

SAME GOAL IN 3 SETTINGS: EARLY ACQUISITION OF ESTONIAN IN NATIVE MONOLINGUAL, NON-NATIVE MONOLINGUAL AND BILINGUAL ENVIRONMENTS

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Abstract: A report on the longitudinal study of initial natural acquisition of Estonian, a non-Indo-European language, by three small boys, whose background varies in terms of their linguistic environment. Comparative analysis of spontaneous speech data collected by periodic recordings of the children's dialogues with their carers during their second and third years of life, reveals certain similarities and differences in the children's verb form development. Independent of the linguistic environments, the general sequence in which verb forms began to be used was: unmarked stem forms, indiscriminately marked forms and deliberately marked forms.

Keywords: Natural acquisition, child language, Estonian, early verb forms

1. AIM

This paper attempts to compare the initial order in the natural acquisition of verb forms by three children learning Estonian in differing environments: in monolingual homes in Estonia and in Australia, and in a bilingual home in Australia.

Of special interest is discrimination between and choice of different verb stem allomorphs and the sequence in acquiring tense and person markings.

Earlier analysis of these children separately (Salasoo, 1993 a,b, 1994, 1995, 1996 a, 1997) has shown initial use of unmarked forms, followed by marked stems. Comparison of the monolingual children in native and non-native surroundings (Salasoo, 1996 b) revealed an intervening stage of use of indiscriminately marked stems and thereafter occurrence of specifically marked forms.

ISBN: 0 08 043 438X

An earlier hypothesis that acquisition of tense marking would precede person marking could not be inconclusively accepted from the evidence provided by the developmental records of two monolingual children (Salasoo, 1993 a,b; 1994; 1995; 1996 a,b). This question is further explored here in relation to the bilingual child (Salasoo, 1997) and a comparison of the three acquisition patterns is made.

2. ESTONIAN VERB STRUCTURE

Estonian is a synthetic language relying greatly on inflection. While it belongs to the mainly agglutinative Finno-Ugric language group, current Estonian word forms are the products of both agglutination and fusion, the latter of which has happened over a very long period of time. Whereas in agglutination the stem of a word, which carries the lexical meaning, does not itself change when distinct affixes carrying grammatical meaning are added to it, fusion has resulted in changes in the phonological shape of a word stem, thus allocating to the stem itself some grammatical meaning in addition to its lexical meaning.

The stems of over 90% of the Estonian substantives and 36% of the verbs are said (Erelt, *et al* 1995: 131) to have experienced fusion. Thus, in addition to the meaning of the suffixed grammatical markers, the learner has to grasp that the unit of lexical meaning, the word stem, may have up to six phonological forms, as well as to learn which of the stem allomorphs fit together with particular grammatical suffixes. E.g. the stem for the irregular verb 'to eat' can exist in six forms, as shown in Table 1.

Table 1 - Stem Forms of *sööma* (to eat)

1. *s`öö-ma*	*ma* -infinitive (to eat)
2. *söö-gu*	3rd person Imperative (let him/them eat)
3. *s`üü-a*	*da*-infinitive (to eat)
4. *süüa-kse*	Present passive voice (it is eaten)
5. *s`õ-i-n*	Past 1st person Sing (I ate)
6. *sõ-i-me*	Past 1st person Plur (we ate)

NB: For clarity, in Table 1 the grammatical suffixes are separated by hyphens, whereas orthographically they are joined to the word stem, forming one word.

Estonian verb stems are marked by suffixal morphemes for voice, tense, mood and person, in that morphotactic general sequence. No finite verb form, however, would be a combination of all the 4 markers.

Table 2 gives an indication of the most commonly used verb stem allomorphs. The person forms of the affirmative present and past tense are based on the present indicative and the *ma*-infinitive verb stem allomorphs, respectively. The compound tenses and the past negative are based yet on another stem allomorph, the *nud*- or past participle stem.

Thus, indication of a particular action, in relation to timing and person, requires knowledge not only of the appropriate marking suffix, but also choice of the appropriate stem. For adult-like suffix-marking to occur, discrimination of stem allomorphs is necessary.

The present indicative stem (and the isomorphic stem, of course) is used on its own as the 2nd person singular imperative to indicate commands and requests, e.g. *anna!* (give!). Estonian negatives are not marked for person. The present indicative/isomorphic stem is used also for the present negative, with the negatory word *ei* , e.g. *ei anna* (= not give).

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Table 2 - Commonly Used Estonian Verb Stem Allomorphs

Stem Type		Mainly the Base for	Examples
Present Indicative Stem	->	Present Tense: - Affirmative person forms	*ma anna-n* I give-1st person marker
		- Negative	*ma ei anna* I not give
	->	Imperative - 2nd Singular	*anna!* give!
ma- Infinitive Stem	->	Past Tense: - Affirmative person forms	*ma and -si- - n* I give-past tense marker-1st person marker
Isomorphic stem (when the Present Indicative Stem is similar to *ma-* Infinitive Stem)	->	For all above forms, i.e.both Present and Past Tense person forms, sometimes also for Compound Tenses	*ma maga-n* (= I sleep), and *ma maga-si-n* (= I do not sleep) *ma olen maga-nud* (= I have slept)
nud-/Past Participle Stem	->	Compound Tenses - Perfect, etc.	*ma olen and-nud* (= I have given)
	->	Past Negative	*ma ei and-nud* (= I did not give)

NB: In some verbs the stem used for the compound tenses and the past negative is also similar to the present indicative and the ma-infinitive stem allomorphs, e.g: *maga-n* ((I) sleep), *maga-si-n* ((I) slept), *olen maga-nud* ((I) have slept).

Apart from the singular imperative and the present negative, adults do not use unmarked stems. Table 3 gives an idea of person and past tense marking in Estonian verbs.

The present tense is unmarked, with distinct person markers being affixed directly to the present indicative verb stem, whereas for the past tense forms, the person markers are added to the past tense markers that have been affixed to the *ma-* infinitive stem. Affirmative past tense is expressed in two ways (Erelt, *et al*., 1995: 238-239): the agglutinative s-imperfect, with two allomorphs: *-s* (*-is* after consonants) or *-si*, and the vocal-imperfect, where *-i* either joins the stem agglutinatively (as in *jõ-i-n* = (I) drank) or has, over time, fusively replaced the former stem end vowel (e.g *tule-ma: tuli-n*). The allomorphs of the vocal-imperfect (in person form) are in typological distribution with each other as well as with the allomorphs of the *s* - imperfect.

Since the past tense third person singular form has no person marking at all, consisting only of the *ma-* infinitive stem and the past tense marker, this form can conveniently be utilized for separating instances where the past tense marker has been used on its own, from those where it has been used together with a person marker.

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Table 3 - Person and Past Tense Markings for *vedama* (to pull) and *saama* (to get))

	I N D I C A T I V E			
	AFFIRMATIVE		NEGATIVE	
PERSON	PRESENT	PAST	PRESENT	PAST
1. *MINA* I	*v`ea-**n**, s`aa-**n*** pull, get	*veda-**si-n**, s`ai-**n*** pulled, got	*ei v`ea, ei s`aa* do/will not pull, get	*ei veda-**nud**,* *ei saa-**nud*** did not pull, get
2. *SINA* you	*v`ea-**d**, s`aa-**d*** pull, get	*veda-**si-d**, s`ai-**d*** pulled, got	*ei v`ea, ei s`aa* do/will not pull, get	*ei veda-**nud**,* *ei saa-**nud*** did not pull, get
3.*TEMA* he/she/it	*v`ea-**b**, s`aa-**b*** pulls, gets	*veda-**s**, s`ai* pulled, got	*ei v`ea, ei s`aa* do/will not pull, get	*ei veda-**nud**,* *ei saa-**nud*** did not pull, get
1. *MEIE* we	*v`ea-**me**,s`aa-**me*** pull, get	*veda-**si-me**,* *sai-**me*** pulled, got	*ei v`ea, ei s`aa* do/will not pull, get	*ei veda-**nud**,* *ei saa-**nud*** did not pull, get
2.**TEIE* you	*v`ea-**te**, s`aa-**te*** pull, get	*veda-**si-te**,sai-**te*** pulled, got	*ei v`ea, ei s`aa* do/will not pull, get	*ei veda-**nud**,* *ei saa-**nud*** did not pull, get
3.*NEMAD* they	*v`ea-**vad**,* *s`aa-**vad*** pull, get	*veda-**si-d**, s`ai-**d*** pulled, got	*ei v`ea, ei s`aa* do/will not pull, get	*ei veda-**nud**,* *ei saa-**nud*** did not pull, get
	I M P E R A T I V E			
2. person singular	*v`ea! saa!* pull! get	- -	*ära v`ea! ära saa!* do not pull! do not get!	- -

* = 2nd person singular polite and plural

3. THE ACQUISITION HYPOTHESES

My hypotheses about the acquisition of the forms that have resulted from combining word stems with affixes are partly based on some of the ideas of Manfred Pienemann who has argued that language acquisition is determined by the learner's processing ability. Since structures seem to be acquired in the order of their psychological complexity, Pienemann has proposed for German and English (1992 a: 54 and 1992 b: 20-22) an implicational hierarchy of sentence processing, based on the progressive development of processing prerequisities, i.e. that the devices acquired at one stage are necessary building blocks for the following stage. The same principle applies also to morphology.

It seems that for achievement of native-like proficiency in Estonian, a language that relies greatly on morphological marking, the learner needs to know, among other things:

i) The phonological shape of the allomorphs of a word stem with one lexical meaning.
ii) The phonological shape and meaning of grammatical affixes.
iii) Which stem allomorph is to be used with a particular grammatical affix to result in a combined form that is structurally appropriate and produces the desired meaning.

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Thus, it is hypothesized that in Estonian, in line with an implicational hierarchy for that part of acquisition:

1. Identification and discriminatory choice of word stem allomorphs and marking suffixes precedes combining these structural units into meaningful entities.

As in standard Estonian some stem allomorphs can be actually used without any affixation, it is possible to observe fulfilment of the above hypothesis in practice when the child initially uses word stems on their own without marking suffixes. Thus it is assumed that:

2. The singular imperative and present negative verb forms appear in child speech before combined forms.

Grammatical suffixes, however, are never used on their own, thus their appropriate use can be judged only when they have been already joined to the respective stem allomorph.

Furthermore, the ability to transfer abstract grammatical information accross constituent boundaries has been postulated (Pienemann's Teachability Theory, 1992) to develop gradually as follows:

i) Development of lexical entries is a prerequisite to presenting several of them together as "sentences".
ii) Development of a flat constituent structure enables initial use of information specific to a constituent of the "sentence" (local) only in respect of that constituent, e.g. English tense (-ed) and plural (-s) marking.
iii) With the principle of non-linearity becoming established, exchange of information by the constituents at the perceptually salient end points of a "sentence" can take place.
iv) Progressive development of constituent structure rules allows initially exchange from an internal constituent to an end-constituent and finally between all constituents of a sentence, e.g. subject-verb agreement.

Relating this to Estonian, acquisition of tense marking seems to be "local", involving information only in respect of a single constituent, the verb, whereas person marking would involve exchange of information between two constituents: the subject and the verb.

This led in some earlier papers to the tentative hypothesis that:

3. In Estonian acquisition of tense marking precedes person-verb agreement (Salasoo,1993 a,b; 1994, 1995; 1996 a).

The two monolingual children did not provide enough evidence to state firmly that tense marking preceded person marking, but there was no contrary evidence either, as both forms appeared first in the same recording and could have been sequentially acquired during the interval between two recordings. This time, in addition, such developments in the bilingual child are traced, to provide more and comparative evidence for the above and other facets of verb development.

It is also assumed that:

4. Acquisition of the above knowledge about allomorphy and marking of stems occurs gradually, both in lexical and grammatical terms.

Keeping in mind that the effect of individual differences cannot be controlled, an additional question is: are there any common trends in the path of acquisition of tense and person marking of Estonian verbs by children from 3 different language environments? If so, the common trends could be assumed to be either universal or language specific, and the differences may be due either to the environment or the child itself.

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4. METHOD

4.1 The Data

Spontaneous speech data was collected of three boys, one of them growing up in native monolingual setting in Estonia in the care of Estonian parents, and the other two boys in an English-speaking country, Australia. Both children in Australia have one parent whose background is not Estonian. The Australian mother of one of the boys, however, has learnt Estonian and this language is used at home, thus providing an almost monolingual Estonian environment. The other boy in Australia is being deliberately raised as a bilingual. The parents of all the three children were educationally comparable: with tertiary or equivalent education.

For all three children, this paper covers spontaneous speech data collected by periodically recording the children's dialogues with their carers beginning in their second (Lembit and Karl-Oskar) and third (Aksel) years of life. Some parent observations were also noted. The details are shown in Table 4.

Table 4 - Recording Details of Karl-Oskar, Lembit and Aksel

CHILD	KARL-OSKAR	LEMBIT	AKSEL
Country of Residence	ESTONIA	AUSTRALIA	AUSTRALIA
Linguistic Environment	Monolingual Estonian	Mostly monolingual Estonian	Bilingual - Estonian & English
Age at Start of Recordings	1;11; 2	1; 9; 2	2; 9; 5
Age at End of this Study (Age at End of Observation)	2; 4; 0 (4; 7;13)	2; 4;11 (3;11;20)	3; 6; 0 (ongoing)
No. Recordings in this Study	6 + 2 observations by mother	11	7 fully analysed + 18 scanned + 6 observations by mother
Length of Individual Recordings in this Study - minutes	26-37	6-12	8-37
Intervals between Recordings in this Study - days	30-31	1-73	1-12
Total Recording time - minutes	180	97	82 fully analysed + 243 scanned

Lembit was born in Australia to an Estonian father who had lived 36 years in an English-speaking environment and an Australian mother who was reasonably fluent in Estonian, having started to learn the language about 2 years before the birth of their son. Estonian was spoken at home, although English was used with the mother's 10-year old daughter from a previous marriage, who, in time also picked up some basic Estonian, which she sometimes hesitantly used. Both Lembit's parents were very interested in language in general and were intent on their child learning Estonian. In the initial recordings of Lembit there were numerous utterances or parts thereof which the transcriber did not understand. Thus the child's father who was more familiar with his son's speech, checked the transcriptions against the recordings for accuracy. Any remaining uninterpretable expressions were just left out of the analysis.

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Aksel is the son of second-generation Australians, who spoke to oneanother in fluent English. His mother has been raised in an Estonian-speaking home and speaks the language fluently. His father is of Danish extraction, who does not speak Danish, but has, however, begun to learn Estonian. The parents decided to raise a bilingual child and agreed that the mother and her parents will use Estonian when speaking to the child, whereas the father will use English. The boy has been exposed to English also in child-care, where he has spent two days per week from an early age.

Karl-Oskar was born and lives in Estonia. Both his parents arc Estonians and at the time of the recordings he probably had hardly had any contact with another language. He also has older siblings. From the start of the observation, when Karl-Oskar was aged 1;11;2, his pronunciation was not very clear, but luckily his mother, who is a speech therapist, in her responses almost always clearly repeated any questionable terms, thus helping greatly to interpret the child's speech. Any unclear expressions were excluded from the analysis.

4.2 Criteria of Acquisition

To decide whether acquisition of a particular morphological marker had occurred, a number of criteria for examining the recorded data were set. A form was thought to have been acquired if most of the following criteria were met :

1. *Spontaneous production* - The marked word form did not occur as a repetition of adult speech used in less than 10 utterances previously. (In most cases, the adult had not used the form at all during the session.)

2. *Morphological variation* - A stem, marked in a particular way, occurred also with other markings or unmarked, either in the same recording or earlier. E.g., when Lembit was aged 2;0;13, he used both the present and past 3rd person singular forms of the irregular verb *minema* (to go): *läheb* and *läks*. Because he had used *läks* ten days previously, he could be assumed to have acquired *läheb*.

3. *Lexical variation* - The marking was or had been used with other stems at least once. E.g., at the age of 2;1;0 Karl-Oskar used the negative particle *ei* with three stems as *ei taha* (not want), *ei saa* (not can), *ei hakka* (not begin).

4. *Grammatical harmony* - The marked form was used to express the same grammatical concept as it is used for in the target language. E.g., when Karl-Oskar used at 2;3;1 for 'catch' the ma-infinitive stem marked for the past tense **püüd-i* instead of the intended present 3rd person singular *püüa-b* , he was not displaying grammatical harmony.

5. *Productive use* - The marked form was not suspected of being a formula (a combination of words acquired as an unanalysed whole, see Vihman, M.M. (1982)) or part of it.

Use of the criteria for spontaneity and for productive use presented some problems. Although a form of a word may be used in the recording previously by an adult, there can be no certainty in deciding whether its use by the child is a parrot-like repetition, whether it has been just learnt, or whether it was known earlier. Neither can one always be certain whether part of a formula is being used. Thus, these two criteria have been given less importance than the others

5. RESULTS AND DISCUSSION

As a warning, first of all, it must be noted that the following discussion is about use of particular forms by the observed children in the recording sessions or as shown in notes by mothers. It does not preclude use of a particular form earlier, or at all, that is, the recordings do not provide negative evidence of form use. Sometimes the interval between observations may

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have been too long or the recording session too short for a form to occur, or there may just not have been any need for using a particular form at a particular recording session.

Another thing to note is that whereas the monolingual child in Australia, Lembit, was observed almost from birth onwards, recording of the monolingual child in Estonia, Karl-Oskar, began at the age of 1;11;2, by which he was freely using the present 3rd person singular copula, the onomatopoetic terms and the present indicative stem both aberrantly, as well as in the production of the present negative, as expected. By the time recording of the bilingual child in Australia, Aksel, began at the age of 2;9;5, he was using the present 3rd person copula, the unmarked present indicative and the isomorphic stems both aberrantly, as well as in the present negative and the singular imperative. Thus, the sequence of acquisition of the unmarked forms already present at his first recording, cannot be but estimated.

Notwithstanding these drawbacks, some conclusions may still be drawn.

5.1 Use of Unmarked Verb Stems

We can get a general idea of unmarked verb form appearance in the 3 children from Figure 1 and Table 5 . Most of the unmarked forms were already present in the initial recording of both, Karl-Oskar and Aksel. For Lembit it was possible to follow the order of appearance of these forms, and it was clearly seen that the first verbs to occur in his recordings were unmarked.

Present 3rd Person Singular Copula . The 3rd person singular copula in the present tense was the earliest form heard in the initial recording of all the 3 children, and it was reported even earlier by the mother of the monolingual child in Estonia, Karl-Oskar, when it may have been actually part of a formula.

Present 3rd Person Singular Copula . The 3rd person singular copula in the present tense was the earliest form heard in the initial recording of all the 3 children, and it was reported even earlier by the mother of the monolingual child in Estonia, Karl-Oskar, when it may have been actually part of a formula.

5.2 Unmarked Onomatopoetic Terms

The onomatopoetic terms which could be used both as a verb or a noun appeared also very early. Karl-Oskar's mother reported *ata-ata* (= spank/spanking) at the age of 1;9;0; Lembit, the monolingual child in Australia used the same term *ata* and *tik-tok* (= tick/ticking) at the same time when verbs were used for the first time (at 1;9;2) and the bilingual Aksel used in his first recording (at 2;9;5) the term for "tickle" and "tickling" both in English *ta-tiko-tiko* ... and in Estonian *kõdi-kõdi-kõdi-kõdi* .

Curiously, the children in Australia never used onomatopoetic terms unambigously as verbs, whereas the child in Estonia began to do so immediately.

5.3 Unmarked Stems: the Present Indicative, Isomorphic and ma- Infinitive Stem Allomorphs

Just a reminder: in adult-Estonian the allomorphs of the unmarked present indicative stem and the isomorphic stem are not used on their own, except as the imperative singular form and as part of the present negative form. The *ma-* infinitive stem is never used on its own. The children, however, did use the verb stems on their own, varying greatly in their use. Aksel kept using concurrently both marked and unmarked forms of stem allomorphs for a long time (until the end of current observation at 3;6;0).

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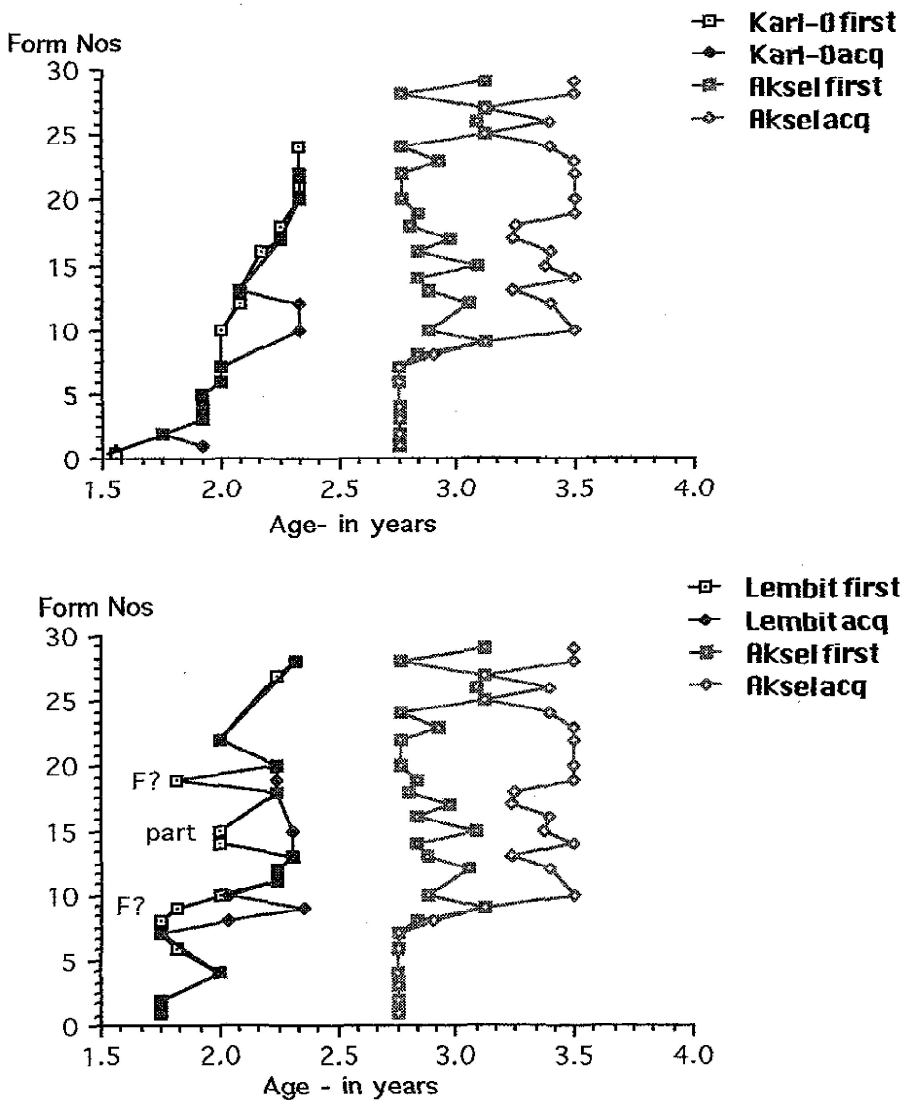
Figure 1 - First Appearance and Supposed Acquisition of Verb Forms by Karl-Oskar, Lembit and Aksel



Key for Verb Forms:

1. Present Copula
2. Onomatropoetic Verb/Noun
3. Present Indicative Stem
4. Present Negative
5. Onomatopoetic - Verb
6. Isomorphic Stem
7. Singular Imperative
8. Past 3rd Person Singular -s
9. -nud Perfect
10. Present 3rd Pers Singular
11. Past 1st Person Plural
12. Present Negative Copula
13. Present 2nd Pers Singular
14. Present 3rd Person Plural
15. Present 1st Person Plural
16. ma-Infinitive Stem
17. ma- Infinitive Stem +i
18. Past 3rd Singular -i
19. Past 3rd Singular -is
20. Past Copula
21. Isometric Stem +i
22. ma-Infinitive
23. Past 1st Person Singular
24. da-Infinitive
25. Past Negation
26. Past 3rd Person Plural
27. Perfect Negation
28. Present 1st Pers Singular
29. Past 2nd Person Singular

F?= suspected formula

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Table 5 - Unmarked Verb Forms - Age at First Appearance and Believed Acquisition

CHILD Country of Residence	KARL-OSKAR ESTONIA		LEMBIT AUSTRALIA		AKSEL AUSTRALIA	
Linguistic Environment	Monolingual - Estonian		Mainly monolingual - *Estonian*		Bilingual - Estonian *& English*	
Form/Feature	Age first used	Age believed acquired	Age first used	Age believed acquired	Age first used	Age believed acquired
Present 3 Sing Copula	1;6;0 F? (reported by mother)	1;11;2 (first recording)	1;9;2 (first use of verbs)	1;9;2	2;9;5 (first recording)	2;9;5
Onomatopoetic Verb/Noun	1;9;0 (reported by mother) Most frequently used of all children	1;9;0	1;9;2 (first use of verbs)	1;9;2	2;9;5 (first recording)	2;9;5
*Present Indicative Stem	1;11;2 (first recording) Often used in place of 3rd person sing. (which appeared at 2;4;0) and without the negative particle *ei* for the present negative (used since 1;11;2)	1;11;2	- Never used	?	2;9;5 (first recording) Both marked and unmarked forms used together for a long time, until 3;6;0 at least	2;9;5
Onomatopoetic Verb	1;11;2 (first recording)	1;11;2	- Children in Australia did not use	-	-	-
Present Negative	1;11;2 (first recording)	1;11;2	2;0;2	2;0;2	2;9;5 (first recording)	2;9;5
Imperative Sing	2;0;1 Used earlier by monolingual	2;0;1	1;9;2 (first use of verbs) in Australia than in Estonia	1;9;2	2;9;5 (first recording)	2;9;5
*Isomorphic stem	2;0;1 Continued use with few person markings until 2;4;0 at least	2;0;1	1;9;28 Used only once	-	2;9;5 (first recording) Both marked and unmarked forms used *together for a long time*, until 3;6;0 at least	2;9;5
*ma-Infinitive stem	2;2;0 Deformed stems without person markings used only twice	?	- Not used during observation	-	2;10;1 Both marked and unmarked forms used together for a long time, at least until 3;4;23	2;10;1

* = not used on its own by adults ; F?= suspected formula

The Present Indicative Stem. Both the bilingual boy in Australia, Aksel, and the monolingual child in Estonia, Karl-Oskar, used the unmarked present indicative stem (onto which the person markers are attached) on its own from the time of the first recording until the end of their observation periods. They used it often in place of the 3rd person singular form (which was

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first used by Aksel appropriately at 2;10;18, and by Karl-Oskar at 2;4;0). Karl-Oskar used it without the negative particle *ei* for the present negative (used since 1;11;2). The monolingual child in Australia, Lembit, however, did not use this stem inappropriately unmarked at all, immediately attaching suffixes to it.

The Isomorphic Stem. The unmarked isomorphic stem was used by the bilingual boy Aksel throughout the observation. The monolingual Karl-Oskar kept using this stem form from the age of 2;0;1 until 2;4;0 at least, attaching person markings to only a few such stems, e.g. *pissi-b* (= urinates), *söö-b* (= eats) at 2;0;1 and *pesip** (= washes) at 2;4;0, when he also tried attaching the -i past tense marker to such stems, but did not manage to attach appropriate person markers to the -i. Lembit used this stem on its own only once, instead usually attaching appropriate markings to it.

The ma-Infinitive Stem. The unmarked *ma*-Infinitive stem (onto which the past tense marker is attached) occurred for the first time in the bilingual Aksel's recordings almost a month after his first recording, when he was aged 2;10;1. Karl-Oskar used deformed *ma*-Infinitive stems twice two months after his initial use of the isomorphic stem (at 2;2;0) and Lembit did not use this stem on its own at all, always marking it appropriately.

5.4 The Imperative Singular and Present Negation

Both these expressions, utilising the present indicative or the isomorphic stems, were appropriately used from the first recording onwards by the bilingual child, Aksel. The monolingual child in Estonia, Karl-Oskar, used the present negative in his first recording, whereas he used the imperative singular a month later when he was 2;0;1. The monolingual child in Australia, Lembit, however, used the imperative singular when verbs first appeared, and the present negative 4 months afterwards at 2;0;2. Thus these two forms appeared in reverse order in the two monolingual children.

All the children used both these forms, however, prior to forms marked by suffixation.

5.5 Conclusions Regarding the Unmarked Verb Forms

1. The initial Estonian verb forms used by all the 3 children were unmarked. They were:
   * the present 3rd person singular copula;
   * onomatopoetic terms;
   * the unmarked present indicative stem allomorph, used for attachment of present tense person forms and for
   * the singular imperative, and
   * present negation (with *ei*) (the monolingual child in Australia displayed this later);
   * the isomorphic stem allomorph (where the present indicative allomorph looks like the *ma*-infinitive allomorph, used for attachment of both present tense person markers and past tense markers);
   * the ma-infinitive stem allomorph, used for attachment of past tense markers.

   The appearance of these forms before marked forms appears to be independent of the given linguistic environment.

2. There was no interval between the first appearance and supposed acquisition of the unmarked forms in any of the children, i.e. they appeared to have been acquired in one step, except the copula for Karl-Oskar, which was suspected of being used initially as part of a formula. This, too, appears to be independent of the linguistic environment.

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3. The present 3rd person singular copula and the onomatopoetic terms were the earliest forms to be used by both monolingual children, this again appearing to be independent of the environment.

4. In the speech of the monolingual child in Estonia the unmarked stem allomorphs occurred in the sequence of: the present indicative stem, the isomorphic stem and the ma-infinitive stem, at intervals of about one month, indicating a distinct discrimination of stem allomorphs.

5. Most interestingly, the monolingual child in Australia did not use unmarked stems (except the ma-infinitive stem once) on their own at all (as in adult-language, where unmarked stem-forms are never used except as singular imperatives or in present negation), whereas both the monolingual child in Estonia and the bilingual child in Australia continued to use a mixture of the unmarked stems in place of marked forms together with the marked forms for a long time, almost to the end of their observation periods. Although one would expect a period of confusion in the bilingually raised child, why would it occur also in the child growing up in the monolingual environment in Estonia ? Apparently, this is not entirely controlled by the language-environment, but may more heavily depend on individual differences or other factors.

6. Adult-like choice by all the 3 children of the unmarked present indicative and the isomorphic stem allomorphs for the present negative and imperative singular forms, never using the *inappropriate ma--infinitive stem for this purpose, provides further evidence of* discrimination of stem allomorphs, which seems to be independent of the linguistic environment.

7. Moreover, the position of the present negative and imperative singular forms in the sequence of verb form occurrence confirms the hypothesis that they are acquired prior to suffix-marked verb forms. This again appears not to be influenced by the language-environment.

Table 6 shows a summary of the observed effect of the linguistic environment.

Table 6 - Infuence of Given Linguistic Environment on Acquisition of Unmarked Verb Forms

CONCLUSION	INFLUENCE OF GIVEN LINGUISTIC ENVIRONMENT
Initial verb forms acquired are unmarked	Independent
Unmarked verb forms are acquired fast	Independent
First verb forms acquired are: 3rd person singular copula and onomatopoetic terms	Independent in monolingual environment
Discrimination of stem allomorphs occurs early and prior to attachment of person and tense determining suffixes	Independent
Present negative and imperative singular forms are acquired prior to suffix-marked verb forms	Independent

The foregoing observations thus provide some confirmation of the set hypotheses for the acquisition of Estonian:

1) that identification and discriminatory choice of allomorphs of verb stems precedes combining these structural units into meaningful entities, and that

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2) singular imperative and present negative verb forms appear in in child speech before combined forms.

Moreover, these activities seem to be independent of the given linguistic environment of the child.

5.6 Past Tense Marking of Verb Stems

To indicate past tense, adults attach the markers *-i, -s, -is,* or *-si-* to the *ma-* infinitive (or the isomorphic) stem allomorph. Person markings are atttached to the past marker, with the 3rd person singular remaining unmarked for person. Table 7 provides an indication of the initial marking of past tense and person onto verb stems by the observed children.

Table 7 - Initial Appearance and Supposed Acquisition of Marked Verb Forms by 3 Children

CHILD Country of Residence	KARL-OSKAR ESTONIA		LEMBIT AUSTRALIA	AKSEL AUSTRALIA	
Linguistic Environment	Monolingual - Estonian		Mainly monolingual - Estonian	Bilingual - Estonian & English	
Form/Age During Observation	1;6;0-2;4;0	Mixed use - months	1;9;2-2;4;11	2;9;5-3;6;0	Mixed use - months
**ma-* infinitive stem	deformed 2;2;0		Nil	2;10;1-3;4;23 ACQUIRED	7.25
**ma-* infinitive stem+*i*	2;3;1 ACQUIRED		Nil	2;11;18 - 3;2;24 ACQUIRED	3
-i -Past 3rd singular	2;3;1 F?		2;2;26 ACQUIRED	2;9;19-3;3;3 ACQUIRED	5.5
ma -infinitive	2;4;0 (once) ACQUIRED?		2;0;3 ACQUIRED	2;9;8 F?-3;6;0+	8.75
-s- Past 3rd singular	Nil		1;9;2 F?-2;0;13 ACQUIRED	2;10;1-2;10;27 ACQUIRED	.75
-is- Past 3rd singular	Nil		1;9;28 r-2;2;26 ACQUIRED	2;10;1-3;6;0+ ?	6.75
Present 3rd person singular (*-b*)	2;0;1-2;4;0+	4	2;0;2 F?- 2;0;13 ACQUIRED	*2;10;1-2;10;18-3;6;0+	8
2nd person singular (-d): - Present	2;1;0 ACQUIRED?		2;3;20 (once) ACQUIRED?	*2;10;1-2;10;18-3;3;7 ACQUIRED	5.25
- Past	Nil		Nil	3;1;15-3;6;0+	1.25

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Table 7 -cntd.

CHILD Country of Residence	KARL-OSKAR ESTONIA		LEMBIT AUSTRALIA	AKSEL AUSTRALIA	
Linguistic Environment	Monolingual - Estonian		Mainly monolingual - Estonian	Bilingual - Estonian & English	
Form/Age During Observation	1;6;0-2;4;0	Mixed use - months	1;9;2-2;4;11	2;9;5-3;6;0	Mixed use - months
1st person singular (*-n*): - Present	Nil		2;3;25 ACQUIRED	2;9;8-3;6;0+	8.75
- Past	Nil		Nil	2;11;14-3;6;0+	6.5
3rd person plural - Present (*-vad*)	2;2;0 (partial)		2;0;2 F?	*2;9;7-2;10;1 (part)-3;6;0+	8
- Past (*-d*)	2;4;0 r		2;2;26 r	3;1;4-3;4;23+	3.25
1st person plural (*-me*) - Present	Nil		2;0;2 (part)-2;3;20 ACQUIRED	3;1;4-3;4;14 ACQUIRED	2.5
- Past	Nil		2;2;26 (2 verbs) ACQUIRED?	*3;4;23	
-nud Past Participle - in Perfect tense	Nil		1;9;28 F?-2;4;10 r	*2;10;18-3;1;15 ACQUIRED	3
- in Past & Perfect negative	Nil		2;2;26 (once, out of context)	*2;11;4-3;1;15 ACQUIRED	2.5
Pluperfect	Nil		Nil	3;4;23(part once)	
-da -Infinitive	2;4;0 F? (once)		Nil	2;9;7-3;4;23 ACQUIRED?	7.5

NB: Where a range of ages is given, the intial figure means the age at which the form was first recorded, and thesecond number gives the age at which it was assumed to have been acquired; + = the form was used, but not acquired at the last observation period; F? = suspected formula; r = repeated after adult; * before an age or form =non-targetlike use.

Past Tense Marking by -i. After two abortive attempts to use the ma-infinitive stem variant at 2;2;0 and a month later at 2;3;1, the monolingual child in Estonia, Karl-Oskar, seemed to start to use the *-i* -marker at the age of 2;3;1 as **püüdi* (using it 5 times instead of the present 3rd person singular *püüab* (= catches), as well as using the actual 3rd person singular form *sai* (= (he/she/it) got) (which may, however, have been part of the formula, as:

kuidas jänku saba sai
how rabbit tail got).

A month later at 2;4;0, Karl-Oskar again used deformed stems with the *-i*-marker: saying 12 times **paati** instead of the following forms: the imperative *vaata!* (= look!, x 6), the present

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3rd person singular *vaatab* (= looks, x 4), the present 3rd person plural *vaatavad* (= (they) look, x 2) and once the present 1st person plural *vaatame* (= (we) look); as well as*palati* in place of the da-infinitive *vaadata* (= to look); *itsi* instead of the present 3rd person singular *istub* (= sits) - all seemingly haphazardous markings.

On the same occasion, however, he also used *sai* in place of the past 3rd person plural *said* (= (they) got, x 2); *maain* and *maani* instead of the past 1st person singular *mängisin* (= (I) played), as well as again using *sai* (= (he/she/it) got) appropriately (although it still may have been part of a formula), and the past 3rd person plural form *said* ((they) got) which he repeated after his mother. It may be significant that he used the past copula *oli* (was/were), in the same recording.

Thus it seems, that Karl-Oskar was clearly trying to mark verb stems with the *-i*-marker with varied success, rarely appropriately as the past tense 3rd person, but mostly inappropriately, using it as a person marker or in place of other past markings *-s, -is* or *-si,* which he did not use at all during the observation period. On the basis of this and other evidence, it has been argued elswhere (Salasoo, 1996 b) that for a time Karl-Oskar used the *-i*-marker as a general purpose marker, realizing that marking provides some refinement of meaning.

At the previous recording session he seemed to grasp the idea that other suffixes can be added to the the ma-infinitive stem (unfortunately in this case mispronunced) by forming the ma-infinitive itself by attachment of *-ma* to it as *paatama*, that should have been *vaatama* (= to look).

As Karl-Oskar had not yet reached the stage of target-like past-tense marking by the end of this observation period, the only person-marked past tense form in his recorded lexicon consisted of the 3rd person plural *said* (= (they) got) in his last recording at 2;4;0, and even that was repeated after his mother.

The monolingual child in Australia, Lembit, however, used the *-i* past tense marker unerringly (without any non-adultlike use of the *i-* marked *ma-* infinitive), first at the age of 2;2;26 (2.5 months after he began to use the -s marker) in the 3rd person singular form *tegi* (= (he/she/it) made, x 2), and possibly also in the past copula *oli* (x 2), which he continued to use from then on. When he was 2;3;21, he also used *pani* (= (he/she/it) placed). Thus he can be assumed to have acquired the past tense *-i-* marking by the age of 2;2;26.

Prior to using the *-i*-marker, he seemed to clearly identify the *ma*-infinitive stem, since he at the age of 2;0;3 was able to produce the *ma*-infinitive *tegema* (= to make) by attaching the suffix *-ma* to the stem. Next time, 2.5 months later, unfortunately, he erred once in the same action when in repetition after his mother he used the *ma-* infinitive in place of the 1st person plural form. However, from a month afterwards at 2;3;21 he produced the form appropriately again.

Table 8 provides an indication of the 6 months-long laboured path Aksel, the bilingual child in Australia, took to marking past tense with-*i*.. At the beginning of the observation when he was aged 2;9;7, Aksel appeared to use for the past 3rd person singular the unmarked present indicative stem *tee* (= do) instead of the *-i*-marked stem *tegi* (= (he/she/it) did). Twelve days later, however he clearly used *tegi*, although rather ambiguously, to be followed another twelve days later (at 2;10;1) by the use of both *tegi* and *tee* and another ambiguous *-i*-marked form *toiti*, which appeared in context to have been meant as *tõi* (= (he/she/it) brought). The *ma*-infinitive stem was used on its own on the same occasion at 2;10;1, even though quite inappropriately in place of the present 1st person singular form. Another twelve days later, he again used *tee* instead of *tegi*, to be followed 5 days later at 2;10;18 by the adult-like use of *tegi* and *sai* (= (he/she/it) got). However, 6 days later he again failed to use the *-i*-marker for *tegi* and said *teh* instead, this was followed by appropriate use of the *-i*-marker at 2;11;10 and at 2;11;14, whereas at 3;0;17 Aksel used the *-i*-marked stems *tegi* and *sai* without the 1st person markers (*tegin* and *sain*) expected from context, doing the same at 3;2;24, when some other stems *tuli* (= (he/she/it) came) and *läi* (*jäi* = (he/she/it) stayed) were marked

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appropriateley. Thus error-less *-i*-marking occurred only from the age of 3;3;0 onwards, i.e. 5.5 months after the first use of the form. It took even longer (8.75 months from its initial appearance at 2;9;8) for the past 3rd person copula *oli* (= he/she/it) was) not to be used in place of other forms.

Aksel used the *ma-* infinitive stem on its own for 7.25 months from the age of 2;10;1 (Table 7), with marked and unmarked forms occurring concurrently. For about 3 months from the age of 2;11;18, he used it with the *-i*-marker. He was heared to use the*ma*-infinitive itself first at the age of 2;9;8, when it may have been part of a formula. Its use continued, interspersed with unmarked stems for 8.75 months until the end of the current observation.

Table 8-*i*-marking of the Past 3rd Person Singular *tegi* (= (he/she/it) made) by Bilingual Aksel

AGE	FORM USED	OTHER CONCURRENT FORMS
2;9;7	*tee (present indicative stem)	
2;9;19	tegi (ambiguous in meaning)	
2;10;1	tegi, *tee (present indicative stem), *tege(*ma-* infinitive stem)(= tegin?);	toiti*(tõi? = (he/she/it) brought)
2;10;13	*tee (present indicative stem)	
2;10;18	tegi	sai (= (he/she/it) got)
2;10;24	*teh*	
2;11;10	tegi	
3;0;17	*tegi (= tegin)	*sai (= sain)
3;2;24	*tegi (= tegin)	
3;3;3	tegi -> continued target-like use	

NB: * before a form = non-targetlike use; * after a form = mispronounced

Other Aksel's past forms requiring person-marking were all past-marked, but for a long time the target-like person markings were used concurrently with either irrelevant markings or no markings at all, e.g. the "mixed use" period for the 3rd person plural lasted ca 3.25 months, for the 1st person singular 6.5 months, for the 2nd person singular 1.25 months. There was an unsuccessful attempt to form the 1st person plural at the age of 3;4;23, by past-marking and adding either the 2nd person marking *-d* or nothing.

Thus, the bilingual child can be assumed to have acquired marking the ma-infinitive stem with the past *-i*-marker by the age of 3;2;24, and the *-i*-marked 3rd person singular by 3;3;3.

Past Tense Marking by -s. The monolingual child in Estonia, Karl-Oskar, did not mark the past with *-s* at all during the observation period.

At the age of 1;9;2, the monolingual child in Australia, Lembit, used initially one word *istus* (= (he/she/it) sat) probably as a formula, thereafter using the *-s*-marked form ambiguously either in an unclear context or repeating it after the parent, until at the age of 2;0;13 there was definite productive use of the form as *kukkus* (= (he/she/it) fell) and *läks* (= (he/she/it) went), by which he may be assumed to have acquired the marking of past tense with *-s*.

At 2;2;26 Lembit managed also to convert *-s* to *-si* for other persons, as in *vaatasime* (= (we) looked), *läksime* (= (we) went) and repeating after mother *lendasid* (= (they) flew). These

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were the only past tense person forms he used during the observation. The 1st person plural may have been acquired by 2;2;26.

The bilingual child in Australia, Aksel, initially tried to use the marking *-s* instead of another past tense marking *-i* (by saying **tees* instead of *tegi* (= did) at 2;10;1 (although on the same occasion he also used *tegi*), and 24 days later he used the 3rd person singular form instead of the required present 3rd person plural form. In contrast to the *-i*-marked verbs, it took Aksel only 0.75 months to use the *-s*-marked form almost faultlessly, which he can be assumed to have acquired by the age of 2;10;27.

Past tense Marking by -is. Marking past tense with *-is* was not practised at all by Karl-Oskar, the monolingual child in Estonia.

The monolingual child in Australia, Lembit, used the form *andis* (= (he/she/it) gave) initially at the age of 1;9;28 in repetition, with productive use occurring at the age of 2;2;26, when he may be assumed to have acquired the *-is* marking.

The bilingual child in Australia, used the *-is* past-marking very sparsely: as *andis* (= (he/she/it) gave) at the age of 2;10;1, 23 days later using only the unmarked *ma*-infinitive stem and then 6 months later at 3;4;23 used two past-marked verbs, but marking one of them for the inappropriate person. By *ca* 6.75 months from initial use, he thus had not managed to acquire the *-is*-marking.

5.7 Person Marking of Verb Stems - in Present and Past Tense

For verbs in the present tense adults attach person markers directly to the present indicative or isomorphic stem allomorphs, and for the past tense person markers are attached to the past marker. Table 7 above includes the initial appearance of person-marked forms both in the past and present tense.

Present 3rd Person Singular (-b). The present 3rd person singular form was the first person-marked form in the recordings of the monolingual child in Estonia, Karl-Oskar. While at the age of 2;0;1 he attached the 3rd person singular marker *-b* to 2 isomorphic stems as *pissib* (= (he/she/it) urinates) and *sööb* (= (he/she/it) eats), at the same time he used also unmarked stems for the 3rd person, and continued to do so (for at least 4 months) interchangeably with the marked forms until the end of the observation when he was 2;4;0. Thus, no acquisition of this form could be assumed.

The same form was also used early by the monolingual Lembit in Australia, who used the present 3rd person singular form faultlessly from its initial appearance at the age of 2;0;2 in 3 verbs (possibly as parts of formulas). Since 2;0;13, however, there was no doubt about productive use of this most often used marking, probably acquired by this time. He never used unmarked stems or the 3rd person marking to mean any other person.

At the beginning of the observation (at the age of 2;9;5) the bilingual child in Australia, Aksel used unmarked stems in place of the present 3rd person singular form. A month later at the age of 2;10;1, he atttached the marker *-b* for the first time to produce *teeb* (= makes), but did so instead of using the first person form *teen* expected, while other stems requiring the 3rd person marker remained unmarked. Two weeks later at 2;10;18, he managed marking the present 3rd person singular form with *-b*, and thereafter continued to produce the form, while at the same time until the end of the current observation period (for at least 8 months) he also used unmarked stems instead of the marked form, although with decreasing frequency. Thus, acquisition of this form did not seem to have been completed at the age of 3;6;0.

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2nd Person Singular (-d). This was the next person-marked form to appear in the recordings of the monolingual child in Estonia, when he was 2;1;0. However, its contextual meaning was questionable. Acquisition may have taken place during the following 2 months by when the child was aged 2;3;1.

The monolingual child in Australia used the present tense 2nd person singular form only once, at the age of 2;3;20.

The bilingual child in Australia, Aksel, used the present 2nd singular form first at the age of 2;10;1, in a baby-talk verb *tadad* (= (you) sleep) when he actually meant the 1st person. On the same occasion he used an unmarked stem for the 2nd person. At 2;10;18 he attached for the first time the *-d* -marking to the stem indicating the 2nd person, but he continued to use mismarked, appropriatly marked and unmarked stems together for *ca* 5.25 months until he was 3;3;7, when the 2nd person singular marking could be assumed to have been acquired.

Once, at 3;1;15, he managed effortlessly the 2nd person singular marking after the past tense marking as: *tegid* (= (you) made), but thereafter there seemed to exist great confusion in the past tense, the form being used to indicate other persons, or other person forms used to indicate the past for this person. The resulting forms were all, however, past-marked.

1st Person Singular (-n). Whreas the monolingual child in Estonia, Karl-Oskar, did not use this marking at all during the observation period, the monolingual child in Australia, Lembit, used the present 1st singular form without fault from its initial appearance at the age of 2;3;25, by which time it could have been assumed to have been acquired.

The bilingual child in Australia, Aksel, mispronounced, but correctly marked at 2;9;8 one stem as the present 1st person singular, while at the same time leaving two other stems unmarked. From then on, other person forms (ceased at 2;11;4) and unmarked stems were used tothe age of gether with appropriately marked stems for *ca* 8.75 months until the end of the observation at 3;6;0, by when the marking could not be assumed to have ben acquired.

The present 1st person singular copula *olen* occurred in Aksel's recordings first when he was aged 2;11;18, appropriately marked (but mispronounced), therefter the 3rd person form *on* was used until last observed at 3;4;23.

Curiously, the past 1st person singular form was first produced by Aksel at the age of 2;11;14 when the use of other person forms for the present 1st person form ceased, and for a period (2;11;18-3;2;24) only stems marked with *-i* were used, to be followed during the ages of 3;3;7-3;6;0 by a mixture of *-i*-marked stems and varied past person forms, including the 1st singular form. Most remarkably, although the 1st singular person marking could not be assumed to have been acquired by the end of the observation period for either of the tenses, the inappropriate forms used for the present tense were not marked for tense, and for the past tense, were past-marked. This could be taken as some indication of acquisition of past tense marking prior to person-markings.

1st Person Plural (-me). The 1st person plural marking was not used during the observation period by Karl-Oskar in Estonia.

The monolingual child in Australia, Lembit, however, initially at the age of 2;0;2, managed to attach part of the marker to indicate the present 1st plural person, and used this marking without fault since aged 2;3;20, by which time it could be assumed as acquired. The past 1st person plural, however, was marked almost a month earlier, when he was 2;2;26. This provides some slight evidence towards acquisition of past tense-marking occurring prior to person-marking.

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Adultlike present 1st person plural form *paneme* (= (we) put) was produced by the bilingual Aksel at 3;1;4 (when the present 1st person plural copula was only partially marked *om**). This was followed by a *ca* 2.5 month period of mixed marked and unmarked stems occurring together, followed from the age of 3;4;14 by faultless use,permitting assumption of acquisition. At the age of 3;4;23, the past form was called for for 4 verbs, which were all appropriately past-marked, but for the person mismarked by using *-d*.

3rd Person Plural - Present (-vad) and Past (-d). The monolingual Karl-Oskar in Estonia succeeded once in attaching the present 3rd person plural marker partially as teeva* (teevad = (they) make) at the age of 2;2;0, and at 2;4;0 repeated the past form *said* (= (they) got) after his mother. Accordingly, no acquisition can bc assumed.

Lembit, the monolingual child in Australia, used the present 3rd person plural form on one occasion at the age of 2;0;2: once appropriately (possibly as a formula) and once unmarked, while at 2;2;26 he repeated after his mother the past form of one verb. Again no acquisition can be assumed.

In Australia, the bilingual Aksel attempted to use the present 3rd person plural form from the age of 2;9;7 onwards, succeeding only once at the age of 3;2;24 as *vaatavad* (= (they) look), otherwise producing for *ca* 8 months until the end of the observation period misformed, unmarked or inappropriate other forms. The past tense 3rd person plural forms were since the initial target-like use at 3;1;4 as *tulid* (= (they) came) (whereas the copula **oli* was only marked for the past), always past-marked, but until observed last at 3;4;23, they were mostly used in place of of other forms. This does not provide evidence of acquisition.

5.8 Use of the Past Participle Stem Allomorph

This stem is used with the addition of *-nud* to form the past participle which, with the verb *olema* (= to be) produces the affirmative perfect and pluperfect tense forms. With the negative particle *ei* (= no/not) the past participle forms the past and perfect negatives. The same stem allomorph is used to produce the *da-* infinitive by attaching *-da* .

Table 7 includes indication of the use of the past participle stem by the children. The monolingual boy in Estonia, Karl-Oskar, did not use any such forms during the observation period. The monolingual boy in Australia, Lembit, used the past participle 3 times in an inconclusive way. Aksel, the bilingual child in Australia, however, seemed to have acquired the past participle stem choice and marking by the age of 3;1;15, with uncertain choice for 2.5-3 months, and possibly also the *da* -infinitive marking by the age of 3;4;23.

5.9 Conclusions Regarding Tense, Person and Other Marking of Verb Stems

Table 7 permits obtaining an overview of the acquisition of the initial verb forms by the 3 children and drawing the following conclusions.

1. By the end of their observation periods the 3 children from different language environments had started to mark verb stems by suffixation both for past tense and for person, collectively using 18 marked forms for:

   * the various stages of the 3 ways of marking past tense, by *-i*, *-s* and *-is*,
   * the person markings of thc 3rd and 1st singular and plural, and 2nd singular persons, both in the present and past tenses, as well as
   *the *-nud* past participle used for the perfect tense and the past and perfect negative,
   *the -da-infinitive.

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2. The individual children were, however, at varying stages of acquisition.

3. The monolingual child in Estonia, Karl-Oskar, seemed to be at the earliest stage of development, having acquired only 3 marked forms by the end of this observation period (aged 2;4;0), in the sequence:
   * the present 2nd person singular,
   * the *ma*-infinitive stem + *-i* , and possibly,
   * the *ma*-infinitive.

   However, he had started using 6 other forms (in the following sequence) either as repetitions, suspected parts of formulas or as misformed attempts:
   * the present 3rd person singular,
   * deformed *ma*-infinitive stems (to which past markings are attached) for both the *-i-* and *-s*-marked past forms, and at the same time,
   * the 3rd person plural (used in the present tense once with a partial marking and at the last session in the past tense only as a repetition after his mother),
   * the *-i-* marked past 3rd person singular,
   * the *da*-infinitive (once in the last recording, possibly used formulaically).

   Of note is that he had started to use the present 3rd person singular forms very early, while at the same time he kept using unmarked or *-i*-marked stems to "incorrectly" indicate that person, for 4 months until the end of the current observation, and thus this form still cannot be taken as acquired by him.

   Although attachment of the *-i*-marking to the *ma*-infinitive stem seemed to have been acquired by the age of 2;3;1, Karl-Oskar used this past tense marker only once to indicate the 3rd person singular, and even then it was supected of being formulaic - so this single use cannot be taken as acquisition of this form. In fact, because for a period the *-i*-marker seemed to be attached to stems of substantives and adjectives, as well, I have argued earlier (Salasoo, 1996 b) that this marker was used at this time by this child as a universal marker.

4. The monolingual child in Australia, Lembit, on the other hand, had acquired a high number (9) of marked forms during this observation period (aged 1;9;2-2;4;11), in the sequence of:
   * the *ma*-infinitive,
   * the *-s-* past and present 3rd person singular,
   * the *-i* and *-is*-past 3rd person singular,
   * the present 2nd person singular (possibly) and the present 1st person plural,
   * the past 1st person plural,
   * the present 1st person singular.

   Lembit also used another 2 forms:
   * the 3rd person plural form: very early in the present tense, but obviously as part of a formula and later once in the past, in repetition of his mother,
   * the *-nud* past participle: indicating perfect tense, once formulaically and later as a repetition, and once totally out of context as part of perfect negative.

5. The bilingual child in Australia, Aksel, was much older at the beginning of his observation (aged 2;9;5) than the other children, and that could account for his attempts at using all the 18 forms, and having acquired 9 marked forms during the observation, in the following sequence:
   * the *ma*-infinitive stem
   * the *-s* past 3rd person singular
   * the *ma*-infinitive + *i*
   * the *-nud* past participle, used both as part of perfect tense and the past negative
   * the *-i* past 3rd person singular
   * the present 2nd person singular
   * the present 1st person plural

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* the *da*-infinitive

The other forms Aksel used concurrently with or in exchange of unmarked, misformed or mismarked forms, were, in the sequence:
* the present 3rd person plural
* the *ma*-infinitive and the present 1st singular
* the present 3rd person singular and the *-is* past 3rd person singular (reverting later to unmarked and mismarked use)
* the past 1st singular
* the past 3rd plural
* the past 2nd singular
* the past 1st plural and the pluperfect, both used once.

6. A very obvious difference between the children was the speed at which acquisition.of particular forms took place. Whereas acquisition of the unmarked forms seemed to occur in all the children almost immediately after their first appearance, in the time taken for the acquisition of marked forms the children differed greatly.

   While the monolingual child in Australia seemed to acquire marked forms without fault, never using unmarked stems in their place or using a form for the "wrong" person, for the bilingual child the acquisition of marked forms appeared to be a prolonged process, with unmarked, mismarked and marked forms occurring concurrently for a long time, ranging from 0.75 months until 8.75 months, at least (when the current observation ended). Obviously interference from the other language was an influence. The monolingual child in Estonia had similar difficulties for 4 months with the present 3rd person, while his other person-marked form, the present 2nd person singular was acquired immediately.

But what about the sequence in the acquisition of markings of person and past tense?

7. The monolingual child in Estonia, Karl-Oskar, concentrated on marking stems with *-i* and did not use any other markings for the past, whereas the monolingual in Australia, Lembit, had acquired all the 3 past markings (*-i*, *-s* and *-is*), and the bilingual Aksel the *-i* and *-s* markings. The children in Australia, Lembit and Aksel thus were clearly appropriately discriminating between past suffixes.

   Karl-Oskar had not progressed in his development sufficiently, to indicate this. However, at the last recording session he seemed to have grasped the idea that other suffixes can be added to the *ma-* infinitive stem.

8. Karl-Oskar's arduous road to the acquisition of past marking was started 3 months later than the first appearance of a person-marked verb, the present 3rd person singular form, and 2 months after the assumed acquisition of his initial person-marked verb, the present 2nd person singular form. This does not support the hypothesis of tense marking preceding person marking. It is intended to follow him further, in order to trace the development of other forms.

9. The monolingual boy in Australia, Lembit, appears to have acquired at the same time the *-s*-past and the present 3rd person singular forms, although the initial appearance of the *-s*-form occurred earlier (but it was suspected of being part of a formula) than that of the person-marked form. This lends slight weight to assuming past-marking preceding the person-marking.

   Although Lembit appears to have acquired both the *-i* and *-is*-marked 3rd person singular forms 13 days after the acquisition of the present 3rd person singular form, this preceded the supposed acquisition of next present tense person forms by 24 days, again lending some weight to the past-marking preceding person-marking.

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Moreover, in respect of the only person for whom both the present and past forms were acquired, the 1st person plural, acquisition of the past form preceded that of the present form.

Apart from this, altogether, however, the evidence supplied by Lembit is not really supportive of the hypothesis of the marking of past tense preceding marking of persons.

10. The bilingual child in Australia, however, behaved according to the expected hypothesis, with all (except the *-is*-past) the past-marked, but not person-marked forms (the *-s*-past 3rd person singular, the *ma*-infinitive + *i* and the *-i*-past 3rd person singular) having been acquired prior to the person-marked present forms (the 2nd person singular and 1st person plural).

    It was interesting to note that in the bilingual child all the past tense person forms were appropriately past-marked, even though they may not have been appropriately person-marked - another indication that past-tense marking precedes person marking.

    Moreover, although he had not acquired by the end of the observation period the 1st singular person marking for either of the tenses, the inappropriate forms used for the present tense were not marked for tense and those used in the context of past tense, were past-marked.

    Thus, the bilingual child clearly had acquired past-marking prior to person marking.

11. The *-nud* and *-da* marking of the past participle stem was acquired only by the bilingual child in Australia, possibly because he was older than the other 2 children. This provided, however, more evidence of appropriate discrimination of stem allomorphs.

6. GENERAL CONCLUSIONS

The results provide confirmation of two of the hypotheses set for the acquisition of Estonian:

1) that identification and discriminatory choice of allomorphs of verb stems and marking suffixes precedes combining these structural units into meaningful entities, and that

2) the unmarked singular imperative and present negative verb forms appear in in child speech before combined forms.

Moreover, these activities seem to be independent of the given linguistic environment of the child, and as such are probably indicative of a general process in the natural acquisition of Estonian.

The same cannot be said in respect of the sequence in the acquisition of past tense and person-marking, which varied greatly from child to child. Whether this is due to the the language environment or the idiosyncratic strategies of each child, at this stage it is impossible to tell.

The 3rd hypothesis:

3) that in Estonian acquisition of past tense-marking precedes that of person-verb agreement

was not supported by the available evidence for the monolingual children. But the hypothesis was very strongly supported by the data of the bilingual child.

One explanation for this can be, that the amount of data for the monolingual children may not have been sufficient to provide evidence of the hypothesised principle working. The number of verbs and forms used was small at that age. The bilingual child was older, after all, at the start of the investigation and may have had more time to consolidate the prior development that may

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have been necessary for certain expression of forms. This is evidenced by his long periods of mixed use. To check that, it is intended to analyse later data for the monolingual children.

The bilingual child also provided good evidence, supported somewhat also by the monolingual boy in Estonia, for the 4th hypothesis:

4) that acquisition of the above knowledge about allomorphy and marking of stems occurs gradually, both in lexical and grammatical terms.

It is intended to follow the children for some time longer, to confirm that acquisition of some of the marked forms actually had been finalized, or whether irregular use would reoccur, as well as to identify when acquisition of the forms in the prolonged state of acquisition at the time of the end of the current observation woud eventually occur. Development of other markings, e.g. case-markings, will be similarly traced. Parallel acquisition of English in the bilingual child will be analysed, as well.

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