter into any alternations; we must only be able to ascertain that the sound under consideration is actually non-palatalized, voiced, plosive, and dental.

There is of course no contradiction in the fact that distinctive features are

found from phonemes, and the phoneme is defined as a bundle of distinctive features. The discovery of the phoneme passes two stages. At the first stage a phoneme is a part of a morpheme; it is a linguistic unit only insofar as it forms the point of intersection of several morphemes. There is not yet any independent phonology, and the phonemic system is but a shadow cast by the alternating morphemes. But having compared different phonemes within the bounds of a morpheme, we find their distinctive features and represent them as bundles of such features. This moment inaugurates the second stage of our search. We apply the new-found bundles as « yardsticks » to speech sounds, and all the sounds having common distinctive features are taken for variants of one phoneme. Phonology acquires independence of morphology and becomes autonomous. This immediately gives rise to the illusion that phonology is in general unconnected with grammar and that juxtapositions of the *bin* ~ *pin* type are quite enough for singling out phonemes and their distinctive features.

After we have made all the three steps, and phonemes are (1) segmented from the continuum, (2) described through their features and (3) identified at every point, it becomes clear that the phoneme is part of the code and a sound invariant and that a complete definition of the phoneme must take cognizance of these properties. Phoneme definition through code and sound is rooted in the all-important law that language subsumes both system and norm. It follows that every recoding of language is an illusion. There is nothing but sound language, and its transposition into another substance (be it letters of the alphabet or light signals) is its reflection and not another form, just as the echo is not another form of sound in nature. Until the third step has been accomplished, we have a useless carcass, not human language; this carcass is quite easy to recode, but in any new shape it will remain as bare of flesh and as useless as the underlying skeleton [3].

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[3] For a more detailed discussion and other references see A. S. Liberman, « Poryadok deistviy v fonologii i real'nost' različitel'nyx priznakov » [The Order of Rules in Phonology and the Reality of Distinctive Features], *Voprosy yazikoznaniya*, 1971, N. 3, pp. 60-72.



# PHONEME, ALLOPHONEME, PHONE, AND ALLOPHONE

Henry M. Truby

*Abstract*

The phonological hierarchy: sound-concept → sound has long been generally ineffectualized due to a stubborn trend among certain language scholars toward treating phonemes as *sound(s)*. In effect, this imprecision equates phoneme and phone, making one or the other redundant in phonological considerations. In over two decades of practical application, this language researcher has found no validity for the *phoneme* except in the role of sound-*concept*. The physical correlate or manifestation of the concept in question is the *phone*. It is unfortunate to find the phoneme/phone relationship simply lost or « undreamt of ».

Similarly, and relatedly, allophone and phone are almost universally equated, thus introducing and perpetuating further redundancy and ambiguity. The potential — and sometimes, and possibly originally projected — usefulness of the allophone as positionally and contextually specific *sound-imagery* is thus denied the linguist and others, in metalinguistic concerns, allophone having been irreversibly relegated to the physical domain, where, the concept of *allophoneme* being admitted, it can comfortably remain.

Briefly stated, every allophone — i. e., every interrelatedly manifested « speech-sound » — has validity for a given user (speaker or hearer) on the basis of its identification by that user with a particular phone — or « idealized speech-*sound* » — on the further basis of the identification of that phone with the sound-*image* stored as the relevant unit-concept in the phoneme inventory of the particular user. This inventory, it should be noted, is an inventory not of *sounds* but of *sound-concepts* or *sound-referents* or, as indicated, *sound-images*, but each sound-concept (i. e., phoneme) comprises an entire set — a macro-set — of sound concepts defined in terms of position and of contextual environment. Thus, the classic « family of sounds » is treated less ambiguously as « family of sound-images », and membership in this « concept family » infers *allophoneme* rather than allophone. That is, the positional and contextual variants of a given *sound-image* (i.e., phoneme) are its *allophonemes* ... the positional and contextual variants of a given *sound* (i. e., phone) are its *allophones*.

The descriptive quadrichotomy indicated in the title of this paper is thus essentially a *sound-concept/sound* paired Dichotomy, the salient definitive features of which are explicit with the terminology proffered respectfully for the critique of all interested phonemicists.

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# ZUR EVALUATION VERSCHIEDENER VORSOHLÄGE EINER ADÄQUATEREN DARSTELLUNG VON « CONSPIRACIES » IN DER PHONOLOGIE

EVA MAYERTHALER WIMMER

In der Phonologie sehr vieler Sprachen lassen sich Fälle finden, in denen bestimmte Segmentsequenzen, die innerhalb des Morphems durch Sequenzstrukturbedingungen ausgeschlossen wurden, an Morphem- und Wortgrenzen durch nicht-phonologische Prozesse wie morphologische Regeln, Wortbildung, Verkettung, gelegentlich auch durch phonologische Regeln (die meist morphologisch oder syntaktisch restringiert sind), wieder auftauchen.

Da in der generativen Phonologie die Sequenzstrukturbedingungen üblicherweise nicht über die Morphemgrenzen hinaus wirken, ist man gezwungen, solche Sequenzen durch P-Regeln zu beseitigen, was aus verschiedenen Gründen, die noch zu diskutieren sind, inadäquat erscheint.

Unter den phonologischen Prozessen, die solche in der Phonologie einer Sprache nicht zugelassenen Sequenzen beseitigen, scheinen folgende typisch zu sein:

## 1. ASSIMILATION

So ist im Italienischen z.B. eine Sequenz « Nasal+Liquid » nicht zugelassen; ebensowenig zwei Liquide in der Abfolge /lr/ [1]. In der Ableitung des Futurs mancher Verben entstehen durch eine Synkopierungsregel diese Sequenzen wieder, etwa:

/ven+ir+ò/ → /ven+r+ò/

/vol+er+ò/ → /vol+r+ò/

Sie müssen durch Assimilation in erlaubte übergeführt werden:

[verrò], [vorrò]

## 2. INSERTION

Die gleiche Sequenz wird im Spanischen, wo sie auch nicht zugelassen ist, durch Insertion eines Konsonanten in eine zugelassene verwandelt:

/ten+er+é/ → /ten+r+é/ → [tendré]

/val+er+é/ → /val+r+é/ → [valdré].

[1] Ausnahmen wie « Enrico », « Manlio » sind sehr selten.



## 3. TILGUNG

Im Italienischen kann vor der Sequenz /s/+C kein Konsonant stehen. Kommt eine solche Folge durch Wortbildung zustande [2]:

/in+skrivere/

so wird der betreffende Konsonant getilgt:

/i+skrivere/.

## 4. METATHESE

Falls metathese eine erlaubte Sequenz erzeugt, kann auch dieses Mittel verwendet werden, so etwa im Altspanischen bei Verkettung:

dad # nos → dandos

dad # le → dalde

tovo # t(e) # lo → toveldo

di # t(e) # lo → dilde

oder bei Synkope nach bestimmten Suffixen:

capitulo → cabildo

modulo → molde

retina → rienda

serotino → serondo.

Es kann auch vorkommen, daß mehrere P-Regeln zusammenwirken, um das gleiche Ergebnis zu erzielen. Ein solcher Fall ist bei der Akzentzuweisung im Italienischen zu finden. Das Akzentpattern hat im allgemeinen die folgende Form (vortonig):

3 2 3 2 3 1 oder

3 2 3 3 1.

Wo durch Verkettung in der phonologischen Phrase unerlaubte Abfolgen der Form:

3 2 2 3 ... oder 3 2 1 3 ... oder 2 3 3 3 ...

entstehen, müssen sie durch spezielle Regeln adjustiert werden [3].

Die obigen Beispiele lassen folgende Beobachtungen zu:

[2] Zu den Schwierigkeiten einer formalen Beschreibung von Tilgung und Insertion, die mit « conspiracies » zu tun haben, s. MAYERTHALER-WIMMER (1972).
Für Wörter gelehrten Ursprungs gilt die Beschränkung nicht.

[3] Vgl. die Akzentzuweisung bei CHOMSKY-HALLE (1968), S. 116, Regel (108).
Die beschriebenen Erscheinungen sind in letzter Zeit unter dem Namen « conspiracy » zusammengefaßt worden. Weitere Beispiele finden sich bei BROWN (1970), KIM (1970), KIPARSKY (1969), KISSEBERTH (1969) und (1970), MAYERTHALER-WIMMER (1972), ROSS (1969).

(*a*) Ohne die Sequenzstrukturregeln, die die jeweils relevanten Sequenzen ausschließen, und die korrespondierenden P-Regeln, die sie auf der Domäne der phonologischen Phrase beseitigen, zu explizieren, sieht man, daß der Out-put der P-Regeln jeweils eine Sub-Matrix oder identische Matrix der funktional gleichen Sequenzstrukturbedingung ist.

(*b*) Das angedeutete Beispiel der Akzent-conspiracy zeigt darüber hinaus, daß es bestimmte Regularitäten gibt, die nicht durch Sequenzstrukturbedingungen festgehalten werden, weil sie erst auf einer späteren Ableitungsstufe auftreten, wie z.B. bestimmte prosodische Gesetze, die aber gewissermaßen wie eine Wohlgeformtheitsbedingung über der ganzen phonologischen Komponente stehen Solche Regularitäten werden dann durch das Zusammenwirken mehrerer P-Regeln untereinander realisiert.

(*c*) P-Regeln, die in der phonologischen Komponente die gleiche Funktion haben wie Sequenzstrukturbedingungen im Lexikon, sind bisher in ihrem theoretischen Status gleichgestellt mit anderen P-Regeln, obwohl sie nur Tatsachen wiederholen, die bereits durch einen anderen formalen Mechanismus beschrieben werden.

(*d*) Sie erfüllen daher nur in trivialer Weise die Forderung, die für P-Regeln erhoben wird, Regularitäten und prädiktible Züge festzustellen.

Die Inadäquatheit der Verwendung von P-Regeln in den zitierten Fällen ist von verschiedener Seite festgestellt worden; verschiedene Lösungsversuche, die in diesem Zusammenhang vorgeschlagen wurden, sollen im folgenden diskutiert und mit einem eigenen Lösungsvorschlag konfrontiert werden.

Kisseberth, der nicht « conspiracies » zwischen Sequenzstrukturbedingungen und P-Regeln, sondern solche von P-Regeln untereinander behandelt, will die von Lakoff (1969) für die Syntax vorgeschlagenen « derivational constraints » in die phonologische Komponente aufnehmen. « Derivational constraints » sollen bei Kisseberth Bedingungen über zwei aufeinanderfolgende Zeilen einer Ableitung sein[4]. Auf die Beispiele 1. und 3. rekurrierend, gäbe es z.B. eine Derivationsbeschränkung derart, daß im Italienischen die (n+1)−te Zeile einer Ableitung keine Sequenz NL oder /1r/ enthalten darf, wenn die n−te Zeile keine solche Sequenz enthält, oder daß die (n+1)−te Zeile keine Sequenz C/s/C enthalten darf, wen die n−te sie nicht enthält.

Dazu kommt folgende Unterteilung obligatorischer P-Regeln:

1. Absolut obligatorische Regeln werden angewendet, wenn die Strukturbeschreibung zutrifft, gleich ob ihr Output eine Beschränkung verletzt oder nicht. Die Synkopierung /ven+ir+o/ → /ven+r+o/ wäre z.B. eine absolut obligatorische Regel bezüglich des « constraints », daß /nr/ eine nicht zugelassene Sequenz des Italienischen ist.

2. Relativ obligatorische Regeln werden nur angewendet, wenn die Strukturbeschreibung zutriff und wenn der Output der Regel einen bestimmten « constraint » nicht verletzt. So darf z.B. die Elision des Auslautvokals im Italienischen nur angewendet werden, wenn das folgende Wort nicht mit einer Gruppe /s/C beginnt, weil diese keinen anderen Konsonanten vor sich duldet, also:

[4] KISSEBERTHs Ableitungschränkungen unterscheiden sich damit von den « global derivational constraints » LAKOFFs, die für ganze Ableitungen gelten. KISSEBERTHs « constraints » sind daher im Sinne LAKOFFs eher « local derivational contraints ».



| | |
|---|---|
| *quello giorno | quello straniero |
| quel giorno | *quel straniero. |

Diese Konzeption ist meines Erachtens in folgenden Punkten kritisierbar:

(*a*) Es gibt nicht nur « conspiracies » von P-Regeln untereinander, sondern auch von Sequenzstrukturbedingungen und P-Regeln, die funktional gleich wirken. In einem solchen Fall wäre der « constraint » über den erlaubten Output der betreffenden P-Regel(n) identisch mit der funktional gleichen Sequenzstrukturbedingung, was redundant ist.

(*b*) Unzulässige Sequenzen entstehen nicht nur als Zwischenformen auf einer Ableitungsstufe zwischen der phonemischen und der phonetischen Repräsentation als Ergebnis der Anwendung einer P-Regel, sondern auch als Ergebnis von Verkettung (Beispiel 4) und Wortbildung (Beispiele 3, 4); auch in diesen Fällen werden P-Regeln gebraucht, um diese Folgen zu beseitigen. Die Einführung der « derivational constraints » trägt nichts dazu bei, die funktionelle Verwandtschaft solcher Regeln mit den korrespondierenden Sequenzstrukturbedingungen aufzuzeigen.

(*c*) Obwohl Kisseberth die « naturalness » von P-Regeln betont, die bestimmte phonetische Regularitäten herstellen, wird diese « naturalness » formal nicht expliziert. Die vorgeschlagenen « constraints » sind rein sprachspezifische Bedingungen, die nicht auf universelle Feststellungen über phonetische « naturalness » rekurrieren, was z.B. durch Einbeziehung der Markiertheitstheorie geschehen könnte. Ebensowenig findet die « naturalness » im Einfachheitsmaß Ausdruck: es können keine funktional gleichen Regeln eingespart werden; die Einsparung der Strukturbeschreibung oder von Teilen der Strukturbeschreibung in den relativ obligatorischen Regeln wird durch die zusätzliche Notwendigkeit des aufwendigen Mechanismus der « derivational constraints » wieder wettgemacht.

(*d*) Da eine P-Regel $R_i$ bezüglich verschiedener « constraints » ($C_1$, ..., $C_n$) absolut und bezüglich einer anderen Menge von « constraints » ($D_1$, ..., $D_m$) relativ obligatorisch sein kann, muß jede P-Regel für die « constraints » ausgezeichnet werden, für die sie absolut oder relativ obligatorisch ist, was eine große Anzahl von ad-hoc-Merkmalen erfordert.

(*e*) Im übrigen ist ein großer Teil der Kritikpunkte zu übernehmen, die Chomsky (1970) gegen « derivational constraints » in der Syntax aufführt. Diese laufen im wesentlichen darauf hinaus, daß die « constraints » formal überhaupt nicht eingeschränkt sind und damit die ohnehin schon zu große deskriptive Kraft der Transformationskomponente noch erhöhen, anstatt sie zu beschränken. Wenn diese Interpretation für den Vorschlag Kisseberth's auf einem Mißverständnis beruhen sollte, hat er es versäumt, seine « constraints » gegen die Lakoff's sorgfältiger abzugrenzen.

Ein ähnlicher Ansatz besteht darin, Metabedingungen, die über der ganzen phonologischen Komponente stehen, zu postulieren. Eine solcher Erweiterung der Theorie wurde für diachrone Prozesse vorgeschlagen von Foley (1970), und expliziter von Lass (1969), und für das Problem der « conspiracies » von Kim (1970), bei dem die Metabendingungen Aussagen über die Artikulationsbasis einer Sprache machen, und zwar in Termen von Bedingungen über den Input und Output von P-Regeln. Bei Lass ist jeweils einer Metaregel eine Menge von Implikationen zugeordnet, die ihrerseits wieder aus Regeln oder aus alternativen

Instruktionen, die unter bestimmten Bedingungen gewählt werden, bestehen können. Diese Implikationen sind Aussagen über den Zusammenhang diachroner Vorgänge. In keiner der erwähnten Arbeiten ist das Konzept der Metabedingung genügend eingeschränkt, um dem Kritikpunkt (e) oben zu entgehen. Im übrigen sind alle diese Metabedingungen auf die phonologische Komponente einer spezifischen Sprache zugeschnitten, ohne daß ein Bezug zu universellen Feststellungen hergestellt wird.

Brown (1970) versucht das Problem der « conspiracies » ohne einen solchen zusätzlichen Apparat zu lösen. Er nimmt an, daß lexikalische und grammatische Morpheme (letztere aus einem gesonderten Lexikon und mit dem Merkmal [+G] versehen) nicht-redundant in die syntaktische Oberflächenstruktur eingesetzt werden. Falls in einem Wort nicht ein Merkmal [+P-Regel i] vorliegt, werden die Morphemgrenzen durch die « readjustment »-Regeln getilgt und die phonetische Form allein durch die Redundanzregeln erreicht. Falls in einem Wort ein lexikalisches oder grammatisches Morphem das Merkmal [+P-Regel i] trägt, wird das lexikalische Morphem durch die Redundanzregeln voll spezifiziert, die Morphemgrenze nicht getilgt und das Wort durch diejenigen P-Regeln geschickt, für die es markiert ist. Dann wird es nochmals durch die Redundanzregeln geschickt, die die fehlenden Merkmale in den grammatischen Morphemen ergänzen. Dabei bleibt der formale Unterschied, daß Redundanzregeln Merkmale spezifizieren und P-Regeln Vorzeichen verändern, erhalten. P-Regeln haben jedoch bei Brown jetzt nicht mehr die Aufgabe, generell eine phonemische in eine phonetische Repräsentation überzuführen — dies wird ja, größtenteils von den Redundanzregeln übernommen — sie sollen nur mehr « complications » in der Phonologie behandeln, also Phänomene, die nicht zu den phonologischen Regularitäten gehören. Damit ist die Menge der P-Regeln praktisch auf das beschränkt, was bisher « minor-rules » waren. Brown will mit dieser Konzeption den Begriff des « Archiphonems » retten; « regelmäßige » Alternanzen sollen jetzt so beschrieben werden, daß die alternierenden Merkmale in der unterliegenden Form weggelassen werden und erst nach Einsetzung in die Oberflächenstruktur je nach der phonologischen Umgebung durch Redundanzregeln eingefügt werden. Redundanzregeln stellen damit nicht nur Regularitäten über die unterliegenden Formen, sondern auch über die phonetische Repräsentation auf. Der große Trumpf dieser Konzeption läge darin, daß eine Menge von P-Regeln eingespart werden, die funktionsgleich mit Redundanzregeln sind.

Leider läßt sich die Beschränkung, daß P-Regeln jetzt nur mehr Ausnahmen und komplexe Fälle Beschreiben, nicht aufrechterhalten. Bei Alternanzen können die Redundanzregeln nämlich nur dann die korrekten Werte zuteilen, wenn die Merkmale, die die Alternanz konstituieren, in der unterliegenden Repräsentation redundant sind. Brown führt eine Assimilation vor, die so geregelt werden kann. In Beispiel 1 oben dagegen ist das /n/ im Stamm /ven/ nicht redundant bezüglich [±nasal], denn es gibt keine Redundanzregel, die den korrekten Wert einsetzt, wenn dieses /n/ etwa im Kontext /ven+ir+e/ steht. Die Assimilation des /n/ zu /r/ kann daher auch nicht durch Redundanzregel erfolgen, da diese ja [+nas] in [−nas] verwandeln müßte, was nicht erlaubt ist. Eine unerlaubte Sequenz kann außerdem theoretisch oft auf verschiedene Weise (durch Durchlaufen verschiedener Redundanzregeln) beseitigt werden; so könnte im obigen Beispiel auch durch eine andere Redundanzregel die Sequenz /nn/ erreicht werden, vgl. auch Beispiel 2 und 3. Die aktuell getroffene Wahl müßte jeweils in Termen sprachspezifischer Normalität expliziert werden. Es ist nicht klar, wie Brown erreichen will, daß jeweils die richtige Redundanzbedingung gewählt wird; er übersieht offenbar, daß viele « items » für die Redundanzregeln markiert werden müßten, die sie durchlaufen dürfen.

Dies läßt seine Lösung schon weniger einfach erscheinen. Im übrigen ist sie unbrauchbar für die Fälle, in denen unerlaubte Sequenzen durch Tilgung,



Insertion, Metathese oder Assimilation von in der unterliegenden Form nicht-redundanten Merkmalen beseitigt werden. Da diese Vorgänge aber in der Phonologie einer Sprache ebenso natürlich sein können wie die von ihm beschriebenen, würde durch die Verwendung von P-Regeln in den oben angeführten Fällen und von Redundanzregeln in den von ihm zitierten Fällen ein ungerechtfertigter Unterschied postuliert.

Unter der Vermutung, daß alle diese Systeme daran kranken, daß sie keine Möglichkeit haben, den Begriff « sprachspezifische Normalität » zu explizieren, möchte ich folgende Lösung vorschlagen, die hier nur mehr angedeutet werden kann.

Cairns (1970) schlägt zwei Regeltypen vor, mit deren Hilfe das System universeller Markiertheitsbedingungen in ein sprachspezifisches umgewandelt werden kann:

(*a*) Austauschregeln der folgenden Form:

$$[\alpha u\ F] \rightarrow [-\alpha u\ F]/X__Y.$$

Sie kehren in bestimmten Kontexten *m*, *u* Werte um und legen damit Abweichungen der einzelsprachlichen Markiertheitsverhältnisse von den universellen fest. Den so umgekehrten *m*, *u* Werten werden von den universellen Interpretationskonventionen die umgekehrten ± Werte zugeteilt wie sonst.

(*b*) Neutralisierungsregeln der Form:

$$[m\ F] \rightarrow [u\ F]/X__Y.$$

Diese Regeln schließen in bestimmten Kontexten das Vorkommen von *m*s aus; sie restringieren also die Positionen, in denen in einer bestimmten Sprache *m*s vorkommen dürfen[5]. Um diese Regeln (die zusammen mit den universellen Markiertheitskonventionen die in einer Sprache zugelassenen Sequenzen in Termen von *m*, *u* Werten definieren), auf das vorliegende Problem anwenden zu können, muß der Geltungsbereich der universellen Markiertheitskonventionen wie folgt erweitert werden:

(1) Markiertheitsbedingungen gelten auch über Morphem- und Wortgrenzen hinaus.

(2) Dementsprechend gelten sie nicht nur für das Lexikon, sondern auch für ganze Ketten auf der phonemischen Ebene und für spätere Ableitungsstufen sowie für den phonetischen Output.

Eine ableitung geht jetzt so vor sich, daß nach der Einsetzung der Matrizen in die Oberflächenstruktur und Durchlaufen der Ausgleichkomponente die vorliegende phonemische Repräsentation zu den durch die obigen Regeltypen definierten Bedingungen rückgekoppelt wird, um etwaige Verletzungen festzustellen. Diese sind formal immer durch Auftreten eines oder mehrerer *m*s an nicht zugelassenen Positionen gekennzeichnet. Im Falle eines Widerspruchs muß die Kette die Neutralisierungsregeln nochmals durchlaufen, wodurch die verbotenen *m*s beseitigt werden. Die gleiche Prozedur wird nach jeder P-Regel durchgeführt.

Diese Lösung bietet folgende Vorteile:

[5] Einige N-Regeln sind universell; diese tragen nicht zur Komplexität der Grammatik bei.

(*a*) Austausch- und Neutralisierungsregeln sind nicht, wie « derivational constraints » oder Metabedingungen ein Zusatzmechanismus, da sie die Funktion der bisherigen Redundanzbedingungen übernehmen und daher unabhängig von « conspiracies » notwendig sind. Sie erhöhen auch die deskriptive Kraft der phonologischen Komponente nicht, sondern restringieren im Gegenteil die Positionen, in denen *m*s auftreten.

(*b*) Mit Redundanzregeln funktionsgleiche P-Regeln werden eingespart, was plausibel ist, da ein und dieselbe Beschränkung innerhalb des Morphems und auf einer größeren Domäne sicher keine zusätzlichen « Kosten » macht.

(*c*) Das Problem bei Brown, daß eine unerlaubte Sequenz durch verschiedene Redundanzregeln beseitigt werden kann, tritt, soweit ich sehe, nicht auf, weil die Austauschregeln *m*, *u* Werte so verteilen, daß durch die Neutralisierungsregeln automatisch das richtige Ergebnis erzielt wird; Austauschregeln stellen z.B. implizit fest, daß in einer bestimmten Sprache eine unzulässige Konsonantenfolge durch regressive und nicht progressive Assimilation beseitigt wird. Jedoch müßte noch weiter getestet werden, ob die Wahl der richtigen N-Regel zur Beseitigung von *m*s in jedem Fall eindeutig erfolgt.

(*c*) Der wichtigste Vorteil besteht darin, daß die Beseitigung von nicht zugelassenen Folgen mit dem Begriff « sprachspezifische Normalität » verknüpft wird. Die N-Regeln behalten bei der Anwendung auf ganze Ketten den gleichen Wert, den Cairns angedeutet hat: sie müssen nicht gelernt werden. Vielmehr hat ein Kind zu Beginn des Spracherlernungsprozesses alle möglichen N-Regeln und damit nur unmarkierte Sequenzen. Mit wachsender artikulatorischer Geschicklichkeit werden N-Regeln sukzessiv abgebaut; immer mehr *m*s tauchen in der Kette auf. Am Ende bleiben nur die N-Regeln, die in der betreffenden Sprache wirksam sind.

Es sei nicht verschwiegen, daß die obige Lösung einige Schwierigkeiten hat:

(*a*) Nicht alle N-Regeln wirken über Morphem-und Wortgrenzen hinaus, so daß man Grenzsymbole in den N-Regeln zulassen muß.

(*b*) Die Beschreibung von Tilgung und Insertion sind mit dem gegenwärtigen Status des Merkmals « Segment » nicht zu leisten [6].

Beispiel 1 ist ein besonders einfacher Fall, bei dem keine Austauschregeln gebraucht werden. Auf Grund der Interpretationskonvention [7]:

I(1) [u nas] → [−nas]

ist /n/ für « nasal » markiert, /r/ unmarkiert.

Eine sprachspezifische N-Regel schließt das *m* in der Position vor einem Sonoranten aus:

$$\text{N(1)}\quad [\text{m nas}] \rightarrow [\text{u nas}] / \begin{bmatrix} \text{———} \\ \text{m cons} \end{bmatrix} \begin{bmatrix} \text{m silb} \\ \text{m cons} \end{bmatrix}$$

Die beiden Segment unterscheiden sich noch durch ein weiteres Merkmal: /n/ ist [−dauernd], /r/ ist [+dauernd]. Nachdem aber in Segment /n/ der Markiertheitswert durch N(1) umgekehrt worden ist und durch I(1) jetzt als [−nas] interpretiert wird, wird der richtige Wert für « dauernd » durch « linking »

[6] Über die seltsamen Konsequenzen, wenn dieser Status beibehalten wird, s. Mayerthaler-Wimmer (1972).
[7] s. CHOMSKY-HALLE (1968), S. 405.



eingespult. Damit wird die für das Italienische gesetzmäßige Restriktion formuliert, daß die Sequenz NL ausgeschlossen ist; wenn sie, wie in Beispiel 1, in der Ableitung wieder auftritt, kann sie durch Rückkoppeln in die N-Regeln wieder beseitigt werden.

Schließlich noch ein Beispiel, das die Wirkun von Austauschregeln zeigt. Im Italienischen gibt es keine Sequenz /pt/, weder im Lexikon noch auf der phonetischen Oberfläche. In der Ableitung mancher Partizipien kommt sie jedoch vor und muß durch Assimilation beseitigt werden:

/rump+er+e/ → /rump+ut+o/ → /rump+t+o/ → /rup+t+o/ → /rutto/ → [rotto]

/p/ und /t/ unterscheiden sich bezüglich des Merkmals « koronal », für das Blust [8] folgende Interpretationskonvention plausibel gemacht hat:

$$\text{I(2)}\quad [\text{u kor}] \rightarrow \left\{ \begin{matrix} [+\text{kor}] \\ [-\text{kor}] / \text{____} [+\text{silb}] \end{matrix} \right\}$$

Demgemäß liegen in den Folgen /pt/, /tt/ folgende Markierungen vor:

p t t t

u u m u koronal.

Da im Italienischen /pt/ nicht auftritt, müßte es markierter sein als /tt/. Diese Abweichung von den universellen Markiertheitsverhältnissen formuliert folgende Austauschregel:

[αu kor] → [−αu kor] / ____ [u kor].

Ihre Anwendung ergibt folgende Markierung (ausgetauschte Werte unterstrichen):

p t t t

*m* u *u* u koronal.

Eine N-Regel schließt die markierte Position aus:

N(2) [m kor] → [u kor] / ____ [m cons].

Dieser Mechanismus schließt sowohl die Sequenz /pt/ im Lexikon aus, als er sie in einer Kette in der Ableitung durch Rückkopplung beseitigt [9].

Zum Funktionieren des Vorschlags muß allerdings noch eine Annahme gemacht werden: da die Merkmale in Ketten, die bereits P-Regeln durchlaufen haben, nicht mehr mit *u*, *m* Werten, sondern mit ± Werten spezifiziert sind, müssen die Interpretationskonventionen jederzeit während einer Ableitung ver-

[8] BLUST, R. A. (1970), A Further Note on Marked Order in Consonant Clusters, Hawaii Working Papers in Linguistics, 2: 1, 168-178.
[9] Ich habe hier nur Assimilationen vorgeführt, doch gibt es auch Beispiele, in denen sich Metathesen, die mit « conspiracies » zu tun haben, auf diese Weise handhaben lassen, ohne daß eine Permutationstransformation formuliert werden muß. Es ist die Frage, ob diese Möglichkeit intuitiv plausibel erscheint oder ob sie ein Hinweis darauf ist, daß der Apparat eventuell zu « powerful » ist.

fügbar sein, mit anderen Worten: es gibt keine Abbildungsrichtung zwischen *u*, *m* und ± Werten.

*München*

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# IS EXTRINSIC ORDER NECESSARY?

ANDREAS KOUTSOUDAS

1. The assumption that rules must be extrinsically ordered, that is, that language-specific restrictions must be imposed on the application of rules, has been accepted as an important and well-established insight into the nature of language from the earliest studies in transformational theory. See, for example, Chomsky, 1957; Postal, 1968; Chomsky-Halle, 1968; and Postal, 1971.

The purpose of this paper is to propose that extrinsic ordering is not necessary for the explanation of any facts about natural languages and also to propose, therefore, that the following assumption regarding the ordering of rules is the only viable one.

(1) All rules are unordered, i. e. no rules are extrinsically ordered.

In making this proposal, I am not claiming that rules are totally unrestricted in their application and that they therefore apply randomly, but that all restrictions on the application of rules are determined by language-independent rather than language-specific principles. As evidence in support of the assumption that all rules are unordered [1]. I will discuss three types of arguments given in support of the assumption that rules must be extrinsically ordered and show that they fail to support this assumption. I will show that, in each case, the empirically correct application of the rules in question is either unrestricted or predictable from universal principles of grammar, and thus show that extrinsic ordering can be eliminated without a loss of generality.

2. The CYCLE si a generally accepted universal principle of grammar; its function is to constrain transformational rules to apply from the most deeply embedded sentence to the next most deeply embedded sentence, and so on, to to the sentence which is not embedded at all. Once this principle is assumed, a type of argument given in support of the assumption that rules must be extrinsically ordered can be shown to be invalid. Consider, for example, Ross's claim (1968: 81) that Passive and Relative Clause Formation must be extrinsically ordered as in (2).

(2) 1. Passive (optional)

2. Relative Clause Formation (obligatory)

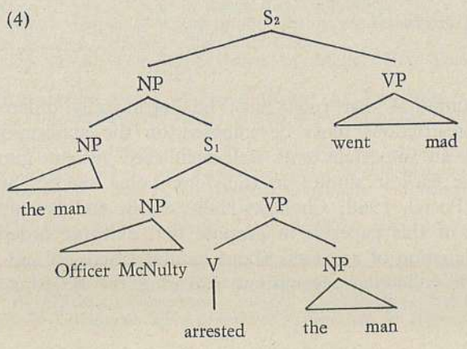
The argument is that, unless these rules are extrinsically ordered as in (2), sentence (3) cannot be derived.

[1] For additional evidence in support of this assumption see Koutsoundas, 1971a, b, and c; Koutsoudas, Sanders, and Noll, 1971; Lehmann, 1971; and Ringen, 1971.

(3) The man who was arrested by Officer McNulty went mad.

It is obvious that, in deriving sentences like (3), the application of Passive must precede the application of Relative Clause Formation. It is equally obvious, however, that if these rules apply cyclically in such derivations (and I know of no evidence that is incosistent with this assumption [2]), extrinsic order is not necessary to guarantee this order of application: if these rules are cyclic, Passive will always apply on an earlier cycle than Relative Clause Formation, and thus the application of Passive will necessarily precede the application of Relative Clause Formation. To see this, assume that these rules apply cyclically, that they are unordered, and that the structure underlying sentence (3) is (4).

(4)




Clearly, Relative Clause Formation can apply to this phrase marker only on the $S_2$ cycle, and, being obligatory, it must be applied on this cycle. Passive, however, can apply to (4) only on the $S_1$ cycle. To derive sentence (3), therefore, we must apply Passive first and then Relative Clause Formation. This sequence of application is precisely the sequence Ross wanted guaranteed.

Another example of the type of argument under discussion involves Ross's (1969) rule of Sluicing. Sluicing is a deletion rule that relates pairs of sentences like (5) and (6).

(5) He is writing something, but you can't imagine what he is writing.

(6) He is writing something, but you can't imagine what.

Ross claims that the application of Sluicing must be restricted to follow the application of Wh-Fronting (Question Formation in his terminology) in any derivation requiring the application of both these rules, e.g. in derivations of sentences like (6). He further states that this applicational restriction must be guaranteed by extrinsically ordering these rules as in (7).

(7) 1. Wh-Fronting (obligatory)

2. Sluicing (optional)

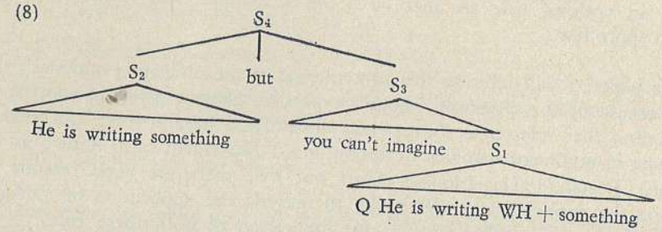
This applicational restriction can also be guaranteed without imposing extrinsic order on the rules however, simply by requiring them to be cyclic [3]. Once this is done, it will always be the case that, in deriving sentences like (6), Sluicing will

[2] Postal (1971: 74, 148) claims that Relative Clause Formation (Wh-Rel-Movement in his terminology) is a noncyclic rule, but provides no evidence for this claim.



apply on a later cycle than Wh-Fronting, assuring that the application of the rules will always be Wh-Fronting followed by Sluicing. For example, assume that the structure underlying (6) is (8).

(8)




Assuming, further, that the rules are unordered and apply cyclically, Sluicing cannot apply to (8) before we reach the $S_4$ cycle. The structural description of Wh-Fronting is met, however, on the $S_1$ cycle and, being obligatory, it must be applied on this cycle. This means that, in deriving sentence (6), Wh-Fronting must be applied on the $S_1$ cycle and Sluicing on the $S_4$ cycle; this is equivalent to saying that, in the derivation of this sentence, the application of Sluicing must follow that of Wh-Fronting.

3. In addition to the principle of the cycle, a linguistic metatheory must include definitions of the notions « obligatory rule » and « optional rule ». In a theory without extrinsic order, these notions may be understood as follows.

(9) An obligatory rule is a rule that must apply to a phrase marker if that phrase marker meets the structural description of that rule.

(10) An optional rule is a rule that does not necessarily apply to a phrase marker if that phrase marker meets the structural description of that rule.

Ringen (1971) has pointed out that a consequence of this characterization of

[3] Postal (1971: 74-6) assumes that Wh-Fronting (Wh-Q-Movement in his terminology) is an obligatory rule which can move either an NP alone or a PREP + NP, and claims that the following data provide a basis for arguing that this rule must necessarily be non-cyclic.

(a) who were you talking to?
(b) to whom were you talking?
(c) who do you believe Bill saw Mary talk to?
(d) to whom do you believe Bill saw Mary talk?
(e) *who do you believe Bill saw to Mary talk?
(f) *who do you believe to Bill saw Mary talk?

The argument is that, if Question Formation were cyclic, the derivation of sentences like (e) and (f) could not be blocked, for there would be no way to stop this rule from moving a PREP + NP in one cycle, but only an NP on a higher cycle. If this rule were non-cyclic, on the other hand, this situation would never arise, because the PREP + NP or the NP would always be moved at once from one end of a string to the other. Question Formation must, therefore, be a non-cyclic rule.

To me, this argument is not very convinving. Notice that the structural description of Wh-Fronting must explicitly mention either a *Q* or a higher verb. Notice further that, in the structure underlying sentences like (b) and (c), it is assumed that there is only one *Q* or a higher verb and that this element will be in the highest S. Given these observations, it follows that if Wh-Fronting is cyclic, it will never be the case that PREP + NP is moved on one cycle but NP on a different (and higher) cycle; therefore, it will always be the case that the derivation of sentence like (e) and (f) will be blocked.

obligatory and optional rule is the following [4].

(11) If on any one cycle, the structural descriptions of both an obligatory and an optional rule are met by a phrase marker, the obligatory rule must apply first.

In this paper, I will refer to this consequence as the obligatory-optional principle.

Because of this principle, another type of argument given in support of the assumption that rules must be extrinsically ordered has no force. An example of this type of argument involves Reflexive and Y-Movement (also known as Topicalization). Postal (1971: 146-48) points out that there are good reasons for restricting the applicatsion of Reflexive to precede the application of Y-Movement in deriving sentences that require the application of both these rules, e. g. sentences like (12).

(12) Himself, Harry loves.

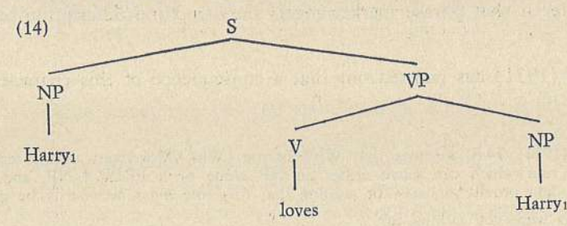
Postal claims that to guarantee this applicational restriction, the rules in question must be extrinsically ordered as in (13).

(13) 1. Reflexive (obligatory)

2. Y-Movement (optional)

I is true, as Postal says, that in deriving sentences like (12). the application of Reflexive must be restricted to precede that of Y-Movement. It is equally true, however, that extrinsic ordering is not necessary to guarantee this. Given that these rules are unordered and that the structure underlying sentence (12) is (14), the principle of the cycle cannot be evoked to guarantee the desired restriction on the application of these rules, for there is only one cycle in (14); however, the obligatory-optional principle will guarantee this restriction.

(14)




The structural description fo both the Reflexive and Y-Movement rules are met by (14). But since Reflexive is an obligatory rule and Y-Movement is an optional rule, the obligatory-optional principle requires that Reflexive must apply to this phrase marker rather than Y-Movement. Once it has been applied, Y-Movement can then be applied to give sentence (12). And this applicational sequence is precisely the one Postal wanted guaranteed.

4. A third type of argument given in support of the assumption that rules must be extrinsically ordered can be shown to be invalid because the rules in question do not require any restrictions whatsoever on their application to ensure

[4] Ringen has pointed out one more consequence: there would never be a well-formed phrase marker which meets the structural description of two obligatory rules unless these rules can be applied simultaneously. The implications of this consequence have not been fully investigated as yet. See, however, Koutsoudas, Sanders, and Noll, 1971: 5-11.



the proper derivation of the sentences involved. To impose extrinsic order on these rules, therefore, is totally unnecessary. Consider, for example, Postal's (1971: 148) claim that Passive and Y-Movement must be extrinsically ordered as in (15).

(15) 1. Passive (optional)

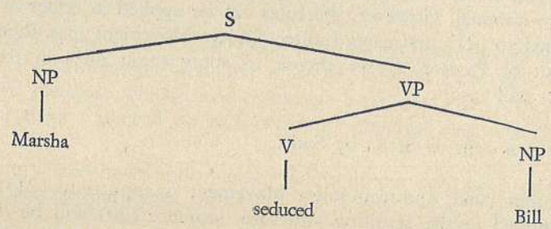
2. Y-Movement (optional)

The argument is that, unless these rules are extrinsically ordered as in (15), sentences like (16) cannot be derived.

(16) Marsha, Bill was seduced by.

It is the case, however, that in deriving sentences like (16), no applicability restrictions need to be observed. For example, assume that Passive and Y-Movement are unordered and that the structure underlying (16) is (17).

(17)




Neither the principle of the cycle nor the obligatoryoptional principle can play any role in determining the correct derivation of sentence (16): (17) has only one cycle and the rules in question are both optional. However, either order of application of these rules results in the derivation of a grammatical sentence. If Y-Movement is applied to (17) first, Passive cannot apply to the resulting structure, since it does not meet the structural description of this rule. This sequence of application will give sentence (18).

(18) Bill, Barsha seduced.

If, on the other hand, Passive is applied to (17) first, the resulting structure will meet the structural description of Y-Movement; and if we choose to apply this rule, sentence (16) will be derived. Clearly, then, sentences like (16) can be derived without extrinsic order, simply by allowing Passive and Y-Movement to apply randomly.

Another example of the type of argument under discussion involves the claim, which has been made a number of times in the literature (e. g. Fillmore, 1965; Jacobs and Rosenbaum, 1968; Postal, 1971), that Passive and Indirect-Object Movement must be extrinsically ordered as in (19).

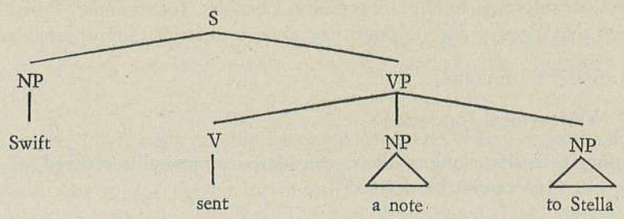
(19) 1. Indirect-Object Movement (optional)

2. Passive (optional)

Jacobs and Rosenbaum (1968: 45-47), for example, argue that since Passive operates on a noun phrase immediately after a verb, if these rules are not extrinsically ordered as in (19), sentences like (20) cannot be derived from structures like (21).

(20) Stella was sent a note by Swift.

(21)




Extrinsic order is not necessary to account for sentences like (20), however, because these rules do not require any ordering restrictions whatever to ensure their proper application. To see this, assume, with Jacobs and Rosenbaum, that the structure underlying sentence (20) is (21) and, in addition, that these rules are unordered. The principle of the cycle and the obligatory-optional principle can play no role in deriving sentence (20) because (21) has only one cycle and both rules are optional. However, the rules can be applied in either order. Passive may be applied to (21) first; and Indirect-Object Movement may then be applied to the output of Passive. If we choose to apply these rules in this sequence, sentence (22) will result.

(22) A not was sent to Stella by Swift.

If, on the other hand, Indirect-Object Movement is applied to (21) first, and if Passive is applied to the resulting structure, sentence (20) will be derived. This shows clearly that extrinsic ordering is not necessary to derive sentences like (20).

5. Three types of arguments given in support of the assumption that rules must be extrinsically ordered have been examined and shown to be invalid. I have shown that, without changing the proposed rules in any way, the facts in question can be accounted for, with equal or greater generality, without extrinsic ordering, given only the language-independent principles of the cycle and the notions of « obligatory rule » and « optional rule » as defined in (9) and (10), respectively. This supports the proposal that, although there are restrictions to be observed regarding the order of application of rules, these restrictions are predictable from language-independent principles, and extrinsic ordering therefore is not necessary for the explanation of any facts about natural languages.

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# RULE ORDER AND OBLIGATORY RULES

CATHERINE RINGEN


*Abstract*

Some recent studies indicate that there is reason to question the assumption that rules of a transformational grammar must be ordered. This paper will be a discussion of one principle which could determine how some rules would apply if transformational theory allowed no rule ordering. Roughly, this principle is

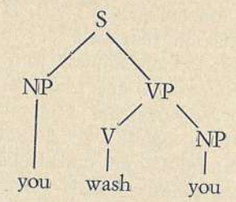
(1) an obligatory rule must apply at any point in the derivation at which its structural description is met

This is in contrast to a theory with ordered rules where

(2) an obligatory rule must apply if its structural description is met only if it is the « turn » of that rule to apply

Certain facts in syntax, previously thought to be good evidence in support of rule order, can be accounted for given principle (1). For example, it has been argued that Reflexive must be ordered before Imperative Formation in English so that *wash yourself* but not *wash you* can be generated from

(3)




Principle (1) will correctly predict that in English, Reflexive (obligatory) must apply to (3). It is irrelevant whether Imperative Formation is obligatory or optional. If obligatory, (1) will require that it too apply to (3) — which is possible of course only if simultaneous application of some rules is allowed; if optional, (1) would not require that Imperative formation apply to (3) — but in either case, grammatical sentences would be generated and the ungrammatical ones blocked.

These observations will be discussed in light of (i) the empirical consequences of including principle (1) in a theory with unordered rules and (ii) the relative falsificability of the theory with principle (1) and the theory with principle (2).


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# RELATIONS ENTRE UNIVERSAUX, RÈGLES PHONOLOGIQUES ET RÈGLES DIACHRONIQUES

René Jongen

Nous indiquerons, à la lumière d'un certain nombre de données empiriques, quelques unes des implications nouvelles introduites en phonologie générative par la théorie du caractère marqué (markedness/Markiertheit). Il nous apparaît que ces développements récents signifient une révision de certains principes fondamentaux de la phonologie générative et reflètent un retour à certains principes de la phonologie autonome.

I - La distinction fondamentale entre données phoniques spécifiques, non prédictibles, d'une part, et données phoniques interprétables en termes de régularité générales, d'autre part, est à la base de la dichotomie au niveau du mécanisme postulé destiné à rendre compte de la compétence phonologique du native speaker. Le niveau phonologique sous-jacent fournit l'information diacritique minimale et idiosyncrasique. Ce donné diacritique, intégré au sein de séquences syntaxiquement structurées de matrices classificatoires, est finalement interprété en termes de segments phonétiques par les règles de la composante phonologique proprement dite.

Le caractère théorique d'un tel mécanisme (statut de réalité des éléments posés?) oblige à recourir à des techniques d'évaluation. On a surtout cité et employé le critère de la simplicité. Celui-ci détermine des principes de procédure tels que l'ordre des règles phonologiques (RP), la réduction de règles isolées en schèmes de règles, la réduction maximale des représentations lexicales en des matrices non redondantes (archiphonémiques), sans oublier le principe fondamental de l'identité de nature référentielle des traits distinctifs (binaires) et des traits phonétiques (non binaires) (non-existence d'un niveau phonématique; naturalmess condition, Postal, 1968). Cela signifie, en définitive, que les RP décrivent les « écarts » spécifiques des iterprétations universelles.

Assez récemment, on a ajouté — mais aussi partiellement substitué — à ce premier critère celui de caractère plausible ou naturel (théorie de la markedness). Ce dernier représente, à notre sens, une correction de ce que le premier avait de trop exlusivement formel. Son utilisation systématique replace au centre de la recherche phonologique des problèmes qui jusqu'à ce jour avaient été l'objet exclusif de la phonologie autonome.

L'introduction du critère du caractère « naturel » (non marqué) présuppose d'abord une connaissance exhaustive de la réalité phonique universelle, connaissance qui est loin d'être réalisée et qui, pour l'instant, doit s'appuyer sur les données empiriques de domaines très variés (voir Postal, 1968, p. 168-171; Venneman, 1971).

Elle détermine en outre une représentation quelque peu modifiée de la phonologie: définition des formes sous-jacentes lexicales en termes exclusifs de traits marqués, l'ensemble des autres traits phoniques étant introduits par le truchement



de conventions universelles d'interprétation (CUI). Chaque segment des matrices classificatoires et diacritiques sous-jacentes (input des RP) est dès lors directement interprétable en termes d'une combinaison de valeurs précises sur la totalité des dimensions phonétiques. En d'autres mots: les traits distinctifs possèdent dès la structure la plus profonde un contenu intrinsèque. Comme l'absence de marque pour une dimension déterminée signifie la présence de la valeur « naturelle », on peut dire que toute la réalité phonique se trouve être représentée dès ce niveau. Il ne peut donc plus être question de « réduire » le nombre des traits distinctifs à une liste restreinte (p. ex. sur la base de complémentarités distributionnelles).

En outre, les CUI opérant de façon constante et donc aussi au niveau des dérivations générées par les RP (linking rules de Chomsky-Halle; degré de plausibilité des RP elles-mêmes) on ne pourra plus maintenir que l'ordre des règles ne soit déterminé que par la seule plus grande simplicité, puisque celle-ci ne peut plus être obtenue au détriment de RP non ou moins naturelles. Se trouve même menacée: la condition de base des alternations, condition qui garantissait jusqu'alors une ligne de démarcation assez explicite entre la synchronie et la diachronie (en interdisant p. ex. de reconstituer un passé enfoui dans les profondeurs inaccessibles du système actuel) (« if a form appears in a constant shape, its underlying representation is that shape », Kiparsky, 1968, cité par Wurzel 1970, càd. refus de la neutralisation absolue).

II - On se bornera ici de citer quelques implications importantes:

1. Importance des notions de « système » et de « structure » phonologique, tant au niveau du lexique qu'à celui des outputs de RP. Les CUI rendent compte du degré de normalité/plausibilité des combinaisons intra- et intersegmentales de traits. Au niveau du lexique, on procède tout d'abord à une réduction des traits diacritiques à ce qui constitue l'utilisation optimale du donné phonique universel (une langue qui n'aurait, à la surface, que des consonnes sonores, aurait à ce niveau profond soit des sourdes et des sonores (U/M), soit uniquement des sourdes (U)). Il faut faire l'inventaire des dimensions marquées, càd. établir la structure phonologiuqe (utilisation effective des moyens diacritiques potentiels), parce que les conventions universelles de normalité sont déterminées par la structure existante et son organisation interne.

Ainsi, il doit y avoir une hiérarchie des traits (Chomsky-Halle, 1968, p. 410; p. ex. /ɔ/ est peu plausible dans un système contenant par ailleurs /a, i, u/, parce que dans ce système le trait « high » reste non marqué et que /ɔ/ implique la valeur marquée pour « round »). D'autre part, il semble qu'il faille tenir compte aussi du nombre total de traits marqués qu'utilise un système, nombre qu'il faut minimaliser (Chomsky-Halle, 1968, p. 410).

Les mêmes conditions universelles opèrent au niveau des outputs phonologiques, entraînant une adaptation automatique de certaines valeurs concomitantes à la valeur générée par la règle (p. ex. en coréen /kiw/ $\rightarrow$ [−relâché] et, par CUI, $\rightarrow \begin{bmatrix} -\text{asp.} \\ +\text{occl.} \end{bmatrix}$ = [kip̄], voir McCawley, 1967). L'opération de pareilles conventions, de même que l'introduction de conditions générales supplémentaires (Chomsky-Halle; Wurzel), impliquent une référence explicite à l'inventaire des éléments distinctifs, tel qu'il existe au moment de la dérivation impliquée, et à son organisation interne (p. ex. le principe de symétrie établi par Chomsky-Halle, 1968, p. 431, corrigé par Wurzel, 1970, p. 161).

Ainsi, Wurzel décrit comme « naturelle » l'interprétation [+rd] ou [−rd] des voyelles générées par la règle d'Umlaut ([+syll.] $\rightarrow$ [−vél.]/X, p. 161): les conventions (A)[U rd] $\rightarrow$ [α rd]/$\begin{bmatrix} \alpha \text{ vél.} \\ -\text{bas} \end{bmatrix}$ et (B)[U rd] $\rightarrow$ [−rd]/[+bas] sont bloquées par l'existence préalable dans le système de spécifications marquées

pour le trait [rd]. Notons en passant que ce schéma, valable pour l'allemand actuel (si l'on admet des voyelles rondes marquées dans le lexique), ne fournit aucune explication naturelle et satisfaisante au surgissement, dans l'épaisseur diachronique, de la règle qui doit avor introduit dans la phonologie de l'allemand la valeur marquée distinctive de l'arrondissement ((1)=[+syll.] → $\begin{bmatrix}-\text{vél.}\\+\text{rd}\end{bmatrix}$ /−bas X): en effet, le principe de la symétrie (Chomsky-Halle, 1968) rend compte du fait que des processus phonologiques qui détruisent une symétrie sous-jacente doivent être taxés de moins généraux et moins plausibles que ceux qui la maintiennent. Il garantit que la structure concomitante de l'input est normalement transférée à l'ouput. Dans le cas précis de l'Umlaut, les conventions (A) et (B) sont bloquées, parce que aucune ne peut s'appliquer à tous les segments générés par la règle (a) ü, ö vs b)æ(→ e)). C'est pourquoi le réseau des relations phonologiques de l'input (/u, o, a/ = +rd vs −rd; +high, −low vs −high, −low vs −high, +low) est tout naturellement maintenu à l'output (le désarrondissement des voyelles non basses étant taxé de moins naturel, malgré la convention (A)). Wurzel restreint l'application de ce principe à une condition très précise: l'existence préalable, dans le système, de la valeur marquée du trait ainsi interprété (arrondissement). Il ne fournit dès lors aucune explication naturelle à la règle (1). On peut se demander si l'on ne pourrait faire jouer la fonction de distinctivité elle-*même*: l'interprétation des valeurs (non) marquées serait alors fonction aussi de la structure globale du système.

Autre exemple: la plausibilité de la RP d'allongement d'une voyelle en syllable ouverte (=(3)=v → [+long]/→ $C_1{}^1v$) sera plus grande si elle est précédée d'une RP qui assimile la gémination consonantique à la longuer du segment (=(2)=CC′ → $\overline{C}$) et suivie d'une autre RP qui abrège le cons. longues (=(4)= $\begin{bmatrix}-\text{syll.}\\+\text{lg}\end{bmatrix}$ → [−lg]) (cfr. [$\overline{C}$] est moins naturel que [$\overline{v}$]). La règle 3 compense la tendance naturelle qui se réalise en 4.

2. Au principe de la spécification automatique de valeurs normales de traits s'ajoute celui de la plausibilité des RP elles-mêmes. Ici aussi, l'évaluation ne peut que se fonder sur des données empiriques. Du point de vue diachronique, les RP (et les changements qu'elles reflètent) peuvent être considérées comme le résultat d'un conflit constant entre deux tendances (contradictoires) à plus de naturalité: 1) assimilations intersegmentales et 2) assimilations intrasegmentales. Le produit d'une assimilation naturelle sur l'axe syntagmatique est réorganisé en une combinaison paradigmatique plus naturelle, p. ex. x → ç (→ š, dans certains dialectes) en allemand: x → ç/* $\begin{bmatrix}-\text{obstr.}\\-\text{vél.}\end{bmatrix}$ — est une RP naturelle d'assimilation intersegmentale (−vél. = −vél.), son output [ç] constitue cependant une combinaison intrasegmentale de traits peu naturelle ([−cor] et [−strid.] sont marqués en présence de $\begin{bmatrix}+\text{haut}\\-\text{vél.}\\-\text{ant.}\end{bmatrix}$, voir Chomsky-Halle, p. 421; Wurzel, p. 199). Le passage ç → š (= $\begin{bmatrix}-\text{vél.}\\+\text{ht}\\-\text{ant.}\\+\text{cor.}\\+\text{strid.}\end{bmatrix}$) n'est donc rien qu'une simplification de la règle (voir aussi Ballard, 1971, p. 15, rem. 13: « A change towards an unmarked entity in the paradigm may make some of the syntagms containing this entity more complex; conversely, a change towards unmarkedness in the syntagm may represent a change to a marked entity in the paradigm »).

L'application de ce principe peut mener à une révision du système des



spécifications des traits distinctifs (p. ex. McCawley définit /č/ comme [+fermé], ce qui permet, pour ty → čy, la règle: [−fermé] → [+fermé]/— $\begin{bmatrix}\text{glide}\\+\text{terme}\end{bmatrix}$).

Les spécifications des segments en traits distinctifs sont des constructions théoriques, dont le degré d'adéquation dépend directement du caractère naturel des données empiriques qu'elles prétendent désigner. En ce sens, la définition que Halle donne d'une « classe naturelle » (p. ex. 1962), n'est pas opératoire. La constatation répétée de traitments identiques, dans différentes langues, des éléments /p-s-i-h-o/ p. ex. nécessiterait une redéfinition des traits qui fasse coincider les deux notions « naturel » et « simple ». C'est donc bien le caractère de « naturalité » qui fonde la classe. A son tour, ce caractère demande un fondement et un contrôle empiriques (voir p. ex. Bechert, 1971). La même remarque vaut pour le caractère de plausibilité des règles. McCawley (p. 117) et Chomsky-Halle (p. 429, rem. 15) citent le cas de la règle (et du changement) phonologique ripuarien t → k/ $\begin{bmatrix}+\text{syll.}\\-\text{cons}\\+\text{haut}\end{bmatrix}$ — (lük = Leute, tsik = Zeit, kiŋk = Kind). Dans l'optique des CUI, la fermeture, par assimilation syntagmatique, du /t/ eût normalement dû produire une combinaison des traits $\begin{bmatrix}+\text{haut}\\+\text{cor}\\-\text{ant.}\\+\text{del rel.}\\+\text{strid.}\end{bmatrix}$ =[č] (et non [k]! (càd. une « fermeture » de cons. dentales produit normalement des palato-alvéolaires stridentes). L'output [k] ( $\begin{bmatrix}+\text{vél.}\\-\text{cor}\\-\text{strid.}\end{bmatrix}$ ) serait par contre naturel si une règle préalable changeait /t/ → [t°] (=[−vél.] → [+vél.]). De tels cas méritent une analyse plus appronfondie, qui engloberait non seulement la totalité du système (il y a 1) le phénomène de la Ripuarische Mouillierung =/n, d, t/→ /ŋ, g, k/= šiŋə, scheinen; šnigə = schneiden; tsik = Zeit) et 2) celui de la Gutturalisierung =/nd, nt/→/ŋ, ŋk/), mais aussi la totalité des dialectes concernés (dans certains dialectes, la Mouillierung ne porte que sur /n/, et la Gutturalisierung produit des formes intermédiaires /n/; d'autre part, les voyelles concernées sont de préférence $\begin{bmatrix}+\text{haut}\\-\text{vél.}\end{bmatrix}$, plus rarement [+vél.] ou [−fermé]) (voir Welter, pp. 108-119). D'autre part, il semble qu'il y ait une relation étroite entre ces changements et la présence de l'accent frappé (ou Schärfung = un des deux termes de l'opposition prosodique lexicale de l'accentuation rhénane). Or, il n'est pas interdit de penser que cet accent a entraîné une légère vélarisation de l'articulation consonantique. Dans certaines régions, il apparaît même en concomitance avec un Kahlkopfverschluss (coup de glotte).

Le principe de la plausibilité des règles peut, à l'extrême, mener à des révisons de principes plus fondamentaux. Ainsi, certaines règles diachroniques opèrent manifestement durant un laps de temps plus ou moins long, commençant avant et ne s'arrêtant qu'après d'autres règles (voir Newton, 1971). Le critère de la simplicité formelle impose un ordre précis de RP uniques (non cycliques), au détriment de généralisations d'un type plus substantiel. Si l'on s'en tient aux principes fondamentaux qui fondent l'ordre des règles (assymétrie, transitivité ...), il s'avère difficile voire impossible d'incorporer dans le mécanisme génératif le haut degré de « normalité » que réalise le phénomène diachronique (et donc aussi synchronique) de la linéarité de certaines règles. Leur nécessaire reproduction en un espace strictement ponctuel, toute règle étant unique et ne pouvant s'appliquer qu'aux inputs « nourris » par les règles la précédant, apparaît dès lors comme une faiblesse. Ainsi, de nombreux dialectes germaniques connaissent une règle d'abrègement des voyelles devant deux consonnes (=(5)). Souvent cette règle a

opéré à des époques différentes, de façon plus ou moins constante. Durant ce laps de temps, d'autres règles ont opéré, « nourrissant » la règle d'abrégement (5), mais aussi modifiant certains des segments générés par elle. Ainsi, en bas-francique méridional: srīvə (écrire) - šreft (écriture) - šrift ((il) écrit). La même règle d'abrègement a opéré sur des segments vocaliques dérivés d'un même /ī/ sous-jacent, mais à des endroits différents (srīvt → srift → sreft = (6) règle d'abaissement d'une voyelle fermée) vs šrīvet → šrī:vet (accent frappé) → šrī:vt (=(7)= élimination du [e]) → šri:ft. La règle 6 a cessé d'opérér au moment où 7 s'applique, mais la règle d'abrègement « chevauche » l'une et l'autre, càd. 5 nourrit 6, 7 nourrit 5 et 6 précède 7. Même phénomène pour le Umlaut: puət (Pfote) → pøtšə/pyətšə (forme sous-jacente /pōt/).

Le phénomène « naturel » de généralisation par analogie pose des problèmes semblables. Ainsi ces mêmes dialectes bas-franciques méridionaux présentent, au niveau de la morphologie verbale, les quatre classes verbales suivantes: 1) −fort/+rég. (mak-ede → ma. gdə); 2) +fort/+rég. (vlēg → vlō:x); 3) −fort/−rég. (verbes à Rückumlaut, drøm → drō.m-t); et 4) + fort/−rég. (blīv → blę̄.f-t). La voyelle radicale des verbes de la classe 3 est spécifiée par RP comme étant [−accent frappé] (représenté [v]). (Règle de l'accent frappé = v → v : /— $\begin{bmatrix} +\text{cons.} \\ -\text{syll.} \\ +\text{voisé} \end{bmatrix}$ [+syll.]). Les verbes de la classe 4 reçoivent cette même spécification, cependant par règle de redondance morphologique. En outre, l'introduction du trait [−accent frappé] doit suivre des RP qui opèrent sur des inputs nourris par l'accent frappé (blīv → Imparft bliv-et → blev-et (abaissement) → blēvet (allongement) → blē:vet (acct frappé) → blę̄:vet → blę̄.ft ([−acct frappé]) vs rīt → ritet → retet → rētet → rē.tet ([−acct frappé], par RP) → rɐə.tet (diphtongaison) → rɐə.t = er blieb vs er riss). En d'autres mots, certains verbes de la classe 4 (blīv, šrīv, vrīv ...) subissent les effets de deux règles contradictoires: la qualité de la voyelle (monophtongue) est celle des voyelles [+acct frappé], l'accent (acct traîné) est celui des verbes de la classe 3. La spécification redondante, au niveau du lexique, du traît morphologique [−acct frappé] n'est donc pas suffisante: il faudrait pouvoir spécifier en outre que l'incidence du trait est assez tardive. On rendrait compte par là du phénomène « naturel » que ce trait est dû à une généralisation assez tardive des caractères phonologiques de la classe 3 (qui est morphologiquement moins marquée que 4, cfr. 3 = U fort/M rég vs 4 = M fort/M rég).

En fait, beaucoup de RP synchroniques s'avèrent être, par rapport aux données diachroniques, des raccourcis à moindre naturalité. Sans doute, on ne peut attribuer au native speaker une compétence phonologique qui irait jusqu'à reconstituer les événements diachroniques restés sans trace apparente (non-existence d'alternations). Cependant, si l'on prend la théorie de la markedness au sérieux, il faudra reconsidérer les implications du principe de la simplicité. On pourra p. ex. objecter à Wurzel, qui établit pour les sons allemands [p] et [pf] des segments lexicaux sous-jacents /p/ et /p/, qu'il s'agit là d'un système assez peu « naturel », en ce sens que le segment le moins marqué (=/p/=M segm./−cor) a une charge fonctionnelle sensiblement moindre que /p/ (M segm./−cor/M del. release). Nous croyons que cette révision ira nécessairement dans le sens d'une attention plus grande aux motivations même des changements phonologiques.

3. La théorie de la markedness consacre, à d'autres points de vue, un principe d'unification: le principe du contenu intrinsèque des traits distinctifs et son corollaire, l'application constante, dès le lexique, des CUI, rendent possible l'utilisation de traits concomitants automatiques comme facteurs pertinents, soit au niveau des outputs des RP, soit au niveau des facteurs d'environnement. Dans le premier cas, une combinaison particulière de traits intrasegmentaux est obtenue



par un processus automatique « d'assimilation » à partir du trait généré par une RP d'assimilation syntagmatique (linking rules, contraintes universelles sur les combinaisons de traits) (p. ex. McCawley: RP en coréen =[−syll.] → [−relâché]/ $—\begin{Bmatrix} \# \\ -\text{syll.} \end{Bmatrix}$; ajustement du segment obtenu aux contraintes universelles → $\begin{bmatrix} -\text{rel.} \\ -\text{asp.} \\ +\text{occl.} \end{bmatrix}$, p. ex. kiwe = kip⁻ ou nač, nač$^{h}$e, nase = nat⁻).

Dans le deuxième cas, l'environnement (assimilatoire) où opère la RP peut être théoriquement chacune des valeurs marquées qui caractérisent le segment impliqué, mais aussi chacune des valeurs non marquées, càd. l'ensemble du donné phonique implicite. Ainsi, lorsque, au niveau superficiel, on se trouve en présence d'un double type de régularité pour un même donné — p. ex. accent traîné vs acct frappé dans certains dialectes rhénans: l'acct frappé marque de façon « spontanée » les voyelles westgermaniques /â, ê, ô, ai=vl−alld ê, au=vl−alld ô/; pour les autres voyelles, il n'apparaît que dans l'environnement wgm. =/— $\begin{bmatrix} -\text{syll.} \\ +\text{voisé} \end{bmatrix}$ [+syll.] —, on tentera de reconstituer et une RP plausible unique et un facteur unique d'assimilation. Une double question devrait guider cette analyse: 1) qu'y a-t-il d'implicitement commun entre les deux environnements? (étant entendu aussi que la règle concernée peut suivre d'autres RP modifiant la composition interne des segments sous-jacent, p. ex. il faut, pour des raisons indépendantes, introduire une règle de monophtongaison pour ai=ê/ou=ô (cfr. puə:t = pø:tšə/tiə:n = te:nde, zehn(ter)) et une règle de diphtongaison pour les voyelles wgm. longues autres que â, ê, ô, de sorte que l'on peut admettre un système intermédiaire où seules les voyelles avec accent frappé spontané seraient longues) et 2) qu'y a-t-il d'implicitement commun entre l'output de la règle (=[+acct frappé]) et ce trait commun contextuel?

Nous insistons sur le fait qu'il s'agit ici d'une ouverture nouvelle impliquée dans la théorie de la markedness: toutes les dimensions phoniques, distinctives ou non, sont implicitement présentes dès le lexique; les valeurs impliquées constituent donc, de façon virtuelle mais constante, des facteurs possibles de structuration phonologique. Ce même principe d'unification joue aussi au niveau de la formalisation archiphonémique, en ce sens que les spécifications minimales y définissent, par explicitation, l'utilisation phonologique distinctive et, par redondance, l'utilisation non distinctive.

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## ON THE NOTION « PHONOLOGICAL RULE »

GABERELL DRACHMAN

*Abstract*

Phonological analyses are commonly formalized in terms of derivations, any derivation consisting of (partially) ordered rules; and the metatheory underpinning such analyses naturally contains the terms « rule », « rule-order » and « derivation » as unanalyzed primes.

The present paper will suggest that it is to the language acquisition process in the child that we must turn for a rational reconstruction of these primes, and will discuss alternative acquisition models appropriate to the task.

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## THE ARTICULATION OF PHONOLOGICAL RULES

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*Abstract*

This paper asks the following question: are the techniques of contemporary linguistic description adequate in order to account for all kinds of phenomena taking place in the fields of phonology and morphology? The answer to this question is important for the development of linguistic theory. It is suggested that, at the present stage, the answer must be negative.

There are, in each natural language, facts about the sound system of the given language that are particualrly difficult to describe. But this in itself does not point to any flaw in the methodological apparatus. The general problem comes from this, that there is a whole area in the structure of language that cannot be adequately accounted for by the descriptive devices available today. This is the area which embraces a great part of the « figures of speech » (paronomasia, alliteration, etc.) and all those structures that often come under the label of « sporadic sound changes », and that are usually studied along the diachronic axis (although they are equally important for the synchronic dimension).

The most precise descriptive instrument available today for phonological descriptions, namely the phonological rule, presents a certain phonological environment for sequences of sound segments, together with a modification that must take place at a specific point in any sequence that satisfies this environment. Phonological rules in this version are too narrow to deal in a satisfactory way with the phenomena quoted above.

It is interesting to notice that there is another fact that, independently from the existence of these phenomena, suggests that phonological rules in their present shape are not fully adequate. Alongside the normal type of phonological rules, there is a special of rules, that in contemporary linguistic research are used to account for metrical structures. They are constituted by the combination of an abstract pattern with one or more correspondence rules expressing the conditions under which the abstract pattern is realized in metrical structures.

It is suggested that a modification of phonological rules in general is necessary, and the result of this modification is a new type of phonological rule, constituted by an abstract pattern or schema and a complex of conditions on its realization. This rule will exist side by side with the simpler kind of rule (the only one commonly in use today, apart from metrics), which describes an environment and a specific modification taking place within this environment. Various concrete examples are discussed in order to illustrate this thesis.

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# ПОРЯДОК « ПРАВИЛ ПЕРЕПИСЫВАНИЯ » В ДИАХРОНИЧЕСКОЙ ФОНОЛОГИИ

**Т. В. Гамкрелидзе**

1. « Правила переписывания », использованные первоначально для формулирования синхронных языковых закономерностей в порождающих моделях языка, могут оказаться эффективными и для изложения диахронических преобразований на различных уровнях, т.е. для описания тех изменений, ноторые языковая система претерпевает во времени.

Описание диахронических процессов языка с помощью « правил переписывания » мета-языка, описывающего определенные диахронические языковые закономерности, на другой, более формализованный мета-язык, т.е. как пример « перевода » диахронических закономерностей с одного мета-языка на другой, такое описание имеет особое значение для установления и уточнения самой природы излагаемых языковых закономерностей.

Формулирование диахронических фонологических процессов (фонемных изменений) в терминах « правил переписывания » дает более ясное представление о специфике и характере этих изменений, выражаемых преобразованиями определенных иучков различительных признаков в соответствующие пучки различительных признаков, характерные для более позднего этапа языкового развития, и устанавливает порядок их следования во времени (релятивную хронологию).

2. Каждую фонемную единицу следует рассматривать как некоторый набор различительных признаков, являющихся минимальными дискретными сигналами. При таком понимании фонемы любой ее диахронический переход интерпретируется как преобразование определенного набора различительных признаков, характерного для раннего языкового состояния, в другой набор различительных признаков, характерньй для более позднего этапа развития языка.

3. Каждое такое преобразование может быть представлено с помощью некторого множества так называемых « правил переписывания », имеющих вид $A \rightarrow B / \underset{Z}{X——Y}$, где символы A, B, X, Y, Z могут быть специфизированы различными способами (в частности, как глобальные фонемные единицы или определенные пучки различительных признаков), а знак « → » означает предписание: « замени A на



B » (или « перепиши A в виде B »). Стало быть, $A \rightarrow B / \underset{Z}{X——Y}$ означает: « замени A на B в окружении $\underset{Z}{X——Y}$ »[1].

В « правилах переписывания », оперирующих различительными признаками, символы слева от знака « → » отображают пучки различительных признаков, характерные для раннего языкового состояния, а символы справа от него — пучки различительных признаков, в которые преобразовались ранние фонемные единицы на более позднем этапе развития языка.

4. « Правила переписывания » могут быть сформулированы таким образом, чтобы « операция переписывания », характеризующая фонемные преобразования, касались не всего пучка различительных признаков, а лишь отдельных различительных признаков, входящих в данный пучок. Эта процедура значительно упрощает описание в терминах « правил переписывания » диахронических фонемных преобразований.

Осуществление операций, предписываемых подобного рода « правилами переписывания », расположенными в определенной последовательности, переводит нас из « исходного » языкового состояния (т.е. из языкового состояния, принимаемого за « исходное » с точки зрения данного диахронического описания, напр., « общекартвельское языковое состояние », « общеиндоевропейское языковое состояние » и др.) в последующце (в хронологическом смысле) состояния, вплоть до « конечного » этапа, представленного исторически засвидетельствованным состоянием рассматриваемого языка.

5. В качестве примера описания диахронических фонологических процессов с помощью « правил переписывания » мы воспользуемся одной фонологической закономерностыо сванского (южно-кавказского) языка, которая состоит в спирантизации пре-сванских мипящих аффрикат, возникших из соответствующих общекартвельских (ОК) фонем средне-сибилянтного (свистяще-шипящего) ряда.

Для описания диахронических преобразований шипящих аффрикат в сванском, возникших из общекартвельских аффрикат среднего (свистяще-шипящего) ряда, необходимо и достаточно ввести следующие « правила переписывания », оперирующие бинарными различительными признаками. Порядок расположения правил отражает последовательность осуществления операций:

(1) ОК / *ź *ć *č / → пре-сван. / *ž *č *č /.

$$\begin{bmatrix} + \text{компактный} \\ + \text{диффузный} \end{bmatrix} \rightarrow [- \text{диффузный}] / \overline{\begin{bmatrix} + \text{согласный} \\ - \text{гласный} \\ - \text{низкий} \\ + \text{прерванный} \\ + \text{резкий} \end{bmatrix}}$$

(2) Пре-сван. $\left\{ \begin{matrix} /\text{*з č *č/} + \text{S} \\ \text{S} + /\text{*з *č *č /} \end{matrix} \right\} \rightarrow$ сван. / з č č /:

[1] M. Halle, « Phonology in generative grammar », *Word*, 18, N 1-2, 1962.

$$[X] \rightarrow [X] / \left\{ \begin{array}{l} \left[ \begin{array}{l} -\text{диффузный} \\ +\text{прерванный} \\ +\text{резкий} \end{array} \right] \quad \left[ \begin{array}{l} +\text{согласный} \\ +\text{гласный} \end{array} \right] \\ \left[ \begin{array}{l} +\text{согласный} \\ +\text{гласный} \end{array} \right] \quad \left[ \begin{array}{l} -\text{диффузный} \\ +\text{прерванный} \\ +\text{резкий} \end{array} \right] \end{array} \right\}$$

(3) Пре-сван. / *čx / → сван. / čx /:

$$\left[ \begin{array}{l} -\text{звонкий} \\ -\text{глоттализ.} \end{array} \right] \rightarrow \left[ \begin{array}{l} -\text{звонкий} \\ -\text{глоттализ.} \end{array} \right] / \left[ \begin{array}{l} +\text{согласный} \\ -\text{гласный} \\ -\text{диффузный} \\ -\text{низкий} \\ +\text{прерванный} \\ +\text{резкий} \end{array} \right] \left[ \begin{array}{l} +\text{согласный} \\ -\text{гласный} \\ -\text{диффузный} \\ +\text{низкий} \\ -\text{звонкий} \\ -\text{прерванный} \end{array} \right]$$

(4) Пре-сван. / čq / → сван. / šq /:

$$\left[ \begin{array}{l} +\text{прерван.} \\ +\text{резкий} \\ +\text{глоталлиз.} \end{array} \right] \rightarrow [\text{-прерван.}] / \left[ \begin{array}{l} +\text{согласный} \\ -\text{гласный} \\ -\text{диффузный} \\ -\text{низкий} \\ -\text{звонкий} \end{array} \right] \left[ \begin{array}{l} +\text{согласный} \\ -\text{гласный} \\ -\text{диффузный} \\ +\text{низкий} \\ +\text{бемольный} \\ +\text{прерванный} \\ +\text{глоттализ.} \end{array} \right]$$

(5) Пре-сван. / *ʒ / → сван. /ž/:

$$\left[ \begin{array}{l} +\text{прерванный} \\ +\text{резкий} \end{array} \right] \rightarrow [\text{-прерванный}] / \left[ \begin{array}{l} +\text{согласный} \\ -\text{гласный} \\ -\text{диффузный} \\ -\text{низкий} \\ +\text{звонкий} \end{array} \right]$$

(6) Пре-сван. /*č/ → сван. /š/:

$$\left[ \begin{array}{l} +\text{прерванный} \\ +\text{резкий} \\ -\text{глоттализованный} \end{array} \right] \rightarrow [\text{-прерванный}] / \left[ \begin{array}{l} +\text{согласный} \\ -\text{гласный} \\ -\text{диффузный} \\ -\text{низкий} \\ -\text{звонкий} \end{array} \right]$$

(7) Пре-сван. /*č/ → сван. /h/:

$$\left[ \begin{array}{l} +\text{согласный} \\ -\text{диффузный} \\ -\text{низкий} \\ -\text{звонкий} \\ +\text{прерванный} \\ +\text{резкий} \\ +\text{глоттализованный} \end{array} \right] \rightarrow [\text{-согласный}] / [\text{-}\overline{\text{гласный}}]$$



(8) сван. /gVi/ → /ʒ/:

$$\left[ \begin{array}{l} -\text{резкий} \\ +\text{низкий} \end{array} \right] \rightarrow \left[ \begin{array}{l} +\text{резкий} \\ -\text{низкий} \end{array} \right] / \left[ \begin{array}{l} +\text{согласный} \\ -\text{гласный} \\ -\text{диффузный} \\ +\text{прерванный} \\ +\text{звонкий} \end{array} \right] \left[ \begin{array}{l} -\text{согласный} \\ +\text{гласный} \\ -\text{низкий} \end{array} \right]$$

(9) сван. /kVi/ → /č/:

$$\left[ \begin{array}{l} -\text{резкий} \\ +\text{низкий} \end{array} \right] \rightarrow \left[ \begin{array}{l} +\text{резкий} \\ -\text{низкий} \end{array} \right] / \left[ \begin{array}{l} +\text{согласный} \\ -\text{гласный} \\ -\text{диффузный} \\ +\text{прерванный} \\ -\text{звонкий} \\ -\text{глоттализ.} \end{array} \right] \left[ \begin{array}{l} -\text{согласный} \\ +\text{гласный} \\ -\text{низкий} \end{array} \right]$$

(10) сван. /kVi/ → /č/:

$$\left[ \begin{array}{l} -\text{резкий} \\ +\text{низкий} \end{array} \right] \rightarrow \left[ \begin{array}{l} +\text{резкий} \\ -\text{низкий} \end{array} \right] / \left[ \begin{array}{l} +\text{согласный} \\ -\text{гласный} \\ -\text{диффузный} \\ +\text{прерванный} \\ -\text{звонкий} \\ +\text{глоттализ.} \end{array} \right] \left[ \begin{array}{l} -\text{согласный} \\ +\text{гласный} \\ -\text{низкий} \end{array} \right]$$

6. Рассмотренные выше « правила переписывания » были представлены в той последовательности, в какой должны были осуществляться операции, трансформирующие некоторые пучки различительных признаков, характерные для раннего языкового состояния, в пучки различительных признаков, характеризующие соответствующие фонемные единицы на более позднем этапе развития языка и, таким образом, преобразующие пресванское языковое состояние в состояние исторически засвидетельствованное.

Так, например, применение правил (2), (3), (4) должно с необходимостью предшествовать применению правил (5), (6), (7), поскольку в противном случае [т.е. при расположении последних перед правилами (2), (3) и (4)] « правила переписывания » не смогут описать нам соответствующих фонемных преобразований в сванском.

Подобным же образом применение правил (8), (9) и (10) должно с необходимостью следовать за операциями, предполагаемыми правилами (5), (6) и (7). В противном случае сванские шипящие аффрикаты /ʒ č č/, возникновение которых путем ассибиляции из велярных взрывных /g k k/ описывается правилами (8), (9), (10), были бы трансформированы правилами (5), (6) и (7) в соответствующие спиранты /ž š h/, что не соответствовало бы рефлексам ассибилированных велярных взрывных в сванском.

С другой стороны, в представленных здесь « правилах переписывания » имеются операции, порядок осуществления которых не определяется однозначно. Так, например, правила (2), (3) и (4) взаимно индифферентны в отношении последовательности (порядка) их применения; правило (4) можно было бы применить до правил (2) и(3), так же как правило (3) могло бы стоять в списке перед правилом (2). Этим не нарушается общая картина предполагаемых фонемных преобразований в сванском. Такой же факультативный характер в отно-

шении порядка их расположения в списке носят правила (5), (6), (7) и правила (8), (9), (10). Их взаимная перестановка не нарушает общей закономерности осуществления предполагаемых операций.

7. « Правила переписывания » и порядок их расположения, определяемый соображениями простоты и экономности описания фонемных преобразований, при сравнении их с релятивной хронологией исторических фонемных изменений в сванском проявляют особое свойство: синхронный порядок (последовательность) операций, предполагаемых « правилами переписывания », совпадает в основном с порядком следования во времени соответствующих фонемных изменений. Синхронный порядок « правил переписывания » отражает в некотором смысле диахроническую последовательность фонемных преобразований в сванском.

Действительно, процесс дезаффрикатизации пре-сванских фонем /*ʒ *č *č/ предшествовал хронологически ассибиляции сванских взрывных /g k k/, которая представляет собой один из самых поздних фонологических процессов, определивших фонологический облик современных сванских диалектов [ср. правила (5), (6), (7) и (8), (9), (10)].

В гармоничных комплексах /*ʒγ/ и /*čq/ сванские аффрикаты /*ʒ/ и /*č/, возможно уже в пре-сванский период, претерпевают спирантизацию и переходят в соответствующие фрикативные фонемы /ž/ и /š/: /*ʒγ/ → /žγ/, /*čq/ → /šq/. По всей видимости, спирантизация пре-сванских аффрикат /*ʒ/ и /*č/ в гармоничных комплексах предшествовала их дезаффрикатизации в других позициях [ср. правила (4) и (5)].

В отличие от этого, фонемные изменения, которые, по предположению, имели место в сванской фонологической системе в один и тот же исторический период, отражаются нашими « правилами переписывания » в виде операций, порядок осуществления которых факультативен [ср. правила (2), (3), (4); правила (5), (6), (7); правила (8), (9), (10)]. Индифферентность определенных « правил переписывания » в отношении порядка их взаимного расположения соответствует сосуществованию в сванской фонологической системе фонемных изменений (диахронических фонологических процессов), описываемых данными правилами.

Таким образом ,можно утверждать, что существует некое соотношение между порядком (последовательностью) « правил переписывания », описывающих некоторые фонемные преобразования, и релятивной хронологией соответствующих фонемных изменений, имевших место в фонологической системе рассматриваемого языка (т.е. с порядком следования этих изменений во времени). « Правила переписывания », расположенные в определенном порядке с учетом простоты и экономности описания рассматриваемых процессов, отражают порядок следования во времени диахронических фонемных преобразований. Устанавливаемый порядок размещения « правил переписывания » может служить основой для реконструкции порядка следования во времени (релятивной хронологии) описываемых диахронических фонологических процессов.

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# ORDERED RULES AND THE SO-CALLED PHONOLOGIZATION OF ANCIENT ALLOPHONES IN ISRAELI HEBREW

Uzzi Ornan

## I

1. There is a consensus among scholars of Israeli Hebrew (IH)[1] about the existance of *b* and *v*, *k* and *x*, *p* and *f* as separate phonemes[2,3]. Pairs of words such as [hištabec - histavec], [hitxaber - hitxaver][4], [makar - maxar], [sakar - saxar], [sapir - safir], and others can be pointed to in justification of this assumption.

In many cases, however, a pair of phonemes such as k-x, b-v, p-f are mutually complementary in various inflections of the same word, e.g.,

[baxa - yivke] ([he] cried - [he] will cry)

[patax - yiftax] ([he] opened - [he] will open).

The situation is more complicated in view of cases in which [k] does not change to [x], [x] does not change into [k], and [b] does not change into [v], as exemplified by the pairs:

[saxa - yisxe] ([he] swam - [he] will swim), comp. [baxa - yivke]

[sakar - yiskor] ([he] reviewed - [he] will review), comp. [saxar - yiskor]

[lava - yilve] ([he] borrowed - [he] will borrow), comp. [gava - yigbe].

In view of these difficulties, H. B. Rosén has suggested[3] that IH has « morphophonemic alternations », according to which the phonemes /b/, /k/, and /p/ are replaced by /v/, /x/ and /f/, respectively, in certain parts of the inflection, and also vice versa. But as this alternation does not work for all words, e.g. [šava - yišve] (became (m.s.) equal - will become equal) as against [šava - yišbe] (took (m.s.) prisoner - will take prisoner), he suggested that a « root » of a word that does have an alternation contains two complementary phonemes serving in one position. Hence the root of [patax] is « p/f-t-x », the

[1] See selected bibliography at the end.
[2] Cf. Weiman 1950, Rosén 1955, Rosén 1956, Blanc 1964, Blanc 1968, Téné 1968, 1969. Z. S. Harris (1941), maintained that in BH, too, each of these (as well as g, d, t - ğ, *d*, *t*) is an independent phoneme (see below § 13). See also Z. H. Harris 1951, 246-48, 314 ff., 339-40, where he exemplifies IH, and Fraenkel 1966.
[3] Other authers also agree with these assumptions, as can be learned by the spelling of Hebrev words in their works on IH, Hayon 1969, Ariel.
[4] See Rosén, 1955, p. 246, note 20.
[5] Rosén 1952, See also note 4 above.

root of [kaval] is « k/x-v/b-l », and the like. Other words containing [k], [x], or [v] and having no alternation of phonemes are of simple roots, as in the case of [sakar] — « s-k-r », [saxar] — « s-x-r », and the like.

Rosén admits that this is a « very complicated situation ». Note that the complication is not only for the phonology, but for the morphology and the lexicon as well. It calls for re-examination. This is the task undertaken in the present article. Our hope is that as easier description of IH, in both morphology may be established.

It should be noted that scholars whose works have been mentioned above, deal mainly with the Ashkenazoid dialect [6]. For the sake of simplicity the subsequent discussion will concern itself, too, with this dialect, in spite of the fact that the present writer believes one has to take into account *all* the dialects of a language when he presents the list of phonemes, or part of them, of his language.

## II

### 2. A Base Which Ends with Two Consonants

Hebrew morphology has an abundance of endings which are affixed to the base of a word. Such are, for instance, the suffixes *a* or *i*, which may be affixed to words such as *sus* (horse) or *dod* (uncle), yielding the forms *susa* (mare), *susi* (my horse), *doda* (aunt), or *dodi* (my uncle). Thus, the feminine form or a form containing the first person singular possessive pronoun may easily be arrived at by suffixing *a* or, respectively, *i*.

It is similarly easy to discern these suffixes in words like *yalda* (girl) *yaldi* (my boy), *rugza* (anger), *rugzi* (my anger), and the like. In the latter examples, however, there is a difficulty which is not present in the former: The base to which the suffixes are affixed never appears intact without a suffix. When there is no suffix, one finds *yéled* (boy) rather than *yald* and *rógez* (anger) rather than *rugz* (or, *rogz*).

It is rather difficult to suppose that *yald* could have stemmed from *yéled*. It is much easier, on the other hand, to identify *yald* as the form yielding all the others. If we take *yald* as the base, all inflected forms would be formed in the very same manner as the inflected forms of *sus*, i.e., by merely adding the appropriate suffixes. Thus we arrive at one unified morphological description for all nominal inflections.

As to the absolute form, a simple rule replaces *yald* by *yéled*. The rule is: « When the theoretical structure of a noun ends with two consonants, an unstressed vowel (usually *e*) is inserted between them. If the stressed vowel is *a*, in most cases it, too, becomes *e* ». The restrictives « usually » and « in most cases » can be accurately specified, but this is not called for in our present discussion.

### 3. Two Identical Consonants Are Conceivable at the End of a Word

Now let us take another step: There is no reason to rule out the following assumption, namely, that there may be nouns of the pattern of *rogz* or *yald* or *degl* (flag) in which the two final consonants are two occurrences of the same one. This assumption will, in various cases, facilitate the description of the morphological ties between forms that belong to the same inflection, such as in the following pairs: [cel - clalim], [cad - cdadim], har - hararim], [lev - levavot], [ʕam - ʕamamim]. When we assume that these words end with *two* consonants, i.e., that we have /cell/ (shadow), /cadd/ (side), /lebb/ (heart), and the like, then their plural forms do not seem strange. Just as the plural of /yald/ is /yladim/, so the plural of /cadd/ is /cdadim/, of /cell/ is /clalim/ and of /lebb/ is /lbabot/.

This assumption applies also in the singular inflection. Note the first person singular posessive: /cell-cilli/, /cadd-ciddi/, exactly as /degl-digli/ or /yald-yaldi/.

The same is true in a word such as/hoqq-huqqūu/(law), which parallels /rogz-rugzi/.

[6] Cf. Blanc 1964, p. 134 as well as Blanc 1968, p. 244.



### 4. A Retained *a* and Non-Retained *a* at the End of a Word

The assumption that there exists a theoretical gemination at the end of some words, (a gemination which actually is not realized), would also clarify the difference in inflection between words like *miškan* (abode), *maḥsan* (store) as opposed to *mamtaqq* (candy), *maʕdann* (dainty). While in the former the vowel is reduced in various inflections, in the latter it is retained: Compare: /maḥsne-qémah/ (flour stores), /mišpte-cédeq/ (just judgements) as against /maʕdanne-mélek/ [7] (kingly dainties), /mamtaqqe perot/ (fruit candies).

### 5. The Realization of a Theoretical Gemination at the End of Word

The assumption that there exists a theoretical gemination at the end of some words facilitates morphological description, as seen above. It necessitates, however, the formulation of a rule and calls for an additional note (see below).

The following rule has no exceptions in IH: «Every theoretical gemination at the end of a word is realized as a single consonant, i.e., the final consonant is not audible ». Or, to put it in a formulated form:

(1) $c_i \rightarrow \emptyset / c_i \rightarrow \#$

where # denotes the end of a word, and $c_ic_i$ is a double occurrence of the same consonant.

*Note.* The theoretical gemination in the middle of a word is realized, too, as a single consonant. Here, however, it is the first consonant in the gemination that is dropped. We shall subsequently return to this matter (§ 10), after having examined the behavior of the phonemes /p, k, b/ as well as some other details [8].

[7] See below concerning spelling and gemination in the middle of a word. Cf. reducing of *a* in an open syllable as against its retention in a closed one: paqid + im → paqidim (clerks), but Kartis + im → kartisim (cards). Blanc (1960) noticed this difficulty in the vowel *a*, which is at times reduced and at others not. He did not solve the problem by assuming the existence of a theoretical gemination, but other, by dividing *a* into two types: *a* and *ā*. Although he did not set forth any distinct theoretical assertion (his work was a practical textbook), the impression is that he considers these two types to be separate phonemes. This is, of course, a probable solution, but the question here is wheter it is appropriate to note two phonemes within this vowel.

At any rate, it seems that the proposition of theoretical gemination is preferable to separation the vowel into two vocalic phoneme, a « long » *a* and a « short » *a*.

The theoretical gemination not only clearly solves the problem of retained and reduced *a*; through it the double pronunciation of /b/, /k/, /p/ is solved (see below), as are some obscure problems (such as clalim etc.) in the phonological system.

[8] In the paper itself we shall not deal with the question of vowel changes resulting from

## 6. A Foreword to the « Two Realizations » Argument

It has already been pointed out in § 1 that difficulties arise when we assume that *v* and *b* are two distinct phonemes. Should we succeed in refuting the arguments of those who so claim — i.e., succed in proving that in no case does a single difference between *b* and *v* change the meaning — we would be able to describe the inflection with much greater ease.

## 7. A Gemination of *b* at the End of a Word

Let us examine a word like [dov] (bear). Its plural form is [dubim]. This is to say that here the sound *b* and the sound *v* appear as alternants in the inflection of the same word. The vowel shift O → U suggests that this word ends with two consonants, according to rule (2) or (3) in note 8 above. As we have only one consonant at the end of the singular, we assume that rule (1) must have been applied here, that is to say, *dovv* became *dov*.

If we assume now that [b] and [v] are two realizations of the same phoneme, marked by /b/, then the following is the way we should write this word in a phonemic spelling: /dobb-dubbim/. This assumption makes the proposal for « morphophonemic alternation » unnecessary, but we have to account the conditions under which /b/ is realized as [v].

## 8. The Realizations of /b, k, p/

The rule of realization of the phonemes /b/, /k/ and /p/ may be formulated as follows:

(7) $B_i \rightarrow V_i / \{+c-,\ v-(c_{\overline{Bi}})\}$

where $i \rightarrow \{b, k, p\}$

$c_{\overline{Bi}}$ = a consonant other than $B_i$
\+ = the border of a syllable
v = vowel
$B_i$ and $V_i$ shift as follows,
$B_b \rightarrow b$; $B_k \rightarrow k$; $B_p \rightarrow p$; (« hard » realization or stop)
$V_b \rightarrow v$; $V_k \rightarrow x$; $V_p \rightarrow f$; (« soft » realization or fricative).

That is to say, each one of these phonemes is realized by its fricative realization when (1) it is second consonant in a cluster opening a syllable and (2) when it follows a vowel, provided a second occurrence of the same phoneme does not follow it, i.e., when it is not part of a gemination. Now it is clear that in the

the addition of stressed endings.
The following series of rules reflect those shifts:

(2) $ó \rightarrow u$ / $-c_i c_i v$ — as in: ḥoqq - ḥuqqí
(3) $ó \rightarrow \{o,u\}$ / $-c_i c_j v$ — qódeš - qodšó; rógez - rugzá
(4) $é \rightarrow i$ / $-c_i c_i v$ — céll - cillí; ʔém - ʔimmí
(5) $é \rightarrow e$ / $cʕ\text{-}c_i c_j v$ — ʕégel-ʕegla; ʔécel-ʔeclí
(6) $é \rightarrow \{a, i\}$ / $-c_i c_j v$ — yéled-yaldá; dégel-diglí

$c_i$ and $c_j$ are two different consonants; $cʕ$ — a guttural consonant.



plural form, /dubbim/, the pronunciation of the /b/ is actually [b]. The same holds for a word such as /mhubbar/ (joined) and the like. On the other hand, in the singular form /dobb/ the pronunciation of /b/ is [v].

## 9. Vowel Shifts Before Theoretical Gemination Within a Word

Here we should consider words containing *r* or ʔ as well as those with *h* or ʕ. When these occur in a gemination, the vowel preceding them is changed at times, *e.g.*, when ʔ occurs in a (theoretical) gemination in a pattern like that of /mhbbar/, an *o* vowel would be heared instead of the *u*, as in [metoʔar].

The following is the rule governing the shifts of these vowels:

(8) $\begin{bmatrix} u \rightarrow o \\ i \rightarrow e \end{bmatrix} - \begin{bmatrix} c_r c_r \\ c_? c_? \end{bmatrix} v,$

where $c_r \rightarrow \{r, ʔ, h, ʕ\}$
$c_? \rightarrow \{r, ʔ\}$.

## 10. Realization of a Gemination Inside a Word

Once rule (8) is in force, shifting vowels as required, the rule of cancellation of the mid-word gemination applies:

(9) $c_i \rightarrow Ø / v - c_i(c_j)v$

Cancellation of theoretical mid-word gemination is to be found in several languages, including English and French. In a word like *illegal*, a gemination of the *l* is not audible. In Italian, on the other hand, every gemination is realized by a lengthening of the geminated consonant, and a division of syllables occurs in the middle of the geminated consonant, as in the case of [il-le-ga-le] [9].

## 11. There Is No Need to Assume the Existence of Two Phonemes /b/ and /v/

With rules (7) to (9) in mind, let us re-examine those examples of pairs of words with « minimal difference », and hence the phonemic spelling of such pairs, rather than as in § 1 above, should be as follows:

/hištabec/ - /hištabbec/ (= [hištavec] - [hištabec])
/hithaber/ - /hithabber/ (= [hitxaver] - [hitxaber])

compare also the pairs: /šabat/ (rested, did not work) - /šabbat/ (Sabbath) and /sapar/ (he counted) - /sappar/ (barber).

In the words on the left the phonemes /b/ is realized as [v], (/p/ as [f]) since it follows a vowel and is not geminated. On the other hand, in the words on the right it is realized as [b], since it is in a gemination (rule (7)), and this gemination is actually realized as a single consonant (rule (9)).

[9] The presence of a theoretical gemination in a word may solve the problem of the reduction or retention of the vowel *a* in the appropriate slot, such as /dabbar - dabbarim/ (leader-leaders) as against/dabar - dbarim/ (thing - things).

## 12. The Importance of the Principle of Ordered Rules

At this point, we should stress that the rules are *ordered*. A gemination should not be cancelled via rule (9) before the pronunciation of /b, k, p/ has already been established according to rule (7) nor before the vowels have been changed according to rule (8). All these will have taken place only after the cancellation of the gemination at the end of the word by rule (1), and after the shifts required by rules (2)-(6) have been applied.

It should be further noted that /b/, /k/, and /p/ following a gemination will always be pronounced as fricatives. The border of a syllable (which is denoted by +) falls, as is well known, between the two consonants of the gemination. After concellation of the first consonant in the gemination, the border may shift so that it occurs after the second consonant. The shift is illustrated in the final form appearing in the following example:

sibbku/ ([they] complicated) = /sib+bku/ $\xrightarrow[\text{rule (7)}]{}$

[sib+bxu] $\xrightarrow[\text{rule (9)}]{}$ [si+bxu] ⟶ sib+xu.

It is important, then, that the application of rule (7) precede the cancellation of the gemination. Otherwise, in the above illustration, for example, the final form would have been *[sivxu].

## 13. Realization of /b/, /k/, /p/ Before a Suffix

It should be noted that the addition of a suffix to a base occurs only after rule (7) is applied, and hence does not give rise to a change of variant of a /b/, /k/, or /p/ in the base. Without going into the details of the matter, it would be appropriate to illustrate it. The m.s. imperative « lie down » is [šxav], whereas the feminine is [šixvi]:

(a) /škáb/+i (=[šxav+i]) → škábi (=[šxavi]) →
škbí (=[sxvi] → šikbí (=[šixvi])[10]

(b) /mlake+kem/ (=[mlaxe+xem]) → mlkekem (=[mlxexem]) →
malkekem (=[malxexem]) (your kings).

Analogously, we analyze the illustrations of Harris and Rosén according to our method[11]: Compare the imperative s.f. form of « come nearer »:

/qráb/ (*sic.*, not /qrob/)+i → qrábi → qrbí →/qirbí/ (=[qirvi])

with the formation of the first person possessive, « my entrails »:

/qerb+i/→/qirbi/ (=[qirbi]) (my entrails) (see rule (6)).

[10] As to the inflection rules which require the omission of a vowel and the subsequent insertion of another vowel elsewhere, see, Ornan 1971, 130 ff.
[11] See Harris 1941, Rosén 1961.



See also the illustration and explanations of I. Garbell[12]:

(a) b+ʕo (=[bʕrofo]) → b+ʕrpo → bʕorpo (=[bʕorfo])

(b) b+ʕorp (=[bʕorpo]) → bʕorpo (=[bʕorpo]) (see rule (3)).

Thus the argument maintained by Harris that [b] and [v] are distinct phonemes in BH is refuted. A more general criticism that we might note about his discussion is that words of different status, such as a noun and a verb, are not the best choice for studying « minimal pairs »[13].

## 14. The Realization of /b/, /k/, /p/ in the Base of the Future Tense

An opposed to the case of the suffix, when the future prefix or the *l* of the infinitive is added to the base of a verb, rule (7) is applied only after this addition is made, *i.e.*, it is applied to the resulting form. In other words, the pronunciation of the middle radical is « hard », as illustrated in:

(a) /t+škab/→ tškab → tiškab =[tiškav] (you (m.s.) will lie down)

(b) /ʔ+šbor/→ ʔšbor → ʔešbor ([I] will break)

(c) liškoah (to forget); lišpok (to spill)[14].

Note that had rule (7) been applied earlier, the resulting forms would have been *[tiśxav], *[ʔešvor], etc.

## 15. The Realization of /b/, /k/, /p/ Following a Guttural Consonant

The same principle of a later application of rule (7) holds in the presence of a guttural consonant at the end of a non-final syllable. Here, a vowel is generally added, resulting in change in theoretic syllable division. Rule (7) applies only after these changes have taken place:

(a) /y+haʕbir/→ yaʕbir → yaʕabir $\xrightarrow[\text{rule (7)}]{}$ [yaʕavir]

(b) /l+hpok/→ lahpok → lahapok $\xrightarrow[\text{rule (7)}]{}$ [lahafox].

Note that had rule (7) been applied prior to the vowel insertion, the resulting forms would have been *[yaʕabir] and *[lahapox].

## 16. Methodological Comment

Linguists of the phonological schools of R. Jacobson, M. Halle, and N. Chomsky emphasize that the rules of realization apply to natural groups of phonemes, such as /p, b, f, v, b/ and not to non-natural group such as /m, s/. Since the group /b, p, k/ is not natural, the need arises to solve the theoretical

[12] Garbell 1959.
[13] I heard this criticism years ago from my teacher Prof. H. J. Polotzky.
[14] This restriction of § 14 is note in force over other prefixes: When a prefix is added, rule (7) is no longer in force inside the base, it is only the first consonant of the base which is governed by it.
1 + kabod → lkabod → lkbod → likbod (= [lixvod]) (see § 12 above).

difficulty [15], or else, to propose perhaps another explanation for the phenomena described in § 7-15— an explanation which separates /b, p/ on the one hand, and /k/ on the other — and formulate different rules concerning the separated groups [16].

Such a separation, however, entails a heavy price, since it turns a short and correct description of facts into a much more complicated one. It is inconceivalle to sacrifice the simplicity and/or the accuracy of a description of a language for the sake of preserving the « truthfulness » of a theory, no matter how largely this theory is based on evidence from many other languages.

If the phonological description of the facts does not concur with the theory, then perhaps the description may contribute toward an improvement of the theory; it may for example, point to additional phonological traits, laying ground for a broader definition of the concept « natural group », or suggesting some other definition of the functions of a « natural group ».

## IV

17. We have proposed here a solution to the words [hitxaver] - [hitxaber], a solution which eliminates the need for considering the need for considering [b] and [v] as two phonemes. We have thus been able to leave them as two realizations of the phonemes /b/.

### 18. The Phoneme /w/ is Realized Also as [v]

Our method is further supported by another word — though quite different in mening — whose realization is also [hitxaver]. This word — traditionally written in the Hebrew script with another letter, usually transcribed as « w » — means « became clear (m.s.) ». We suggest /hithawwer/ as its phonemic spelling in IH, as is already the convention in BH. The question to be considered is no longer whether [b] and [v] became separate phonemes. We now turn to the question, did variants of distinct phonemes in BH actually coalesce in IH and become a single phoneme? In particular, did the variant [v] of the phoneme /b/ coalesce in IH with the realization of the phoneme /w/?

In § 1 above, we cited a complication typified by forms which are common to two having different inflections:

[šava - yišve] as against [šava - yišbe]

Rosén considered this « a very complicated situation » [17] and proposed to untangle it by establishing roots with morphophonemic alternation, as mentioned above. It is by far easier to solve this complication by presuming the existence of phoneme /w/, whose realization in IH is [v], identical with one of the realization of /b/.

Rosén challenged such a solution by saying « such statement would entail an assumption of the overlapping of two phonemes and would subsequently be unacceptable to many a phonemicist » (1961, p. 125).

[15] As noted by Ruth Aronson - Berman and Prof. L. B. Lees Compare also M. Halle 1964, p. 328, as well as Chomsky-Halle 1968, p. 335.

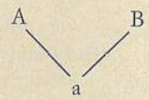
[16] As was tentatively suggested by M. Barkai, who also would exclude the existence of a phoneme /q/ in IH.

[17] See note 4.



### 19. What Is Ambiguity in a Language?

In order to support our assumption, we first need to deal with the notion of ambiguity. Our claim is that our study is facilitated by the introduction of the following sketch.



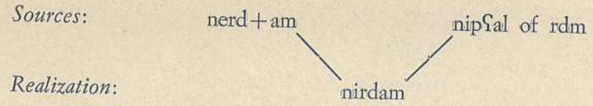

Drawing 1.

The lower line marks the realization as it appears « on the surface » in various segments of the language; the upper line represents the sources for this realization.

The sketch is applicable to the ambiguity abundant in the morphology, in the syntax, as well as in the vocabulary.

### 20. An Example of Morphological Ambiguity

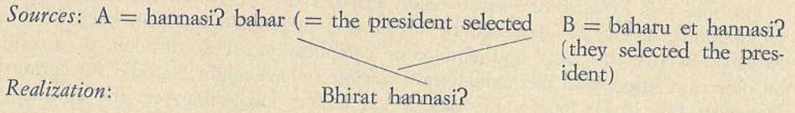
The word *nirdam* may illustrate morphological ambiguity, as it may stem from two different morphological sources: (1) nerd+am (their nerd, spikenard) (2) a nipʕal pattern of the root *rdm* (fall asleep). Drawing 2 reprents this situation:




Drawing 2.

### 21. An Example of Syntactical Ambiguity

To illustrate syntactical ambiguity, we may use the phrase « bhirat hannasi? » (the selection of the president).




Drawing 3.

If in the backround sentence, hannasi? (the president) is the subject, then the given phrase has source A, while if « the president » is the object in if the background sentence, the source is B.

### 22. An Example of Lexical Ambiguity

In the lexical realm, we shall select an example in which the ambiguity arises form historical development. The word *cbi*, for instance, has two meanings, corresponding to its two sources (see drawing 4). The Hebrew /c/ is connected with several separate phonemes of an earlier linguistic stage.

*Sources*: ṭby sby

*Realization*: cbi

Drawing 4.

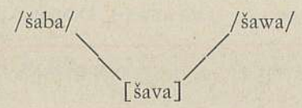
## 23. Phonological Ambiguity

After having demonstrated ambiguity in morphology, syntax, and lexicon, it seems possible to suggest that ambiguity also exists in phonology. In keeping with the sketching method, we can now return to the contention of § 18, and have the diagram:




Drawing 5.

Hence, in explanation of the problematic form [šava], we have the diagram




Drawing 6.

The phonemes /b/ and /w/ differ in realization in other forms of the verb, *e.g.*, in the future form [yišbe] as against [yišve], where rule (7) applies to /b/ but not to /w/.

## 24. A Methodological Comment

Could this explanation, which readly clarifies the facts and sets them before us comprehensively, be dismissed by invoking a methodological principle? If the explanation fits the facts and eliminates complication, it is difficult to accept an objection based on a methodological principle, which might be valid for certain languages but in IH makes the description almost impossible (cf. the aformentioned comment of similar nature in § 16).

# V

## 25. Three Realization Are Possible Within Two Phonemes

Let us further clarify some theoretical possibilities. Even the phonemicists mentioned by Rosén (see § 18) would probably agree to let the following sketch represent a single phoneme realized in two ways:



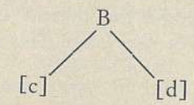
*Phoneme*:

*Realizations*: [a] [b]

Drawing 7.

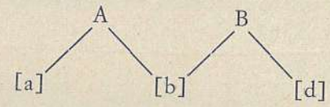
(For example, the British English /l/, which is realized either as [l] or [ɬ] in various positions could thus be sketched).

Let Drawing 8 represent a different phoneme, « B », also having two realizations:




Drawing 8.

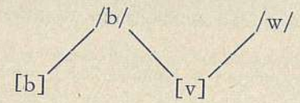
Now should one of the realizations of A, say [b], be identical with one of the realizations of B, say [c], we should certainly be justified in drawing the following sketch:




Drawing 9.

## 26. The Relations Between the Phonemes /b/, /w/ and Their Realizations

The examination of the relations between /b/ - /w/ as shown in Drawing 5 was actually based on Drawing 10, which differs from a sketch of the type in Drawing 9 only in that only one realization of /w/ appears:

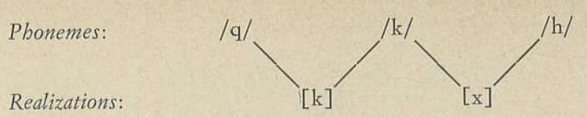



Drawing 10.

# VI

## 27. There Are Three Phonemes Yielding the Sounds [x], [k]

It seems that the problem most puzzling to investigators of IH is the problem of the phonemes giving the sounds [x], [k]. According to our method, we shall show that these are realizations of three separate phonemes, in keeping with the following sketch, It, too, is a variation of Drawing 9:




DRAWING 11.

The conditions for the various realizations shown in this diagram have actually already been set forth by rule (7), which prescribes the realization of /k/. The realization of /q/ is always [k] in the dialect under discussion (Ashkenazoid), and the realization of /h/ is [x] here.

Assuming the above, we may solve such morphological and syntactical problems as: In which instances would the present form of the verb [carax] be [corex], and in which would it be [coréax]? This question is solved below.

## 28. THE FURTIVE PATAH

The following rule, which holds in all the dialects of IH without exception, is to be formulated concerning h, ḥ and ʕ at the end of a word.

(10) $V_x \rightarrow V_x a / - c_h \#$ [18]

where $V_x \rightarrow$ {é, í, ó, ú}

$c_h \rightarrow$ {h, ḥ, ʕ}.

Now we are able to distinguish between the above-mentioned verbs:

(a) /carak - corek/ (consumed, consumes)
and

(b) /carah - coreh/ (screamed, screams).

In the case of (a), rule (7) is applicable and it gives

[carax] - [corex],

while in the case of (b), rule (10) applies so as to give

[carax] - [coréax].

## 29. THE ADVANTAGE OF DISTINGUISHING BETWEEN /k/ AND /q/

As in the case of /k/ and /h/, a distinction between the phonemes /k/ and /q/ also facilitates matters. This is readily exemplified by examining the word [kašar], which is associated with two future forms:

[yikšor] and [yixšar].

Phonemic spelling here would result in two forms:

[18] It would be appropriate to set here another rule summarizing the changes in a final syllable ending with two consonants, when the last one is $c_h$:
(II) $vcc_h \# \rightarrow vcac_h \#$ (see above, end of 3)
(Otherwise: $v \rightarrow a / vc \rightarrow c_h \#$).



/qašar - yiqšor/ (=[yiqšor]) ([he] tied-[he] will tie)

/kašar - yikšar/ (=[yixšar]) ([he] was qualified-[he] will qualify).

We have thus overcome the need to introduce roots with morphonological alternation in order to handle such an occurrence. And, as in the case with other phonemena of IH, the explanations lie in the inherent intrinsic rules of realization.

## VII

30. We have seen, then, how the formulation of a set of ordered rules has enabled us to explain the phones p-f, b-v, k-x as variants of three phonemes only, and this explanation has led us to realize that /q/ and /h/ are existent phonemes in IH. As a side benefit, the morphology of IH has become considerably easier.

A further examination of phonological questions in IH will lead us to see that /ʔ/ is to be regarded a phoneme distinct from /ʕ/, though this matter (as is the examination of /t/ - /ṭ/) is beyond the scope of this work.

What is clear, at any event, is that in the case at hand we have turned a synchronic analysis in one dialect of IH into a formulation appropriate to BH as well, and we are thus again faced with the question of whether the deep structure of a language also reflects its historic structure.

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# ON A NATURAL ORDERING OF RULES IN CONTEXT-SENSITIVE GRAMMARS

ALEXANDRU CĂRĂUŞU

Various classes of formal grammars have been obtained by imposing restrictions not only on the form of rules, but also on their use. The latter way has led to what A. Salomaa calls *grammars with restricted use of productions* [10], concept which generalizes different types of ordered grammars [3, 6], controlled grammars [3, 9], programmed grammars [8] a.o.

Our aim is to define a natural ordering of rules of a context-sensitive grammar, that is, to find such an ordering that neither increases, nor decreases the generative capacity of a given context-sensitive grammar, but can simplify (in the algorithmic sense of the word) the derivational process which leads to $L(G)$ — the language generated by the grammar $G$. Obviously, our topic involves the formalism that characterizes the theory of phrase structure grammars and languages, a rather mathematical field. But we hope that some considerations concerning the grammars of natural languages will afford our paper a certain interest to linguists, too.

## § 1. BASIC DEFINITIONS

Let $V$ be a finite set of symbols (the *alphabet*) nad $V^*$ the set of all *words* over the alphabet $V$, including the empty word $\lambda$. Let $w$ be a word in $V^*$ consisting of $k$ symbols of $V$, not necessarily distinct; the nonnegative integer $k$, denoted by $l(w)$ or $|w|$, is the *length* of the word $w$.

Let $R$ be a finite binary relation over $V$, that is, $R$ is a finite set of pairs $(u, v)$ called *rules*, where $u$ and $v$ are words over $V$. To introduce the notion of *rewriting system* we define a new binary (but not finite) relation over $V$ by

(1) $w \to y(r)$ or $w \overset{r}{\to} y$

if we can write $w=x_1ux_2$, $y=x_1vx_2$, $r=(u, v)$ is in $R$, and $x_1$, $x_2$ are initial and final subwords of $u$ and $v$, respectively. We write $w \to y(R)$ if $w \to y(r)$ holds for some $r$ in $R$. The transitive closure of the relation « $\to$ » is denoted by « $\to^*$ » and defined by

(2) $x \to^* y$ if there exist $w_0=x$, $w_1$, ..., $w_{n-1}$, $w_n=y$ in $V^*$ such that $w_i \to w_{i+1}(R)$ for $i=0, 1, ..., n-1$.

The couple $(V, R)$ is called a *rewriting system* (over $V$).

Now, to define the general notion of grammar, let us distinguish a subset

$V_T$ of $V$ — the set of *terminals* (while the elements in $V_N = V - V_T$ are called *variables*), and a symbol $S$ in $V_N$, the *starting* or *initial* symbol.

*Definition* 1.1. The quadruple $G=(V, V_T, R, S)$, where the four components are defined as above, is called a *grammar*. The set of terminal words $L(G)=\{w : w \text{ is in } V^*_T, \text{ and } S \to^* w\}$ is the *language generated by the grammar G*.

*Definition* 1.2. The sequence of words $(w_0, w_1, ..., w_{n-1}, w_n)$ involved in (2) is a *$w_0$-derivation of $w_n$*. Each pair $(w_i, w_{i+1})$ is a *step* of this derivation.

With these definition, $L(G)$ appears as the set of terminal words which can be derived from $S$ in the grammar $G$. The grammar in Definition 1.1 is also named a $T_0$-grammar [3] or grammar of type 0 [10]. If two grammars $G_1$ and $G_2$ generate the same language, i.e., $L(G_1)=L(G_2)$, they are said to be *weakly equivalent*.

From the particular types of grammars obtained by imposing conditions on the form of rules, we shall consider here only two main classes: the context-sensitive (briefly CS) grammars and the context-free (CF) grammars.

*Definition* 1.3. If each rule $r$ of a grammar $G=(V, V_T, R, S)$ is of the form $r=(u, v)$ with $u=u_1Au_2$, $v=u_1yu_2$, where $A$ is in $V_N$ and $y \neq \lambda$, then $G$ is called a *context-sensitive grammar*; the pair $(A, y)$ is the core of the rule $r$, while $u_1 - u_2$ is its *context*. $L=L(G)$ is a *context-sensitive language*.

*Definition* 1.4. If each rule $r$ of a grammar $G=(V, V_T, R, S)$ is of the form $r=(A, y)$ with $A$ in $V_N$ and $y$ in $V^*$, then $G$ is called a *context-free grammar*. $L=L(G)$ is of course a *context-free language*.

*Remarks.* The CS grammars are also met in literature as $T_1$-grammars, or grammars of type 1; it was proved [2] that they are weakly equivalent to the so-called *monotonic* grammars, i.e., that the classes of CS languages and monotonic languages coincide. The core of a CS is obviously a CF rule, while a CF rule is also a CS rule with empty context: $u_1=u_2=\lambda$. Note that the type of a language is not a uniquely defined notion; thus, if $L \subset V^*_T$ and there are $k$ grammars $G_1, G_2, ..., G_k$ with each $G_i$ of type $t_i$ (not necessarily the same), then $L$ is of each of the types $t_i$'s, when $L(G_1)= ... L(G_k)=L$.

Finally, if $(w_0, w_1, ..., w_{n-1}, w_n)$ is a derivation in $G$, namely

$$(3) \quad w_0 \xrightarrow{r_{i(1)}} w_1 \xrightarrow{r_{i(2)}} w_2 \ \dots \ \dots \xrightarrow{r_{i(n)}} w_n$$

then $r_{i(1)}r_{i(2)} \dots r_{i(n-1)}r_{i(n)}$ is a *control word* of (3). Every $S$-derivation of a word $w$ determines a unique control word, provided the rules in $R$ are distinct. Consider now a language $C$ over $R$, and denote by $L_C(G)$ a subset of $L(G)$ such that each word in $L_C(G)$ is $S$-derived by derivations whose control words are in $C$; $L_C(G)$ is the *language generated by G with the control language C*. Different kinds of control languages, with interesting properties, are presented in [10], but we stop here with recalling the concepts needed for our further considerations.

## § 2. Context-sensitive derivations

Let $G=(V, V_T, R, S)$ be a CS grammar. The set of rules $R$ may consist both



of CS rules and CF ones, i.e., $R=R_1 \cup R_2$, where $R_1$ contains actual CS rules, and $R_2$ contains all rules of the form $(A, y)$.

A derivation $(w_0, w_1, ..., w_{n-1}, w_n)$ in the grammar $G$ is called *context-sensitive* if its control word, say $r_{i(1)} \dots r_{i(n)}$, contains at least an $r_{i(k)}$ in $R_1$ $(1 \leq k \leq u)$. In particular it is possible to meet CF derivations in CS grammars, but we deal with the general case. Assume now the derivation above reached its $k-1^{th}$ step, i.e., $w_{k-1}$ is already generated, and it is going to perform its $k^{th}$ step. Since $G$ is a nondeterministic grammar, $w_k$ may be obtained from $w_{k-1}$ by use of every rule whose lefthand side is a subword of $w_{k-1}$. Thus, let $u_1, u_2, ..., u_m$ denote the left-hand sides of the rules in $R=\{r_1, r_2, ..., r_m\}$, and assume that $u_{j_1}, u_{j_2}, ..., u_{j_q}$ are all the subwords of $w_{k-1}$ among $u_1, u_2, ..., u_m$ (where $0 \leq q \leq m$), and therefore avery rule of the set $\{r_{j_1}, r_{j_2}, ..., r_{j_q}\}$ may be applied to produce $w_k$. To speak in terms of linguistics, we cuold say that the choice of the rule to be applied at a given step of derivation is nondeterministically performed along the *paradigmatic* axis of the derivational process. On the other hand, it is clear that the use of a certain rule $r_{i(k)}$ at the $k$th step is conditioned by the choice made at the preceding step, that is, by the use of $r_{i(k-1)}$. Even when two rules have identical left-hand sides, their right-hand sides must be different (according to our assumption that the rules in $R$ are distinct), and the use of one or of the other produces different words, that is, different conditions for the next choice. We may hence conclude that the structure of the control word of a derivation arises along the *syntagmatic axis*. And we think these considerations were the start point of such mathematical models of grammars as *controlled grammars* [9] where every rule determines the rules that may be used at the next step, as *grammars with control language* [10] where the control word of each derivation must belong to the control language $C$, as *time-variant grammars* [10] where the choice of rules at a given step essentially depends on this step, and even as *grammars with ordering* [3] where no rule may be applied to a given word if it succeeds (with respect to a partial ordering on $R$) the rules which may be applied. One could else remark that the two axes of the derivational process can be considered at the level of each type of grammar (from 0 to 4), and all the models mentioned above refer to the syntagmatic axis, except the time-variant grammars which refer to the time argument and paradigmatic axis.

But let us return to the context-sensitive grammars, and note that rule choice conditions at each step of a derivation in such a grammar have been expressed in more general terms of monotonic grammars, whose rules $(u, v)$ meet the only restriction $l(u) \leq l(v)$. But our subsequent discussion will be simplified if we limit ourselves to actual CS grammars.

Let $G=(V, V_T, R, S)$ be a CS grammar with the nonterminal alphabet $V_N\{A_1, A_2, ..., A_p\}$ and $R=\{r_1, r_2, ..., r_m\}$, as above. Since every $r_j$ is a CS (or CF) rule, it rewrites one and only one variable in a certain context, but there may be different rules which rewrite the same variable. Therefore $p \leq m$, and it is possible to define a partition of $R$ into $p$ classes, each corresponding to a variable $A_k$ being denoted by $[A_k]$. The rules in distinct classes will not be subject to any comparison, but the ones in the same class can be compared from the point of view of their context. It is thus obvious that a rule $r_{kj}$ in $[A_k]$ has the more chances to be applied at a step of a derivation the shorter it its context. We are therefore led to the idea of introducing a relation between the rules in the same class in order to establish what rules are more « powerful », that is, to determine a priority for rule choice at each step of a CS derivation. This way of bringing about the derivational process in a CS grammar would reduce its complexity, as it will arise from the more rigorous arguments in the next section.

## § 3. A NATURAL ORDERING OF CONTEXT-SENSITIVE RULES

Let $R$ be the union of the classes $[A_1]$, $[A_2]$, ..., $[A_p]$ and $[A_k]=\{r_{k1}, r_{k2}, ..., r_{kj}, ..., r_{kh}, ..., r_{ks}\}$ with $r_{kj}=(u_{kj}, v_{kj})$ $(j=1, 2, ..., s)$.

*Definition* 3.1. The rule $r_{kj}$ in $[A_k]$ *precedes* $r_{kh}$ in the same class if $u_{kj}$ is a subword of $u_{kh}$; denote this by $r_{kj} \leqq r_{kh}$.

As the notation employed suggests, the relation of precedence is an actual partial ordering in each class. Indeed,

(i) $r_{kj} \leqq r_{kj}$ (reflexivity);

(ii) $r_{kj} \leqq r_{kh}$ and $r_{kh} \leqq r_{kj}$ imply $r_{kj}=r_{kh}$ (asymmetry);

(iii) $r_{kj} \leqq r_{kh}$ and $r_{kh} \leqq r_{ki}$ imply $r_{kj} \leqq r_{ki}$ (transitivity).

The properties (i) to (iii) follow immediately from the corresponding properties of the word inclusion. Every class $[A_k]$ is thus partially ordered under « $\leqq$ », therefore it will contain one or more minimal elements, and one or more maximal elements. It can also contain uncomparable elements, as well as CF rules which are minimal elements (or *atoms*) in every class. The signification of this odering is obvious: if $r_{kj} \leqq r_{kh}$, then $r_{kj}$ applies whenever $r_{kh}$ applies, but there may be cases when $r_{kj}$ applies and $r_{kh}$ does not; in other words, $r_{kj}$ is more powerful than $r_{kh}$ since its left-hand side (its context) is « less », hence its context restriction is weaker. An example could be timely.

Let $R$ contain the rules $r_j=(aaAb, aabAb)$ and $r_h=(baaAba, baabbba)$, and assume a derivation rached its $k$th step with the word $aaaAba$; it is clear that $r_j \leqq r_h$, $r_j$ may be applied while $r_h$ may not.

In context-free grammars without parasitic variables the possibility of « blind lanes » is excluded; more explicitly, every derivation ends by a terminal word. But in context?sensitive grammars some derivations can end without producing a terminal word, but only a mixed one, i.e., a word including both terminals and variables. It is the case when no rule of the grammar may be applied to that word since no left-hand side of the rules in $R$ is a subword of it.

But another case when a CS grammar can stop before generating a terminal word comes from the nondeterministic way the rules ar tried if they apply at a given step of the derivation. It would be desirable that the grammar avoid to try rules whose applicability at that step is null or little. A first and trivial way of avoiding the superfluous work of a grammar (of any type, not only CS) is to try only the rules in $[A_k]$ when it has to rewrite the variable $A_k$. But a less trivial way of choosing the rules, with the same purpose (but specific to CS grammars), is to try first the rules with shortest left-hand sides, that is, to start with the minimal elements in each class $[A_k]$ when $A_k$ has to be rewritten. And here emerges the utility of the ordering in $R$ to simplify the derivational algorithm in a CS grammar, as it will be seen below.

## § 4. WORD GENERATION ALGORITHM IN CONTEXT-SENSITIVE GRAMMARS WITH NATURAL ORDERING OF RULES

Let $G$ ge a CS grammar with $R$ partitioned into $p$ classes $[A_1]$, $[A_2]$, ..., $[A_p]$, and let $w$ be a mixed word derived in $G$ from $S$ after $k-1$ steps. Hence, $w$ is a word of the form



(4) $w=t_1A_{i_1}t_2A_{i_2} \ldots t_qA_{i_q}t_{q+1}$

where $t_1, t_2, ..., t_q, t_{q+1}$ are all in $V^*_T$ (and some of them may be empty words). Assume the grammar rewrites the variables following the usual lefmost convention, and now it is going to rewrite $A_{i_h}$ $(1 \leqq h \leqq q)$. To obtain the next word in the derivation, each rule in $[A_{i_h}]$ should be tested, but *starting with « the least ones »*, i.e., with the minimal elements under the ordering in $R$. To prepare the formal presention of the algorithm, it is first necessary to describe the structure of each class $[A_k]$ by means of a matrix, denoted $M(A_k)$, whose elements will be doubly indexed labels of rules in $[A_k]$, or zeros:

(5)
$$M(A_k)=\left\|\begin{array}{c|cccccc} r_{10} & r_{11} & r_{12} & \ldots & r_{1j} & \ldots & r_{1n} \\ r_{20} & r_{21} & r_{22} & \ldots & r_{2j} & \ldots & r_{2n} \\ \ldots & \ldots & \ldots & & \ldots & & \ldots \\ r_{i0} & r_{i1} & r_{i2} & \ldots & r_{ij} & \ldots & r_{in} \\ \ldots & \ldots & \ldots & & \ldots & & \ldots \\ r_{m0} & r_{m1} & r_{m2} & \ldots & r_{mj} & \ldots & r_{mn} \end{array}\right\|$$

where $r_{ij}$ are rule labels or zeros, the following conditions being observed:

(i) The nonzero elements in the first, distinguished column of index 0 label the CF rules in $[A_k]$ (in any order), the last positions of this column being eventually completed by zeros up to the $m$th position

(ii) The left-hand sides of the rules labeled by nonzero elements in the same, say $j$th, column are of the same length, but uncomparable with respect to the order relation in $R$.

(iii) The rules labeled by nonzero elements in each row rate all comparable under « $\leqq$ » and increasingly ordered from yeft to right, that is, $r_{ij} \leqq r_{ik}$ for $j<k$ and nonzero $r_{ij}$, $r_{ik}$. The rules with identical left-hand sides (when are not CF) occur in groups in the same row.

(iv) All the positions in $M(A_k)$ which cannot be completed by rule labels according to conditions (i) to (iii) are filled by zeros.

It is now possible to give the algorithm for performing all the subderivations with start point at the word $w$ of the form (4). But let us first state precisely the current variables:

$h$ marks the position of the variable $A_{i_h}$ in $w$, from left to right $(h=1, 2, ..., q)$;

$k$ marks the step of the derivation; since we assumed $w$ was obtained after $k-1$ steps, denote it by $w^{(k-1)}$;

$i$ marks the row in each matrix $M(A_i)$ $(i=1, 2, ..., m$, but $m$ may differ from a matrix to another);

$j$ marks the colum in each matrix $M(A_{i_h})$ $(j=1, 2, ..., n$, and $n$ depends also on the matrix, that is, on $i_h)$;

*Description of algorithm*

1°. Take $h=1$ and check what rules in $M(A_{i_1})$ can be applied to $w^{(k-1)}$

following the order «top to bottom» and «left to right»: $r_{10}$, $r_{20}$, ..., $r_{m0}$, $r_{11}$, $r_{21}$, ..., $r_{m1}$, ..., ..., $r_{1n}$, $r_{2n}$, ..., $r_{mn}$.

2°. Apply each applicable rule *in this order* (that is, pass over zeros and nonapplicable rules), and denote by $C(k, i_1)$ the set of all words thus obtained.

3°. Take again this procedure from 1° for $h=2, 3, ..., q$ and denote $H(k)=C(k, i_1) \cup C(k, i_2) \cup ... \cup C(k, i_q)$ — the set of all words obtained from $w^{(k-1)}$ in all possible ways.

4°. Take again this procedure from 1° *for each nonterminal word* in $H(k)$ and continue it until $k=n$ with $H(n)$ *consisting of terminal words only.*

5°. Denote by $L_G(w)$ the set of all terminal words in $H(k), H(k+1), ..., H(n)$, each word being considered only once; $L_G(w)$ is the *sublanguage derived from w in the grammar G.*

*Discussion.*

It is clear that this algorithm is a branched one, and its representation by means of trees could be done, if not too complicated.

Let us else remark that it is suitable for generating not only sublanguages starting from a word, but also the whole $L(G)$; more precisely, $L(G) = H_T(1) \cup H_T(2) \cup ... \cup H_T(k) ... \cup H_T(n)$ where $H_T(k)$ denotes the set of all terminal words in $H(k)$.

Finally, note that the *checking interpretation* as defined in [10] has also occured in our algorithm (steps 1° and 2°), but otherwise: Salomaa conceives it on the syntagmatic axis of the derivations, while we apply it within the paradigm represented by the matrix $M(A_{ih})$.

## § 5. Linguistic applications

We open this section by quoting some of P. Postal's conclusions concerning the generative inadequacy of context-free grammars [1]:

There is good reason to believe that much of the contemporary syntactic theory actually reduces to this very weak version of phrase structure (it comes to « contextfree » — *our specification*). However, it is not in fact possible to enumerate natural languages with contextfree phrase structure grammars.

In view of the fact that transformational grammar is the only theory known which circumvents the limitations of phrase structure, such evidence can be taken as indirect support for the claim that natural languages require transformational grammars.

We do not intend to deal with transformational grammars in this paper, but some references to transformations as examples of context-sensitive rules will not be avoided, as it is well known that transformations are essentially rewriting rules restricted to a context (but they are not phrase structure rules); such references will be the more legitimate so as our ordering of rules *involves only their left-hand sides*. But there may be found phrases or even sentences in natural languages whose generation remains beyond the linguistic adequacy of context-free grammars, while their structure can be described by means of a context-sensitive grammar (without necessity of transformations). This case could be met in languages with richer flexion, and we shall try to find some relevant examples from Romanian.

[1] Paul M. Postal, *Limitations of Phrase Structure Grammars*, in [7], p. 146.



Following the « program » sketched above, let us first refer to Chomsky's transformational model for the syntax of English, as presented in [1]. Notice that the phrase structure component of this model contains no CS rule between its 25 rules, and therefore we have no possibility to find order relations along the paradigmatic axis at this level. As regards the transformational level, there are several transformational with identical left-hand sides: 3 (Interrogative), 4 (Negation, 5 (Affirmation), 6 (Contraction), 7 (Elliptic), 8 (So), with the common left-hand side ($NP, C, VP_1$) (or another one among the alternatives (b), (c), (d)). Hence, all the transformations have the same possibility of being performed: they are « equal », or rather *equivalent* with respect to « $\leqq$ ». Another group of equivalent transformations is made up of 20(a), 20(b), 20(c), 20(d) — first, 20(e) — first. But this is a less interesting subcase of « $\leqq$ »; a transformation which is strictly « less » than another is (27b (at page 222 in [1] with respect to the more general transformation 1 (Passive), since the structural descriptions of the left-hand sides are ($NP, Aux, V, NP$) and ($NP, Aux, V_t, NP, Adv$) respectively. In fact, the former is a particular case of the latter, and several groups of transformations can be found such that some of them be less than other ones under « $\leqq$ ».

Let us now consider a simple CS grammar which generates some noun phrases in Romanian:

$r_1$: $NP \rightarrow \begin{bmatrix} N_{masc} \\ N_{fem} \end{bmatrix} + AP$

$r_2$: $AP \rightarrow Adv + Adj$

$r_3$: $N_{masc} + Adv + Adj \rightarrow N_{masc} + Adv + adj$

$r_4$: $N_{fem} + Adv + Adj \rightarrow N_{fem} + Adv + adj + ă$

$r_5$: $N_{masc} \rightarrow$ *arbore, munte, bărbat ...,*

$r_6$: $N_{fem} \rightarrow$ *stîncă, salcie, femeie ...,*

$r_7$: $Adv \rightarrow$ *foarte, relativ ...,*

$r_8$: $Adj \rightarrow$ *mare, verde ...,*

$r_9$: $adj \rightarrow$ *înalt, alb, abrupt ...,*

This grammar obviously generates such strings as: *munte foarte înalt* (very high mountain) by use of $r_1, r_2, r_3, r_4, r_5, r_7, r_9$; *stîncă relativ abruptă* (relatively steep rock) by use of $r_1, r_2, r_4, r_6, r_7, r_9$; *salcie foarte mare* (very big willow) by use of $r_1, r_2, r_6, r_7, r_8$. All these strings are well-formed in Romanian grammar. And it is also clear that $r_3$ and $r_4$ are essentially CS rules. The relation $r_8 < r_3$ as well as $r_8 < r_4$ follow from the greater morphological omonimy of adjectives involved in $r_8$; $r_9 < r_3$ and $r_9 < r_4$ follow from the fact that the right-hand side in $r_9$ are both adjective roots and adjective forms for masculin gender.

We close our paper with the remark that the last section could be only a start point for a subsequent and deeper development of the linguistic aspects which are only sketched here.

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*Iasi*

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# THE PRINCIPAL (?) INDO-EUROPEAN CONSTELLATIONS

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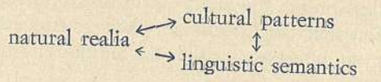
In reconstructing earlier linguistic forms we must recover two aspects in interlocking relation, the phonetic and the syntactic-semantic. In reconstructing earlier cultural configurations we must recover the structure-points and pattern of the earlier cultural sub-system and we must seek the contemporary phase of the natural world, where applicable, to which those earlier systems were referred. Finally we must locate the cohesions between the linguistic semantics, the other cultural patterns and the contemporary realia. It will be immediately seen that these three discriminations of a reconstruction differ from the three approaches, or « systems », posited by Paul Friedrich (esp. pp. 2-3)[1]. Friedrich speaks in terms of analytical systems which he calls *linguistic, semantic*, and *external*. I discuss our differences elsewhere, and they will emerge below, but essentially most of what he calls *semantic* I include in *linguistic*, and his *external* embraces much of what for me is non-linguistic culture as well as the contemporary realia.

1. Scholars have encountered difficulty with such problems even as that of the beech tree — itself a simple problem beside some that we may envision, such as those of Indo-European law or economics. The prehistoric geographic distribution and the botany (in short, the realia) are themselves complex questions, let alone the problem of the Indo-Europeans' use and views of trees. Indeed, large parts of Friedrich's book are devoted just to the question of palaeo-botany. A relatively simple control case is afforded by astronomic data, since over the past several millennia it is not likely that significant differences have intervened in human observations and gross physical classification of astral bodies. In this favourable case we may therefore occupy ourselves more closely and directly with the cultural patterning and the linguistic semantics.

It is not yet clear from linguistic theory (specifically, recent semantic theory) and cultural anthropology whether the correct relation of the relevant discriminations is

natural (physical) realia ↔ cultural patterns ↔ linguistic semantics

or




[1] Paul Friedrich, *Proto-Indo-European Trees*, Chicago 1970.

I incline to the latter view; but the well-known Whorfian plan, which has not yet been empirically sustained in any strong form, may even be viewed as

natural realia ↔ linguistic semantics ↔ cultural patterns.

The present problem will not be much occupied with the totality of difficulties in this set of relations; but important aspects cannot be avoided. We claim, in simple words, that the stars have long been the same, that societies/cultures have placed different constructions on them (i.e. grouped them into different constellations with different functions, myths, etc.), and that their languages have talked about these matters with differing sounds and syntactic meanings. Our present object is to recover the phonetics and syntactic meanings of certain linguistic forms, as well as the patterns of cultural function, that relate to certaine astral bodies.

2. It has been claimed, correctly I think, that the Greek star-name Σείριος is the equivalent of Avestan *tištriya-*. The equation may be improved by accounting for the difficult vocalism as Σειρ- < *Σῖρ-, remodelled by folk etymology on the relation of σι(ν)- « harm » to the name of the Sirens:

λαμπρότατος μὲν ὅ γ' ἐστί κακὸν δέ τε σῆμα τέτυκται καί τε φέρει πολλὸν πυρετὸν δειλοῖσι βροτοῖσιν

(Il. xxii, 30-1)

Brightest of all is he, yet withal is he a sign of evil, and bringeth much fever upon wretched mortals.

We have then **tri-str-io-* dissimilated to **tistrio-* (cf. Skt. *tisraḥ* « 3 fem. »), further dissimilated [2] in Greek to **tisrio-* > **tīrio-* > **sῑrio-*. Forssman, *KZ* 82, 37 ff., glosses this « Der zum Dreigestirn (sc: Orionsgürtel) Gehörige ». But Sirius is not in Orion proper; it is α Canis Major. Moreover, it is unlikely that such a prominent star (the brightest) would be identified by its relation to three such dimmer stars:

ὅς ῥά τ' ὀπώρης εἶσιν, ἀρίζηλοι δέ οἱ αὐγαὶ φαίνονται πολλοῖσι μετ' ἀστράσι νυκτὸς ἀμολγῷ

(Il. xxii 27-8)

(like the star) that cometh forth at harvest-time, and brightly do his rays shine amid the host of stars in the darkness of night .

3. However, there are three huge stars that form a perfect figure: Sirius (α Canis Majoris), Procyon (α Canis Minoris), and the red [3] Betelgeuse (α Orions) — a prominent equilateral triangle. It seems much more plausible that this triangle should have been the Dreigestirn of the Indo-Europeans to which Sirius was referred. In this fashion we arrive at a major IE astral grouping — a constellation.

It is noteworthy that Orion (known to Homer along with Ursa Major, Boötes, the Pleiades and Hyades) breaks this unity up in historical times. This agrees with the common supposition that the Greeks got their constellations largely from the Semites. Yet there is an interesting residual continuity, since the two dogs go together with Orion as a unit:

[2] Perhaps by conflation with the feminine form of « 3 »?
[3] Can this explain as a distinctive colour ON *blástiarna* fem.?



ὅν τε κύν' Ὠαρίωνος ἐπίκλησιν καλέουσιν (Il. xxii 29) [4]

(the star) that men call by name the Dog of Orion

This grouping looks like the cultural continuation of the IE « triangle ».

In fact the earliest evidence applies the term κύων not to the constellation of that name but to the star Σείριος itself; cf. A. Scherer *Gestirnnamen* 109 ,190. Scherer 110 is also surely right that *Canīcula* is just a loan translation, and not inherited [5]. Note also the nomenclature of Προκύων — paired with Κύων; i.e. these where originally stars and not constellations.

4. The shield Hephaestus made for Achilles (Σ 485-9) had Πληϊάδάς, Ὑάδας, τό τε σθένος Ὠαρίωνος, and Ἄρκτον or Ἄμαξαν. Setting aside the first two, we have the last and well-known Bear, which is overtly characterized as never sinking into the Ocean, and Orion. Note too that the Bear watches Orion (Σ 488) [6]. Therefore Orion is the principal non-polar constellation, it would seem.

Understanding « Orion » here in the broad sense of *Triangle, we seem to have a trace of IE myth. On the attestation and literature on Ὠαριων see Scherer 188 [7].

The specific juxtaposition of the Bear and Orion and the total configuration of this astral image, plus the fact that we find all this embedded in an epic formula, are themselves testimony to an ancient structure-point of myth. But this becomes all the more significant when we recall A. Yoshida's arguments for the IE antiquity of the decoration on the shield of Achilles [8].

5. We now return to the linguistic form of some related words. τὰ σείρια (Ibycus frag. 3) « the constellations » may well be a cross or conflation or hyper-form for τ- (: ἄστρα, Alcaeus gen. pl. τερέων and later plural uses; cf. Scherer 30); cf. esp. the hapax

ἐν δὲ τὰ τείρεα πάντα, τά τ' οὐρανὸς ἐστρεφάνωται (xvii 485)

therein all the constellations wherewith heaven is crowned

We seem here to have a trace of the **t-*, which in any event may be compared with Skt. nom. pl. *tāraḥ* even if we do not draw precisely the conclusion of Scherer 29-30. In σειρῆνες. τὰ ἄστρα (Eustathios) we may have a recollection of the sense « harm » adduced above in connexion with Σειρήν Σειρῆνες.

At any rate, the use of σειρῆνες in this sense (no matter how original or distorted that actually was) shows that σείρια could be understood as related to Σείριος, perhaps via σειρός « scorching »; in turn, σείρια shows the probable origin of the vocalism of τείρεα. Thus, (1) τερέων (as the lectio difficilior in this sense-group)

[4] Cf. Od. v 273 for the formula.
[5] Cf. too *canīcula* for the unluckiest throw at dice (: σι(ν)- « harm », in σινος neut., σίνις -ιδος Σίνις, σινομαι).
[6] All these details recur in ε 272-5, with the substitution of Βοώτην for Ὑάδας. The whole is clearly an extended and complex, yet unified, epic formula. This last fact only underlines the ancient origin of the total configuration.
[7] I would explain the plural *rkṣāḥ* and fem. ἡ Ἄρκτος « Ursa » differently from Scherer 131-3. The plural matches (in concord) the form for « constellation » elaborated below.
[8] Atsuhiko Yoshida, « La structure de l'illustration du bouclier d'Achille », *Revue belge de philologie et d'histoire* 42 (1964) 5-15; and C. Scott Littleton, « Indo-European themes in the *Iliad* », in J. Puhvel ed., *Myth and Law among the Indo-Europeans* (1970) esp. 230-2. It is worth pointing out that I reached my views on the rôle of the constellations in the shield of Achilles prior to discovering Yoshida's perceptive insights through the publications of my good friend Jaan Puhvel.

has the oroginal vocalism [9], and (2) we see that Σείριος and τερέων were early related semantically. The neuter plural τείρεα gets its gender from ἄστρα, which is a collective as Scherer and others have seen (cf. Skt. *tārā*) [10]. On such grounds of semantic contamination and morphological motivation I conclude that σειρῆνες replaces or developed alongside σείριαι, which was influenced by Σείριος and perphaps σειρός and which in turn influenced the vocalism of τείρεα, which replaces *τέρεα, which replaces *τέρες = Skt. *tāraḥ* (cf. the plural of Bear, note 7). The form ἄστρα would simply be a different replacement of this morphological plural.

It seems, then, that the fossilized plural *stars was at one point taken as THE constellation par excellence — the one with Σείριος.

6. Now that the morphological plural **téres* is established as having the special additional meaning « constellation » [11] we may see a reason for the absence of initial **s-* which is more specific and explanatory than merely positing an IE *s-* mobile. Such collocations as « 3 stars » **tréies stéres* would have been phonetically indistinguishable from and interpretable as **tréies téres* [12]. A later and derived alternation in sandhi between **tréies* + *stéres* and **tréies(s)téres* (and the like) could also explain the problematic Breton and Cornish *ster-enn*: Welsh *ser-enn* [13] That is, in more general terms, we would have **x-s* + *stéres* and *x-s(s)téres*.

7. If the plural **(s)téres* was used in the sense « constellation », we may now understand the puzzling form of ἀστήρ, Armenian *astł* [14]. I propose that a single star came to be marked « one-star », or in Greek terms as if **sm-ster-*; cf. ἑκατόν, ἄλοχος, and my argument on Lat. *mīlle*, *Glotta* 46 (1968) 274-8. A form such as **sm-ster-* could have dissimilated, at least in Greek, to **mster-*; but such a development, ora a distant dissimilation of aspirates in ἄλοχος ἀδελφός etc., is not as optimal solution. Besides, Armenian *astł* is probably not from **(s)m-sterl-* since we should then expect **amstł*. Finally, we now have valuable evidence from Hittite to which my student Howard Berman draws my attention. We find a noun of common gender in both thematic and athematic inflexion, *hastira-* and *haster-*; the nominative of the latter is *ha-as-te-ir-za* [15]. We must suppose provisionally for these a stem **Haster-*, presumably **Haster-*, as an antecedent for Greek, Armenian and Hittite [16]. Unfortunately we do not know the Hittite form for the numeral « one, single »; but from the syntax of all the forms in question this is what we might expect here. It seems possible, then, that such a prefixed form might underlie as a source some instances of the notorious Greek *ἀ-*.

For the lateral in Armenian we may compare, with Scherer, Lat. **stēr-lā*;

[9] The word is not necessarily Aeolic, pace Scherer.

[10] The Sanskrit feminine must be a revaulation of the neuter collective to be seen in such expressions as *tārā-adhipa* « moon (= lord of the stars) », *tārā-patha* « heavens ».

[11] On some non-semantic developments in pluralia tantum see my paper, « The Semantics of Armenian plurals », *1971 Mid-America Linguistics Conference*, Columbia Missouri.

[12] In my essay on troublesome IE initial in *Studies in Honor of George S. Lane* (1967, 146-53), I have presented the conditions for reduction of geminates over word boundary in phrases.

[13] In light of the discussion below of *septentriōnēs* I also suggest an assimilated initial of the numeral « 7 » to the initial of « star » as a contributing factor to account for the riddle of the British Keltic forms represented by» Welsh *seith* instead of the expected *h-*. In the present context, the anomalies of « 7 » and « star » are mutually supportive.

[14] It is significant that Greek and Armenian go together on yet another point of detail. Although the proximity is not that of Indo-Iranian, it seems that if we speak of Balto-Slavic we should also speak of Armeno-Hellenic.

[15] See Berman's forthcoming dissertation for details.

[16] It will be seen that my account differs in several ways, apart from the new Hittite evidence, from that of A. Tovar, « Carta etimológica sobre vasc. *izar* « estrella » y la diosa Istar », *Homenaje a Xaxier Zubiri* (Madrid 1970), esp. 689-91.



and this, with Gothic and ONorse **sternōn* fem., may be derived from a collective. Scherer (28) suggests that OHG *stërno*, OE *steorra* etc. (all masculine), as well as the preceding, follow the matching forms of « sun » and « moon » as models. I would propose an even closer modelling specifically on « sun », with a set of forms descended as if from an l/n heteroclite. The use of the plural in the sense « constellation » would also motivate these suffixations.

The use of the plural **(s)téres* in the meaning « constellation » would also motivate the replacement of the old word in several of the branches of IE; on certain of these see the appendix to this paper.

8. Lat *septentriōnēs* masc. « the Bear » has been traced, partly on the strength of a term from Varro, to *triōnēs* « plough oxen ». Perhaps this latter would be to *trī-* « thresh », and therefore would be better glossed « threshing oxen », according to Scherer 137, who compares Βοώτης (βωτεῖν, Laconian βωτεῖν· ἀροῦν). Thus Scherer 138 speculates that « 7 oxen » and the terminology « oxen » and « plough » (representing a cultural level of agriculture) are more recent than the term « bear » (representing hunting); but the Indo-Europeans, after all, were as much settled agriculturalists as hunters as far back as we know.

Assuming that Varro's attestation of a contemporary term *trīō* for oxen is to be believed (and there seems little reason to doubt on a lexical point such as this the testimony he offers from his own contemporaries), it is quite possible that the Romans so interpreted the name *septentriōnēs*. But I believe a simpler, more direct, and more explanatory analysis is to be preferred for an earlier time level, particularly in light of the results reached above. Avestan uses the term *haptō-iriŋga-* (:Skt. *liṅgá-* neut.) « with 7 marks », and in Persian we find *haftōrang*; Sanskrit attests *sapta-ṛṣáyaḥ* « the 7 wise men ». On these lines and on the basis of **t(s)i-str-io-* and of **(s)téres* already discussed, we would seem to have here simply **septm-(s)tr-io(n)-*. Whether the second *s* was lost by dissimilation or by compounding under the form **teres* is hard to say [17]. This analysis is indirectly confirmed by OIr. *sechtarét* Sg 67[b]21 gl. arctus, i.e. **sechte rét* « a heptad of stars », with what appears to be an archaic gen. pl. of this ancient *u*-stem (see appendix); therefore **sektodion r(e)nt(u)on*. In any event, if Sirius was « the one belonging to the Triangle », the Bear was « the one mode up of 7 stars ». Note that the Bear, being a constellation, is morphologically plural [18].

9. We are led then to a nomenclature for constellations formed upon the number of costituent stars. This enhances the analysis of a single star in Hittite, Greek and Armenian as being characterized by its number, namely unity. We have identified the phonetic form of the names of two constellations, the Triangle and the Bear; the latter at least may well have had more than one name. We have also specified the locution which seems normally to have been used for the notion « constellation »; it seems originally to have consisted in a special semantics which attached to the morphological plural of « star », and thus to have been a rather special instance of plurale tantum.

We have identified a distinctive entity in the Indo-Europeans » system of grouping, organizing, and accounting for the distribution of the heavenly bodies; we

[17] If, however, we are correct in suggesting (note 13 above) that the initial of British Keltic *seith*(N) was contaminated in this idiom or collocation, we probably must envisage the sequence **septm-str-io(n)-* > **septm-ster-* > **sektan-tser-* > **tsekan-tser-* > **sext-ser-* > **seçθN, ser*, and not **heçθN*. The plausibility of this expression for British Keltic is enhanced by the attestation of OJr. Sechta-rét « Arctus ».

[18] Welsh *ser* (an analogously the Cornish and Breton) is accordingly to be derived simply from **tseres* < **stéres*, pace Scherer 25 who sees here an old neuter collective. The vocalism and non-lenitable initial could easily explain the gender.

call this entity the Triangle. Intestingly, it fails to match exactly the successor Greek constellations. Yet we can recover traces in Greek literature that motivate this earlier entity in its relations to other entities (e. g. the Bear) and that bear on its displacement by successor entities (the terms and rôles of the stars called « Dog »).

We may summarize, formalizing somewhat:

*a*) * ⟨CONSTELLATION⟩ → {STAR} [+Plural]

*b*) The IE lexicon included entries of the form $\begin{pmatrix}(\{\text{NUMERAL}\}\ \&\ \{\text{STAR}\}\\ \langle\text{CONSTELLATION}\rangle\end{pmatrix}$ which comprised the names of certain constellations.

*c*) The astronomy of the Indo-Europeans included the elements TRIANGLE and HEPTAD = BEAR.

*d*) Is it perhaps true that there was a sort of duplicate poetic system whereby HEPTAD = BEAR paralleled TRIANGLE = DOG? Was there any consistency in the fact that these two were both animals of cultural importance, and were there perhaps more?

## Appendix

The old word for « star » has been replaced in Goidelic Keltic. We should like to understand how this has happened. OIr. *rét*, a masc. *u*-stem means « thing », but the indentical phonetic shape also means « star »: gen. sg. *ind réta-sin* gl. Hyperionis Sg 70$^{b}$6. This homophony was soon displaced by the compound *rétglu* [rḗ:dγlʷu] (an *n*-stem, *rétglainn* etc.) > Mid. Ir. *rétlu* > ModIr. *ré(a)lt*. Another word also existed, *rind* a neuter *u*-stem « constellation, star ». In the same passage of the glosses on Priscian we read *arrind sin* gl. Vesperum (lege Hesperium). If we reflect on the shape that **sterwould* have taken in Irish it is not hard to see that a replacement would have been natural:

**stēr* (nom. sg.) > **t(s)īr* > **sír* or *tír*

*stros* (gen. sg.) *t(s)r$^{a}$/oh sra/sró tra/tró*

*steres* (nom. pl.) *t(s)ereh seir teir*

Now note the morphological parallelism:

| | | | |
|---|---|---|---|
| ἀστήρ | = | RÉT *masc.* | *R(E)NTUS |
| ἄστρον | | *rind* neut. | *r(e)ndu* |

It would appear that here we have old related adjectives or oppositives with the head noun deleted from the syntactic phrase. In formation **r(e)ntus* may be compared with Scherer's discussion (102) of *-tu*-formations, referring to Havers; but in particular we are reminded of Mid. Ir. *grith* « sun, heat », Bret. *gred* masc. « heat » **g$^{W}$hr(e)tu-s*. We may compare the neuter plural **r(e)ndua* to Latin *sīdera* (see Scherer 33-4), and eventually to τείρεα above; note too that Germanic **tungla-* is neuter [19].

[19] If Oīr. *rétglu* is reconstructed with a final element **-glōn-*, we may see this as an element shared by Germanic Keltic. Gmc. **tungla-* may then be a nominalization back-formed as



There is another set of words which may be related to these. *rind*, a masc. *i*-stem, means « tip, point », and occurs as well as a compound *rind-* « sharp, spear »; there is also a derived denominative verb *rindaid* « cuts, satirizes ». It is reasonable to suspect that this set may represent an old kenning with the value *(metal) edge, tip < *schining. We are then reminded of a well known word of obscure origin which might well be related: *findruine*, the term for a white metal which was less precious than gold but more valuable than bronze. If this were descended from **uindo-ronīā-*, the second element could be related to our set and the whole compound woul originally have meant « white-shining ». But if the older form is actually *findbruine* (M. A. O'Brien, *Ériu* 11, 1932, 170) a different root must be involved.

We seem thus to have evidence for an early Keltic root **ren-* « shine, gleam ». The words for « star » and « constellation » would be nominalized attributives derived from this root which have replaced the original etyma with which they once occurred in concord.

A similar background may underlie the Balto-Slavic etymon, although it is hard to be sure of the shape of the root. It seems to me that the only way in which we may equate the initials of the Baltic and the Slavic forms and motivate the subsequent developments is to accept the opinion of those who posit an original **gu̯-*. That, is, Slavic *zvezdá dzvezdá* Polish *gwiazda* continues **gu̯oizda*. I then regard the Baltic *g* as intrusive in the familiar pattern of velar before sibilant clusters; hence in *žvaigžde žvaigzde* (Latvian *zvàigzne*) the *gžd* is from **žd*. Then I assume an assimilation of the resultant consonant clusters, followed by simplification of the non-permitted initial **gžd* is from **žd*. Then I assume an assimilation of the resultant consonant cluters, followed by simplification of the non-permitted initial **gžv-* [20]. That is, **gu̯oižde* (or *-īā*) became by velar epenthesis **gvaigžde*, which became by assimilation **gžvaigžde*, followed by simplification to *žvaigžde*. But we may also see an attraction here from the root of *žvìlti*, and perhaps *žvygulys* if that has a different origin from what is usually supposed. Finally we may reconstruct either **gu̯oigdīā*, or more likely **gu̯oisdīā* < F*gu̯ois-dīā*. The Baltic and Slavic forms now agree. It is worth noting here that Albanian *yll* (plural *yljëz* in conservative dialects) cannot reasonably be derived from « sun », as is customarily claimed. Apart from the phonetic obscurities, it would be difficult to motivate the semantics so long as the etymon « sun » remains with just that meaning in *diell* < **su̯el-*. I present my views on *yll* elsewhere.

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an adjective from **tun-glan-* or the like; in turn, **tun-* reminds us (as if a zero-grade) of OE *twinclian* > Eng. *twinkle* « sparkle, glimmer, shine intermittently ».

[20] Thus contrary to Stang (*Vergleichende Grammatik der baltischen Sprachen*, p. 16), who supposes that the Baltic *ž-* is directly from **ǵ* and in disagreement with the Slavic **g-*. Such a variance is scarcely possible with so specific and recent a shared formation. We must therefore seek an internal account for the divergence.

# PRODUCE CLASSIFICATION IN TAGALOG AND JAVANESE: TOWARD A THEORY OF SEMANTIC RECONSTRUCTION

Sandra Shamis

## 1. The nature of the problem:

### 1.1 Introduction:

This study is concerned with the theoretical implications inherent in any comparative semantic analysis of a domain or taxonomy, in two related languages [1].

The two languages analysed are Javanese and Tagalog, which belong to the eastern and northern branches of Indonesian, respectively; Indonesian in turn is the eastern branch of Austronesian. The taxonomy in question deals with the classification of fruits and vegetables, or produce.

Little has been done in comparing the texonomies of similar semantic domains in related languages. So far, no attempt seems to have been made to derive such classifications from an underlying (in this case historical) source or to reconstruct a common, or proto, set of semantic features on the basis of the features present in the modern languages [2].

[1] While interest in this topic dates to 1966, and the first version began in 1970. I am grateful for the opportunity afforded my by of Social Science Research Grant 1305-W85-000 of the University of Western Ontario, to further research on this topic.

The data utilized in this paper are derived from several sources: The Javanese material was elicited from Soeharni Soemarmo in 1966 while we were both graduate students at UCLA. For this, belated thanks. Unfortunately, little has been added to the initial corpus of Javanese since then.

The Tagalog material comes from various places. To my original, anonymous informants in the Philippines (Ford Foundation Fellowship 1966-67), salamat po. And an especial salamat to the unsuspecting customers of the Bahay Kabu restaurant in Chicago, who innocently replied affirmatively to my request that we chat while I finish my « pancit bihon », one desolate night in December 1971. I am also grateful to the head of the Philippine Consulate in Chicago, for allowing me to elicit forms from his staff. This particular research is not overtly incorporated into this paper, as it involved several Philippine languages other than Tagalog. However, an analysis of that data in the format presented here is forthcoming.

The following have read and commented on an earlier version of this paper: Terrence Kaufmann; John J. Gumperz; Jess Sawyer; Mary R. Haas. Susan H. Houston and Clay Swinburne also read this previous version, and many of their suggestions are incorporated into the text. They, as all the others, are of course not responsible for any errors in analysis or judgement present here. John J. Gehman contributed greatly to the final form of this manuscript, and for this I am exceedingly grateful. I am also extremely grateful to Leonard Talmy for having made no comments whatsoever.

This paper is dedicated to the memory of two linguists, Tommy R. Anderson and C. Douglas Chrétien, who inspired and aided my interest in Philippine linguistics.

[2] The need for such research has long been recognized: only recently has there been emphasis placed on the systematization of diachronic semantic studies. In his recent books, Tyler (p. 18 1969) puts the problem succinctly.

Application of formal semantic analysis to problems of linguistic reconstruction should yield significant results. Historical linguistics has made great progress in the reconstruction of phonology and grammar, but its attempts to reconstruct meanings are generally unimpressive. Too often semantic reconstructions are either based on the notion that the most frequently occuring glosses represent basic meaning or that certain glosses are derivative extensions of other glosses. The fallacy in much of this stems from a failure to recognize the arbitrary nature of the relation between linguistic signs and their denotata. Attempts to reconstruct the meanings of words are symptomatic of a preoccupation with the lexeme rather than the organization of semantic domains.



Note that the comparison of two taxonomies is made here, not in order to contrast the relative cultural priorities or foci of the features specified in each language, but rather to postulate an historical model which underlies bot systems.

### 1.2 The linguistic aspects of taxonomic organization:

A classificatory taxonomy of this nature, which specifies definitions of real world objects, obviously involves « decisions » made by the native speaker of the language. To what sector of linguistic inquiry do these internalised definitional models belong?

It should be apparent that componential analysis, if it is to make valid statements about a native speaker's performance, must ultimately characterize the underlying « competence », or system of rules, which account for his ability to classify cultural experience accurately.

Like the underlying system of grammatical rules, semantic rules can be imperfectly rendered in a speaker's performance, but are a part of his linguistic competence. And it is precisely semantic rules which a componential analysis should provide.

Further, while the organization and analysis of taxonomic systems seems tc belong to a model of cultural behavior rather than to a competence model of linguistic behavior, it should be clear that semantic specification is part of grammar and that it has syntactic implications. The organization of semantic features into a domain may ultimately be culturally determined, as is implicit in the componential analysis research attempted by anthropologists [3]; however, it is still necessary to intergrate such semantic information and systemization into the grammatical description of an entire language.

### 1.3 The semantic basis of componential analysis:

Why is componential analysis considered « semantic » as opposed to morphological or grammatical? Such analysis, concerned with the classification and definitions of lexical items, (in the anthropological sense), and feature specifications in the lexicon (in linguistic usage), is obviously not of a grammatical nature, in isolation (when not concerned with the subcategorization and selectional restrictions posed by feature specification). Yet it is not morphological analysis either, for one significant reason: components or features, the basic defining of a taxonomy, need not be indicated by any distinct morpheme or formative in the superficial structure. To speak of « portmanteau » representation here, where several « morphemes » coalesce into one overt marker, is too simplistic. The point is that semantic features need not be present overtly in the superficial structure at all.

A lexical item analysed as a « bundle » of semantic features, like the features

[3] The literature on componential analysis is full of such comments; it is obvious that such work is also based on certain structural linguistic concepts as « mutually exclusive », contrast etc. The following example from Frake (reprinted in Hymes 1965, p. 194) is typical

« Among the questions evoked by a disease case, there invariably appears one of a set of utterences which demands a « isease name » (alaŋ mesait en) in response. Answering a question with a « disease name » is diagnosis (Note: mutually exclusive). Subanun diagnosis is the procedure of judging similarities and differences among instances of « being sick », placing new instances into culturally defined and linguistically labelled categories.

of a sound segment, has no surface representation except in combination with other features. Following this logic, a word need not be analysed with reference to superficial representation, although this is not to imply that semantic (hence syntactic) features are never morphologically indicated.

### 1.4 The basis for reconstruction:

Is there sufficient justification to reconstruct a proto-Indonesian classifactory system of produce on the evidence present in the feature specification in only Javanese and Tagalog? Both languages were the « criteria » for Dempwolff's reconstruction of proto-Indonesian, and ultimately governed the final form of the proto-Austronesian phonological system. There is no basis for feature reconstruction earlier than proto-Indonesian produce classification with this limited data, nor is there any need for present purposes. Admittedly, a complete lexical representation for proto-Indonesian « feature bundles » would be valuable, but this would require data from a wider range of languages, and has actually been partially completed elsewhere, although in a more conventional form [4].

Previous lexical reconstruction, however, has obviously not been done with semantic reconstruction in mind, but rather to describe phonological change as it has occured in related languages.

In this paper I assume, without full exploration of the issue, that it is possible for words in related languages to be semantically but not phonologically cognate. Of course, semantic criteria have long been utilized by neo-grammarians in formulating cognate sets. It may be that the reverse criterion will hold for semantic reconstruction: forms must be phonologically similar before they can be considered to derive from a single historical source, or be used for reconstruction [5].

[4] Benedict, P. K. - 1942 « Thai and Indonesian: A new Alignment in Southeast Asia ». *American Anthropology*, Vol. 44.

Chrétien, D. Douglas - 1951, *The Dialect of the Sierra de Mariveles Negritos*; Berkeley.

Dempwolff, O. - 1934-38, *Vergleichende Lautlehre des austronesiachen Wortschatzes, Zeitschrift fur Eingeborenen Sprachen*, Beihefte.

Dyen, I - 1953, *Proto-Malayo-Polynesian Laryngeals*; Baltimore.

[5] An example of such research is Nils Holmer's « Oceanic Semantics ».

It is difficult to characterize Holmer's work as no substantive reconstructions are attempted. He is working within a Whorfian, evolutionary framework, and it is unclear if he is simply setting up areal features for Oceanic languages (including the Austronesian branches; Melanesian and Polynesian; Papuan, and Australian stocks), or making a strong claim for diffusionism. While the two (areal features and diffusionism) are obviously closely related and acceptable concepts, it rather seems to Holmer that the structural similarities between Oceanic languages reflect similar conceptual structures or processes amongst the people of that area. That seems pure speculation, and unacceptable to me at this time.

How else for example could one characterize the following?

To return to « eye », it is evident that if the same word is used by « primitive » (exotic or early European) peoples not only in the anatomical sense (eventually perhaps including « ear » or any other orifice; cf. the German *Neunauge*, that is « nine-eyes », used of the « lamprey ») but also of the « sun » (or « stars », « flame of fire », « water hole », etc., there is no reason to doubt, on the mere ground that these ideas now constitute fundamentally different notions among us, that they are, or have at one time been felt to be identical concepts. In Malay *mata* eye » is used in many senses in which it would not be used in English: a « mesh » (so also in Javanese), a « sharp point » (as of an arrow ... the « direction from which the wind blows » (no doubt conceived as a « wind hole »); this idea is current in the Polynesian *matangi* « wind » ...). Most of these senses of the word « eye » reccur in Melanesian and Polynesian and are hence typical of Oceanic semantics; one may add that in Roviana *mata* (« eye ») may be used of a « submerged rock » and in some other Melanesian languages (in the Solomon Islands and elsewhere) of a hole or a « gateway ». In the Australian languages, one of the most common noun stems is *mi* « eye » ... In Thangatti and Kattang, « eye » is respectively *mi*, and *migang* (*-gang* being a common nominal suffix in the latter language) and *mil* means a « hole » (for instance in the earth) or a « cave ». These are actually different words — they are formally differentiated — but there is no doubt whatever about their original semantic identity ... The « proto-semanteme » involved in the case of these related words no doubt comprehended still other notions differentiated in the modern European languages, (Holmer, p. 32).



## 2. On to onomastics:

### 2.1 The anthropological and linguistic approach to semantic analysis contrasted:

The componential analysis of a taxonomy, or semantic domain, has been carried on by ethnographers, to determine the cultural organization of a segment of experience. Their underlying assumption has been that relevant sectors of a culture are expressed linguistically, and that by analysing such surface representation, the defining mechanisms, and cultural priority of a particular vocabulary segment can be obtained. While both linguists and anthropologists are interested in the analysis of semantic domains, their motivation and hence their approach, differs. The anthropologist first delimits a particular area of inquiry, such as color categorization or disease diagnosis, (usually among a pre-literate people) and then proceeds to define the dimensions and components which characterize that taxonomy, which tends to be treated as hierachical in organization. The linguist, however, is faced with devising a system of feature specifications, which functions syntactically, governing selectional or subcategorization rules, and which operates throughout the lexicon. The linguist is attempting to determine the relation between the rules of the grammar and the lexical specification: the anthropologist to determine the connection between semantic categories, or areas indicated in the lexicon, and cultural behavior and organization.

### 2.2 The form of the present analysis:

It should be made clear that the analysis of Javanese and Tagalog produce classification presented here, combines the initial step in the anthropologist's methodology, with the analytic formulation of the linguist. Only a particular segment of each language has been chosen for analysis — a sector which is an obvious semantic domain and that segment will be analysed with no reference to features which uniquely specify it within its in a complete lexicon, or which are present outside its domain.

Nor is it possible to determine the specific syntactic behavior of this segment, from the evidence presented here alone. However, the feature specifications are redundancy free both in the Javanese and Tagalog lexicons and in that of the reconstructed proto-Indonesian, and an attempt has been made to utilize feature specifications which have obvious relevance to lexical items outside this domain.

### 2.3 The concept or semantic domain:

The difference in the attitudes of linguists and anthropologists toward the integration of a taxonomy into a complete lexicon can be summarized thus « ... ethnography can neither eschew lexicography nor become identical with it. The heart of te matter is that cultural categories are lexically expressed not automatically, but selectively ». (Hymes p. 167 - 1965). The linguist, hofever, views the specification of a taxonomy as a marked area in a complete lexicon: either as a series of specific features which are unique to that domain, or as features present elsewhere which are here in unique combination. These taxonomic categories can exist in all languages, and are in a sense universal, although their particular feature specification may not be. They are grammatical in this sense, not cultural. Which categories are levically distinguished or given cultural emphasis is another matter entirely.

The anthropological approach to taxonomic analysis, then, must be separated from the linguist's conception of semantic analysis. The difference is based on varying interpretations of the function and structure of the lexicon. That the anthropologist speaks of components and dimensions, the linguist of feature specification, is no mere terminological distinction. Components and dimensions are unique for each semantic domain in a language, and may or may not be culturally determined, although the yare culturally relevant [6]. This is not to imply that linguists are unaware of this « markedness » of taxonomies within a lexicon. That certain segments of a language-specific lexicon, have selectional feature specifications, or combinations of features in common not found in other segments of the vocabulary, that is « field properties » (Chomsky 1965), which define a particular semantic domain, is also the underlying, if unmotivated, assumption of componential analysis.

Semantic domain, focus, vocabulary segment, taxonomy, are all terms which are used to define a segment of the lexicon which is specified as distinct from other segments. Note that not all « field properties » define a taxonomy in the anthropological sense of cultural category. Weinreich's concept of « terminalization », however, suggests that presence, degree, or kind of structuring within a semantic domain, has cultural implication (Greenberg 1963).

## 2.4 The relevance of lexical specification:

Tautologically the linguist and anthropologist are concerned with the specification of relevant components, or features, which define a taxonomy. However, the linguist is faced with the additional problem of intergrating these features into a grammar: How do semantic features restrict or govern the selection of « words » within sentences? Do certain specified feature sof nouns impose selectional restrictions on verbs or vice-versa? Do the features posited for a specific vocabulary segment form part of a hierarchy of features in the grammar, and are they ordered in respect to the rest of the features and to themselves? More relevantly: What is the formal characterization of a semantic domain? Is it possible to define a taxonomy by feature specifications alone, or are such characterizations cultural in nature, and thus uniquely specified without reference to feature utilization in other areas of the language?

## 3. The nature of the lexicon:

[6] After reading Kay's recent article (1971), which deals with the formal defining properties of taxonomies, I am forced to conclude that a major hinderence to a synthesis of the componential analysis and generative semantics approaches lies in the concept of « contrast ».

It is still possible in Kay's tems to discuss the properties of a taxonomy with no reference to its integration into a full grammar of a language.

I think much of the confusion found in such works depends on the assumption that it is only through contrasts both at a lexeme's own level (i.e. between two items on the same level of organization « man » verses « woman ») and with higher level elements (i.e. « man » verses « boy ») that one can define a particular lexeme.

If contrast is seen not in terms of binary oppositions, but rather in terms of components this approach to definition is justified. But it is ultimately vacuous, since it takes no account of the lexeme's syntactic behavior.

This is not to imply that the analysis presented here does not assume a hierarchical arrangement of features. Rather such hierarchical specification is replaced with the notion of « redundant » feature specification, where a particular feature may assume both higher or lower level oppositions (or markedness), so that in distinctive feature analysis the notion of definition by levels of contrast is not as significant as definition by syntactic behavior.



## 3.1 Feature specification:

The levical specification of Javanese and Tagalog follows the conventions and (language-specific) rules for feature specification in the lexicon portion of the base component, as outlined in *Aspects of the Theory of Syntax*, with several omissions.

There is no accompanying phonological matrix for each item. Selectional rules which define a selectional relationship between two points in a sentence, and their restrictions, are not formally indicated, as it is not possible at this time to integrate the produce classification of either Javanese or Tagalog into the base component of each language. Subcategorization rules are also not formulated for the same reason. Still, in this analysis, only selectional features at the « lowest node » of a hypothetical feature tree are specified in the lexicon for each work, with no real evidence for a hierarchial ordering of features presented.

Two types of features are left unspecified:

1. hierarchical elements: the presence of one feature implies a higher selectional feature

2. redundancies: certain feature specifications are predictable, given others.

Hierarchical elements are omitted by convention, in order to simplify lexical representation of items with redundant features. Redundancy rules, which are language specific, need not be included here. Thus, [+plant + edible] implies the following unspecified features: [+nominal] [+concrete] [+count] [−animate] (what of creeping plants?) [−edible] [+plant −edible].

It should be noted that Chomsky considers such feature specification as syntactic, and the lexicon to be part of the base component, rather than as specified or generated in the semantic component. This need not disturb us here, as Chomsky is concerned not with the intrinsic semantic nature of these features, but rather with their influence on syntactic behavior.

## 3.2 Theoretical implication:

What are the implications in the adoption of this model for taxonomic analysis? As stated above, the definition of a specific semantic domain is dependent on unique feature specification. Yet this is contrary to the notion that selection features can operate throughout the lexicon. If a semantic domain is culturally relevant, it should be specified uniquely in the lexicon. If there are no such unique features, or bundles of features, present in a vocabulary segment, the implication is that cultural categorization, not linguistic, is relevant. This model rightly assumes that selectional features have grammatical implication; there is no way to determine what these are in the traditional sense of taxonomy.

Oddly enough, by indicating such features in the lexicon, rather than in the semantic component, it is easier to formalize the concept of « semantic domain » which is then defined by the presence of a particular non-redundant selectional feature or feature « bundles ». It is now possible to formulate feature specification rules for components, which would be unmotivated without the concept of feature as used here.

## 4. Toward a model of reconstructing semantic features:

### 4.1. Charaterising semantic change:

Is is explicit that a more relevant comparison of the feature specification of the taxonomies of produce in Javanese and Tagalog (N. B.: not cultural distinctions) can be made if it is possible to show their derivation from a common, historical source. The proto-taxonomy can be reconstructed on the basis of « feature » reflexes present in both languages.

This is an attempt therefore to characterize semantic change, and to reconstruct semantic entities, without recourse to standard explanations of semantic or lexical change, such as extension, condensation, or loss of content (Bloomfield 1933 Chapter 24). While all semantic « change » ultimately involves grammatical change (as selectional features imply selectional rules), it must be emphasised that what is being attempted here is reconstruction of semantic features. These features do not change in the neo-grammarian sense. It is at this point impossible, in the framework utilized here, to indicate what the form of grammatical change would be. (Perhaps it would be as change in selectional restrictions or subcategorization rules, both dependent on feature selection: if feature specification changes, it follows that such rules will as well).

### 4.2. Semantic change as elaboration:

Herskovits (paraphrased in Hymes 1965 p. 166) claimed that a « focal area of culture will receive greater elaboration and be more subject to change ». If he means, (and it is apparent that he does), that this focal area (semantic domain) is subject to change in the direction of finer distinctions (addition of features, rule reordering) in the lexicon, it may be possible by the use of feature notation to show that he is correct, while at the same time ignoring the cultural implications Herskovits was concerned with.

Unlike phonological change (which has been shown to be simplication of the phonological system, either in rules or feature specification, as formalized by the simplicity metric; see King 1969, Kiparsky 1968); it seems, from this small sample, that semantic change tends toward elaboration in vocabulary, through the addition of features and rule reardering to increase « feeding » order.

### 4.3. Methodological considerations:

The methodology of reconstructing a proto-taxonomy is based on the comparative method. First the relevant lexical items in the two languages are analysed for selectional features, and then compared. (Note again the assumption that semantic domains are universal and found in all languages; what is language, specific are the particular features defining them. There is a finite number of these universal taxonomies, perhaps equal the number of cognitive or innate cultural categories (such as kinship) perhaps less. Cultural categories must be understood not as uniquely determined for an individual culture, but as universal basics of human experience and organization. (This view may not be defensible to a cultural relativist).

On this basis, a common semantic feature system for this vocabulary segment is postulated, and then reconstructed. Re-write rules (on analogy to phonological rules) are then devised which derive the features present in both languages. Only those feature specifications which differ from the protofeatures are indicated. Rule



reordering then applies when necessary. These feature reconstructions must differ from standard proto-forms in a most significant way, as there is no attempt to reconstruct proto-lexical items, or bundles of semantic features with phonological representation.

Since, as previously states, it is semantic features which are being reconstructed, the selectional features present in the proto-Indonesian system do not have phonological shape, just as they have no surface representation in the « daughter » languages. There is yet no formal justification for not continuing the reconstruction to a particular word; it was not done at this point for what was considered lack of evidence — for reconstruction, not the semantic. To recapitulate: Once the proto-taxonomy is reconstructed on the basis of internal semantic evidence, present in the languages being compared, rules must be devised which derive each language specific feature segment from this model. In this manner, it is emphasized, the underlying similarities of the systems will be illustrated. That is, differences will be explained as change in the semantic feature specification of ordering.

The rules are in the form of re-write statements: proto-forms (semantic categories re-written to indicate selectional features, hierarchical in nature and with no overt phonological representation), appear to the left of the arrow. To the right of the arrow are the particular feature reflexes in each language, which have been specified in the preceding lexicon.

It must be reiterated that semantic components do not have phonological representation, but bundles of semantic features do. Howevere, the eventual lexical representation of the « feature bundles » in the « daughter » languages is not claimed to represent by specific surface form any one given semantic feature present in a particular lexical item.

### 4.4. Deficiencies in the present model: implications for further research:

The model presented here is tentative, and is obviously limited to accounting for semantic change only within an already marked domain or taxonomy. There is no provision for formulating the grammatical change which occurs when semantic features changes. Nor does it seem possible at this point to extend the rules to account for change in a feature which is expressed as both defining a taxonomy and occuring in forms which are never classified as belonging to that taxonomy. It would also be most interesting to devise rules which operate on features never specifing a semantic domain.

Despite these obvious and possibly damaging deficiencies, it seems that intrinsically the model presented here is sound. If semantic entities are analysed as features, it should be possible to account for semantic change, much in the way present phonological theory accounts for sound change. Reconstructing an historical system would be motivated by the same logic. It is hoped that this initial step will be followed by further research of two types: In addition to finding features in the taxonomies of other related languages of the type presented here, it will be necessary to work with a completely specified lexicon of one language.

The point here is to formalize the concept of « semantic domain », as uniquely specified feature bundles, on the one hand, and to understand the role of a particular feature as it operates not only within a taxonomy, but throughout the lexicon. In this manner, the form of grammatical change may be made clear [7].

[7] See Shamis forthcoming, *Is there a Pan-Philippine Lexicon?*

| | TAGALOG | | JAVANESE | | |
|---|---|---|---|---|---|
| nankaka?In | [edible (plant)] | « edible (plant) » | polowijɔ | [edible plant] | « edible plant » |
| halaman | [plant] | « plant, vegetable » | polowij | [position ± veg] | « both fruits and vegetables classified by position (of growth) |
| | | | polo- | « produce » | |
| | | | -wijɔ | « position » | |
| bUŋaŋka.hoy | [-veg] | « fruit » | wɔh | [-veg] | « fruit » |
| gU.lay | [veg] | « vegetable » | sagur | [veg] | « vegetable » |
| dahon | [water] | « leaves » | sagur | [water] | « leaves » |
| kaŋkɔŋ | [-edible water] | « vine growing in stagnant pools » | kaŋkɔ | [water] | « water plant » |
| nakasa.bIt | [hanging] | « hanging product » | polɔgumantɔŋ | [hanging]product] | « hanging product » |
| lUmUkɔk | [branching] | « overhanging » | -gumantɔŋ | | |
| nakasaŋa.h | [branching - veg] | « branching out (of fruit) » | | — | |
| lapag | [ground] | « ground » | polɔkəsampar -sampar | [ground] | « ground product » |
| panaŋhali: bUwig | | « bunch » | | — | |
| pill | [bunch hanging - veg] | « bunch or cluster of fruit » | | — | |
| pUmpɔŋ | [bunch (grain)] | « bunch: sheaf of rice » | | — | |
| laŋkay laŋka.y | [bunch] | « in bunches or clusters (plants) » | | — | |
| kalabasa | [ground round ([veg])] | « squash (gen.) » | valoh | [ground round] | « squash (gen.) » |
| milɔn | [ground round] - veg | « melon (gen.) » | | — | |
| papaya.h | [round - veg] | « papaya » | katɛs | [round - veg] | « papaya » |
| sa.giŋ | [branching cluster - veg] | « banana » | gəḍaŋ | [hanging - veg] | « banana » |
| ŋaŋka? | [hanging] | « jackfruit » | naŋkɔ | [hanging] | « jackfruit » |



| | TAGALOG | | JAVANESE | | |
|---|---|---|---|---|---|
| nyo.g | [hanging round - veg] | « coconut » | klɔpa | [hanging round - veg] | « coconut » |
| lIhIm | | « below ground » | pɔlɔkəpəndam -pənḍam | [below ground] | « below ground (root) » |
| ?ugat | [tuber] | « root » | pəndam | [tuber] | « root » |
| bagIŋ | [creeping veg] | « creeping | rambat | [creeping] | « creeping plant » |
| pata.tas | [tuber] | « potato | təlәpənḍam | « potato » | |
| | | | təlәpənḍam | [tuber] | « root » |
| ?upɔh | [round veg] | « gourd » | uvi | [round veg] | « gourd » |
| kamo.teh | [tuber] | « sweet potato » | pənḍamrambat | | « sweet potato » |
| | | | | [tuber] | |
| | | | | [creeping] | |
| | — | | kačaŋ | [particle round] | « bean (gen.) » |
| manI? | [particle round] | « peanut » | kačaŋ | [particle round] | « peanut » |
| gisantes | [particle round large] | « pea » | kɔrɔ | [particle round large] | « pea » |
| rika.doh | | « spice (gen.) » | bumbu | | « spice (gen.) » |

| | TAGALOG | | JAVANESE | | |
|---|---|---|---|---|---|
| | — | | bumbu | [-drink] | « spice for curry » |
| | — | | catɔhan | [spice drink] | « spice used to flavor beverage » |
| lUya? | [tuber spice] | « ginger » | jəɛ | [tuber spice] | « ginger » |
| ba.way | [ground spice] | « garlic » | prambaŋparan | [group spice] | « onion and garlic |
| bU.til | | « grain(gen.) » | jeli | | « corn, millet: grain (gen.) » |
| mais | [grain] | « corn » | jguŋ | [grain] | « corn » |
| | — | | jeli | [grain] | « millet » |

JAVANESE

| | | |
|---|---|---|
| juvavut | [grain - human] | « feed; fodder » |
| pari | [grain] ([husked]) | « rice (gen.); husked; grown in flooded field » |
| | [-dry] | |
| pari | [grain - dry] | « rice grown in flooded field » |

JAVANESE

| | | |
|---|---|---|
| gogo | [grain dry] | « rice grown in dry field » |
| | — | |
| pari | [grain husked] | « husked rice » |
| paras | [grain - husked] | « unhusked rice; uncooked» |
| | [- cooked] | |
| sagu | [grain cooked] | « cooked rice » |
| paras | [grain - cooked] | « uncooked rice » |

TAGALOG

| | | |
|---|---|---|
| kumpay | [grain - human] | « fodder » |
| palay | [grain] ([-husked]) | « rice |
| | (gen.); unhusked » | |
| | — | |
| bakal; niyog palay | | « upland rice » |

TAGAYOG

| | | |
|---|---|---|
| | — | |
| banag palay | [grain - high] | « lowland rice » |
| bIga.s | [brain husked] | |
| | [-cooked] | « husked rice; uncooked » |
| palay | [grain - husked] | « unhusked rice » |
| sIna.?Ig | [grain cooked] | «-cooked rice » |
| bIga.s | [grain - cooked] | « uncooked rice » |



## 6.0. Proto-Indonesian produce classification: re-write rules:

Proto-Indonesian

1.) [+ plant + edible] > PRODUCE

TAGALOG
[αplantαedible] > PRODUCE

JAVANESE
[αplantαedible] > PRODUCE

2.) PRODUCE > (SHAPE) {[POSITION] / [PARTICLE]}

TAGALOG
PRODUCE > (SHAPE) {[POSITION] / [PARTICLE]}

JAVANESE
PRODUCE > (SHAPE) {[POSITION] / [PARTICLE]}

3.) SHAPE > [± round]

TAGALOG {[cluster] / [αround]}

JAVANESE
[αround]

4.) POSITION > {[above ground] / [ground] / [water] / [below ground]} >

{[hanging] / [branching] / [ground] / [water] / [creeping] / [tuber]}

{[hanging] / [ground] / [water] / [creeping] / [tuber]}

5.) above ground > [± veg]

hanging > [αveg] [αveg]

6.) ground > [± round] > branching > [-veg]

7.) [round] > squash >

[αround]
squash

[αround]
squash

8.) squash > [± veg] >

[α veg]

[α veg]

9.) [-round] > {[+ veg] / [spice]} >

{[α veg] / [spice]}

{[α veg] / [spice]}

10.) water > [veg] >

[α veg]

[α veg]

11.) below ground > {[± veg] / [spice]} >

creeping > [α veg]

tuber > {[α veg] / [spice]}

12.) PARTICLE > [veg] > [α veg] [α veg]

13.) [veg] > [± round] > [α round] [α round]

14.) [round] > bean > bean bean

15.) bean > [± large] > [α large] [α large]

16.) [-round] > grain > grain grain

17.) grain > {[corn] / [rice]} > {[corn] / [rice]} {[corn] / [rice]}

18.) corn > {[corn], [millet], [feed]} > {[corn], [feed]} {[corn], [millet], [feed]}

19.) rice > {[cultivation], [husked], [cooked]} > {[ ± dry], [α husked], [α cooked]} {[ ± high], [α husked], [α cooked]}

POSTSCRIPT:

One of the major deficiencies of both componential and semantic analyses, is the delineation of a taxonomy, and specification of features, with no indication of their significance outside this vocabulary segment, their role in the lexicon, and in governing certain grammatical selection or sub-categorization rules.

It may not be possible to utilize semantic features unless they have syntactic function. One cannot work with a hierarchy of features (implying redundancy rules) in isolation.

The additional data from Tagalog presented here, is not sufficient to indicaete the grammatical behavior of the specific features postulated for produce classification; however, they should provide some further evidence for a hierarchy of selectional feature specification, and utilization of these postulated features in a complete lexicon of Tagalog.

There is some indication that the feature [particlel, operates syntactically outside of the « produce » taxonomy. It is obvious that [particle] is redundant for [size] and [small] (as opposed to [-largel]), not to mention [nominal] [concrete] [-animate]; syntactically, it may require a partitive construction.

Not all subtle semantic features present in the following forms will be specified:

1. [particle]

malitliʔit na piraso « particle » (lit, small (of) piece)

| | |
|---|---|
| ubɔd, bUtil | « grain, bead » |
| bUtɔʔ | « seed » |
| gabUtil | « size of a seed » |
| mabUtɔʔ | « seedy » |

(but- « particle »; o-/u- « seed »; -il « grain »?)

c. f. pUnlaʔ bInhiʔ « seedling » [-particle]

One may postulate an additional, possibly non-hierarchical feature, [adhere], which does not function in produce specification, but can occur with [particle] in certain formatives. [adhere] indicates « something to stick to something (in a particular dimension), « which may be shown to affect sub-categorization rules.

2. [adhere]

| | |
|---|---|
| mUaŋit | « adhesion of thick liquids or sweets along side of pan » [+ edible] (dimension [along]?) » |
| malagkIʔit | « sticky » |
| dumikit, mainikit | « to stick, adhere » |

(-kIt- [+ adhere])

When both [+ adhere] co-occur, there can be overt morphological representation: a monosyllabic root, which may not exist in isolation, is reduplicated. The



several examples presented below, which do not « adhere » to this rule, seem to contain an indicated nominal root; this is suffixed by several « morphemes », which seem to mean « adhere to something (along a particular dimension) ». The definition of mUmɔ, provides evidence that rice and corn indeed share certain lexical specifications:

3. [+ particle + adhere]

| | |
|---|---|
| mismis | « particles of food left after cooking: [+ edible] only » |
| mUmɔʔ | « left over (no specification necessary): particles of cooked rice or corn left after eating [+ particle] » |
| mUdmɔd | « act of distributing (something) around » |
| lamUkɔt | « inner flesh of fruit sticking to seeds, rice sticking to pot « [+ edible + plant (dimension)] » |
| laman | « flesh » « tiny particles of food left between teeth after eating [+ edible » |
| ŋipin | « teeth » |
| pIspis | « particles of food left on table after eating [+ edible (dimension [surface])] » |
| pIsan | « act of distributing something around (no specification necessary) [dimension (surface)] » |
| tUtɔŋ | « burnt rice which sticks to cooking pot » |

It would be interesting to investigate the selectional restraints on dimensional specification: « along a round object », « surface of flat object ».

It is hoped that this short addition of data will provide some further insight into the operation of specific semantic features in the lexicon. This also indicates, that standard taxonomic analysis, with the exception perhaps of kinship terminology, provides valuable insights into the operation of the lexicon, only when features can be shown to operate as providing selectional constraints in the entire system. For this reason, taxonomic analysis and componential analysis are as such basically inadequate.

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# LE VOCABULAIRE SUD-EST EUROPÉEN DE QUELQUES INSTITUTIONS [1]

ALEUANDRE ROSETTI

Notre intention est de montrer l'interêt qu'il y aurait à entreprendre des recherches compratives et détaillées sur les institutions du sud-est européen et de mettre en lumière l'existence de termes pareils dans les langues parlées dans cet espace géographique.

L'étude des termes en common constitue un aspect du problème; il devra être complété par l'étude du folklore et de l'ethnographie de ces contrées (outils, types d'habitation, travaux agricoles, élevage etc.).

Il s'ouvre là un large champ à la recherche, qui n'a été exploité que partiellement [2] et qui réservera sans doute au chercheur une riche récolte.

Lee quelques faits de vocabulaire qui sont exposés au cours de notre communication se résument à l'essentiel et supposent une étude plus détaillée, à l'avenir.

## Animaux

dr., ar. *mînz* s. m. « poulain », alb. t. *mës*, *mëzi*, g. *mâz* « männliches Füllen von Pferd und Esel ». Le terme albanais contenait une occlusive nasale, présente en méssapien: *Menzana* « non de Juppiter, à qui on sacrifiait des chevaux ».

En italien, dans l'Engadine, en français et en wallon, avec le sens de « boeuf »; cf. alb. *mëzat* (« jeune boeuf »). Cf. dr. *mînzat(ă)* « veau de moins d'un an », *mînzare* « brebis laitière ».

A l'origine, attesté en thrace et en illyrien

*ILR*, 224, *TILR*, 332-333.

dr., megl., *murg*, ar. *murgu*, s. n., adj. « brun; (cheval) alezan », alb. *murg* « dunkel, schwarz, grau ». Cf. dr. *amurg* « crépuscule », gr. ἀμοργός « soir, nuit; ténèbres ».

*ILR*, 272; *TILR*, 333.

## Famille, parenté

dr., ar., megl. *copil* s. m. « bâtard » (anc.), « fils, garçon » attesté dans toutes les langues balkaniques: alb. *kopil* « Knecht; junger Mensch », g. « bâtard », n. gr.

[1] Abréviations: I L R = A. Rosetti, *Istoria limbii române, Bucureşti*, 1968. T I L R = = *Istoria limbii române*, II, Ed. Academiei R. S. România Bucureşti, 1969. M L = A. Rosetti, *Mélanges de linguistique et de philologie*, Copenhague — Bucureşti, 1947.

[2] De riches matériaux ont été publiés par feu N. Jokl, *Linguistisch — Kulturhistorische Untersuchungen aus dem Bereiche des Albanischen*, Berlin und Leipzig, 1923.

κόπέλος « jeune », bg. *kopelčja, kopelák* « bâtard », s. cr. *kópile* « id. ». Aussi en magyar et dans les langues slaves de l'est.

*ILR*, 269-270; *TILR*, 340.

dr. *cumătru* s. m. « titre de parenté; désigne le parrain, qui a tenu l'enfant sur les fonds baptismaux; compère », *cumătră f.* < lat. *commater*, alb. *kumptër, kundër* < lat. *compater, kumtër* < lat. *commater.*

Du latin, comme d'autres termes de parenté du roumain (dr. *cusam, fiu, fin, frate, mătușă, nor*ă, *nun, socru, sor*ă, *unchi, văr* etc.).

En bulgare et serbo-croate des formes abrégées: bg. *kum-kuma*, s.-cr. *kûm*; cf. hong. *koma* « Gevatter ».

*ML*, 314-316.

dr., megl., istr. *moș*, s. m., ar. *moașă* s. f. « vieux, vieillard; grand père, aïeul; oncle (Moldavie) », alb. *motshë, moshë* s. m. « Greis, Alter ».

Les termes du roumain et de l'albanais ont sans doute la même source.

*ILR*, 272; *TILR*, 345

## Corps humain

dr., megl. *buză*, ar. *budză*, s. f. lèvre; bord », alb. *buzë* s. f. « Lippe; Spitze, Rand, Schnabel eines Gefässes ».

Le terme est attesté aussi en bulgare, avec le sens de « joue ».

*ILR*, 267, *TILR* 329.

## Culte, fêtes

dr. *colindă* « Noël, chant de quête, cantique de Noël que les enfants vont chanter de maison en maison (dr. *colindători*, pl.), dans la nuit de Noël » < v. sl. *koleda* « Neujahrstag ». Terme du latin ecclésiastique (*calendae*), entré en slave à l'époque du slave commun (v. dans Berneker, SEW, 544, s. v. les termes du russe, ukrainien, bulgare, serbo-croate, slovène, tchèque et polonais). Le sens du mot roumain ne coincide pas avec ceux du slave. C'est que le roumain a possédé un représentant direct du terme latin: dr. **cărindă*, conservé jusqu'à nos jours dans le nord-ouest de la Transylvanie: *corindă* (avec *ă* > *o* sous l'influence du terme venu du slave). Cf. dr. *cărindar* « janvier; sorte de calendrier populaire » < lat. *calendarius*. Le terme est attesté aussi en albanais.

*ML*, 330.

dr., ar., mégl. *crăciun* (ar. *cîrčun, crîčun*, megl. *cărčun*) s. m. « Noël » < lat. *creatio*. Le phonétisme du terme roumain s'explique par ceci, que lat. *creatio* a pénétré en slave méridional, et de là en roumain. Les langues slaves, au voisinage du monde roman, ont des représentant de lat. *creatio*, venus par la langue de l'église de Byzance, Aquilée, Salona ou Sirmium. (En russe, des termes tels que *karačun* et *koročun* etc., qui ont un autre sens, comportent une explication différente: *kortŭkŭ*, v. sl. *krašto-kratiti* « verkürzen, kurz machen »). Alb. *kërčuni* « tronc, souche, bûche ». Les autres langues romanes connaissent des dérivés de lat. *natalis*, et pareillement l'albanais: *kershëndellë* ( < lat. *Christi natalis*).

*ML*, 324-329; Rosetti, *SCL*, XXII, 1971, p. 3-4.



dr. *Rusalii, Rusale* « Pentecôte », ne provient pas directement de lat. *Rosalia*, car *l* latin aurati dû être rendu par *r*. Le terme a donc pénétré en roumain par le slave méridional, qui l'avait emprunté au latin: v. sl., bg. *rusalija* (bg. *rusalii*), s.-cr. *rusalj(i), rusalja*, slov. *rusalček.*

*ML*, 331.

dr. *zînă* s. f. « fée » < lat. *Diana*, de **zănă*, avec *ă* > *î*, alb. *zânë* « Fee, Muse, Göttin », alb. du nord *zâna* « Bergfee und Helferin im Streit ».

*Diana* était vénérée en Illyrie et en Dacie (la majorité dédicaces militaires concernant le culte de Diane viennent de Dacie: Lozovan, *Romance Phil.*, XV, 1961, p. 177).

*ML*, 352-354.

## Habillement

dr. *brîu* s. n., alb. *brez* s. m. « Gürtel ». Le prototype antérieur auquel renvoient les deux langues comportait une consonne nasale: cf. alb. *brenc* s. f. « Binde », *mbrenj* « gürte », et les formes du roumain sud-danubien: ar. *bărnu, bîrn, brîn*, mégl. *brọn.*

Cf. dr. *brînă* s. f. « sentier; sentier au flanc d'une colline ou d'une montagne », *brînar* « confectionneur, marchand de ceintures ».

*ILR*, 266; *TILR*, 337.

## Habitat

dr., megl., *cătun*, ar. *cătună*, s. n. « hameau, cabane; four creusé en terre; tanière », alb. *katunt* s. m. « Gebiet, Stadt, dorf », *katund* « villaggio, borgata ». Le terme est attesté dans toutes les langues balkaniques: néo-grec, serbo-croate, bulgare, avec des sens voisins: « compement, quartier, hameou, tente »; *kotund* « ville » et attesté en albanais au XI[e] siècle.

*ML*, 267-258, *TILR*, 339.

dr., mégl. *gard*, ar. *gardu* s. n. « clôture, enclos, clayonnage, haie sèche, palissade », alb. *gardh* s. m. « Hecke, Zaun », *gard* « siepe ».

*ILR*, 269; *TILR*, 341.

dr. *sat* « village » (au XVI[e] s., encore *fsat* « Feld »), s. n., alb. *fshat* « id. » < lat. *fossatum* « fossé qui entourait le village », « castra », en bas-latin.

A l'origine, terme militaire, « poste de commande, quartier d'une troupe (IV[e]-VI[e] s.). φοσσᾶτον « châteaufort sur le Danube, la Mer Noire ou le territoire avoisinant » (Procope, VI[e] s.); en néo-grec, « ein mit Gräben umzogenes Lager ».

Les villages albanais étaient fortifiés, et le sont encore de nos jours.

ar. *fusatea* « fossé, retranchement », mégl. *fusat* « fossé ».

*ML*, 354-356.

dr., ar., mégl., *vatră* s. f. « foyer, âtre », alb. g. *votër*, t. *vatrë* « Herd, Feuerstelle ». Dans les langues slaves voisines du roumain et en magyar, le terme a été emprunté au roumain.

*ILR*, 275, *TILR*, 352-353.

dr., ar., mégl. *baltă*, istr. *bâte* s. f. « lac, étang, marais, marécage, flaque; eau stagnante », alb. *baltë* « boue, marécage ».

Emprunt au slave méridional, à une époque très ancienne, avant la métathèse.

Le mot est attesté aussi dans les dialectes italiens: lomb., piém. *pauta*, émil. *pälta*.

*ML*, 310-312, *ILR*, 614, *TILR*, 328, 374.

dr. *Carpați* s. m. « les monts Carpathes », alb. *karpë* « roche » < thr. καρπάτης(ὄρος).

*ILR*, 225.

*mal* s. n. « bord, escarpé, berge, rive (d'un fleuve), rivage (de la mer) », alb. *mal.* « Berg, Gebirge », n. de lieu *Malung* « sehr langen, oben geraden Bergrücken », thr. *Malua*, capitale de la Dacie, *Maluese*, *Dacia Maluensis* (traduit en latin par *Dacia Ripensis*); cf. le n. de lieu *Maluntum*. *ILR*, 225-226, *TILR*, 331.

dr. *părău*, *pîrău*, *pîriu* s. n. « torrent, ruisseau »: alb. *përrua*, *prrua*, dét.-*përroi* « Bett eines Flusses, Baches; Bach, Tal, Waldstrom ». Le terme albanais contenait, à l'origine, un *n*, cf. pl. *perronjë*, *përrenje*, *përrënjë*. En slave méridional: bg. *poroj* « Gebirgsbach, Wolkenbruch, Platzregen », s.-cr. *poroj* « lit de rivière caractéristique, avec terre et pierres ».

*ILR*, 272, *TILR*, 346.

dr. *troian* s. n. « fossé (avec pli de terrain), tranchée », de lat. *Trajanus* « nom de l'empereur Trajan », par filière slave méridionale: bg. *Trojan, Trojanski (păt), Trojanov (grad)* etc., r. *(Val) Trojanov.*

ML, 331.

## Terminologie agricole

dr., ar. *arat*, dr. *plug*. s. n. « charrue ». *Arat* est attesté de nos jours seulement dans 2 localité de la Roumanie. dr. *aletră* « charrue » < n.-gr. ἀλετρι.

*Arat* < lat. *aratrum*; *plug*: v. sl. *plugŭ* (emprunté au germanique).

L'*arat* est une charrue en bois, sans avant-train, avec le coutre en métal; dr. *raniță* (*răliță*) « primitiver Pflug, jetzt nur noch Jätten und Häfeln gebraucht: Hackenpflug « est emprunté au slave méridional. Ces instruments primitifs ont été remplacés par un instrument perfectionné, le *plug*.

A paraître dans « Hommage à A. G. Handricourt ».

## Terminologie pastorale

Les termes suivants sont caractéristiques de la terminologie pastorale.

dr. *smîntînă*, s. f. « crème »: v. sl. **sŭmetana* (attesté dans toutes les langues slaves). On devrait partir de **smentana*, avec propagation de l'*n* dans la première syllabe (bg. *smetána*, s. *smetana*).

dr. *stînă* « Bergerie, *châlet*; endroit où l'on garde les brebis pendant l'été, à la montagne », **stana* est attesté dans toutes les langues slaves. En bulgare: *stan*



« lieu où les voyageurs passent la nuit; halte, station », s.-cr. *stân* « Sennerei im Gebirge; locus et casa mulgendis aestate ovibus, crates pastorales ».

*ML*, 410; *TILR*, 356, 374.

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# ON SOME ASPECTS OF LINGUISTIC HELLENOCENTRISM

Kostas Kazazis

This paper deals with some aspects of Greek glottocentrism. The term *glottocentrism* is upsed here in the sense of « linguistic ethnocentrism ». If we define ethnocentrism as the emotional attitude that one's own race, nation, or culture is superior to all others, then glottocentrism is the emotional attitude that one's own native language is superior to all others. Probably few Greeks would be willing to defend such an extreme position. Greeks might go as far as to say that Greek is better than the languages of their immediate neighbors in South-East Europe and the Levant, but they probably would not claim that it is superior to such West and Central European languages as French, English, or German. Here we shall examine some facets of intra-Balkan glottocentrism on the part of at least some Greek speakers. It is very possible that a number of Greeks will fail to recognize the attitudes described in this paper. For that reason I should like to make some disclaimers at the very beginning. It is not implied that the attitudes discussed here are shared by all Greeks. Neither do I believe that they are shared by all the members of such subsets as, say, the educated Greeks or, conversely, the undeducted Greeks. In the first place, many Greeks have probably never been sufficiently exposed to the other Balkan languages, including Turkish, to have reached any conclusions of a glottocentric nature. And even among those Greeks who have had such exposure, there are surely some who are cultural and linguistic relativists, and are therefore free from glottocentric prejudice. The fact remains, however, that today's Greeks are typically very proud of their language. One often hears references to the language of the « immortal writings » of the ancient authors and to the fact that Greek was chosen as the medium of spreading the New Testament. It may consequently come as a shock to many Greeks that their language is looked upon with slight amusement in some other parts of the world — in contemporary Rumanian, for instance, Modern Greek loanwords are often marked stylistically as pejorative, ironical, or humorous.

An important common denominator of the spoken languages in the Balkans are the Turkisms which those languages share [1]. These Turkisms have further reinforced the Balkan linguistic union (*Sprachbund*) in the domains of vocabulary and phraseology. The Turks occupied the Balkans for several centuries, so that the influence of the Turkish language on the languages of the Balkan peoples has been very strong. Turkish linguistic influence naturally came to a standstill after the liberation of the various Balkan nations. Most of the Turkish terminology referring to official Ottoman institutions was replaced during the first decades following the establishment of the Balkan national states. In addition, a good

[1] For a more detailed discussion, see Kazazis, to appear, a.



number of Turkisms dealing with non-administrative semantic domains were also eliminated more or less spontaneously, partly because their referents ceased to exist and partly as a result of the gradual development of education and the new orientation of the Balkan intelligentsia towards the rest of Europe.

The elimination of Turkisms was not always spontaneous, however. In every linguistic community, with the possible exception of Serbia, ther ewere vigorous puristic movements directed at Turkisms. Indeed, the efforts to « purify » the Balkan languages of their Turkish elements began even before the liberation of the different countries, in conjunction with their national renaissance movements. Probably the most fierce puristic movement took place in Greece. The first period following the establishment of the Greek state in the 1830's was characterized by a gradual shift of the written language in the direction of Attic Greek, a trend which continued until roughly the late 1880-s. Note also that the puristic or learned variety of Greek, katharevousa, which the Greek intelligentsia had used throughout the duration of Ottoman rule, had remained virtually free of Turkish loanwords.

Despite the general retreat of Turkisms, there are nevertheless still a great many of them left in the Balkan languages. The avoidance and replacement in higher styles of a great number of Turkisms did not necessarily mean that they were outright eliminated from those languages. Turkisms were often merely demoted stylistically. For example, the Turkish suffix *-ci* [2], which appears in Bulgarian as *-džija*, is no longer considered stylistically neutral in the Bulgarian word *tjutjundžija* (Tk. *tütüncü*), as it must have been when that word simply meant « tobacconist ». This meaning is today considered obsolete, whereas the present-day meaning of *tjutjundžija*, « chainsmoker », has clear ironic or pejorative overtones [3]. Thus, Balkan folk speech and slang are today very rich in Turkisms, many of which were not particularly folksy or slangy a few generations ago.

On the other hand, many Turkisms were demoted stylistically. They have become fully naturalized in the various Balkan languages and are stylistically neutral, by which is meant that they can be used in any spoken or written style (with the exception of Greek katharevousa in most cases) without giving any clues as to the speaker's or writer's social background or level of education, and also without betraying any intention on his part to achieve a specific stylistic effect, such as irony, contempt, solemnity, and the like. Among such Turkisms we may distinguish between those for which there exist other alternatives in a given language and those for which there are no such alternatives. For instance, the Turkism τσακάλι (Tk. *çakal*) is the only word for « jackal » in standard Greek, whereas the Turkism λελέκι (Tk. *leylek*) « stork » has at least one synonym in the standard language, the native term πελαργός. Although the list of such words is largely the same for all languages, there are still important differences from one language to the other. And this is where glottocentrism comes in.

Consider the Turkish word *çorap* « stocking ». It entered all the Balkan languages and is now fully integrated as a stylistically neutral term in all of them, with one exception. Contrary to what happened in the other languages, the word τσυράπι is not altogether stylistically neutral in standard Greek. When it is used to refer to manufactured stockings or socks, this is always done ironically or pejoratively. And even when it is used in its more or less normal sense and refers to homemade peasant woollen socks, there is often an overtone of irony or contempt, since city-dwellers typically look down upon villagers and things rural. Thus, a stylistically neutral Turkism in one language may be stylisti-

[2] Other variants of this suffix in Turkish are: *-ct, -cü, -cu, -çi, -çı, -çü,* and *-çu.*
[3] Cf. Mirčev 1952.

cally marked in another, and this may occasionally cause misunderstandings of a glottocentric nature.

The standard Greek word for « sock » and « stocking » is κάλτσα, pl. κάλτσες. So we sometimes hear Greeks say: « Do you know how they say κάλτσες in Bulgarian? Τσουράπια » — pl. of τσουράπι. That makes the Greeks somehow more civilized and more refined than the rough, « balkanoid » Bulgarians, who use such peasant words as their normal ones. It is worth noting that this line of reasoning may sometimes boomerang. The Bulgarians could retort, for instance, that the Greeks call a stove for room heating by the Turkism σόμπα, whereas the corresponding Bulgarian Turkism, *sóba*, is by now strictly dialectal in Bulgarian — standard Bulgarian has *péčka*. But, to go back to the Greek point of view, if the Bulgarians use peasant or pejorative terms as their normal ones, this is even linguistic proof for what the Greeks knoew all along, namely that the Bulgarians are little more than a bunch of unpolished ruffians. Consequently, Turkisms, which are generally thought to be unifying elements within the Balkans, can also be regarded as partly differentiating elements — I owe this observation to Edward Stankiewicz.

Naturally, such situations do not arise only between the different Balkan languages, but also and predominantly between individual languages and Turkish. The stylistically neutral Turkish word *araba*, for instance, which means « carriage, cart, wagon », corresponds to the stylistically marked Greek Turkism ἀραμπάς, which means « oxcart » and which can be characterized as rural and even as pejorative, as when it is used to refer to a type of carriage which is supposedly fancier than an oxcart. There are relatively many instances like this, so that there is an inevitable, if often unconscious, feeling of superiority on the part of some Greek speakers towards the Turkish language and its speakers. Just as in the case of Bulgarian and its speakers, their reasoning goes something like this: any language which uses as normal so many terms which [in Greek] are folksy or rural or pejorative must needs be an unpolished one, and therefore the people who speak it must also be rough, uncouth, and backward. In the eyes of such Greeks, then, there is even inguistic evidence to justify their general feelings of cultural superiority vis-à-vis the Turkish nation.

Jokes based on this stylistic discrepancy between Greek and Turkish seldom fail to amuse the Greeks. Such jokes were the rage in Greece in the early 1960's, when people competed as to who would create the funniest (pseudo-) Turkish words and phrases, using Turkish loanwords. The Athenian weekly Ταχυδρόμος published selections of such creations on three different occasions, labelling them « Turkish lessons » — an annotated list is given in Kazazis, to appear, b [4]. For example, ἀσσανσέρ « lift, elevator » was rendered into pseudo-Turkish as ντουνιά ζεμπίλ, literally « people basket » — the true Turkish equivalent is *asansör*. The joke here consist in the use of the folksy term ντουνιάς « world, people » and the everyday term ζεμπίλι « basket woven of rushes of palmleaves » to refer to one of the achievements of modern technology, the electric elevator. And I confess my own amusement upon leafing through an Ancient Greek primer for Turks, *Grekçe: gramer ve syntaks* [sic], by Zafer Taşlıklıoglu. In it scores of Ancient Greek terms, many of which are current in katharevousa and therefore have an unmistakable air of solemnity about them, are given Turkish glosses corresponding to what in Modern Greek are either stylistically marked or at least everyday Turkisms. Examples from Taşliklioglu's Ancient Greek-Turkish glossary are: ἅμαξα (« carriage ») = *araba* (cf. MGk. ἀράμπάς « oxcart »; see also above),

[4] It appears that this is not exclusively a Greek phenomenon. Graur (1970, p. 52, note 2) reports that « during the war, [Rumanian] humor magazines often published macaronic Russian, Turkish, German, etc. » (my translation). Unfortunately, no examples are given, so that we are unable to compare the Rumanian pseudo-Turkish creations with those made in Greece.



and φόρος (« tribute ») = *haraç* (cf. MGk. χαράτσι « burdensome levy », a colloquialism; φόρος means « tax » in Modern Greek).

A similar state of affairs arises even with some Turkisms which are stylistically *neutral* in Greek. The reason for this is diglossia, the peculiar sociolinguistic situation that we find in Greece [5]. When we refer to standard Modern Greek, we mean the spoken and written language of educated Greeks speaking and writing the demotic. When we say, therefore, that the Turkism τσέπη « pocket » (Tk. *cep*) is stylistically neutral, we do not necessarily mean that it would also be acceptable in katharevousa. The boundary between demotic and katharevousa is, of course, indeterminate, but even so there are enough clear-cut cases: anyone who would say or write θυλάκιο(ν) instead of τσέπη when referring to a pocket would be unmistakably using a lexical item from katharevousa. Demotic Greek has borrowed a great number of words from katharevousa, but the katharevousa word for « pocket », θυλάκιον, is not one of them, in the sense that it cannot be used as one of the normal words for « pocket » in demotic. It would be regarder as an intrusion of katharevousa in an otherwise demotic context.

Official Balkan military terminology has replaced a significant number of Turkisms. Nevertheless, the old Turkish terms did not all disappear or become historical words, to be used, for instance, to lend a flavor of authenticity to historical accounts or works of fiction dealing with the Ottoman era. « Gunpowder» for example, is still called by the Turkism μπαρούτι (Tk. *barut*) in standard demotic Greek, despite the existence of the official term πυρῖτις in katarevousa. In the other Balkan languages, where there has been purism but not diglossia, some Turkish terms were adopted in official military terminology. Consequently, whereas the Turkism μπαρούτι is stylistically neutral in demotic Greek, but unacceptable in the official variety of the language, katharevousa, *barut* is the only term for « gunpowder » in Albanian, Bulgarian, Macedonian, and Serbocroatian, whether in informal everyday speech or in the most rigid specimen of officialese. Once again, this comes as somewhat of a cultural shock to Greeks, who are used to Turkisms in just about every domain of their language with the exception of formal culture and official terminology. Not surprisingly, then, Ταχυδρόμος's « Turkish lessons » include several items reflecting Greek diglossia rather than stylistic discrepancy between Greek and Turkish.

We have already mentioned the linguistic « proof» or « evidence » which supposedly confirms the deep-seated feelings of superiority on the part of the Greeks towards their Bulgarian and Turkish neighbors. In its issue of August 18, 1967, Ταχυδρόμος published a picture of a Greek girl and her Blak boyfriend. The caption said among other things: « While racial discrimination in other countries leads to troubles and outbursts of violence, in Greece, the eternal homeland of Xenial Zeus, Black people are not met with any open repugnance. [...] It can be said to the credit of the Greeks that they are not bigoted, except when confronted with the age-long enemies of their nation » (my translation). Everybody in Greece knows who those age-long enemies are, so there is no need to identify them by name [6]. In the eyes of many Greeks, then, the Bulgarians and the Turks are simply inferior specimens of *homo sapiens*. Anyone familiar with the history of that part of the world will have a fair idea of the reasons for this dislike, which, to the best of my knowledge, is mutual.

[5] C. A. Ferguson (1959) defines diglossia as « one particular kind of standardization where two varieties of a language exist side by side throughout the community, with each having a definite role to play ».

[6] Just as everyone knew what a colleague of mine at the University of Chicago meant when he mentioned once in a lecture that Turks have sometimes complained to him that Westerners are unfair to Turkey and reserve all their sympathies for the country with a lot of men named George.

It would be interesting to know whether glottocentric attitudes like those discussed in this paper are also found, say, in the Czech-speaking community towards the German language and its speakers. For there must surely be in Czech German loanwords which have been stylistically demoted. In Finnish, many Swedish loanwords are restricted today to the dialects, folk speech, or slang [7]. There is, of course, an important difference between what happened in the Balkans and the situation in Czechoslovakia and Finland. German influence in Bohemia and Moravia and Swedish influence in Finland were probably all-pervasive, extending to both folk culture and formal culture, but perhaps especially to the latter. On the other hand, the Balkans were occupied by a non-Christian, essentially non-European nation, whose influence, however strong, was mostly restricted to folk culture. In fact, the various Balkan nations were practically without formal culture during Ottoman rule [8]. It would probably be hard for a Czech to use glottocentric arguments in order to look down on the German language and its speakers, because there happen to be in Czech some German loanwords with a low stylistic status. Whereas the role of the Turks in the modernization of the Balkan countries was probably negligible, only pathologically chauvinistic Czechs and Finns could disregard the role played by the German- and respectively Swedish-speaking communities in the modernization of their country.

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[7] Cf. Sadeniemi 1970.

[8] This assertion is somewhat of an oversimplification, especially as far as the Greeks and the Arumanians are concerned. All the same, I don't think it is a gross distortion of the facts. Cf. also Vryonis 1969-1970.



# A METHODOLOGY FOR RECONSTRUCTING PATTERNS OF CROSS-CULTURAL SEMANTIC CONTAT

Ronald N. Werth

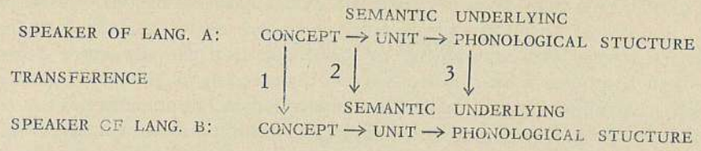
## I - The theory and terminology of lexical innovation.

Additions to the lexicon and semantic component of a language are the result of *innovation*: the process by which an individual speaker matches a semantic unit to a mental *concept*. Because this process is extralinguistic, dependent on mental, sociological, and cultural factors, because it precedes the formulation of semantic units, the terms *presemantic process* (for innovation) and *presemantic unit* (for concept) seem appropriate counterparts to Chafe's (1970) terms postsemantic process and unit. The term presemantic process might be preferred, because both the traditional and the generative use of the term innovation differ from its use here, although addition to the lexicon, a result of innovative processes in our scheme, is a type of innovation in the generative sense, so that the terms overlap somewhat. A concept (presemantic unit) exists in the mind of the innovator. The concept may be original, in which case we speak of *invention*, or it may be suggested by another speaker or more broadly, another culture, in which case we speak of *transference*. In this paper, we are interested in transference.

*Linguistic* transference ( = borrowing) occurs when both the pre-semantic unit (concept) and the semantic unit are transferred from another culture and language; if only the concept, but not the semantic unit, is transferred, we speak of *conceptual* transference [1]. If the transferred semantic unit undergoes direct *symbolization* into phonetic structure (as is the case with loanwords), its symbolization is transferred from its foreign model (Chafe 1970: 41 speaks of « imitation of the symbolization which was given to it in the other language »). If the transferred semantic unit goes through a *postsemantic* process, then the symbolization of an already existing semantic unit intervenes, and the phonetic output is that of the latter (Chafe 1970: 42 writes: « the new semantic unit is converted postsemantically into another [already existing: RW] semantic unit or configuration of semantic units, and the latter then go on to be symbolized as usual »): this holds for all other types of lexical transference. Since, for the most part, lexical transference fills an ideational, conceptual need in the receiving language (cf. Weinreich 1953: 56-61), it follows that each transfer represents a new semantic unit. In fact, as Chafe (1970: 41) implies, all instances of lexical innovation, transferred or spontaneous, are to be regarded as a type of semantic change. The following scheme (adapted from Chafe 1970: 49) represents lexical innovation as a process,

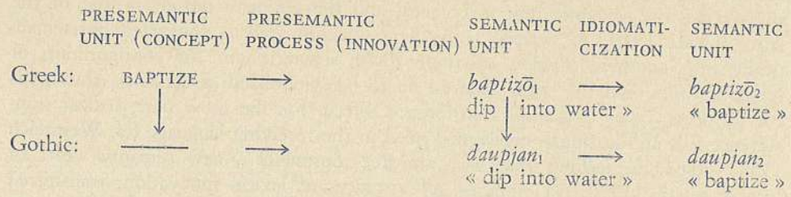
[1] Our distinction corresponds to Haugen's (1956: 766) « borrowed vs. native innovation ». For conceptual transfers, Haugen uses the term « induced native innovations ». We agree with him that these transfers do not belong in the realm of (traditionally labelled) borrowing, since as semantic units they are not transferred, but invented.

and can also be thought of as a model of semantic change (for the present, some levels of the language are exluded):




The degree of *integration* of transferred material can be measured by the « distance » between phonetic structure (realization) and the adaptation of the concept. Purely conceptual transfers (labelled « 1 » on the diagram) are fully integrated into the linguistic system of the receiving language (lang. B). Linguistic transfers (« 2 »), which are transferred as semantic units, then converted into postsemantic units native to lang. B, are from that point on integrated into the structure of lang. B (= loanshifts of all types). The least amount of integration is shown by linguistic transfers (« 3 ») which transfer even their underlying phonological structure from lang. A ( = loanwords); they are integrated at the lowest phonetic level (assimilated to native phonetic patterns). With a bilingual speaker, the two linguistic systems exist side-by-side. When he innovates, the innovation may be either horizontal (monolingual invention) or vertical (bilingual transference). At the same time, the act of transference is a *historical* event, whereas the subsequent *literalization* is a *synchronic* process necessary to convert the semantic unit into a communicable unit, i.e., phonetic structure.

The difference between what have traditionally been called loan translations and semantic loans can be defined synchronically, not diachronically. The diachronic process of transference is exactly the same: lang. B ( = speaker B) transfers a semantic unit from lang. A (= speaker A), and then supplies that unit with whatever surface structure most literally matches it in B. In so doing, the speaker of B parallels the process of *idiomaticization* in lang. A. The *act* of transference is marked by the *literal* transfer of the semantic unit from lang. A to lang. B; the *process* of idiomaticization belongs to the history of each language separately. Let two Gothic lexical items, one a semantic loan, the other a loan translation, serve as examples to show (1) the synchronically defined difference between them, (2) the processes of semantic change. To render the conceptual (presemantic) unit *BAPTIZE*, the Gothic innovator transfers the Greek semantic unit *baptizō*$_1$ into its literal Gothic equivalent *daupjan*$_1$ . The following scheme represents this act of transference:

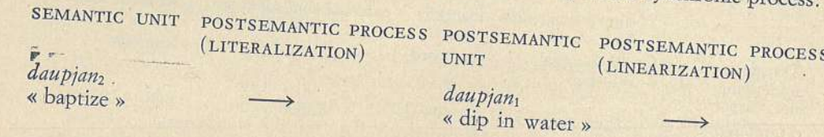



True, the process of idiomaticization has already taken place in Greek to *baptizō*$_2$ , but not in Gothic; the Gothic innovator, however, avails himself of the original meaning, and thus brings about a *semantic change* in Gothic parallel to the earlier one in Greek. It is interesting to note that, in this kind of transference, the innovator of lang. B. actually recapitulates the history of the idiom in lang. A. To render the concept MERCIFUL, the Gothic (Germanic?) innovator transfers, the Latin semantic unit *misericors*$_1$ « wretched-hearted » into its literal Gothic



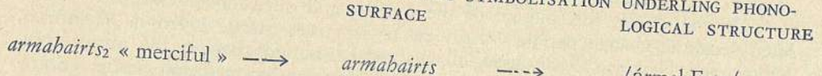
equivalent *armahairts*$_2$ . He does this despite the fact there is no attestation of the literal meaning of *misericors*$_1$ in any Latin document. In other words, the innovator reconstructs the « old » meaning of the Latin model (traces the process of idiomaticization), transfers it literally, and the new meaning *armahairts*$_2$ « merciful » (corresponding to Lat. *mosericors*$_2$) then becomes a new semantic unit in Gothic. Stated differently, this process results in the introduction of a new lexical entry, whose semantic feature array corresponds to that of the foreign model. Historically, the only difference between semantic loans, like *daupjan*$_2$ , and loan translations, like *armahairts*$_2$ , is a trivial one: in the former, the innovator « analyzes » a simple word in the model language, in the latter, a compound word.

The important linguistic difference between semantic loans and loan translations occurs at the syncronic level. In a semantic loan, the new meaning is synchronically reflected in that the old, literal semantic unit now also functions as a *postsemantic unit*. To illustrate: when the phonetic structure [dawpjan] occurs in a strictly ritual Christian context (symbolizing the semantic unit *daupjan*$_2$), the original semantic unit *daupjan*$_1$ functions postsemantically in the synchronic process:




However, when *daupjan* occurs in its original, unidiomaticized meaning, there is no postsemantic process of literalization, and *daupjan*$_1$ is directly converted into the surface structure *daupjan* « dip in water ».

But it may also be that an idiom is retained only as an idiom, so that it function *only* as a postsemantic unit, i. e., the idiom is not literalized (Chafe 1970: 48 mentions English *spic-and-span*). This is exactly how the product of a loan translation functions synchronically. Gothic *armahairts* has only the idiomatic meaning « merciful »:




Of course, it is possible that, even in the case of semantic loans, only the *idiom* is *attested*; this accidental lack of a literal meaning, however, does not mitigate against the observations just made .To reiterate: semantic loans (simple semantic transfers) undergo a process of literalization, i. e., in lexical items where a semantic loan is suspected, both literal and idiomaticized meanings are found; loan translations (compound semantic transfers) show only an idiomatic meaning.

To conclude this brief sketch of lexical innovation, let me give a partial classification of both the innovative processes and their linguistic products in the light of the theory just discussed. Equivalent traditional terms and the terminology of Haugen (1956) and Betz (1959) are also listed. A more detailed classification is needed in a complete analysis, but this one will suffice for present purposes. The notion of using the term « transfer » for all types of « loans » I owe particulary to Clyne (1967).

TABLE. Processes and Products of Transference.

| PROCESS | PRODUCT | | | |
|---|---|---|---|---|
| | My terminology | Haugen 1956 | Betz 1959 | Traditional |
| Lexical innovation | new semantic unit | linguistic innovation | ———— | ———— |
| Conceptual transference | conceptual transfer | induced native innovation | Lehnschöpfung | (coinage) |
| Linguistic transference | linguistic transfer | borrowed innovation | Lehngut | borrowing, loan |
| Transference of semantic unit | semantic transfer | loanshift | Lehnprägung | calque (loan translation) |
| | compound sem. transfer | loanshift creation: | Lehnbildung | (calque) |
| | exact | exact | Lehnübersetzung | loan translation; counterfait, calque |
| | approximate | approximate | Lehnübertragung | free loan translation |
| | simple sem. transfer | loanshift extension | Lehnbedeutung | semantic loan |
| Transference of underlying phonol. struct. | phonological transfer | loanword | Lehnwort | loanword |
| Transference of semantic unit & u.p.s. | mixed transfer | loanblend | Teillehnwort | hybrid |

## II - Criteria in the reconstruction of lexical transference with illustrations from Gothic

In the broadest terms, the process of lexical transference can be described as follows. A bilingual speaker introduces a new semantic unit from another language (lang. A). This new unit is endowed with either (1) the symbolization (phonetic representation), assimilated or not, of the model in lang. A, or (2) the symbolization of a semantic unit already in lang. B. The transfer may be adopted by other speakers of B for various reasons (e. g. prestige, need) and become an addition to the lexicon and semantic component of the language, or it may simply remain as part of the innovator's idiolectal stock of lexical items. The success or failure of innovations by lexical transference can be measured by the sort of statistical count used by Betz 1959, where percentages of transfers retained after X number of years are calculated.

On the whole, this picture of the process and diffusion of externally stimulated semantic change parallels the view of language change given in Weinreich, Labov ,and Herzog (1968), especially as regards sound change: the act of transference is *abrupt*, individual; the spread of the transfer is sociologically, geographically, chronologically *gradual*. That sound change is empirically observable has been shown by Labov (1963) and elsewhere. Language change through transference can also be observed, and the extent of its diffusion can be tested. However, in language diachrony this becomes difficult, if not impossible. There is certainty as to the *moment* of transference only if we find that a particular transfer was first found in such and such a year in such and such a document. As to its spread, only the attestation of the transfer in succeeding generations can give a clue. These lifficulties in the diachronic study of transfers have many times been mantioned by Haugen and others, e. g. Haugen 1956: 761:

« The object of loanword research is presumably to reconstruct the process of borrowing and its effects upon the language. But for this we lack the necessary data, above all when dealing with the written sources of earlier periods. Most of the questions we would like to raise cannot be answered unless we are able to identify the moment of borrowing and then follow the social career of each loan ».



Within these and other restrictions, however, I believe that it is possible to establish fairly stringent criteria to show with a high degree of probalitity, if not always certainty, that a given lexical item is wholly or partially a transfer.

Since transference is a historical process, it is necessary to know both earlier and later stages of the language in order to show that a certainlexical item is a transfer. Further, to identify a transfer, the linguist must prove (cf. Haugen 1953: 384) that (1) a model existed in lang. A, (2) only after the first contact of A with B did the item appear in lang. B, (3) the item could not have arisen independently in lang. B. Haugen's insistence on checking earlier and later stages to detect innovations can be satisfied for Gothic (and certain other « dead » languages), where only one [2] stage is attested, only by *reconstructing* an earlier stage, and speculating on the fate of transfers in later stages of the language. To accomplish this, comparison with other Germanic languages is essential. As important as these various criteria mentioned by Haugen are, there are also a number of others of equal importance. In the remainder of this paper, I shall enumerate all these criteria and illustrate their application [3].

### 1. Semantic likelihood.

When investigating the lexicon of a language known only through written records for the purpose of detecting transfers, this is the first question the linguist must answer: Is the semantic structure of the item such that transference from another language is likely? All probable products of transference, whether conceptual or linguistic, must satisfy the criterion of semantic likelihood. Provided we know enough of the cultural history of a people, we can conclude that its language exhibits certain semantic fields more susceptible to foreign influence than others. In the case of Gothic, we know that at the time of Wulfila's Bible translation Christianity was a new institution among the Goths, and we would expect the semantic area of Christian religious terminology to be a rich source for transfers, all the more so since the translation of the New Testament is almost all there is to attested Gothic. Some other areas are also suspect, e. g. terms concerning the military, trade, government, and Roman and Mediterranean culture in general. Thus, we would expect the items for the concepts GOD, ANGEL, SIN, HEAVEN, HELL, CENTURION, TETRARCH to be products of transference, whereas we would want to rule out HAND, LOVE, FATHER, OLD and many others.

### 2. Existence of a model.

Once the first criterion has been satisfied, the lexical item in lang. B must now be shown to have been under the influence of another language, or culture, or both. If no linguistic model in lang. A is probable, then the possibility of conceptual transference exists. Because there is no linguistic confirmation, conceptual transfers are very difficult to prove. Among the hundreds of Old High German transfers listed in Betz 1949, there are only about 5 « Lehnschöpfungen », e. g. *findunga* for Lat. *experimentum*. The situation for Gothic is similar. One could suggest several items as having been « coined » under the stimulus of a concept expressed in Greek or Latin, but in no case is there any proof of such coinage. As one example of a conceptual transfer in Gothic, one might cite *unwahs*, which occurs in Luke 1.6 and is a hapax legomenon. It translates Gk. *ámemptos*, « blameless »; the Vulgata has *sine querela* « without complaint ». That a direct linguistic transfer from either Greek or Latin is impossible is shown by the literal

[2] The few inscriptions and Crimean Gothic are too fragmentary to allow any conclusions in this regard.

[3] Some of these criteria have already been mentioned and used by Gneuss (1955), but not within a consistent theoretical framework.

meaning of *unwahs*, which is « not crooked ». Negatively prefixed cognates of *unwahs* do not occur in other Germanic languages (the simplex does, e. g. OE *wōh* « crooked »). One coul assume that *unwahs* represents the translator's attempt to render the Christian moral concept BLAMELESS, GUILTLESS, for which he found no appropriate existing semantic unit in Gothic, by coining (creating) a new semantic unit and lexicalizing it by means of familiar Gothic word material and a productive mechanism of word formation. The reason we describe this process of conceptual transference as only probable is that the mere lack of attestation of the item *unwahs* in other contexts is no proof that it might not already have existed in the Gothic lexicon with its pre-biblical (unidiomaticized) meaning « not crooked », in which case the occurrence in Luke 1.6 would point to a simple semantic transfer on the Greek model. Of course, the only reason one would even suspect an item such as *umwahs* as being the product of conceptual transference is its presence in a semantic area where all sorts of transfers are found (cf. Criterion 1). Criterion 2 differentiates conceptual from linguistic transfers, but it is vacuous unless criterion o is applied first.

3. Phonological or semantic transference.

Where there is obvious phonological similarity in the surface structures of two items with *the same semantic specifications* in lang. A and lang. B, there are two possible conclusions: (1) the items are cognates [4], (2) the item in lang. B is the product of phonological transference from lang. A, or vice-versa. Generally, there will be greater similarity at the (surface) phonetic level between items of A and B where transference is involved than when they are cognates. This should be the case, since phonological transfers carry with them the underlying phonological structure of the model. To what extent phonological transfers are synchronically recognizable depends upon the degree of integration in the structure of the language; that such synchronic recognition can be a problem is shown by Haugen 1950: 229-30 and others.

In reconstructing the moment of phonological transference, the diacronic applicability of phonological rules to the item in question is of greatest importance. It is obvious that the linguist must be familiar with the phonological structure of both the documented language investigated and its earlier stages. One rule which applied already to late PGmc. was the loss of final short unstressed vowels:

Rule 1: $\begin{bmatrix} V \\ -\text{stress} \\ -\text{long} \end{bmatrix} \rightarrow \emptyset / - \#$

E.g. PGmc. **dageza*, **uʃa*, **mēsa* > Go. *dagis* « of the day (gen.) », *uf* « under », *mes* « table ». By the time of Wulfilian Gothic, Rule 1 was no longer part of the grammar, so that there must be some other explanation for items ending in, say, final /a/, e. g. *giba* « gift, offering », *waurda* « words », (nom./acc. pl.), *arka* « chest, box », *aipistula* « letter, epistle ». Two possible explanations are: (1) these words were transferred into Gothic after the operation of Rule 1, (2) the final /a/ is the result of another, later rule in the grammar of PGmc. or pre-Gothic. In fact, the second explanation holds for *giba* and *waurda*, the first for *arka* and *aipistula*. The final /a/ in the first two items is the result of

[4] The fact that the items are cognates does not rule out transference, especially not semantic transference. Of the many examples for « loanshift extensions », cited by Haugen (1953: 467-73), some are cognates, where the original Norwegian meaning has been replaced in American Norwegian by transference from an American English model, e.g. AmN *korn* « maize » by transference from AmE *corn* « maize », though the original meaning of the Norwegian cognate *korn* is « grain ».



Rule 2: $\begin{bmatrix} V \\ -\text{high} \\ +\text{back} \\ +\text{long} \\ -\text{stress} \end{bmatrix} \rightarrow \begin{bmatrix} -\text{long} \\ +\text{low} \\ -\text{round} \end{bmatrix} / - C_0 \#$

which changes unstressed /ō/ in final syllables to /a/, and must apply after Rule 1. Comparative evidence sdows that Rule 2 derives *giba* and *waurda* from PGmc. **gibō* and **wordō*. In the case of *arka* and *aipistula*, on the other hand, comparative evidence shows that the final /a/ cannot be derived from a PGmc. /ō/. Neither Rule 1 nor Rule 2 can apply to them, so that the first explanation applies: *arka* is a transfer from Lat. *arca*, *aipistula* from Lat. *epistula*.

One further note: comparative and additional phonological evidence also reveals that Go. *mes* is the product of a transference from Latin (Vulg. Lat. *mēsa*) as well, but this transference took place already in PGmc. (Rule 1 applies), not in Gothic. The conclusion is that the farther the moment of phonological transference is from the attested stage of the language investigated, the more difficult it is to isolate phonological transfers in the language by purely synchronic phonological criteria. A corollary of this observation is that we cannot call *mes* a phonological transfer in Gothic (despite it previous history), whereas we can say with some degree of certainty that *arka* and *aipistula* are innovations in the lexicon of (attested or pre-) Gothic.

Where no phonological transference can be shown, and provided Criteria 1 and 2 are met, the likelihood now presents itself that we are dealing with a semantic transfer. The diachronic and synchronic differences between simple and compound semantic transfers have already been discussed in Section I. However, in reconstructing the moment of transference, this difference cannot always be clearly drawn. To be considered as a transfer at all, the item must first conform to Criteria 1 and 2. If it is likely as a semantic transfer, then other criteria are needed to decide whether we are dealing with a semantic transfer, compound or simple.

Criterion 3 applies in both its aspects to mixed transfers, since both phonological and semantic transference are involved. Relatively few mixed transfers (blends) are found in Gothic; among these ars the agentive nouns in *-areis* from Lat. *-ārius*, e. g. *bokareis* « scribe » and *laisareis* « teacher ».

4. Literal and idiomatic meaning.

The superficial criterion of absence or presence of derivational word-formation works to a degree, but it must be supplemented by a criterion which measures semantic context. If the item occurs in both literal and idiomaticized contexts, which represent change in the array of semantic features, it qualifies as a simple semantic transfer, whether there is a compound morphological match with the model or not. If a compound item occurs only with an idiomatic meaning (and reproduces the model more or less exactly), we are dealing with a compound semantic transfer. When investigating the lexicon of a written corpus, the historical linguist applies this criterion as follows. If the item occurs in both « old » and « new » contexts *within lang. B itself*, then the linguist has, at the least, proof of innovation, and of simple semantic transference from lang. A, if the other criteria are met. Evidence from contemporaneous *related languages* is very helpful in specifying and reconstructing literal contexts. In the case of compound transfers, one would expect only idiomaticized contexts within lang. B [5]; cognates should

[5] Gneuss (1955: 38-40) states this criterion somewhat differently: the meaning of the compound is quite different from the sum of the meanings of its parts.

occur in the same, and only the same, contexts as i lang. B. In fact, a total lack of cognates is not a bad indication that compound semantic transference has taken place in lang. B. The innovator reconstructs the literal meaning of the model in such transfers, and it is unlnlikely that this process of reconstruction would be paralleled in the sister languages (unless they themselves transferred the item from B).

Let us now illustrate these applications of Criterion 4 from Gothic (in all cases, Criteria 1-3 also apply). The item *bidjan* « to ask for; to pray » is classified as a simple semantic transfer because (1) both literal and idiomaticized contexts occur Gothic: literal (pre-Christian) = Gk. *aitein*, *erotân*, etc. « ask for, request »; idiomaticized (Christian) = Gk. *proseúkhesthai*, Lat. *orare* « pray »; (2) both « old » and « new » contexts also appear with the cognates: OE *biddan*, OI *bi̇̀ja*, OHG *bitten*, OS *biddian*. In the case of *halja*, on the other hand, only the transferred new meaning « hell » occurs (not surprising, considering the totally Christian character of the Gothic corpus). Here we must look to cognate forms for help in establishing earlier literal meanings for *halja*. The Old Icelandic word *hel* is attested with several meanings: (1) = Hel, the goddess of death, (2) « the obode of the dead », (3) « death », (4) « hell » (in a Christian sense). Since meanings (1) to 3() occur in clearly non- or pre-Christian contexts, we can conclude that they reflect the PGmc. situation, and that Christianization has brought about semantic change with the addition of meaning (4). At the same time, we are also justified in reconstructing these same earlier meanings for Gothic. It is obvious that, where both the Christian and pre-Christian meanings of a word are attested in one or more of the Germanic languages, the pre-Christian will be the earlier and PGmc. meaning.

The word *hleþrastakeins* (John 7.2) is classified as a compound semantic transfer because (1) there are no contexts in Gothic with the literal meaning « staking, setting up of tents », which is also the literal meaning of the Greek model *skēnopēgía*; (2) in its only occurrence, the item has the idiomatic (biblical) meaning « Feast of Tents or Tabernacles »; (3) there are no cognates. The words *armahairts* « merciful » (cf. Section I), *armahairtei* « mercy », and *armahairtiþa* « mercy » are compound transfres from Lat. *misericors* « marciful » and *misericordia* « mercy ». In this case, however, there are several cognates with the same idiomaticized meaning: OE *earmheort*, OHG *armherz* (*i*) « merciful »; OHG *armherzi*, *barmherce*, *armiherzida* « mercy ». Rather than showing that there was possibly a PGmc. ancestor for these forms (highly unlikely because of clearly Christian contexts), the evidence suggests that these key terms of Christian dogma were transferred from the first Christianized Germanic people, the Goths, to the northern Germanic tribes [6].

As has been pointed out before, the one-to-one correspondence of compound model with compound replica does not necessarily mean that we are dealing with a *compound* semantic transfer. For example, the Gothic word *unwamms* « unblemished » translates both Gk. *ámōmos* « blameless » and *áspilos* « unblemished », and it could be considered as a compound transfer [7] from *áspilos* (Gothic uncorresponds to *a*-privative in Greek, and *wamm* « spot, blemish » to *spilos* « stain, blemish »). However, several factors speak against that conclusion. (1) There are cognates: OE *unwemme* « unhurt; undefiled », OS *unwam* « unblemished »; (2) of these, the OE adjective indicates the possibility of a pre-Christian context, as does the OHG verb *biwemmen* « injure »; (3) the Gothic noun *unwammei* « unblemishedness » translates Gk. *eilikríneia* « purity » in 1 Cor. 5.8, which is elsewhere translated by *hlutrei*, *hlutripa* « purity »; (4) the morphological (and in

[6] The theory that they were introduced into OHG by Gothic missionaries was first stated by Kluge (1909).

[7] As, for example, by Velten (1930: 349).



fact etymological) correspondence of Go. *un-* with Gk. *a-*, which occurs in about 100 lexical items, is in itself no proof of transference, since *un-* as a negative prefix was as common in native Gothic items as was *a-* in Greek. For all these reasons we would rule out compound transference in the case *of unwamms*, and prefer to view it as a word inherited from PGmc. However, we must assume that the literal meaning « uninjured » has been replaced in attested Gothic by a simple semantic transfer with the idiomatic meaning « devoid of sin ».

5. Multiplicity vs. uniformity in rendition.

One of the reasons given for not accepting *unwamms* as a compound semantic transfer (CST) was that the noun derived from it, *unwammei*, occurs only as the rendition of Gk. *eilikríneia*, which could not possibly have served as a model of transference. In the case of compound transfers especially, one expects some uniformity of context, a uniformity which in the case of Gothic and other older languages whose corpus exists almost entirely of translation literature, is demonstrated by more or less uniform renditions of the translated items. Such is the case with *miþwissei* « conscience », which occurs often and always as the translation Gk. *suneidēsis*. Multiplicity in rendition can work in either direction: (1) one Gothic word renders a number of Greek words, (2) a number of Gothic words render one Greek word. The first situation justifies a more cogent argument against transference than the second. It indicates that the translator has in his lexicon one item which will handle the several semantic contexts represented by various lexical items in the other language, in other words, there is no need for the translator to introduce new lexical items into his language. Velten (1930: 345) cites *gadaila* « companion, participant » as a loan translation (CST) from either Lat. *conparticeps* or Gk. *summétokhos*, which it translates Eph. 3.6, 5.7. The literal meaning of all these words is « one who shares ». However, *gadaila* also translates Gk. *koinōnós* « partner » (where Go. *ga-* has no Greek counterpart), *sugkoinōnós* « fellow-participant », and *antilambanómenos* « one who has taken part », lit. « one who has received in return ». Go. *gadaila* (OHG cognate *giteilo*) renders all these Greek items; this is one reason why native origin is more likely.

Where a number of Gothic words render one Greek word, one suspects that Gothic did not have a semantic unit to match the one expressed by the Greek item. In his attempts to render the Greek word, the translator often introduced transfers of various kinds. This is the case with the Gothic renditions of Gk. *eulogía*, Lat. *benedictio* « blessing » (lit. « good speech »). There is an exact CST in *wailaqiss*, an approximate CST (loan rendition) in *þiuþiqiss*, a simple semantic transfer in *þiuþeins* lit. « goodness », and and an unassimilated phonological transfer in *aiwlaugia*. Where there are a number of Gothic words for one Greek one, the chances that one or more is a transfer are very good.

6. Productive derivational patterns.

This is one of the most difficult criteria to apply, and is important only in the case of compound semantic transfers. The expectation is that an item otherwise considered as a CST should also conform to a pattern of word formation productive in the stage of the language being studied. As regards Gothic, one can observe that, for example, many substantival compound transfers exhibit abstractive suffixes which are also common in non-transferred nouns, such as *-ei* and *-iþa*.

7. The weight of opinion.

The last criterion is not a linguistic one, or perhaps not one at all. When a linguist works in a field as beset with uncertainties as that of the reconstruction

of semantic change, he is comforted by the knowledge that sometimes there is more or less general agreement among scholars. Such agreement is certainly no proof, but at least one investigates closely before offering new explanations. In the case of Gothic, most scolars agree on the inventory of phonological transfers. The situation is quite different with compound semantic transfers. Among the investigators who list such transfers, there is general agreement on only a handful (out of well over 100). Most often cited are *armahairts* and the nouns derived from it, *filuwaurdei* (from Gk. *polulogía*), *harduhairtei* (from Gk. *sklērokardía*), *hleþrastakeins*, *miþwissei*, and *wailaqiss* and the items associated with it.

Only when all of the criteria discussed have been applied can the linguist reconstruct instances of conceptual and linguistic transference. I investigated the entire Gothic lexicon, entered those items where I suspected transference on cards, and then applied the seven criteria to each item. It is hoped that this investigation will lead to a fresh look at a major part of the Gothic lexicon.

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# НОВЫЕ МЕТОДЫ ОПОЗНАНИЯ МОРФЕМ, ОБЩИХ У ЯПОНСКОГО ЯЗЫКА С УРАЛО-АЛТАЙСКИМИ И МАЛАЙСКИМИ ЯЗЫКАМИ

**Н. А. Сыромятников**

1. Большинство лингвистов считает японский язык изолированным. Большое сходство фонетического строя с грамматикой алтайских языков (включая корейский) представляется им типологическим совпадением. Японский язык изучается и преподается (в Японии и других странах) как не имеющий ничего общего с другими, кроме заимствований в исторический период.

2. Язык айну (аборигенов Севера Японского архипелага), хотя и имеет ряд общих морфем с японским, но это, в основном, названия реалий, культурные слова, общее количество которых для языков, контактированных не менее 2 000 лет, сравнительно невелико. Фонетический строй языка айну (начальное $r=$, отсутствующее во всех исконных словах алтайских языков, включая японский, конечнословые согласные, отсутствующие в японском) настолько отличается от японского, что айну нельзя считать даже языком-субстратом, не говоря уже о родстве по происхождению.

3. Очевидно, что субстратными языками были племенные языки носителей культуры « jōmon », которые населяли Японию в неолите. В этих языках должны были быть только открытые слоги, отсутствовали скопления как согласных, так и гласных.

4. Действительно, древнеяпонский язык (далее AJ) носит явные следы смешения: его грамматический строй отличается простотой, имена не имеют словообразовательных аффиксов, нет чисел (как в корейском и китайском), нет родов (как и во всех алтайских и малайских), нет показателей лица в глаголе (как в корейском, маньчжурском и халха, т.е. других окраинных языков алтайской семьи). В нем не было дифтонгов и аффрикат, состав слога был предельно прост: V= и CV.

5. Усилия ряда ученых, начиная с Боллера (1857), Астона (1888), Рамстедта (1924) и Поливанова (1930), преивели к открытию лишь сравнительно небольшого числа общих морфем у японского языка с алтайскими, главным образом с корейским.

6. За последние годы количество обнаруженных общностей пополнилось в работах Оно Сусуму (1957), Маруяма Ситиро (1966,

1969), С. Э. Мартина (1966), Р. А. Миллера (1967), Н. А. Сыромятникова (1967, 1970, 1971) и Одзава Сигэо (1968)

7. Однако до исх пор одни полагали, что лексический слой, общий у AJ с алтайскими, был наложен на более древний пласт, общий с малайскими языками. Другие вообще игнорировали « малайскую теорию », считая, что она противоречит алтайской.

8. Глоттохронологические подсчеты дают время расхождения AJ с корейским и маньчжурским свыше 4 000 лет (Хаттори Сиро).

9. Все сравнения проводятся, разумеется, не с современным, а с AJ (УШ в.), чья фонетика (сходная с тюркской), грамматика и лексика хорошо известны. Из других языков также берется максимально древний пласт (см. « Древнетюркский словарь », Ленинград, 1969, среднекорейские написания слов, среднемонгольские тексты и т.п.).

Однако очевидно, что сравнения разрозненных корней не дают ответа на вопрос, появились ли общности в результате заимствований или это остатки исконного родства. Хотя можно ожидать еще новых открытий, например, после опубликования « Большого сравнительного словаря тунгусо-маньчжурских языков », составленного в Ленинградском отделении Института языкознания Академии наук СССР, но в целом, в условиях, когда даже исконное родство тюркских, монгольских и тунгусо-маньчжурских языков еще не всеми признано, место японского языка среди других остается проблематичным. Назрела необходимость изыскания новых методов сравнения.

**Предлагаются следующие методы:**

1. Метод изосемантических рядов сводится к применению аналогии: если в одном языке имеется два близких корня, связь между значениями которых не кажется очевидной, доказательством ее наличия могут служить два слова другого языка, различающиеся только аффиксально и имеющие те же значения. Наиболее убедительным доказательством служит одно слово, имеющее оба значения [1]: так, близость AJ *mure* « толпа », « стая » и *mori* « роща » ясна из манси **моры** « толпа », « роща »; *kamə̑*[2] « кувшин » и *kamə̈*[1] « черепаха » близки потому, что подобная связь значений прослеживается и в других языках: лат. *test-a* « кувшин » — *test-ūdo* « черепаха », русск. **череп-ок — череп-аха**.

2. Близкие (но не идентичные) по звучанию и значению корни считаются родственными; в японском они могут различаться только ударением: *pa*[0] « лист » — *pa*[1] « лезвие », « зуб »; *pana*[2] « цветок » — *pana*[0] « нос » — ра па « кончик » (вообще) (ударения в японских словах указываются современные); могут иметь одну или две-три разные фонемы: *pana* « нос » — *pë* « нос лодки »; *kamé* « кувшин » — *kama* « котел »; *nig-u-r-u* « бежать » — *nag-ar-u* « течь » (при и.-е. *tekʷ-* « бежать », « течь »); *maru*= « круглый » — *mari* « мяч ».

1 См.: В. П. Старинин, « К вопросу о семантическом аспекте сравнительно-исторического метода) » (изосемантические ряды С. С. Майзеля), **Советское востоковедение**, 1955, И° 4.



3. Родственные корни одного ряда семантически отличаются один от другого несколько иным набором семантических компонентов. Рассмотрение значения корня не как чего-то единого и неделимого, а как набора указаний на немногочисленные признаки, существенные для носителей данного языка (но вовсе не все реально присущие называемому предмету), помогает более объективно и точно судить о том, близки ли данные корни семантически или нет. Так, *kame* « кувшин » имеет семантические признаки: « округлый », « твердый », « твердый », « покрывающий », « вмещающий ». Kame « черепаха » — « округлый », « твердый », « покрывающий », « кусающий » (*kam*= « кусать »). Недаром, как отмечается в романе « Ukiyofuro » (начало XIX в.), в диалекте Эдо черепаха называлась *futa* (букв. « крышка »), а в диалекте Кансай — *maru* (букв. « круглая ») [2]. *Pana*[0] « нос » (« кончик чего-то большего, воспринимающий запахи »), *pana*[2] « цветок » (« кончик ветки, источающий запах ») — *panat-u*[2] « испускать » (запах, свет), « стрелять из лука » (ударение то же, что у *pana*[2] « цветок »).

При сравнении корней разных языков набор семантических компонентов у пары корней, фонетически сравнимых, может оказаться не совсем идентичным. Однако для идентификации корня, общего для двух (или большего числа) языков, наличие хотя бы минимального числа общих семантических компонентов необходимо.

4. Языки должны сравниваться не попарно, а в возможно большем числе: вероятность случайного совпадения при обнаружении общего корня в четырех языках, как показывают математические подсчеты, близка к нулю. Поэтому при проверке алтайской теории непременно должен привлекаться корейский и японский материал, который значительно повысит достоверность найденных параллелей между алтайскими языками в узком смысле: если какой-то корень применяется не только в тюркских и монгольских языках, но и в корейском или древнеяпонском, значит, его нельзя считать заимствованием из тюркского в монгольский (или наоборот) в исторический период, как поступают « антиалтаисты », желая преуменьшить количество исконных общностей алтайских языков.

5. Ряд родственных корней принадлежит к одному звуковому типу [3], обладающему сходной фонетической структурой (например, kVbV) и минимально одним общим семантическим компонентом (например, « округлый »). Корни, не относящиеся к общему звуковому типу, не сопоставимы.

**Результаты исследования:**

1. Различия между родственными корнями одного языка являются, как правило, уникальными, что отражает уникальное различие между предметами и явлениями действительности, которые они называют. Два корня, различающиеся в японском языке местом ударения, в языках с постоянным местом

2 См.: [Sikitei Samba.] Ukiyo-furo. Tokyo, 1957.
3 См.: В. И. Абаев, **Сравнительно-этимологический словарь осетинского языка**, т. 1, М-Л., 1958.

ударения дифференцируются аффиксами или фонемами корня: pana[0] « нос » ~ уйгур. panaq « плосконосый », монг. hunar « запах » — pana[2] « цветок » ~ мокша **панчф**, индонез. bunga « цветок »; pï[1] « огонь » ~ кор, pul < pïl, индонез. apui, айну api « огонь » — pi[0] « солнце » ~ кор. pit « свет (солнца) », индонез. pidjar « раскаленный », мокша **пиди** « палящий ».

2. При переходе от протояпонского языка к AJ исчезли конечнослоговые согласные: AT arpa « ячмень » > AJ apa « чумиза »; монг. dargil ~ tagi « быстрое течение »; кор. **паныль** « игла », эским. pana-t « копья », индонез. panah « лук », « стрела » ~ pana[1] « кончик »; эвенк. **инаму-кта**, нан. нямо-кта ~ AJ namita « слезы »; ман. toron « грязь », « пыль »[4], индонез. djorok « грязный », кор. тэрэп= « грязный » ~ яп. doro « грязь » (~ удм. дэри « грязь »).

3. Начальным звонким других языков в AJ соответствуют глухие; однако уже с X в. появляются и начальные *b-*, *d-*, *g-*: ba « место » (~ кор. **па**, маньчж. **ба**, нан. **боа** « место », ср. AJ ma « место », « время »), bakë (УШ в.) « уменье », « искусство », bake-mono « привидение », тур. bagi колдовство », бур. (< тибет. ?) **баг** « маска »; dama-r-u « молчать », dam-as-u « обманывать » (~ эвенк. **тамурга**= « замолчать », кор. **тамуль**=[5] « сжимать губы », « молчать », хак. **тумай** « молчаливый »); gara « телосложение », « характер » (~ таг. *gara* « напыщенность », giray « неестественно важная походка », маньчж. **гиру** « толосложение », « стан »), gabugabu [to nomu] « [пить] большими глотками » (~ эвенк. **габу**= « напиться », « выпить », удм. **гапыл** « залпом », таг. ngabngab « поглощение пищи с жадностью »).

4. Около 40% слов, общих у ДЯЯ с другими алтайскими языками, имеют соответствия и в малайских, например: яп. (kuchi-o) anguri akeru « разинуть (рот) » ~ индонез. яван. angap « мироко открытый » (о рте), кор. **агари** « пасть », « дыра », маньчж. **аннга** « рот », « ущелье »; яп. but= « бить » ~ бур. **бутарха** « разбиваться вдребезги », коми **бут** « хлоп », « тук », таг. butang « избиение », тюрк butla= « ударять по ноге »; ii « хороший », « добрый » ~ тур. iyi « хороший », « добрый », тагал. igi « доброта », « хорошее качество », каракалп. **ийги**, тюрк. edgü/ejgü « хороший », « добрый », эвен. **ибго** « хороший ; AJ jör= « приближаться » ~ тюрк. jorï= « идти », бур. **ерэ**= « приходить », таг. yurak « топтание », « топание » и т.д.

5. В AJ есть и несколько десятков двусложных корней, сходных с односложными индоевропейскими (Ст. Младенов, 1955): pari « игла » ~ и.-е. *b[h]ar= « колющее », mitu « мед » ~ тохар. A mit « мед », kuro= « черный » ~ и.-е. *ker= « черный ». И.-е. CC- ~ JCVC-: яп. gorogoro « о громе » ~ таг. kulong « гром », слав. **громъ**; яп. garigari kazir= « грызть » ~ слав. **грыз-/крыс-** (метатеза *z* и *r* объясняется тем, что японский глагольный корень не может кончаться на -z-); körö « время » ~ др.-греч. χρονος « время » (прослеживается и связь körö с kir= « резать » ~ и.-е. *(s)ger, коми **кыр** « резать », эвенк. **гир**= « разрезать » и т.д.), монг. qoran/qorum « миг », коми кор « когда », тюрк. qolu « время », « срок », « 10 секунд ».

[4] Roy Andrew Miller, *The Japanese language*, 1967, стр. 72.
[5] Samuel E. Martin, « Lexical Evidence Relating Korean to Japanese », *Language*, 1966, No 2.



## ВЫВОДЫ

1. Между языками Северной и Юго-Восточной Азии не существовало непроходиных границ. Даже в дописьменный период ироисходили интенсивные заимствования слов, как культурных, так и обычных. Часть общих слов восходит к исконной общности[6].

2. Японский язык по происхождению является смешанным — алтайско-малайским. Это положение согласуется с географическим положением Японии, антропологическим составом ее населения и данными этнографии и фольклористики.

3. Малайские языки имеют лексический пласт, общий не только с японским, но и с корейским и другими алтайскими языками. Если огласовка общего корня в алтайских и малайских языках не совпадает, в японском находим, как правило, малайскую (тагальскую) огласовку: суф. =darake (после имени, обозначающего то, что покрывает предмет, но не является его частью) ~ индонез. darah « кровь », монг. kömül-dürge, тюрк. kömül-dürük « нагрудный ремень » (у лошади) (родственные корни: doro « грязь », taru-ru « капать »). В индонез., тюрк., эвенк., бур. языках *o* не может находиться во втором слоге, если в первом есть *u*. Но в AJ было 13 таких слов, появившихся под влиянием языка типа тагальского: tuno « рог » ~ тагал. tunok « клюв », kumo « туча » ~ тагал. kumot « одеяло », nuno « полотно » ~ монг. nuŋγa-sun « шерсть », коми **ной** « сукно », тагал. nutnot « потертый ».

4. Сравнения лексики нескольких языков следует производить не разрозненно, а целыми рядами родственных корней, так как такой ряд составляет микросистему. Так, usagi « заяц » входит в один ряд с isog-u « спешить ». Эвенк. **тукса-ки** « заяц » (букв. « бегун ») должно было бы дать в японском *tusagi. Но влияние isogu способствовало устранению *t- (ср. и эск. **укзик**).

5. Обмен семантическими компонентами между членами ряда может привести к тому, что фонетически данное слово может быть ближе к одному слову родственного языка, а семантически — к другому. В таких случаях надо учитывать оба соответствия, а не выбирать одно из них: AJ okina « старик »: omina « старуха » ~ нанай **амина** « самец рыбы », якут. **огонньор** « старик ».

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[6] Дополнительные материалы см. в статьях: Н. А. Сыромятников, « О лексике, общей у японского языка с индонезийским и тагалькаим языками », **Вопросы японской филологии**, 1, М., 1970; Он же, « Теории изосемантических рядов и родственных корней как необходимые методы для этимологии японского языка », *Studies in General and Oriental Linguistics*, Tokyo, 1970; Он же, « методика сравнительно-исторического изучения общих морфем в алтайских яыках », **Проблема общности алтайских языков**, Л., 1971.

# SYSTÈME GRAMMATICAL ET SISTÈME JURIDIQUE

SALVATORE PUGLIATTI

*Sommaire*

C'est la notion de « système » qui est étudiée ici — avec certaines distinction et précisions préalables — pour mettre en relief:

*a*) l'importance qu'elle revêt dans la culture contemporaine, à ce point que l'on est tenté d'elaborer une théorie générale des systèmes (Bertalanffy ...)

*b*) la fonction toute spéciale qu'elle acquiert par rapport à la langue et au droit qui fondent, sur la systèmaticité, le caractère scientifique de leurs connaissances respectives.

Ainsi, cernant de plus prés le problème, on étudie la grammaire (et la syntaxe), comme étant une partie essentielle de la langue, et le droit; on y fait remarquer que, par le passé, on a tenté de repérer entre ces deux sciences des points de contact, des zones d'interferences, des parallélismes et des analogies, mais en termes plutôt génériques.

Sans vouloir négliger les résultats aquic par les travaux précédents, et sans vouloir non plus sous-estimer la différence fondamentale qui fait que la langue relève de la catégorie des *faits* humains alors que le droit est du domaine des (faits) *valeurs*, il est précisé qu'il y a une différence de nature entre l'objet de la linguistique et celui de la jurisprudence.

Une telle différence représente une indication de méthode essentielle, qui n'exclut pas cependant — plus encore que les analogies — la série de problèmes communs à la linguistique et à la jurisprudence, dans lesquels on retrouve des éléments d'identité et de différence.

On fait remarquer principalement que la linguistique, tout comme la jurisprudence, s'orientent vers deux conceptions fondamentales: normativiste et institutionniste. Dans ce sens, la jurisprudence a exercé sur la linguistique une influence particulière, depuis « l'école historique ». C'est à ce propos que sont exposées les thèses principales de Savigny, Puchta, Jhernig, Laband. On mentionne également les tendances institutionniste de Santi Romano et de Maurice Hauriou; la théorie normativiste (théorie pure du droit) de Kelsen et la récente reprise des théories normativiste dues au « positivisme juridique » (Bobbio, Scarpelli, etc.). Il est question ensuite des tendances institutionnistes dans le domaine de la linguistique (Nencioni, Devoto, Pugliatti, Piovani). On remet en évidence la nature différente des deux disciplines: la linguistique étant « factuelle » ou ontologique, alors que la jurisprudence se rapporte à des valeurs (elle est ainsi déontologique) ou à des qualifications.

Ensuite sont étudiés les caractères des systèmes respectifs: statique et/ou dynamique; fermé et/ou ouvert; leur continuité ou discontinuité; les rapports entre synchronie et diachronie; les rapports entre systématicité et historicité; le passage de l'abstrait au concret. Sont plus particulièrement examinés: le passage de la *langue* à la *parole* et, parallèlement, de la norme (générale et abstraite) à l'application au cas concret: jugement esthétique et jugement juridique concret.

Il est affirmé, enfin, que les problèmes précités sont, en générale, communs à toutes les sciences humaines, fait que l'on peut aisément constater dans les tendences récentes de le science définie comme « anthropologie culturelle » et tout spécialement chez Lévy-Strauss.

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