

Ideophones in Sign Language? The place of reduplication in the tense–aspect system of Swedish Sign Language

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1. Introduction

In Dahl (1985), an investigation of the tense–aspect systems of 64 (spoken) languages is presented, based on data obtained by letting native speakers translate a questionnaire of about 200 sentences in their own languages. Since the informants' task involved translating sentences in written form from one language to another, collecting the corresponding data for a signed language involved special problems. Recently, however, we made a video recording of a native (third-generation) deaf signer's translation into Swedish Sign Language (SSL) of all the sentences in the questionnaire. The recording was then transcribed and the transcription subjected to the same kind of analysis that the other languages in Dahl's sample underwent. This paper was to start with intended as a straightforward report of the outcome of this analysis, with some comparisons with earlier treatment of tense and aspect in signed languages. However, in the course of the work, we stumbled upon some unexpected parallels between what we shall call below the reduplication system of SSL and phenomena in spoken languages sometimes referred to as *ideophones*. We find these parallels very suggestive and think that they may be of considerable theoretical importance, but since we have not yet had time to investigate this new area thoroughly enough, the findings presented below are very preliminary.

2. The structure of tense-aspect systems

Before we can discuss our results, a general background must first be given. (In addition to Dahl (1985), the view presented here builds on Bybee (1985), Bybee – Dahl (1989) and Dahl (to appear).)

Using a term introduced by Joan Bybee, we refer to the elements that build up tense–aspect systems (and other similar subparts of the grammar) as *grams*. In English we would thus find, e.g., the *grams* past, perfect, progressive, and future. It is argued in the works cited that most of the tense–aspect grams

found in human languages can be reduced to a restricted set of *cross-linguistic gram-types*. These types are characterized by their “profile of use”, above all, by their prototypical (focal, primary) functions or uses. In addition, they also tend to have a typical *mode of expression*. A gram may be expressed either *morphologically*, e.g., by affixes, as the past tense (*call-ed*) in English, or *periphrastically*, i.e., by free morphemes (words), or by, e.g., combinations of auxiliaries and affixes, as the present perfect (*has call-ed*) in English. It turns out that typically, only a very small set of tense–aspect gram-types are expressed morphologically. In Dahl (1985), these were identified as PAST, IMPERFECTIVE:PERFECTIVE, and (as an intermediate case) FUTURE. (We use capitals to denote the cross-linguistic gram-types.) Other gram-types, such as PERFECT, PROGRESSIVE, EXPERIENTIAL, HABITUAL tend to be expressed periphrastically.

As is argued in Bybee – Dahl (1989), morphological grams normally arise out of periphrastically expressed ones, which in their turn derive historically from lexical morphemes or their combinations. A well-known example is the French morphologically marked future tense as in *je chanterai* ‘I’ll sing’ which originally derives from a Latin construction (*ego cantare habeo* meaning ‘I have to sing’). Bybee and Dahl argue that in these historical changes, grams move along a restricted set of paths of development by a gradual process of grammaticalization. The end-point of this process, then, is a fully grammaticalized item with morphological, or more precisely, *inflectional* expression.

In morphology, there is a traditional division between inflectional and derivational processes. It is argued in Bybee (1985) that this should be seen as a continuum rather than as a sharp dichotomy. Some properties that characterize inflection (in addition to bound expression, which is common to inflection and derivation) are *lexical generality* – inflectional processes typically apply to all members of a part of speech – and *obligatory expression* – typically, an inflectional marking must be used whenever it can be used. In addition, it turns out that inflectional categories in human languages tend to be highly restricted from the semantic and functional point of view. Thus, the following would be an (almost) exhaustive list of inflectional categories on verbs: tense, mood, aspect, evidentiality, agreement with subjects and complements, levels of formality, negation. The distinction between inflection and derivation will be of some importance in the ensuing discussion.

3. Description of the tense–aspect system proper of Swedish Sign Language

Let us now turn to the outcome of our analysis of the tense–aspect system of SSL. After the translations of the sentences in the questionnaire were transcribed, the transcriptions were analyzed with the aim of identifying the ways in which temporal and aspectual distinctions were marked and determining to which extent those markings could be regarded as grammatical. Then, each marker was assigned a code and the set of codes for each sentence were entered into a computer data-base, comprising the analyses of all the languages in Dahl's sample.

We found in the questionnaire material a relatively limited number of things that could be classified as tense–aspect markers in the proper sense. The clearest cases were the following:

- (i) a PERFECT marker (see Figure 1) with the following description:
 - a) place of articulation: neutral position
 - b) articulator: 2 flat hands, directed up, palms forwards
 - c) articulation: bend down

In addition to the manual component, the PERFECT marker, often glossed as 'HAP', is characterized by a (non-distinctive) oral component: the mouth changes from an open position into a bilabial closure, as if mouthing the non-sense word [hap]. A typical example of the use of the PERFECT marker is the following:

(Questionnaire 53)

Context: I want to give your brother a book to read, but I don't know which. Is there any of these books that he READ already?

Sentence: (Yes,) he READ this book

Translation: THIS ONE BOOK HAP READ

This marker was used with a distribution which relatively well corresponds to representatives of the cross-linguistic type PERFECT in other languages, e.g., the perfect in English and Swedish. Since there is no distinction between present and past in SSL, the PERFECT marker is used both as a counterpart to present perfect and past perfect (pluperfect) in those languages. For instance, it is used in (Q.89):

(Q.89)

Context: Q: Did you find your brother at home?

Sentence: (No, we did not.) He LEAVE (before we arrive)

Translation: HAP LEAVE



Figure 1. PERFECT marker (glossed as HAP):

- a) neutral position
- b) 2 flat hands, directed up, palms forwards
- c) bend down



Figure 2. NEGATED PERFECT (glossed as HAP-NOT):

- a) lower face
- b) flat hand, directed left, palm inward
- c) moves right



Figure 3. FUTURE marker (glossed as SHALL):

- a) neutral position
- b) 2 clenched hands, directed forwards, palms facing each other
- c) move down



Figure 4. HABITUAL marker (glossed as USUALLY):

- a) chin
- b) index finger, directed up, palm left
- c) contact repeated twice

The semantics of PERFECT is notoriously elusive. A description with which most linguists might agree is that it is used to relate an event to a later point of reference – typically the point of speech, for which the event is seen as somehow relevant. (Reichenbach (1947) is the classical formulation of this view.) In somewhat simpler words, when using a PERFECT, we see the past from the point of view of the present. In contrast, forms like the simple past in English or Swedish do not establish such a relation between the point of the past event and the point of speech.

Typically, PERFECTs are not used in narrative contexts – i.e., about the non-initial members of chains of events narrated in a sequence, and at least in some languages (notably English and Swedish), they are avoided in combination with definite temporal adverbs. With respect to the first constraint, SSL conforms with the general tendency; as for the second, there is at least one counter-example in the questionnaire (Q.142).

- (ii) a NEGATED PERFECT (see Figure 2) as in (Q.63):
 (Q.63)
 Context: Q: You OPEN the window (and closed it again)?
 Sentence: (No,) I not OPEN the window
 Translation:

neg

HAP-NOT INDEX-c OPEN WINDOW INDEX-c

SSL thus uses a separate morpheme when English and Swedish have combinations of the perfect with a negation word. This is not a unique phenomenon, as we shall see later.

- (iii) a FUTURE marker (see Figure 3) as in (Q.15):
 (Q.15)
 Context: Q: What your brother DO if you don't go to see him today, do you think?
 Sentence: He WRITE a letter (to me)
 Translation: SHALL WRITE: LETTER (TO PERSON-c)

FUTURE markers differ considerably as to how systematically they are used. Fairly often, they are used primarily about events in the future that are somehow planned, intended, or seen as obligations. The SSL FUTURE marker seems to be of this kind. It is not used e.g., in (Q.81):

(Q.81)
 (What HAPPEN if I eat this mushroom?) You DIE.

Most FUTURE markers that behave in this way are expressed periphrastically. In this respect, then, SSL conforms with the general tendency.

(iv) a HABITUAL marker (see Figure 4) as in (Q.20):

(Q.20)

Context: Q: What your brother usually DO after breakfast last summer?

Sentence: He WRITE letters

Translation: USUALLY SIT WRITE++ LETTER

Typical HABITUALs are used roughly in the contexts when the word *usually* can be added in English without changing the interpretation of the sentence. Some of them are also used in generic sentences such as (Q.73):

(Q.73)

(What kind of sound do cats make?) Cats meow.

This is apparently not the case in SSL.

There are a few generalizations that can be made about the markers discussed so far. They all seem to have periphrastic rather than morphological expression – that is, they appear as free morphemes rather than as affixes or modifications of the verb. In general, they do not seem to be obligatory: even for the PERFECT, which is probably the most systematically used marker, there are quite a few cases when it would be expected but does not appear. Thus, a possible generalization is that they appear to have a relatively low degree of grammaticalization.

4. The reduplication system of SSL

In addition to the periphrastic tense-aspect markers, there are arguably aspect-related phenomena in SSL which are of a rather different nature, and indeed, seem to involve morphological processes. Thus, the following examples of formationally and semantically related signs may serve to introduce a set of morphological processes which we refer to as the *reduplication system*.

WAIT:	‘wait’ (see Figure 5)
WAIT+++	‘be waiting, wait for a while’
WAIT###	‘wait for a long time’
WRITE:	‘write’ (see Figure 6)
WRITE+++	‘be writing, write for a while’
WRITE###	‘write much’

The signs transcribed above represent three different types of repetitions:

- (i) repeated movement (:)
- (ii) fast reduplication (+)
- (iii) slow reduplication (#)

Notice that we make a distinction between "repetition" and "reduplication" in such a way that the latter is a special case of the former. We shall return to the motivation for this shortly.

The minimal forms actually appearing of the verbs WAIT and WRITE in SSL are those shown in Figures 5 and 6, consisting of two short repetitions. We call these the citation forms of WAIT and WRITE. (Not all citation forms involve repeated movement (see Figures 7 to 9)). The movement units which are repeated in the citation forms we refer to as the roots of the respective verbs. For WAIT, the root would be a downward movement by the flat hand on the chest, and for WRITE, a forward movement by the pinch hand in the flat hand. The root, which does not appear on its own, is the basis not only for the citation forms but also for the reduplicated forms of a verb, which we shall now turn to.

Reduplicated forms have a number of specific properties which distinguish them both from the simple repetition found in the citation forms and other expressions in SSL.

One parameter where clear differences between reduplication and other kinds of repetition are found is duration. Measuring the mean duration of the two first movements in the forms of WRITE listed above in our video-recorded material, the following (approximate) figures were obtained:

WRITE:	0.28 secs.
WRITE+++	0.56 secs.
WRITE###	0.76 secs.

Considering that reduplicated forms tend to consist of three rather than of two movements, the total duration of WRITE+++ will be approx. 0.8 – 0.9 secs. The difference in duration between reduplicated and non-reduplicated forms is seen in a short sequence (from a narrative told by another female deaf native signer) consisting of sixteen signs, in which the average duration of the non-reduplicated forms was 0.14 secs. (ranking from 0.05 to 0.29 secs.) and the duration of the two reduplicated forms 0.74 and 1.6 secs. respectively. These quite dramatic differences by themselves motivate treating reduplicated forms separately in the description of SSL, but there are many other peculiarities, as we shall see.

Another difference between the citation forms of WAIT and WRITE and



Figure 5. WAIT

- a) chest
- b) flat hand, directed left, palm down
- c) contact, moves down twice



Figure 6. WRITE

- a) flat hand, directed forwards, palm up
- b) pinch hand, directed left, palm down
- c) contact, moves forward twice



Figure 7. ASK-SOMEBODY

- a) neutral position
- b) big pinch-hand, directed up, palm left
- c) moves forwards



Figure 8. TRAVEL

- a) neutral position
- b) bent V-hand, directed forward, palm up
- c) moves forwards

the reduplicated forms of the same roots is in the relevance of the number of repetitions. In WAIT: and WRITE: there are exactly two movements, but in the forms with fast and slow reduplication the number varies between 2 and 6 in the questionnaire material. Thus, it is not this parameter which distinguishes fast and slow reduplication from each other or from repeated movements in non-reduplicated forms, but rather the spatio-temporal characteristics of the movements, which make it possible to identify the different types even when the number of repetitions is identical. Apart from having considerably longer duration than non-reduplicated forms, reduplicated forms also have different movement contours imposed on them. Thus, slow reduplication is characterized by large, almost circular movements giving an impression of unevenness, which is often stressed by a repeated rocking movement of the body, whereas fast reduplication uses smooth, short movements. These impressionistic characterizations of the movements illustrate our insufficient knowledge about sign language “phonology”, and “phonetics”, which in part explains the difficulties one encounters when trying to give the non-signer an idea of the system.

Manually reduplicated signs may also have a specific oral, or even facial, morphemic element, like e.g., protruding lips (see Figure 10), which often occurs with fast reduplication. It means ‘regularly, normally’ and contrasts with other oral elements with adverbial meanings like ‘with effort’, ‘carelessly, without control’, and ‘fast’ (see Figure 11). Some reduplicated forms are accompanied by simultaneous Swedish mouth patterns, repeated as many times as the manual reduplications:

<u>m</u>	
WRITE+++	‘be writing (normally)’ (see Figure 10)
<u>xxx</u>	
WAIT+++	‘be waiting (expectantly, for a particular thing to happen)’
<u>xxx</u>	
WAIT###	‘wait for a long time’

Due to their “phonological” structure – consisting of movement in contact with the body – the roots WAIT and WRITE occur in just a few reduplicated forms. However, several other modifications operate on other classes of verbal roots, such as those with single articulator in neutral space. In addition to directional changes, such roots can be subject to a kind of “simultaneous reduplication”, viz. doubling of articulator, i.e., with two hands acting instead of one, resulting in forms with simultaneous or alternate movements in similar or opposite directions. Some examples:



Figure 9a-b. LEAVE

- a) neutral position
- b) thumb and index finger extended, directed up, palm forwards
- c) moves right, closes into pinch hand



Figure 10.

\overline{m}
WRITE + + +



Figure 11.

\overline{n}
alt-LEAVE + + +

ASK	'ask x' (see Figure 7)
ASKhoriz	'ask all x'
ASK###	'ask over and over again'
alt-convASK+++	'many x ask y'
alt-convASK###	'many x ask y over and over again'
TRAVEL	'travel' (see Figure 8)
convTRAVEL	'two (or more) x travel to the same place from different places', '(travel to) meet'
divTRAVEL	'two (or more) x travel from the same place to different places'
altTRAVEL+++	'travel often', 'travel to different places'
alt-convTRAVEL+++	'many x travel to the same place'
LEAVE	'leave' (see Figures 9a and 9b)
2hLEAVEhoriz	'all x leave at the same time'
<hr style="width: 10%; margin-left: 0;"/> u	
2hLEAVE	'all x leave fast'
altLEAVE+++	'many x leave in different directions'
<hr style="width: 10%; margin-left: 0;"/> u	
altLEAVE+++	'many x leave fast in different directions' (see Figure 11)
altLEAVE###	'many x leave one by one in different directions'

The phonological details of the reduplication system in SSL still remain to be described, and it is not easy to pin down the meanings expressed by these forms. A look at the translations of the forms described above reveals that it should be possible to find systematic correspondences between at least some parameters of the modifications and the meaning of the forms characterized by them. For example, one might hypothesize that doubling of articulator is used to express 'two or more actors' (though not in altTRAVEL+++), and slow reduplication something like 'repeated action' or 'ongoing, prolonged action' (as in WRITE and WAIT), and thus, that there is a high degree of iconicity in the system. However, at this point we do not have enough data to be able to suggest an analysis of this complex, morphological system of reduplicated and related forms.

5. The place of the reduplication system in the grammar of SSL

The system we have just described is not unique to SSL – very similar grammatical processes are found in other sign languages, such as American Sign Language (ASL), as was noted relatively early in the development of sign language research (Fischer (1973), Supalla – Newport (1978)). Klima – Bellugi (1979), who devote two chapters to these and similar grammatical processes, see them as “inflectional devices”: “In ASL, signs are inflected for a variety of grammatical categories, for example, for aspect: temporal aspect, distributional aspect, recurrence, degree, manner, temporal focus ... The existence of such elaborate formal inflectional devices clearly establishes ASL as one of the inflecting languages of the world, like Latin, Russian, and Navajo.”

At the same time, however, Klima and Bellugi are quick to point out that ASL “differs radically from all spoken languages in the form these morphological devices assume. In conformity with the unique spatial character of sign, its morphological devices make structured use of space and movement ...”

The question we must ask here is: given that there are such clear differences between inflection in spoken and signed languages, is it really a good idea to subsume them under the same label? In fact, if one takes a closer look at the phenomena, it turns out that the differences are greater and perhaps more fundamental than Klima and Bellugi make them. Thus, we have already mentioned obligatoriness and lexical generality as essential properties of inflectional processes. As concerns obligatoriness, Klima and Bellugi do include it as a criterion for inflection (246), but when it comes to concrete examples, either neglect the issue completely or give examples that suggest that obligatoriness is at best limited to very specific syntactic contexts. For instance, Klima and Bellugi say (281) in connection with the “number marking” found in a sentence such as (using Klima and Bellugi’s transcription)

MAN, (ME) ASK[N:multiple] ‘I asked the men’

that the “singular uninflected form of the verb cannot be used in construction with an inherently plural noun sign like CHILDREN”. The crucial addition “when it occurs before the verb” is given in parentheses. Given that this position is a marked one in ASL (Fischer 1975, Liddell 1980), it thus appears that the constraint is dependent on phenomena such as topic and focus structure, a supposition which is corroborated by the statement on page 284 concerning “distributional aspect” that “though marking number on verbs is obligatory in some contexts, one may choose not to focus on specific distributional relations between actions and recipients”. We can notice that there are several ways in

which "number marking" of verbs in sign languages is different from inflectionally marked number agreement in languages like English. First, it is lexically dependent: whether and how "plurality" is marked differs from verb to verb. Second, there are not one but several morphemes that mark "plurality" between which there are clear semantic differences. Third, there seems to be no counterpart to cases like *the scissors are on the table*, i.e., cases where a verb agrees with a subject which is formally plural although it denotes a single object.

Looking at the problem from a slightly different angle, we may note that from a semantic point of view, the reduplication systems found in sign languages do not fit very well with aspect as an inflectional category in other languages. The typical inflectional aspectual opposition in spoken languages is between PERFECTIVE and IMPERFECTIVE commonly with a restriction on temporal reference so as to limit PERFECTIVE to past events. It is extremely rare for a language to have inflectional aspect and not have the PERFECTIVE: IMPERFECTIVE distinction (Bybee - Dahl 1989). Although it might be tempting to associate at least some types of reduplicated forms in sign languages with imperfectivity the fit is far from sufficient to warrant calling reduplication a grammaticalized marker of imperfectivity. This does not mean, however, that morphological processes with a semantics similar to that of sign language reduplication systems are not found in spoken languages, but we have to look for them not among inflectional processes but in another part of the grammar, viz. derivational morphology. In particular, it is very common to find derivational processes expressing what Dressler (1968) calls "verbal plurality" and which exhibit a characteristic pattern of ambiguity (or lack of semantic specificity) by which the "plurality" may pertain to either the number of participant entities (subjects, objects) or the number of events/actions involved. Thus, the Russian verbal prefix *pere-* as in *perekrasit'* (from *krasit'* 'to paint') may mean either 'again' ('to paint again') or 'exhausting a set of objects' ('to paint all the members of'). In such systems, one and the same verb root may enter into a rather large number of derived verbs, with different nuances of meaning. The Russian root *stuk-* 'to knock' is thus found in verbs such as

<i>stučat'</i>	'to knock (generically or with no particular temporal limitation)'
<i>stuknut'</i>	'to knock once'
<i>postučat'</i>	'to knock once or for a limited time'
<i>postukivat'</i>	'to knock repeatedly, with intervals'
<i>perestukivat'sja</i>	'to communicate by knocking' etc.

Already examples like this one from Russian makes the sign language reduplication systems look a little less exotic. There are more striking parallels in

spoken languages, however.¹ In order to demonstrate that, let us look at a Mon-Khmer (Austro-Asiatic) language, Kammu, spoken in Laos and several neighbouring countries, which was included in Dahl's (1985) sample, and the phonology and morphology of which was described in Svantesson (1983).

6. The tense-aspect system of Kammu

Like many (perhaps most) languages in South-East Asia, Kammu is basically an isolating language: according to Svantesson's analysis, it has some derivation but no inflection. From the point of view of tense-aspect typology, isolating languages are of special interest, for the following reason: if some cross-linguistic gram-types are almost always inflectional, one may predict that these gram-types would not show up in isolating languages, since they have no inflection. By and large, this prediction was confirmed in Dahl (1985), and in particular, it holds of Kammu, which was in Dahl's book (see also Svantesson (1984) and this volume) said to have the following "major TMA categories" (tense-mood-aspect grams), all expressed by free morphemes, i.e., periphrastically:

- | | |
|--------------|--------------------|
| 1) PERFECT- | marker <i>hóoc</i> |
| 2) FUTURE- | marker <i>cáə</i> |
| 3) HABITUAL- | marker <i>kù</i> |

In addition, there is also a NEGATED PERFECT *práa*, which was not included in the list above due to its low frequency. In other words, we find in Kammu counterparts to all the periphrastic tense markers of SSL. It so happens that the Kammu tense-aspect system is that among those reported in Dahl's (1985) sample which is most similar to that of SSL. However, most of the languages from South-East Asia and the Pacific included in the sample have systems of the same kind: the differences consist mainly in whether the gram-types PROGRESSIVE and EXPERIENTIAL appear or not.

In choosing Kammu as an object of comparison to SSL, our original objective was to demonstrate the similarities between SSL and a spoken language characterized by the lack of inflectional categories but with some derivational processes. A closer scrutiny of Svantesson (1983) revealed similarities of a perhaps deeper kind. Let us look at Svantesson's account of derivational morphology in Kammu.

Svantesson postulates three major word classes in Kammu: nouns, verbs, and "expressives". Before concentrating on the last of these, we may note that nominal and verbal derivational morphology is essentially affixal. There are

thus e.g., verbal prefixes and infixes by which causatives, anti-causatives (called "resultatives" by Svantesson) and reciprocals may be derived.

"Expressives" correspond to what is sometimes called "ideophones" in other languages. We shall return to the problem of the general nature of this phenomenon later but for the time being we shall follow Svantesson's treatment of the Kammu expressives. Semantically, he says, expressives "differ from other words by their iconic and connotative rather than symbolic and denotative meaning" (1983:79). Syntactically, they are "verb-phrase constituents, which follow the verb", and "they can be regarded as adverbs". As concerns the morphology of expressives, Svantesson says that most of them "can be regarded as derived from a monosyllabic root by one of a set of word-formation operators". The root does not occur by itself: it is only the common denominator of a set of expressives. The nine word-formation operators involve both affixation and reduplication. Below, a list of the operators is given with indications of their meanings (as formulated by Svantesson) and what the respective forms look like (we have changed Svantesson's representation to one that is somewhat more perspicuous). "R" is the root and "τ" a variable prefix consisting of an obstruent or l.

1. "ongoing action": R + R
2. "singular ongoing action": R + kn-R
3. "plural ongoing action": R + rη-R
4. "process": τ + R
5. "plural process": r + R
6. "intermittent action": τ + R τ + R
7. "plural intermittent action": r + R r + R
8. "state": τ + "coda infixation" + R
9. "plural state": r + "coda infixation" + R

(The term "process" for 4 is somewhat misleading, since it is clear from the text that what is meant is rather "momentaneous event".)

As can be seen from the list, it would be possible to reduce the "operators" to a set of combinations of more primitive elements (such as the "plural" marker r).

All operators are not possible with all roots – indeed it appears that some cannot occur together (e.g., 1 and 2). Below, we illustrate what has been said so far with a list of the set of expressives derived from the root ηùk / 'to nod':

ηùk kηηùk	'one person keeps nodding'
ηùk rηηùk	'many people keep nodding'
cηùk	'nod once'

<i>cŋúk cŋúk</i>	‘nod a few times at some interval’
<i>cķŋúk</i>	‘have one’s head bent down’
<i>rķŋúk</i>	‘many people have their heads bent down’

What is immediately striking here are two things: the similarity between the range of meanings expressed by the different forms of the Kammu expressives and the SSL reduplicated verbs, and the extensive use of reduplication in both systems. These similarities become of even greater interest when we consider the role of expressives within Kammu as a whole: we are here dealing with a quite autonomous system within the language, with partly peculiar semiotic properties, in particular as regards the degree of iconicity of expression.

Furthermore, from the point of view of general morphology, the systems we are looking at have in common that they are somewhat hard to classify. We have earlier put into doubt the classification of the sign language reduplication system as inflectional. Svantesson regards the Kammu system as derivational – the apparent logical choice if you don’t want to treat it as inflectional. However, if we look closer, we see that these systems are not exactly prototypical cases of derivation either. Normally, derivational processes create lexemes out of lexemes, but in the case of the Kammu expressives, we start with a root, which is never manifested in isolation, and end up with something whose status as a lexeme is also rather dubious. The situation in SSL is quite similar. There is a clear temptation to draw the conclusion that we are in fact dealing with a third kind of morphological process, which is neither inflectional nor derivational. Before coming to a final decision on this question, however, it may be wise to consider the general nature of expressives, or to use the term that we shall prefer as being less ambiguous, of ideophones, and compare their properties systematically to those of reduplicated verbs in SSL.

7. Ideophones

The term “ideophone” (ascribed to Doke 1935) is a common one in descriptions of African languages, but the phenomenon can be found in languages all over the world, although ideophones have been largely neglected in the literature: as Diffloth (1972) notes, “it is possible to read voluminous grammars of certain languages ... without even suspecting their existence ... or their extent”. It does not appear possible to give a general definition of what an ideophone is; rather, the concept must be given content by a description of the typical behaviour of ideophones. Like in Kammu, ideophones are usually a class of words with peculiar phonological, grammatical and semantic properties. Many

ideophones are onomatopoeic, but sound symbolism of a somewhat vaguer kind is probably more common. A typical ideophone can be seen as a global characterization of a situation: in this respect it can be said to be like a sentence. Paraphrases of ideophones often involve quite specific, mostly perceptual features of a situation or its participants, such as "many animals cling to each other and move" (Svantesson 1983), "many objects floating downstream together with new ones constantly coming" (Diffloth 1972), "elastic object opens up and closes with a snap" (*ibid.*).

Phonologically, ideophones often share "expressive" peculiarities with interjections and similar types of expressions. Sometimes they obey particular phonotactic restrictions: structures like CVCV often seem preferred, and reduplication is extremely common also when it is not connected with a particular interpretation. Prosodic peculiarities, such as special tonal features and "emphaticness", are also sometimes mentioned. To what extent phonological/phonetic parallels with the specific features of SSL reduplicated verbs mentioned above can be found is so far an open question in view of the absence of comparable data.

We saw above that reduplicated verbs in SSL may have an oral or facial component. With a striking reciprocity, we find a manual component in some ideophones:

a spoken ideophone ... may regularly be accompanied by some activity, such as a gesture, which is not part of the linguistic system as such. In Igbo, the ideophone /kpám/-kpàní/ is always accompanied by two claps of the hands in time with the pronunciation; the palms of the hands are held vertically, with the right hand higher than the left, and the claps are produced in the process of opposing vertical movements of the hands, like cymbals in a march rhythm ... such paralinguistic phenomena are not very consistently reported, though they are probably far more common than the available sources would suggest. (Welmers 1973: 463).

Rather suggestive in this connection is also Diffloth's claim that in explaining ideophones, "many speakers cannot find exact paraphrases and prefer to repeat the ideophone with a more distinct elocution, accompanied by facial expressions and body gestures if appropriate" (441).

While the ideophones in African languages do not in general seem to undergo morphological processes (but cf. the discussion of the Kera "intensive form" below), the ones found in Asia can often be modified in various ways. Most commonly, one finds reduplication and various kinds of consonant and vowel alternations. Semantically, the latter usually seem to involve contrasts concerning the size of objects: cf. Kammu *cìhél* 'very small object sticks out', *cìhál* 'small object sticks out', *cìháal* 'big object sticks out'². It may be noted that all the processes mentioned so far are of a more or less iconic character. It

is less common for ideophonic morphology to involve affixation, as it does in Kammu. The examples cited in the literature are all from Mon-Khmer languages, suggesting that the process of developing a particular ideophonic sub-component in the grammar has gone farthest in that group.

As illustrative material for the ensuing discussion of the syntactic and pragmatic properties of ideophones and reduplicated verbs, we shall here cite three text samples. The first two are from spoken languages and illustrate the use of ideophones, which are indicated by italics in the original texts and by capitals in the translation (the word IDEOPHONE is used when we have not found a suitable translation).

The first text is from Kera, a Chad language (Ebert 1979), and concerns the brewing of beer:

Süübóŋ ʒsáŋ anə kayáŋa, ʒsáŋ sawəwa süübóŋ ʒsáŋ bə ɲádtí bijigid-bijigid-bijigidi. Kuməy ʒsáŋ bə fé süübə kəŋgəf tá. Ye hərəŋ ʒsáŋ tá, hümùŋ kəʒəw' tá, ɲábsté kuməy wəra, kuməy bə kámniŋ tá, ɲábstán kuməy wə' kərap kede tá. Ye ʒsáŋ bə sé kuməya, céeréŋ kuməy cer tá, ye ʒsáŋ bə sé kuməya tá. Ye sáŋ kuməy kəyáŋ', kəŋ ʒsáŋ márkán wə' kəp. Hùlùm paap bə hè cúurú apəya bà, lam-lam-lam ádàwra kərap kede.

'The yeast then, after a while the yeast started brewing BUBBLE-BUBBLE. The beer started forming foam IDEOPHONE. They sat down again, took the calabasses, served the beer, the beer of the ancestors, poured out all of the beer COMPLETELY. They started drinking the beer; after they had poured out some beer (for the ancestors) on the ground IDEOPHONE, they drank the beer. As they now drank the beer, they became quite drunk IDEOPHONE. Nobody kept up his head, they lay IDEOPHONE COMPLETELY on the ground.'

The second text is from the Amwi dialect of Khasi, a Mon-Khmer language (Weidert 1975), and describes the killing of a snake:

tə dat nə ši tnrə?-nə ti pə? r'daŋ ʔu, ka də prbuŋ ʔu klə?ə. !pħnɛp-nə sɛŋ ʔu !k?ɛr. !pħnɛp, !pħnɛp-nə prbuŋ ʔu tə kə khliaw. lajtə dat nə ši tnrə? titə hə kin ʔi rəpħəɛp ʔu. tə pat ʔu !kħlup-nə. katə them mə !ñat-nə də kəmi, tnrə? ɲə ʒə p?ɛ pħliw. katə ʔa? tu rnti !pruj-nə titəj can.

'With a thrust I stabbed it (the snake) in the middle of the neck, since it had stretched it in this way [hand movement added]. FLAT-AND-THIN it stood UPRIGHT-AND-TIGHT. FLAT-AND-THIN, FLAT-AND-THIN it had stretched its head. Then I stabbed it in the flat and broad head. Then it fell on the earth FALL-BIG-AND-HEAVY.

Then I took another /spear/ GRIP-AT-ONCE and stabbed it in the centre. Close-by was some rynti bamboo WIDELY-DISPERSED.'

The third text illustrates the use of reduplicated verbs in SSL and is taken from a narrative about a hike in the mountains:

SHALL INDEX-c WALK TO VÅLÅ-COTTAGE INDEX-fl / YES /
INDEX-c WALK++++ / BUT SONJA GET PAIN GALL FOOT
SUFFER+++ /

(...)

INDEX-c CONTINUE DIFFERENT PLACES THERExxxx /
INDEX-c HAP WALK: 23 MILE ON TWO WEEK / INDEX GO-
HOME-f TO VÅLÅ-VALLEY WALK++ ARRIVE-AT THERE-f /
INDEX-c OH THIRSTY / HAVE-TO INDEX-c DRINK THREE
FOUR SOFT-DRINK EACH DRINK###

'We agreed to walk to the Vålå cottage.

We BE-WALKING. But Sonja got a gall on her foot SUFFER.

(...)

We continued our hike to different places THERE-AND-THERE.

We walked 230 kilometers in two weeks.

We headed back for the Vålå valley BE-WALKING, and arrived there.

We were so thirsty, that we had to drink three, four
soft drinks each DRINK-MUCH.'

We can see from these texts that the ideophones in Kera and Amwi and the reduplicated verbs in SSL appear roughly in the same structural positions and with very much the same apparent discourse function. Typically, an ideophone/reduplicated verb expands a sentence with a "normal" verb as the main predicate.³ This kind of configuration has given rise to the common classification of ideophones as adverbs, suggesting a categorial difference between ideophones and reduplicated verbs, which in accordance with their name should be of a verbal nature. From the texts above it seems possible to conclude that this difference is spurious, a consequence of an attempt to press in ideophones and reduplicated verbs in the classical parts-of-speech schema.

As we have seen, ideophones tend to express concrete, mainly perceptual properties of a situation. All the texts above are narratives, and this is probably no accident – narratives appear to be the "canonical" text-type for both ideophones and reduplicated verbs – it appears that the livelier the narrative, the more frequent the ideophones. One could compare their function to that of illustrations in a written text. Typically, what happens is that a situation is first described by ordinary linguistic means, and then an ideophone is added to give concreteness to the narrative.⁴

Some informal statistics on the frequency of reduplicated verbs in SSL suggest that they are also favored in lively narratives. Thus, a 3 minute recording of a spontaneous narrative discourse was found to contain about 20 occurrences of reduplicated verbs. As a contrast, when our informant was asked to give an account in front of a camera on the topic “what I usually say when presenting the activities of our Club of the Deaf”, 7 – 8 minutes of recorded material was found to contain only 2 – 3 occurrences of reduplicated forms.

When an ideophone is combined with a verb, it often makes the interpretation of the latter more specific or concrete. There are several examples of that in the texts, and we can see that the reduplicated forms in SSL are similar in this regard. In spoken languages ideophones may also cooccur with a semantically empty verb, making the ideophone carry the main content of the predication as in the following Kammu example (Svantesson 1983: 79):

kə̀ə ʔə̀h sɿ̀rɔ̀wɿ̀
 it do red (expressive)
 ‘It is red’

Even if the position as a verb expansion appears to be the typical for both ideophones and SSL reduplicated verbs, it should be pointed out that both kinds of expressions may occur on their own – Svantesson (1983: 79) says that Kammu expressives “are often uttered in isolation as ‘minor sentences’”. In such cases, they would indeed seem to be the functional equivalents of verbs, given that in many languages the latter can occur on their own with sentential force. It should be noted, though, that there may be peculiar constraints on the combinability of such “verbs” with other elements in the language. For instance, constraints on negatability are often mentioned in connection with ideophones. Thus, in Kammu, according to Svantesson (1983), “sentences with expressives are generally non-negatable”. Likewise, our attempts to combine SSL reduplicated verbs with negation led only to embarrassed laughter from the informants.

In our opinion, the above comparison between ideophones and SSL reduplicated verbs strongly suggests the underlying unity of these two phenomena. This does not mean, however, that the identification is wholly unproblematic. For instance, consider the interaction between the “ideophonic” and the normal lexicon. We have seen that in SSL, most reduplicated verbs also have non-reduplicated forms (see also Supalla – Newport 1978). In spoken languages, the normal case seems to be for the ideophonic and non-ideophonic vocabulary to be separate. This, then, would be a possible difference between the two systems. The difference cannot be characterized as absolute, however. It is fairly common for words in the “ordinary” word-classes to be of ideophonic

origin. Cases of what can be seen as the opposite development are also reported. Welmers (1973: 464) notes that in many Bantu languages, “one type of form commonly included in the category of ideophones is derived from verb roots” and that “such verbs generally accompany the verbs from which they are derived, and have an adverbial function”. Ebert, in her grammar of Kera (1979), includes such a formation, called the “Intensivform”, in the regular paradigm of the verb (although she lists it under the heading “Ableitungen”). The “intensive” is formed by (optional) reduplication in combination with suffixation. For instance, *bàad-* ‘to wash’ has the “intensive” (*bàada-*)*bàada*. We quote here one of Ebert’s examples with her German translation, on which we do not feel competent to improve:

Gòogò ántàḡ kúsrú ənta-ənta, ágerhē kóoróḡ dùurú á túuní.

‘Der Löwe schnürte sich fest schnür-schnür. Danach lief der Esel mit ihm zum Flußferd.’

We can thus conclude that regular morphological correlations between ideophonic and non-ideophonic components are not excluded, and that the SSL system may be more well-developed but is not unique in this regard.

8. Conclusion

We have seen that within the semantic domain of tense and aspect in the wide sense, there are two basically separate systems in Swedish Sign Language. One is that of the temporal-aspectual “particles” described in Section 3 above, which *mutatis mutandis* fairly well correspond to periphrastic tense-aspect categories in spoken languages. The other is the reduplication system, found here to have close parallels in the ideophonic components of many spoken languages. In earlier treatments, the latter system, or rather its counterpart in ASL, has been presented as the aspect system of signed languages. We have argued above that the reduplication system has a number of peculiar properties that suggest that it should be treated as a grammatical component of its own⁵ (this does not mean that it is wholly separate from the rest, of course), and in particular, that its use for expressing aspectual and quasi-aspectual concepts is restricted and not really characteristic of the verb system as a whole.

In addition, the suggestion made earlier in this paper that there are three types of morphological processes – inflectional, derivational and ideophonic – makes possible a more fine-grained and predictive classification of languages into morphological types than was the case in traditional morphological typology. For instance, a language may be isolating with respect to inflection and

non-isolating with respect to the other types of processes. We can clearly see the advantages of such a classification when we apply it to the status of reduplication in signed languages. One of the major claims made independently in Bybee (1985) and Dahl (1985) was that among grammatical categories, there is a strong coupling between semantic content and mode of expression. From this finding, it should be possible to predict from the morphological type of a language what tense-aspect grams will show up in it. Above, we quoted the claim made by Klima – Bellugi (1979) about ASL (which they would presumably extend to SSL) that it is an inflecting language, like Latin, Russian, and Navajo. However, if we predict from this that ASL or SSL has a tense-aspect system like that of Latin, Russian, and Navajo, we will be as wrong as is possible. The argument in this paper, on the other hand, has been that SSL is basically an inflection-less language with a very well-developed ideophonic morphology. In this respect, it is quite like Mon-Khmer languages like Kammu. Accordingly, as far as tense and aspect goes, the systems of SSL and Kammu are so similar that one might suspect that SSL is really Signed Kammu or vice versa, that Kammu is Spoken SSL. The more fine-grained morphological typology thus yields a correct prediction.

In fact, all signed languages which have been the object of closer study are, to our knowledge, similar to SSL in this regard. This is hardly an accident. It is natural to assume that the gestural-visual character of signed languages favors the development of iconic or quasi-iconic processes like reduplication. It is important to note, however, that it is the extent rather than the existence and the character of such processes that distinguish signed and spoken languages. Why inflectional categories in the proper sense seem to be lacking in signed languages is a more difficult problem, which can only be speculated on. Whatever the case may be, the general conclusion is that even if the morphological type of signed languages may be determined by their unique properties, once this morphological type is fixed, there is nothing very peculiar about their tense-aspect systems. This may make signed languages seem less exotic than they look in some earlier treatments, but this is hardly a loss from the point of view of general linguistic theory.

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Transcription Symbols

SIGN	English words in capital letters represent signs in Swedish Sign Language
INDEX-c	Small letters after glosses indicate directions relative to the signer: c = inwards, f = forwards, fl = forwards, slightly to the left
SIGNhoriz	Horizontal movement added
SIGN:	Colon indicates repetition of movement in the citation form of a sign
SIGNxxx	Reduplicated form (unspecified for type of reduplication). Number of symbols after the gloss indicates number of repeated units
SIGN###	Slow reduplication (after Fischer 1973)
SIGN+++	Fast reduplication (after Fischer 1973)
2hSIGN	Doubling of articulator (two hands)
altSIGN	Alternating movements (implies two hands)
convSIGN	Converging movements (implies two hands)
divSIGN	Diverging movements (implies two hands)
A line above glosses indicates simultaneous non-manual signals.	
<u>neg</u>	
SIGN	Negation marked with head-shake
<u>m</u>	
SIGN	Non-manual element meaning 'regularly, normally' (see Figure 10)
<u>u</u>	
SIGN	Non-manual element denoting high speed and small size (see Figure 11)
<u>x</u>	
SIGN	Simultaneous repetition of Swedish word

In recorded examples, the number of repeated symbols (x, +, #) indicates the actual number of repeated units. In other examples, three symbols are used by convention.

In the Amwi texts, '!' is used to mark emphasis, realized mainly as extremely strong stress accent, and characteristic of monosyllabic expressives (Weidert 1975: 48). Other phonetic symbols in the examples from spoken languages in general have their IPA value.

Notes

1. Anderson (1982) shows parallels between the reduplication system of American Sign Language and reduplicative processes in spoken languages, with Micronesian languages as the main source of examples. He does not make a clear distinction between inflectional and non-inflectional aspect, however.
2. A possible parallel in SSL can be found in a subclass of verbs expressing motion and location where the hand shape is chosen according to physical or other characteristics of the referent. Thus, the verbal root meaning 'located in the horizontal plane' consisting of one short downward movement is combined with nominal, classifier-like, morphemes denoting e.g., 'human

being' (extended index and long finger), 'one dimensional object' (extended index finger), 'two dimensional object' (flat hand), 'small, cylindrical container' (curved hand with thumb opposed). Such roots are also found in reduplicated forms with doubling of articulator, with meanings like 'two x located next to each other in the horizontal plane' and 'many x located in disorder in the horizontal plane'.

3. Fischer – Janis (1990), which we obtained after submitting the first version of this paper, describes what seems to be a basically equivalent construction in ASL (exemplified by ELIZABETH EAT RICE EAT-WITH-CHOPSTICKS + + +) under the label "Verb Sandwiches".
4. Cf. Weidert's comment on the text quoted above (1975: 213): "Die Häufigkeit und Korrektheit der Anwendung von Expr/essiva/ unterscheidet den guten von dem schlechten Erzähler. Typisch für den Stil dieses Erzählers ist der allmähliche Aufbau bis hin zu der dicht gedrängten Folge von Expr/essiva/ auf dem Höhepunkt der Erzählung." These statements should be contrasted with the comment he gives on another text: "Ein Beispiel für den nüchternen und schmucklosen Tatsachenbericht, in dem eine Morphemklasse wie die der Expr/essiva/ völlig ausgespart wird." (1975: 209)
5. Karlsson (1984) comes to a rather similar conclusion when he says, referring to Klima and Bellugi's (1979) work, that "the majority of KB's modulations, inflections, and derivations form one structural system of derivation-like, semi-conventional processes", for which he proposes the term "iconic operators".

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