

Agreement and prodrop in Sign Language of the Netherlands

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0. Introduction

This article will report on ongoing research into person and location marking in Sign Language of the Netherlands (SLN)¹. The main topics will be agreement and prodrop in SLN, and the question how these two phenomena might be related (Sections 2 and 3). For a better understanding of these topics it is necessary to describe the pronominal system of SLN and the principle of localization first (Section 1).

1. The pronominal system of SLN and localization

In SLN (as in other sign languages) pronominal signs consist mostly of pointing signs, referred to as INDEXes.² These referential INDEXes are directed towards the locations of referents in the signing space.

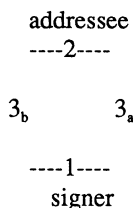


Figure 1. Locations in the signing space

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² The research project on person and location marking in SLN investigates only reference to and agreement with first, second and third person singular. Agreement with first, second and third person plural touches upon aspectual notions, especially distributional aspect. In sign language research the convention is to represent glosses of signs in capitals.

Locations of referents can be divided into two types. The first type consists of the locations of the signer and the addressee. These are referred to as *real locations*, as both are present in the situation in which the conversation takes place.³ Pronominal reference to first and second person singular is therefore realized by pointing to location 1 and 2 (Figure 1).

The second type of locations of referents are *created locations*. As the signer cannot point to non-present third person referents just like that, he establishes locations for these referents in the space before him to his right and left, in the areas 3a and 3b (Figure 1). This is often realized by producing the citation form of the nominal sign for the referent and subsequently selecting a point in space by means of an INDEX.⁴ The resulting association of a nominal, and thereby its referent, with a location in the signing space is referred to as *localization*. Referents that can be localized are for instance persons, animals, objects, locations but also more abstract entities, for instance two opposing ideas. Theoretically the signer can localize as many referents as he wishes, but of course there are limits set by laws of visual discrimination and memory. In SLN the signer will in general not use more than three or four created locations at the same time.

Two examples of localization are given in Figure 2 and 3. Figure 2 illustrates the localization of the referents of the signs MAN and PARTNER at locations 3a1 and 3a2 respectively, both on the signer's right.

MAN INDEX_{3a1}, PARTNER INDEX_{3a2}

3a2
3a1
-----1-----

Figure 2. Localization of two referents

In the second example, the referents of MAN and GIRL are localized on the signer's right and left, respectively:

MAN INDEX_{3a}, GIRL INDEX_{3b}

3b 3a
-----1-----

Figure 3. Localization of two referents

³ For reasons of simplicity, it will be assumed here that the signer is in a face-to-face-conversation with one addressee, with no other referents, human or objects, present in the conversational context.

⁴ Localization can also be realized in other ways, for instance by the use of eye gaze, an inflected verb form, locative use of nominal signs or classifiers, or combinations of these mechanisms.

The localization of nominals and their referents in the signing space is in many instances arbitrary, that is, it bears no relation to the real world locations of referents in the situation which is referred to by the signer. However, sometimes the signer does take real locations as a starting point for his localizations and also in more subtle ways these are sometimes non-arbitrary. There seems to be, for instance, a strong tendency for referents which are closely connected, like a husband and wife, mother and daughter, or brother and sister, to become localized close to each other in the signing space (as in Figure 2), whereas more unrelated participants generally will be localized farther apart (as in Figure 3).

As soon as the signer has associated a referent with a location in the signing space, he can use this location for further pronominal reference. That is, he can use an INDEX directed at this location instead of producing the full nominal sign. Pronominal reference to third person can also be realized through the use of eye-gaze at the relevant location. Established locations cease to exist when the signer changes the topic of the conversation and creates new locations.

It seems justified to argue that the use of locations in space for pronominal reference must be closely connected with the manual-visual channel in which sign languages are produced and perceived. Therefore one would expect to find such a system in sign languages only. Interestingly enough, however, Ingham (1991) mentions that in Nadji, a Bedouin dialect, speakers also use pointing signs for pronominal reference, which are fully integrated in the use of spoken Nadji. That is, in Nadji narratives '... the narrator is pointing to the participants in a story and singling them out, ... as if the participants were there in front of him...' (Ingham 1991:48, footnote 14).⁵

Summing up, pronominal reference in SLN predominantly consists of INDEX signs directed at the real locations of the signer and the addressee and at created locations for non-present referents. These pronominal signs take no marking for case or gender. One might think that the absence of these distinctions makes the referential power of the pronominal system rather weak. Yet, as has been pointed out by Lillo-Martin and Klima (1990), coreference relations are explicitly expressed, as there is always a unique correlation between a location in the signing space and the referent associated with it. A pronominal sign consists of an INDEX directed at such a location, and therefore its reference can never be ambiguous. As a result, several kinds of structural ambiguity that occur for instance in (spoken) English are avoided in SLN. Example (1) demonstrates that in English ambiguity arises from the fact that both 'Peter' and 'Marc' are possible antecedents of 'he'.

- (1) Peter_i tells Marc_j that he_{ij} is lying.

⁵ I thank Martine Cuvalay for drawing my attention to this phenomenon in Nadji.

In SLN no ambiguity can occur as the two possible interpretations of (1) are expressed by two sentences that differ only in the direction of the INDEX (see (2),a, and (2),b). The brackets around the subscripts in (2) indicate that the referents of the name signs PETER and MARC in previous discourse already have been associated with locations 3a and 3b, respectively.

- (2) a PETER_[3a] ZEGGEN MARC_[3b] LIEGEN INDEX_{3a}
 Peter_i say Marc_j lie pro-3_{s_i}
 'Peter_i tells Marc_j that he_i is lying'
- b PETER_[3a] ZEGGEN MARC_[3b] LIEGEN INDEX_{3b}
 Peter_i say Marc_j lie pro-3_{s_j}
 'Peter_i tells Marc_j that he_j is lying'

The examples from SLN given here include no verbs on which agreement can be marked. In anticipation of the next Section in which agreement will be discussed, it should be noted that when the signer uses no INDEX but instead a verb which takes agreement, ambiguity would also be avoided.

2. Agreement in SLN

A subject that has received ample treatment in sign language linguistics is agreement, especially with respect to American Sign Language (ASL) (cf. Fischer and Gough 1978, Padden 1981, 1988), but also for other sign languages, like for instance Italian sign language (Pizzuto 1986), Danish Sign Language (Engberg-Pedersen 1986) and SLN (Bos 1988, 1990).

With respect to agreement, there are two major groups of verbs in SLN: on the one hand, agreement verbs which can agree in person or location with their arguments, and on the other hand non-agreement verbs which cannot. Non-agreement verbs will not be discussed here.

Agreement in SLN takes the form of systematic formal changes in the citation form of verb signs. The citation form of a sign is understood to be the least complex form that represents the whole paradigm and from which the other forms can most directly be derived (Appel et al. 1992:78). The formal changes in agreement are related to the real and established locations in the signing space, and affect some of the basic elements in the sublexical structure of signs. In this sublexical structure the following basic elements are distinguished, referred to as *parameters* in the sign language literature:

- place of articulation (location);
- handshape;
- orientation of the hand: palm and finger orientation;
- movement;
- nonmanual component (for instance a obligatory facial expression or word picture that are part of a sign).

In the process of agreement three of these parameters are subject to change:

I. Location. In a group of agreement verbs, the place of articulation changes. That is, the verb is produced at another location than in its citation form, namely at a location with which one of its arguments is associated. Examples in SLN are VINDEN 'find', and BEGINNEN 'begin'.

II. Movement. In another group of verbs, it is the direction of the movement that is affected in the process of agreement. In the citation form of these verbs there is generally a horizontal movement conjoining a beginning and an end point. In agreement the beginning and end point of the movement are changed, and as a consequence the direction of the movement is also altered. These verbs are referred to as *directional verbs* and will be discussed in more detail in Section 2.1. Examples in SLN are GEVEN 'give', and ANTWOORDEN 'answer'.

III. Orientation. In a third group of verbs the formal changes in agreement are associated with the orientation of either the palm of the hand, or the fingers. In verbs with alternating palm orientation, the orientation of the back of the hand is associated with subject function, and that of the palm with object function.⁶ In, for instance, the agreeing form $_2\text{ROEPEN}_{3b}$ 'you call him/her', the back of the hand is directed towards location 2, and the palm towards location 3b, thereby signalling a second person singular subject and a third person singular object.

In verbs with alternating finger orientation, agreement is affected by directing the fingers at the location associated with the object. An example is the verb PLAGEN 'tease'. For example the form $_{3a}\text{PLAGEN}_1$ 'he/she teases me', with the fingers oriented towards the signer's body, agrees with a third person singular subject and a first person singular object.

From this summarizing inventory it should be clear that verbs with directional or orientational changes (II and III) have the potential to agree with two of their arguments, whereas verbs with locative modification (I) can agree with only one. In the remainder of this article only multiple agreement verbs will be discussed.

⁶ Throughout this article the notions 'subject' and 'object' will be used to describe the agreement system of SLN. However, at this stage of the research it is not clear yet whether the use of these notions is justified. It might well turn out that instead the semantic or thematic roles of the arguments are more relevant to capture the agreement facts in SLN. In Section 2.1 semantic roles will be referred to briefly when discussing the analysis of agreement in Australian Sign Language by Johnston (1992).

It must also be noted that the agreeing elements of agreement verbs, just like pronominal INDEXes, can always unambiguously be matched with the nominal constituents they signal, because an agreeing element like an INDEX is produced with respect to a location in the signing space that is uniquely associated with a nominal constituent and its referent.

2.1 s-V-o-types and o-V-s-types. In sign language linguistics, generally two subgroups are distinguished within the group of directional verbs: s-V-o-types and o-V-s-types (cf. Padden 1981, 1988, Pizzuto 1986, Bos 1990). s-V-o-types then are described as verbs of which the beginning point of the movement signals the subject and the end point the object. That is, the movement of the verbs starts at the location that is associated with the subject and ends at the location of the object. In for example the form ${}_2\text{GEVEN}_{3a}$ 'you give him/her', the hand moves from location 2 towards location 3a, thus signalling a second person singular subject and a third person singular (indirect) object.

In o-V-s-types the direction of the movement is reversed: the hand moves from the location associated with the object towards that of the subject. An example of this group is KIEZEN 'choose (someone, something)'. In the form ${}_2\text{KIEZEN}_{3a}$ 'he/she chooses you', the direction of the movement is exactly the same as in ${}_2\text{GEVEN}_{3a}$, that is, from location 2 to 3a. However, ${}_2\text{GEVEN}_{3a}$ signals a second person singular subject and a third person singular object, whereas ${}_2\text{KIEZEN}_{3a}$ is said to agree with a third person singular subject and a second person singular object. The difference between the two subgroups, then, is that the position of the agreeing elements is exactly opposite.

If these two subgroups indeed do exist as defined here, they pose a problem for the analysis of the agreement system in SLN (and other sign languages). It would imply that the elements for subject and object agreement do not have fixed positions within the verb, and as a consequence there would be no one-to-one correspondence between position within the verb and grammatical function. One should notice however that in setting up this distinction the categories of subject and object are taken from the spoken language equivalents as in English and Dutch (see also footnote 6). Johnston (1992) also points this out, and argues that instead of having to do with subject and object, the beginning and end point of these verbs agree with Locative source and Locative goal respectively. With respect to ASL a similar analysis was proposed by Friedman (1976). Johnston goes on to argue that Locative source and Locative goal often coincide with Agent and Patient roles, but not necessarily. Looking at the two subgroups from this point of view, it turns out that o-V-s-types are not simply reversals of s-V-o-types, but instead that both verb types move from Locative source towards Locative goal, GEVEN 'give' as well as KIEZEN 'choose'. In GEVEN 'give', however, the Locative source is associated with the Agent and the Locative goal

with the Patient; with a verb like KIEZEN 'choose' these associations are reversed.

The advantage of using the notions of Locative source and Locative goal is that regularities are revealed which are obscured when using subject and object terminology only. However, in my view the approach of Johnston does not really bring us further, as the problem within his analysis then is how to match Locative source and Locative goal with Agent and Patient roles. Also, there are some examples of agreement verbs that do not behave in accordance with the Locative source -Locative goal analysis. Padden for instance (1988:177) observes that the endpoint of the ASL o-V-s-type verb INVITE agrees with the subject and not with the locative goal. One might argue however that with this verb subject and locative goal generally will coincide. A better example of a verb behaving differently might be the verb CATCH in Italian sign language and that in ASL. Pizzuto (1986:21) and Padden (1988:242) both classify CATCH as a s-V-o-verb. In my view that would mean that in these languages CATCH moves from the locative goal towards the locative source which does not comply with the analysis proposed by Johnston.

Another way of dealing with the markings on verbs like KIEZEN 'choose', might be that in fact the Theme or Patient is the subject and the Experiencer the object. Thus the class of o-V-s-types may parallel the 'Experiencer' verbs of spoken languages (cf. Perlmutter 1983; Belletti and Rizzi 1988).

2.2 Paradigm of multiple agreement verbs and agreement pattern. In principle the paradigm of multiple agreement verbs exhibits different forms for every combination of person category of subject and object (1s-V-2s, 1s-V-3s, 2s-V-1s, etc.). However, research into SLN and other sign languages has shown that the realization of agreement is to some extent optional, although it must be added that it is not altogether clear whether 'optional' is the correct characterization, or whether perhaps structural or pragmatic conditions exist for the selection of agreement marking. It has also been shown that the absence of agreement, where it might be expected given the linguistic context, most frequently occurs for subject agreement (cf. Padden 1981, Pizzuto 1986, Engberg-Pedersen 1986 and for SLN Bos 1988). That is, it is not exceptional for a multiple agreement verb to agree with only one argument instead of with two, and in those instances the argument agreed with is generally the object. This leads to the following pattern: multiple agreement verbs agree either with subject and object, or with only object, or with none at all. Instances in which an agreeing verb form signals the subject but not the object are exceptional.

2.3 Typology of the agreement system in SLN. In the typology of agreement systems a distinction is made between 'genuine inflectional agreement' on the one

hand, and 'rich agreement' or 'cross-referencing' on the other hand (cf. Mallinson and Blake 1981, Andrews 1985). The concept of 'genuine agreement' seems to be defined in the literature from a negative point of view: an agreement system is characterized as such when it appears not to be an example of cross-referencing. Cross-referencing systems, then, are generally characterized as showing an elaborate verbal paradigm, often with fixed positions within the verb for the elements which crossreference the subject and object. These elements, usually affixes or clitics, are marked for the grammatical properties of the subject and object, like gender, number, person, case or noun class. Because of these characteristics the cross-referential elements can unambiguously be associated with nominal constituents in the clause. Therefore the agreeing elements in cross-referencing systems are themselves pronominal.

I would like to argue that the agreement system of SLN is of the cross-referencing type, as the multiple agreement verbs in SLN clearly exhibit an elaborate paradigm with distinct forms for every person category of subject and object. In general the agreeing elements also have fixed positions within the verb, although the alternation between the so called s-V-o- and o-V-s-types should be adequately dealt with (see Section 2.1). In Section 3 it will be shown that the characterization of agreement in SLN as cross-referencing is supported by prodrop-data.

3. *Prodrop in SLN*

In the linguistic tradition it is a commonplace that there is a relation between the 'richness' of an agreement system and the possibility of prodrop (cf. Jaeggli and Safir 1989). As the agreeing elements in cross-referencing are themselves pronominal, in many languages with rich agreement subject and object pronomina need not be overtly expressed.

In relation to the work on agreement in sign languages, prodrop phenomena have been studied as well (cf. Lillo-Martin 1986; Pizzuto 1986). Previous research into prodrop in SLN has shown that null arguments quite clearly are allowed: subjects as well as objects don't necessarily have to be expressed separately by a pronominal or nominal sign when an agreeing verb form is present (Bos 1988). However, an analysis of a subportion of the present data has shown that in clauses with an agreeing verb form object-drop occurs much more frequently than subject-drop (Bos 1993a). This asymmetry might mirror the fact that in SLN agreement with object is more frequently realized than agreement with subject (see Section 2.2). At the same time the data also show that, if such a relation indeed exists, this does not amount to a one-to-one correspondence between the presence of agreeing elements and the absence of independent expression of the subject and object. In the first place, subject and object both can be expressed independently by a pronominal sign when they are also signalled by agreement,

although this occurs much more often for the subject than for the object. Secondly, null arguments also occur in the absence of agreement (for a more detailed account of these findings, see Bos 1993b). This latter finding might imply that, as in ASL, there are in fact two kind of null arguments in SLN: null pronominal arguments as in (spoken) Spanish or Irish, and null variable arguments as exhibited by Chinese. With respect to ASL this has quite convincingly been argued for by Lillo-Martin (1986): she demonstrated that null arguments sanctioned by verb agreement are not of the same kind as those that occur with non-agreement verbs. The occurrence of both kinds of null arguments in one and the same language would therefore not be an exclusive feature of SLN. Nor does it seem to be restricted to sign languages, as it has been claimed that Korean and Thai allow null pronominal objects as well as null variable objects (Cole 1987).

4. Examples from SLN

The example represented in (3) to (6) is taken from SLN-discourse and exemplifies the phenomena of localization, agreement and prodrop discussed in the preceding sections.⁷

- (3) eg3a
H NU BIJ BUREN INDEX_{3a}//
Hans nu bij bu - ren
Hans now with neighbours pro-3s
'Hans is with the neighbours now'
- (4) request
ALSJEBLIEFT ₂ROEPEN_{3a}, NU TIJD
roe nu
please 2s-call-3s now time
'Will you please call him, it is time now'
- (5) MOETEN INDEX₁ ₁GAAN-NAAR_{3b} ZIEKENHUIS ₁GAAN-NAAR_{3b}
m - o - e zie - ui
must pro-1s 1s-go-to-3s hospital 1s-go-to-3s
'I have to go to the hospital'

⁷ Glosses of signs are represented in capitals. Over these, concomittant nonmanual signals are represented, the underlinings indicating their duration (eg3a = eye-gaze 3a). The line under the glosses represents word pictures: (parts of) Dutch words which are mouthed during the production of the signs, typically without voice.

	<u>eg3a</u>				<u>question</u>
(6)	H _{3a} BRENGEN ₁ //	INDEX ₂	₂ ROEPEN _{3a}	INDEX ₂ //	
	Hans breng	ka	- n -	n	
	Hans 3s-bring-1s	pro-2s	2s-call-3s	pro-2s	
	'Hans will bring me. Could you call him?'				

In (3), Hans is localized at location 3a by means of an INDEX and eye-gaze towards that location. In (5), the hospital being talked about is localized at location 3b by using an agreeing form of the verb GAAN-NAAR 'go-to'. In (5) and (6), there are several instances of pronominal reference through the use of INDEX and eye-gaze. Multiple agreement is realized on the form ₂ROEPEN_{3a} 'you call him', ₁GAAN-NAAR_{3b} 'I go there' and _{3a}BRENGEN₁ 'he brings me'. Note that the end point of _{3a}BRENGEN₁ 'he brings me' agrees with the object or Patient, not with Location or Locative goal. Finally, prodrop for subject and object occurs with ₂ROEPEN_{3a} in (4), and only for the object with _{3a}BRENGEN₁ in (6). With ₂ROEPEN_{3a} in (6) there is also object-drop but here the subject is pronominally expressed twice.

6. Concluding remarks

As in other sign languages previously investigated, in SLN a class of verbs exists that can be modified to agree with one or two of their arguments. Looking at its formal properties, I have argued that the agreement system in SLN must be regarded as an example of 'rich agreement' or cross-referencing.

In SLN, agreement with the object is more frequently realized than with the subject, which might be mirrored by the higher incidence of object-drop than subject-drop. However, there are reasons to argue that insofar as a correspondence exists between the higher incidence of object agreement and object-drop, this seems to be a general characteristic of SLN as the two phenomena are not directly related. That is to say that the realization of subject and object agreement in a clause does not imply that subject- and object-drop will occur.

The phenomena of agreement and prodrop in SLN as discussed in the previous sections give rise to two major goals for further research. One is to establish in what way semantic notions and/or syntactic functions play a role in the selection of agreement and to what extent the notions of Locative source and Locative goal should be incorporated in the analysis. The second goal is related to null arguments in SLN. It was shown that SLN allows null arguments in the absence of agreement, and therefore it was suggested that in SLN two kinds of null arguments exist, that is, empty pronouns in the presence of agreeing verbs and empty topics with non-agreeing verbs. To establish whether both kinds of empty elements indeed exist and under what conditions they are licensed is another aim of my research.

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