

On classifying classification as a class of inflection in German Sign Language

Susanne Glück and Roland Pfau

All sign languages examined so far allow for classifying verbs, but the exact status of this word formation process has been a matter of some debate. We shall consider the different options - lexical vs. syntactic word formation - and claim that for German Sign Language a syntactic analysis is more promising, i.e. we take classification to be an instance of inflection. As we will show, such an analysis is reasonable not only on theoretical grounds, but is supported by empirical data, too.

1. Introduction

Classification is a widespread yet not at all homogenous phenomenon found in a variety of spoken and signed languages. In this paper we will be dealing with the possibilities of verb classification in German Sign Language (Deutsche Gebärdensprache: DGS). Two major questions arise: 1. What kind of classification are we dealing with? and 2. How is classification to be described in terms of grammar theory? We shall try to convince you that classification in DGS is neither a lexical word formation process nor an instance of incorporation, as is assumed in the literature. Rather we are going to show that classification is an inflectional process.

In section 2 we are going to present the relevant data from DGS. Then we are going to demonstrate why the phenomenon can neither be analyzed as an instance of lexical word formation (section 3) nor as incorporation (section 4.1.). In section 4.2. we will show that classification fits neatly into the feature set Anderson (1992) has proposed for characterizing inflectional processes. Finally and most importantly, we will present syntactic evidence for our analysis from left dislocation constructions in section 5.

2. The data

Referring to the typology proposed by Allan (1977), DGS is readily characterized as a language of the predicate classifier type.¹ Three types of predicate classification have to be distinguished in DGS; they all have in common that the verb classifies certain properties of an argument NP by means of changing the phonological parameters handshape and handorientation: In (1a) intransitive agentive verbs classify their subjects, in (1b) it is an intransitive non-agentive verb that classifies its subject, and in (1c) an object is classified by a transitive verb.²

- | | | |
|--------|--|---|
| (1) a. | CAT WALK-CL _{4-legs} | PERSON WALK-CL _{2-legs} |
| | ‘A cat walks’ | ‘A person walks’ |
| | b. BALL ROLL-CL _{big} | PENCIL ROLL-CL _{small} |
| | ‘A ball rolls’ | ‘A pencil rolls’ |
| | c. (I ₁) FLOWER ₁ GIVE ₂ -CL _{thin} | (I ₁) APPLE ₁ GIVE ₂ -CL _{round} |
| | ‘I give a flower to you’ | ‘I give an apple to you’ |

Figure (2) from Boyes Braem (1995:81) shows an example of object classification from Swiss Sign Language (which is very similar to DGS). In this example the verb *EAT* classifies its direct object *APPLE*. In the example the classifier handshape for objects with round/extended surface (2a) is used instead of the neutral (infinitival) handshape (2b). Still another handshape (the C-handshape) would be used for objects like e.g. a sandwich, possibly with a copy on the non-dominant hand.

(2) a.

b.

Sorry; picture missing

Sorry; picture missing

Handshape for the class of
objects with round surface

EAT (neutral)

¹ The other types Allan mentions are numeral classification (e.g. Thai, Burmese), concordial classification (e.g. Swahili) and intralocative classification (e.g. Dzirbal).

² All sign language examples are represented in capital letters. We wish to stress that the classifier morphemes which are separated by hyphens in the examples are not affixes but infixes, i.e. stem internal modifications which can be compared to ablaut or umlaut in spoken languages.

c.

Sorry; pictures

MAN

INDEX₁

APPLE

EAT-CL_{round}

As the examples in (3) demonstrate, classification affects verbs of movement and location only (cf. Supalla 1986); the verbs in (3ab) do not classify their objects.

(3) a. *I BOOK BUY-CL_{flat}
'I buy a book'

b. *I PENCIL SEE-CL_{thin}
'I see a pencil'

But how do classifiers come to be a morphological part of the verb? Two options have to be considered: Either 1. The classifying morpheme is attached to the verb by a lexical word formation process similar to compounding and the complex verb as a whole is inserted into a syntactic frame (section 3), or 2. classification is the result of an interplay between morphology and syntax (section 4).

3. Lexical word formation

For spoken languages, Rosen (1989) has proposed a lexical word formation process which she calls 'classifier noun incorporation' (to be distinguished from 'compound noun incorporation'). She does not treat noun incorporation (NI) as a syntactic word formation process (cf. section 4.1.) but as a type of lexical word formation similar to compounding. The argument structure of the complex (classifying) verb is not altered by this word formation process. The incorporated element behaves like an agreement marker which licenses a phonetically empty direct object NP (*pro*). Rosen predicts that the head of the direct object can be filled by a lexical noun, which may lead to some kind of doubling. She states that the name 'classifier NI' was chosen because the object noun phrase (if overt) must be more specific than the incorporated

element. This is exactly the pattern we observe in classifier languages.³ Interestingly, this restriction holds for DGS, too, as the examples in (1) and (2) illustrate: The classifier on the verb is always less specific than the NP it classifies.

But on second sight it turns out that this is no adequate explanation for the word formation process under investigation. Since Rosen analyses *pro* as an X^0 -element, she predicts that after incorporation material (like quantifiers and adjectives) can be left behind in the object NP; i.e. languages of the classifier NI type should allow for stranding (in fact, this is true for spoken languages; cf. Allen et al. (1984) for examples from Southern Tiwa). In DGS, however, stranding of material is not an option. Consider, for example, the following sentence with a stranded numeral which is ungrammatical: **MAN-IND₁ WOMAN-IND₂ THREE₁ GIVE₂-CL_{flower}* ‘The man gives three flowers to the woman’.

As a matter of fact, another prediction Rosen makes for classifier NI does not hold for DGS either: In classifier NI languages doubling is not obligatory, i.e. the underlying syntactic position of the object can remain phonetically empty. In section 4.1. we show that, contrary to Rosen’s prediction, doubling seems to be obligatory in DGS.

We conclude that the solution Rosen suggests does not hold for DGS. We will be concerned with the second option - classifying verbs resulting from an interplay between syntax and morphology - in the following section.

4. Syntactic word formation

Many authors (e.g. Supalla 1986, Schick 1990) distinguish classifiers according to physical properties of their referents, often assuming that classification reflects some kind of cognitive categorization of entities. According to this assumption, CLASS-classifiers have been distinguished from HANDLE-classifiers, the former representing e.g. objects like land- vs. water-vehicles or human vs. non-human beings, the latter reflecting the handling of an object (e.g. round vs. thin objects)⁴.

In our opinion grouping of classifiers according to physical properties of their referents is not very useful because it is completely arbitrary which physical properties are being classified. Classifiers may often seem iconic at first glance, but as a matter of fact it is neither predictable which property of an

³ For that reason a structure like *You animal-bought a dog* should be possible, while a structure like *You dog-bought an animal* is predicted to be ungrammatical, since *animal* is the less specific category (cf. Woodbury 1975).

⁴ A third type that has been proposed are SASS-classifiers (‘size and shape specifier’). In a SASS-construction the handshape represents visual-geometric properties of the referent by indicating its size through handshape and movement. While CLASS- and HANDLE-classifiers appear as a morphological part of the verb, SASS-classifiers behave syntactically more like NP-modifying adjectives. This difference in categorial status becomes evident when the size and form established by a SASS serve as a point of reference for verb classification later in the discourse; e.g. *PAPER BIG₁ GIVE₂-CL_{flat}* ‘I give the poster to you’, where *BIG* is the SASS-classifier and *CL_{flat}* the verbal classifier referring to it.

object or a living being gets classified nor how classification is being accomplished.

Edmondson (1990) convincingly argued that classifiers in sign languages have nothing to do with the reflection of common cognitive categories. For that very reason he claims that a semantic division of classifiers is theoretically problematic. He shows that e.g. vehicles are classified differently across sign languages: In British Sign Language four-wheeled vehicles are classified with a vertically oriented flat hand; in DGS, however, this is accomplished with a horizontal flat hand, and in ASL the 3-hand is used. The arbitrariness of classifiers is not only observed across sign languages but holds within a single sign language, too. With *WALK*, for example, the human/animal-distinction is of importance (1a), with *ROLL* it is the size of the object that matters (1b), and with *GIVE* (1c) and *EAT* (2) it is the shape of the object.

We claim that syntactic processes play an important role in classification. Instead of looking at physical properties we suggest to consider syntactic relations as a basis for the grouping of classifiers, i.e. classifying verbs. Since the verb is modified in its morphological structure on the basis of syntactic relations, we take this process to be an instantiation of syntactic word-formation. Within a syntactic analysis the relevant questions are: Which argument is classified, how are the features structurally assigned, and how are they morphologically realized on the verb?

In our opinion a syntactic analysis is to be preferred because it is not confronted with the problem of arbitrariness. It leaves open only two possibilities of word formation, namely word formation by head movement (incorporation) or word formation by assignment of features to nodes in a syntactic structure and spell-out (inflection). We are going to discuss both possibilities in turn, the movement analysis in the next section and the feature analysis in 4.2.

4.1. Incorporation?

In literature on classification in signed languages one often comes across the term ‘incorporation’; for that reason we are going to consider this possibility first.⁵ Quite obviously, the term is used here without referring to its linguistic definition (e.g. Baker 1988). This leads to the uneasy assumption that if classification was incorporation then the classifier on the verb would be an incorporated subject- or object-NP. However, it is quite easy to show that this is not the case.

The well-known examples from Mohawk in (4) illustrate that subject incorporation is impossible in general since the subject trace would not be strictly governed (Baker 1988:81f); for that reason sentence (4c) is ungrammatical.

⁵ ‘Mainly the transformation is expressed by means of the **incorporation of the subject and/or object** into the suprajacent [i.e. the predicate]. The incorporation constitutes the appearance of a morphosyntactically modified sign.’ (Papasprou 1990:165; our translation).

- (4) a. Yao-wir-a?a ye-nuhwe?-s ne ka-nuhs-a?
 PRE-baby-SUF 3fS/3n-like-ASP DET PRE-house-SUF
 ‘The baby likes the house’
- b. Yao-wir-a?a ye-**nuhs**-nuhwe?-s
 PRE-baby-SUF 3fS/3n-house-like-ASP
 ‘The baby house-likes’
- c. *Ye-**wir**-nuhwe?-s ne ka-nuhs-a?
 3fS/3n-baby-like-ASP DET PRE-house-SUF
 ‘Baby-like the house’

Applied to DGS it follows that subject classification with agentive intransitive verbs cannot be incorporation. But what about subjects of unaccusative verbs (1b) and objects (1c)?⁶

In DGS a sentence like *The man gives a flower to the woman* has to be signed like in (5a). A real incorporation structure with a trace in the argument position (after incorporation of the direct object *FLOWER* into the verb) would look like (5b); but this structure is ungrammatical since the classifier is not specific enough to express the desired facts. On the other hand, Baker stresses that there should always exist an analytic counterpart to an incorporation structure. But this non-incorporated variant (5c), i.e. the variant with a non-classified verb, is ill-formed, too. However, we would expect it to be a possible paraphrase of (5a) if classification really were the same as incorporation.⁷

- (5) a. MAN-IND₁ WOMAN-IND₂ FLOWER_a ₁GIVE₂-CL_a
 ‘The man gives a flower to the woman’
- b. *MAN-IND₁ WOMAN-IND₂ ₁GIVE₂-CL_{flower}
 ‘The man gives a flower to the woman’
- c. *MAN-IND₁ WOMAN-IND₂ FLOWER ₁GIVE₂
 ‘The man gives a flower to the woman’
- d. MAN-IND₁ WOMAN-IND₂ PENCIL_a ₁GIVE₂-CL_a
 ‘The man gives a pencil to the woman’

As you can see, the object NP *FLOWER* is not moved, rather there is a kind of doubling. But the external object NP isn’t a copy of the classifier, either. The classifier is less specific as example (5d) illustrates where the same classifier is used as in (5a). It is the interplay of object NP and classifier that yields the correct meaning.

To sum up, a closer examination reveals that on the one hand an analytic

⁶ Subjects of unaccusative verbs have to be analyzed as underlying (thematic) objects (e.g. *The ball rolls*). Polinsky (1990) and Spencer (1995) discuss problematic cases of incorporated agentive subjects and adjuncts, but we shall not consider their data here.

⁷ Some comments on notations: *-IND_x* stands for the positioning of an NP in the signing space by means of pointing; in a discourse this point in space can later be referred to (cf. section 5.1.). In the DGS examples a numeral index indicates person agreement while a letter index indicates what argument the classifier on the verb refers to.

structure with the same meaning is not available (like, for example, in the Mohawk examples (4ab)), and, on the other hand, even subjects of agentive intransitive (unergative) verbs, which can never incorporate, can perfectly be classified.

4.2. Inflection!

Having shown that classification in DGS is not the same as incorporation we are now going to have a closer look at inflection. In the previous sections we showed that classifying verbs always share at least one feature with the subjects or objects they classify. As we mentioned earlier, we are not interested in the semantic content of those features, i.e. the semantic properties the features seem to represent. Rather, we will concentrate on their syntactic properties.

In our opinion classification in DGS is an instance of inflection (cf. Glück & Pfau 1997). According to this view, verbs differ in general from each other in that they either classify their subjects and/or objects or they do not classify at all.⁸ The classified features are inherent properties of NPs (like for example gender). These features are assigned to the verb according to properties of the syntactic structure.

To justify the conclusion that classification is an instance of inflection, we should first have a closer look at the properties which distinguish inflection from purely lexical word formation processes like derivation or compounding. Anderson (1992:82) describes a set of properties which ‘would traditionally be called „inflectional“’; he states that these properties can be divided into four types which are listed below in (6). According to Anderson, inflection is the only word formation process which is - although in a very limited way - sensitive to syntactic relations and features.

- (6) a. **Configurational properties** which are assigned on the basis of the larger syntactic structure within which a word appears (e.g. case).
- b. **Agreement properties** which are assigned to words by reference to the value on a particular 'paradigmatic dimension' of some other item within the same syntactic structure (e.g. subject-verb agreement).
- c. **Phrasal properties** which are assigned to larger constituents within a structure, but which may be realized on individual words that constitute only part of those structures.
- d. **Inherent properties** which are lexical characteristics of individual words that must be accessible to syntactic principles of agreement, etc. in order for these to operate correctly (e.g. gender).

Referring to the properties (6b) and (6d), classification can be characterized as

⁸ Whether a verb belongs to a classifying or non-classifying verbal paradigm should, of course, be part of its lexical entry in exactly the same way as its specification for a certain person agreement paradigm (see section 5.1.)

inflection, namely as an agreement phenomenon. Classifiers are assigned in a certain phrasal projection, and inherent properties of arguments (subject/object) are the relevant features for triggering classification.

Anderson (1992) suggests that the terminal elements of a syntactic structure are morphosyntactic representations (MSR) instead of lexical elements. Those MSRs contain information about the sequencing and the spell-out of syntactically assigned features in the morphological structure of a word. If there is a multiple assignment of features of the same paradigmatic dimension (e.g. agreement) to one MSR, then these features will be ordered hierarchically (the structure of an MSR is established through ‘Layering’ (Anderson 1992:94)). This implies that in a transitive MSR the assignment of object features leads to a partial MSR which is structurally similar to the MSR of an intransitive verb. Contrary to the intransitive MSR in the transitive case, the agreement features of the subject are subsequently assigned in the derivation. This means that the object features will be hierarchically subordinate to the subject features.

For transitive verbs in DGS, i.e. object classifying verbs, the principle holds that object agreement precedes subject agreement. The sequencing of subject and object agreement is not specific for a certain language, instead Anderson (1992) and Baker (1985) consider it to be a universal constraint: The direct object is the sister of V^0 , the indirect object and the subject are hierarchically higher.

In DGS classifying transitive verbs always classify the object and classifying intransitive verbs always classify the subject; this follows from structural properties of the respective MSR and from properties of the DGS agreement paradigm, which allows for only one argument to be classified.

5. Syntactic evidence

According to the properties Anderson described as characteristic for inflection (cf. (6)), we argued that classification in DGS should be analyzed as an instance of inflection. So far, our arguments in favour of this analysis have been based on theoretical considerations, i.e. we have shown that it is possible to describe classification in terms of those properties. In a next step, we want to turn to left dislocation structures in ASL and DGS, which we believe to yield convincing evidence for our analysis.

5.1. Types of verbs and null arguments in DGS

In DGS and ASL different verb types have to be distinguished. Since this distinction is of great importance for the following argument, we briefly want to spell out these differences first. On the one hand, verbs that are used with classifiers have to be distinguished from those that are used without (e.g. *BUY* vs. *GIVE-CL_x*). On the other hand, three types of verbs have to be distinguished with respect to their agreement properties for person and place

information (cf. Fischer & Gough 1978; Padden 1988):

- a. plain verbs, e.g. *BUY*
- b. agreement verbs
 - I. verbs agreeing with their subject and object, e.g. *GIVE*
 - II. verbs agreeing only with their object, e.g. *FAX*
- c. spatial verbs, e.g. *PUT*

Non-agreeing verbs (e.g. *THINK*, *BUY*) do not show person agreement at all. Agreeing verbs, on the other hand, do show person agreement, which is realized as follows: The beginning and the end point of the verb sign correspond with points in space that have been established for the respective referents before.⁹ Agreeing verbs can agree with their subject and object (e.g. *GIVE*, *SHOW*) or with their object only (e.g. *FAX*). Finally, spatial verbs (e.g. *PUT*, *PLACE*) are those whose starting or end point agrees with points in space that have been established for a location (like a table).

Distinguishing the different verb types is of great importance in connection with the possibilities of pronominalization and the licensing of phonetically empty pronouns in sign languages. From the investigation of spoken languages (e.g. Italian, Spanish, Turkish) we know that it is the agreement morphology which licenses an empty pronoun *pro* (cf. Chomsky 1981; Rizzi 1986). This holds for DGS and ASL, too, where subject as well as object pronouns can remain phonetically empty.

Let us now consider the possibilities of pronominalization in DGS: In case a NP has been fixed in the signing space by means of indexing or by the starting and/or end point of an inflected verb's movement, pronominalization in a subsequent sentence can refer to these points, and inflected verbs can agree with them.

The examples in (7) illustrate the options of fixing index points in the signing space and the possibilities of referring to those points. In (7a) both sentences contain a plain verb. In the first sentence the NPs are located in the signing space by means of indexing; in the second sentence those fixed points can be used for overt pronominalization by pointing to the exact locations that have been established beforehand. In (7b), the second sentence is ungrammatical because the plain verb *BUY* requires overt pronominalization. In (7c), however, the second sentence is well-formed. Obviously the agreement verb *SHOW*, which starts at the first established point (*-IND₁*) and ends at the second one (*-IND₂*), does not require overt pronominalization, since its agreement morphology licenses empty pronouns.

- (7) a. MAN-IND₁ CHILD-IND₂ MEET. HE₁ HIM₂ ICE BUY
 'The man₁ meets the child₂. He₁ buys him₂ ice cream'

⁹ With present referents establishing points in space is not necessary, since these points are determined by the actual position of the respective person.

- b. MAN-IND₁ CHILD-IND₂ MEET. *ICE BUY
 ‘The man_i meets the child_j. (He_i) buys (him_j) ice cream’
- c. MAN-IND₁ CHILD-IND₂ MEET. BOOK₁SHOW₂
 ‘The man_i meets the child_j. (He_i) shows (him_j) a book’

From the examples in (7) we conclude that the agreement morphology in DGS is capable of licensing null arguments (the same is true for ASL; cf. Lillo-Martin 1986). In other words: Structures which require overt pronominalization with plain verbs are well-formed with phonetically empty pronouns if the sentence contains an agreement verb. In the next section we will see how the possibilities of pronominalization influence the grammaticality of left dislocation structures.

5.2. Left dislocation in topic-comment structures

Topic-comment sentences are a frequently used structural variant of the unmarked word order in DGS and ASL. In topic-comment structures an argument is positioned at the beginning of the sentence, accompanied by a facial expression (in DGS: raised eyebrows) that marks its status as a topic. Left dislocation can not be an instance of move-alpha. This is shown by the fact that with plain verbs a resumptive pronoun is obligatory in the position where the trace should be. Interestingly, with agreement verbs this resumptive pronoun is optional. In the following sections we are going to consider the different possibilities for left dislocation, first in ASL, then in DGS.

5.2.1. Person agreement as a licenser in ASL

For ASL Lillo-Martin (1991) has convincingly shown that the type of verb used affects the left dislocation of constituents. In the sentences (8ab), the subject of the sentence has been dislocated. Obviously, this is only possible with a resumptive pronoun in the comment part of the sentence, like in (8b). Sentence (8a) without such a pronoun is ungrammatical. In (8c), on the other hand, the overt resumptive pronoun is optional because *LOOK-OVER* is an agreement verb which agrees with the dislocated constituent and licenses an empty pronoun.¹⁰

¹⁰ The examples from Lillo-Martin (1991) were slightly modified to meet our notational conventions as explained in footnote 5. A line on top of a constituent indicates that the facial expression for marking a topic is used.

- (8) a. *BROTHER₁, JULIE₂ THINK pro₁ BRUSH-TEETH FINISH
 _____t
- b. BROTHER₁, JULIE₂ THINK PRONOUN₁ BRUSH-TEETH FINISH
 ‘My brother_i, Julie thinks he_i already brushed his teeth’
 _____t
- c. BROTHER₁, JULIE₂ THINK (PRONOUN₁)₁ LOOK-OVER₃
 CAR₃ FINISH
 ‘My brother_i, Julie thinks (he_i) already looked over the car’

The same is true for the left dislocation of objects as the sentences in (9) demonstrate. Only in (9c), where the agreement verb *GIVE* is used, the resumptive pronoun is optional in the embedded sentence; again, *GIVE* agrees with the dislocated constituent. (9a) is ungrammatical because an argument of the plain verb *EAT* has been dislocated without using a resumptive pronoun.

- _____t
- (9) a. *COOKIE₁, PRONOUN₂ HOPE SISTER₃ SUCCEED₃ PERSUADE₄
 MOTHER₄ EAT pro₁
 _____t
- b. COOKIE₁, PRONOUN₂ HOPE SISTER₃ SUCCEED₃ PERSUADE₄
 MOTHER₄ EAT PRONOUN₁
 ‘That cookie_i, I hope my sister manages to persuade my mother to eat
 it_i’
- _____t
- c. MAN₁, STEVE₂ SAY JULIE₃ FINISH₃ GIVE₁ (PRONOUN₁) BOOK
 ‘That man_i, Steve said Julie already gave a book to (him_i)’

5.2.2. Person agreement as a licenser in DGS

Next we want to demonstrate that the restrictions for left dislocation shown to be operative in ASL also hold for DGS. In (10b) and (11b) you can see that with a plain verb (*BUY*) overt pronouns have to be used whenever a subject or object is dislocated. With an agreement verb (like *SHOW*), however, the pronoun is, once again, optional. As might be expected, the embedded sentences in (10c) and (11c) are well-formed even with phonetically empty pronouns.

- _____t
- (10)a. *MAN-IND₁, CHILD THINK, pro₁ BOOK BUY
 _____t
- b. MAN-IND₁, CHILD THINK, HE₁ BOOK BUY
 ‘This man_i, the child thinks, he_i buys the book’

- _____t
- c. MAN-IND₁, CHILD THINK, (HE₁) WOMAN-IND₂ BOOK₁ SHOW₂
 ‘This man_i, the child thinks, (he_i) shows the book to the woman’
- _____t
- (11)a. *BOOK-IND₁, CHILD THINK, MAN pro₁ BUY
- _____t
- b. BOOK-IND₁, CHILD THINK, MAN IT₁ BUY
 ‘This book_i, the child thinks, the man buys it_i’
- _____t
- c. WOMAN-IND₂, CHILD THINK, MAN-IND₁ (HER₂) BOOK₁ SHOW₂
 ‘This woman_i, the child thinks, the man shows (her_i) the book’

We conclude that in DGS, as well as in ASL, it is the agreement morphology - in this case person agreement - that is capable of licensing a small *pro* in left dislocation constructions.

5.2.3. Classification as a licenser in DGS

According to our assumption that classification in DGS is an instance of inflection (namely agreement), we predict that classification will behave like person agreement. This implies that in left dislocation structures dislocation of a classified subject or object should be possible without using resumptive pronouns, i.e. classification should license *pro* just like person agreement does. This is true, indeed, as the examples in (12) show. The subjects in (12ab) can only be dislocated if there is a resumptive pronoun in the embedded sentence because the verb *TAKE* does not agree with its subject. However, *TAKE* classifies its object, which means it agrees with its object. For that reason, as (12c) shows, the object *GLASS* can be left dislocated without using a resumptive pronoun.

- _____t
- (12)a. *MAN-IND₁, CHILD THINK, pro₁ TABLE₂ GLASS_a TAKE-CL_a
- _____t
- b. MAN-IND₁, CHILD THINK, HE₁ TABLE₂ GLASS_a TAKE-CL_a
 ‘The man_i, the child thinks, he_i takes the glass off the table’
- _____t
- c. GLASS_a-IND₁, CHILD THINK, MAN (IT₁) TABLE₂ TAKE-CL_a
 ‘The glass_i, the child thinks, the man takes it_i off the table’

Obviously the same possibility holds for the classification of non-agentive subjects (13) and agentive subjects (14): In both cases left dislocation of the respective subject is possible without the use of a resumptive pronoun if the

verb in the embedded sentence is classified for the subject. The verb *ROLL* in (13), as well as the verb *GO* in (14), show no person agreement at all, i.e. the licenser for the null arguments in (13b) and (14b) can only be the classifier morphology.

- (13)a. CHILD THINK, PENCIL_a HILL₁ 1ROLL-CL_a
 ‘The child thinks, the pencil is rolling down the hill’
 _____t
- b. PENCIL_a-IND₁, CHILD THINK, (IT₁) HILL₂ 2ROLL-CL_a
 ‘This pencil_i, the child thinks, (it_i) is rolling down the hill’
- (14)a. CHILD THINK, DOG_a STREET₁ 1GO-CL_a
 ‘The child thinks that the dog is crossing the street’
 _____t
- b. DOG_a-IND₁, CHILD THINK, (IT₁) STREET₂ 2GO-CL_a
 ‘This dog_i, the child thinks, (it_i) is crossing the street’

These examples show that left dislocation of a constituent without a resumptive pronoun is only possible if the verb in the embedded sentence agrees with the left dislocated constituent. With respect to person agreement we referred to ASL data presented by Lillo-Martin (1991) and we confirmed her findings for DGS, too. Further we showed that in DGS classification is capable of licensing empty pronouns in the same way person agreement does. We take this to be a strong argument for our assumption that classification is an instance of inflection.¹¹

6. Conclusion

Predicate-classification in DGS is not a lexical word formation process which refers to certain (arbitrary) features of a given referent. Rather, we were able to show, it is an instance of inflection, namely subject- or object-agreement. Considering Baker’s (1988) theory of incorporation, we rejected a noun-incorporation analysis of the phenomenon. It turned out, however, that classification can adequately be described by these features which Anderson (1992) takes to be characteristic for inflectional processes. Morphosyntactic Representations account for the distribution of subject and object classification.

Restrictions on the left dislocation of constituents out of embedded

¹¹ Further evidence comes from language acquisition. Leuninger & Happ (1997) present data from a single case study of a girl acquiring DGS as a first language. These data prove that the classifier morphology is acquired by the child in the same period of time as is person agreement. Obviously the seeming iconicity of the morphological structure does neither influence the acquisition of agreeing verbs like *SHOW* (cf. Newport & Meier 1985) nor the acquisition of classifying verbs like *GIVE* (the same is true for the acquisition of personal pronouns; cf. Petitto 1987). The late acquisition can not be due to a complex structure of classifying handshapes because in non-classified signs exactly the same handshapes do appear at an earlier stage (cf. Kantor 1980, Schick 1990). For further details cf. Glück & Pfau (1998).

sentences yield strong evidence for our analysis. We showed that, as much as verbs with person agreement, classifying verbs are capable of licensing a phonetically empty pronoun *pro*. In sentences with plain verbs, however, resumptive pronouns are obligatory after left dislocation of a constituent because - due to lack of agreement - plain verbs do not license empty pronouns.

We left aside details of the phonological effects of classification. Classification is a non-concatenative morphological process which leads to a change in the phonological structure of the verb sign, namely a change of handshape. Various authors (e.g. Sandler 1989) have proposed to analyze handshape as an autosegment which is associated with the CV-skeleton of a sign (which is taken to consist of positions and movements; cf. Perlmutter 1992).

Finally, we wish to emphasize that the type of classification we have been dealing with in this paper contrasts sharply with the use of classifying verb stems in various languages. This clarification seems necessary because with respect to classification sign languages have often been compared to languages like Navajo where classifying verb stems find use. Consider e.g. the different verb stems of the verb *eat* as listed by Landar (1964). Those stems are used according to what kind of thing is eaten (e.g. meat, long object, round object; cf. (15)). The crucial difference to classifying verbs in DGS is that the Navajo verbs are not formed by any kind of word formation process, rather, they are completely lexicalized forms.¹²

- | | | | | | |
|--------|----------------|--------------------------|----|---------------------------|--------------------------|
| (15)a. | naatáá? | yi- Itsoz | b. | thazii | yi- syal |
| | corn | PERF-eat _{LONG} | | turkey | PERF-eat _{MEAT} |
| | '(I) ate corn' | | | '(I) ate turkey' | |
| | c. | pilasáana | | yi- skhit | |
| | | apple | | PERF-eat _{ROUND} | |
| | | '(I) ate an apple' | | | |

This difference implies that with respect to predicate classification sign languages should not be compared to languages of the Navajo type. It does not imply, however, that we do not find lexicalized classificatory verbs in DGS at all. The DGS verb *SWIM*, for example, is a case in point. Like the verb stems in (15), the different forms of *SWIM* (e.g. *DOG SWIM*_{4-legs} 'A dog is swimming' vs. *MAN SWIM*_{human} 'A man is swimming') are unrelated and completely different in their phonological structure.

¹² Cf. Hoijer (1945), Haas (1948), Landar (1967), Krauss (1968), Carter (1976), and Rushforth (1991) for further examples from a variety of North American languages. Cf. Mithun (1986) for examples of morphological predicate classification in Caddo.

7. Acknowledgements

We wish to thank Daniela Happ whose help with the DGS data was of great importance to us. Further thanks go to Helen Leuninger and Katharina Hartmann for valuable comments on an earlier draft, and to Bettina Seifried for checking our English.

8. References

- Allan, K. (1977). Classifiers. *Language* 53, pp. 285-311.
- Allen, B.J., D. Gardiner & D.G. Frantz (1984). Noun incorporation in Southern Tiwa. *International Journal of American Linguistics* 50, pp. 292-311.
- Anderson, S.R. (1992). *A-morphous morphology*. Cambridge University Press, Cambridge.
- Baker, M.C. (1985). The mirror principle and morphosyntactic explanation. *Linguistic Inquiry* 16:3, pp. 373-415.
- Baker, M.C. (1988). *Incorporation. A theory of grammatical function changing*. University of Chicago Press, Chicago.
- Boyes Braem, P. (1995). *Einführung in die Gebärdensprache und ihre Erforschung*. Signum, Hamburg.
- Carter, R.M. (1976). Chipewyan classificatory verbs. *International Journal of American Linguistics* 42, pp. 24-34.
- Chomsky, N. (1981). *Lectures on government and binding*. Foris, Dordrecht.
- Edmondson, W.H. (1990). A non-concatenative account of classifier morphology in signed and spoken languages. Prillwitz, S. & T. Vollhaber (eds.), *Current Trends in European Sign Language Research*. Signum, Hamburg, pp. 187-202.
- Fischer, S. & B. Gough (1978). Verbs in American Sign Language. *Sign Language Studies* 18, pp. 17-48.
- Glück, S. & R. Pfau (1997). Einige Aspekte der Morphologie und Morphosyntax in Deutscher Gebärdensprache. *Frankfurter Linguistische Forschungen* 20, pp. 30-48.
- Glück, S. & R. Pfau (1998). Eine Klasse für sich! Klassifizierende Verben in Deutscher Gebärdensprache. To appear in: *Zeitschrift für Sprachwissenschaft*.
- Haas, M.R. (1948). Classificatory verbs in Muskogee. *International Journal of American Linguistics* 14, pp. 244-246.
- Hoijer, H. (1945). Classificatory verb stems in the Apachean languages. *International Journal of American Linguistics* 11, pp. 13-23.
- Kantor, R. (1980). The acquisition of classifiers in American Sign Language. *Sign Language Studies* 28, pp. 193-208.
- Krauss, M.E. (1968). Noun-classification systems in Athapaskan, Eyak, Tlingit and Haida verbs. *International Journal of American Linguistics* 34, pp. 194-204.
- Landar, H. (1964). Seven Navaho verbs of eating. *International Journal of American Linguistics* 30, pp. 94-96.
- Landar, H. (1967). Ten'a classificatory verbs. *International Journal of American Linguistics* 33, pp. 263-268.
- Leuninger, H. & D. Happ (1997). Lena: Gebärdenspracherwerb trotz Input. *Frankfurter Linguistische Forschungen* 20, pp. 83-96.
- Lillo-Martin, D.C. (1986). Two kinds of null arguments in American Sign Language. *Natural Language and Linguistic Theory* 4, pp. 415-444.
- Lillo-Martin, D.C. (1991). *Universal grammar and American Sign Language: Setting the null argument parameters*. Kluwer, Dordrecht.
- Mithun, M. (1986). The convergence of noun classification systems. Craig, C. (ed.), *Noun Classes and Categorization*. Benjamins, Amsterdam, pp. 379-397.
- Newport, E. & R. Meier (1985). The acquisition of American Sign Language. Slobin, D. (ed.), *The Crosslinguistic Study of Language Acquisition, Vol. 1: The Data*. Erlbaum, Hillsdale, NJ, pp. 881-938.
- Padden, C. (1988). *Interaction of morphology and syntax in American Sign Language*. Garland,

- New York.
- Papaspyrou, C. (1990). *Gebärdensprache und universelle Sprachtheorie*. Signum, Hamburg.
- Perlmutter, D. (1992). Sonority and syllable structure in American Sign Language. *Linguistic Inquiry* 23:3, pp. 407-442.
- Petitto, L.A. (1987). On the autonomy of language and gesture: Evidence from the acquisition of personal pronouns in American Sign Language. *Cognition* 27, pp. 1-52.
- Polinsky, M.S. (1990). Subject incorporation: Evidence from Chukchee. Dziwirek, K. et al. (eds.), *Grammatical Relations: A Cross-Theoretical Perspective*. CSLI, Stanford, pp. 349-364.
- Rizzi, L. (1986). Null objects in Italian and a theory of pro. *Linguistic Inquiry* 17, pp. 501-557.
- Rosen, S.T. (1989). Two types of noun incorporation: A lexical analysis. *Language* 65, pp. 294-317.
- Rushforth, S. (1991). Uses of Bearlake and Mescalero (Athapaskan) classificatory verbs. *International Journal of American Linguistics* 57, pp. 251-266.
- Sandler, W. (1989). *Phonological representation of the sign: Linearity and nonlinearity in ASL phonology*. Foris, Dordrecht.
- Schick, B.S. (1990). The effects of morphosyntactic structure on the acquisition of classifier predicates in ASL. Lucas, C. (ed.), *Sign Language Research: Theoretical Issues*. Gallaudet University Press, Washington, DC, pp. 358-374.
- Spencer, A. (1995). Incorporation in Chukchi. *Language* 71, pp. 439-489.
- Supalla, T. (1986). The classifier system in American Sign Language. Craig, C. (ed.), *Noun Classes and Categorization*. Benjamins, Amsterdam, pp. 181-214.
- Woodbury, H. (1975). Onondaga noun incorporation: Some notes on the interdependence of syntax and semantics. *International Journal of American Linguistics* 41, pp. 10-20.