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Inuit Sign Language: a contribution to sign language typology

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Sign language typology is a fairly new research field and typological classifications have yet to be established. For spoken languages, these classifications are generally based on typological parameters; it would thus be desirable to establish these for sign languages. In this paper, different typological aspects of sign languages are described. With respect to their potential contribution towards a typological classification, data from Inuit Sign Language regarding verb agreement and classifiers will be considered. We will suggest two classifications based on these morphosyntactic parameters.

1 Introduction

As appears from some of the earliest records on deafness and sign language, it was generally thought in the seventeenth century that signing was not only a universal, but also a primitive, form of communication (Rietveld-van Wingerden & Tijsseling 2010). Over the centuries, this opinion has lingered on. Actually, even after sign language research in the middle of the twentieth century had proven beyond a doubt that these assumptions are far from true, some linguists still suggested that sign languages were derived from spoken languages (see review in Woll 2003). Similar views persist even today, not only among non-linguists. As early as 1960, Stokoe (1960) showed that sign languages have their own structure, as he demonstrated in his analysis of the phonology of American Sign Language (ASL). ASL is the sign language that has received most attention from linguists to date. In fact, until quite recently there were too few data from other sign languages to allow for a study of the variation between sign languages. Data from more sign languages of an increasingly diverse nature first had to become available for sign language typology to become a feasible area of research. This area is now in its early stages of development.

According to Croft (2002), typology has three different goals, namely (i) typological classification on the basis of cross-linguistic comparison, (ii) typological generalisation that entails “the study of patterns that occur across languages” and the search for language universals (Croft 2002:1), and (iii) typological explanation. Croft’s (2002) first goal of typological classification is the one that is most relevant for the present paper. The aim of this paper is

twofold. Firstly we will review selected aspects of sign language typology based on well-known morphological and syntactic properties¹. Secondly, we will present some data from Inuit Sign Language (IUR), an endangered sign language which has not been subject to linguistic study, in order to examine what these data can contribute to sign language typology.

In §2 an overview of sign language typology will be given. The sociolinguistic background of Inuit Sign Language will be discussed in §3. This will be followed by a discussion of selected aspects of spatial grammar in IUR (§4) and their relation to sign language typology. Some tentative conclusions will be drawn in §5.

2 Sign language typology

In this section, we will briefly discuss a number of morphological and syntactic aspects that play a central role in the typology of spoken languages (§2.1). We will then look at grammatical variation in sign languages and highlight different aspects that have been studied (§2.2). Finally, we discuss the basis of typological classification in sign languages (§2.3).

2.1 *Aspects of typological classification in spoken languages*

Typology can be defined as “the classification of languages or components of languages based on shared formal characteristics.” (Whaley 1997:7). Typological classification is thus based on the grammatical variation found across languages. Data from a representative sample of languages is required in order to allow for reliable generalizations (Whaley 1997; Payne 1997). Based on a large amount of data from spoken languages, different typologies based on syntactic and morphological properties have been proposed.

Word order, or basic constituent order to be more precise, is a very common property on which a typological classification is based. Firstly, languages can be classified as to whether they have a flexible or fixed constituent order² (Dryer 2007; Whaley 1997). Cavineña (Tacanan; Bolivia) is an example of a language with flexible word order, as is illustrated in (1) with just two of the possible orders. However, languages with a fixed constituent order may also allow for other orders under specific circumstances. It is for this reason that the notion of *basic* word order is used. The most widespread order among languages is Subject-Object-Verb as in Imbabura Quechua (Quechuan;

¹ Obviously, typologies may also be based on phonological or semantic/conceptual categories, but we will not discuss these aspects here.

² Languages can also be partly flexible, for example, flexible at some level (e.g. clause level) but have strict order within some other domain (e.g. the noun phrase).

Ecuador) (2), followed by Subject-Verb-Object as in English (Germanic; United Kingdom), followed in turn by Verb-initial orders as in Maori (Polynesian; New Zealand) (3). Languages with Object initial word order (OVS/OSV) exist, but are extremely rare.

- (1) a. Iba=ra_A=tu_O iye-chine takure_O *Cavineña*
 Jaguar=ERG=3SG kill-REC.PAST chicken
 S V O
 b. Iye-chine=tu iba=ra_A takure_O
 V S O
 ‘The jaguar killed the chicken.’ (Guillaume 2008:91)
- (2) Tayta-ka ruwana-ta awa-rka-mi *Imbabura Quechua*
 Father-TOP poncho-ACC weave-PAST.3-VALIDATOR
 S O V
 ‘Father wove a poncho.’ (Cole 1982:103)
- (3) E kai ana a Mere i ngaa kooura *Maori*
 T/A eat T/A PERS Mary DO the(PL) crayfish
 V S O
 ‘Mary is eating the crayfish.’ (Bauer 1993:267)

To determine basic word order, linguists take into account which is the most frequent occurring word order, the one that is least marked, and the one that is pragmatically most neutral (Whaley 1997). Also, it has been proposed that there are correlations between basic word order and other properties (Greenberg 1963). When a language is of the SOV type, for instance, it is often found to have postpositions and the genitive modifier following the noun. In contrast, languages of the SVO type tend to have prepositions and genitives generally preceding the noun.

In addition, languages are commonly classified based on their morphological typology, i.e. the amount of affixation and fusion. A language with monomorphemic words is called isolating, a language with polymorphemic words is synthetic. If the morphemes in a word are easily segmented, the language is called agglutinative; if not, it is called fusing (Payne 1997; Whaley 1997). The extreme case of agglutination also allows for noun incorporation, that is, a word can contain several grammatical stems. Languages of this type are called polysynthetic languages. The word order type of a language does not appear to be related to its morphological typology. The free order language in (1) and the SOV language in (2) are both agglutinative whereas the VSO language in (3) is isolating.

Other areas of grammar that have received considerable attention from typologists are sentential negation and noun categorization. A typological classification has been proposed for negation by, for instance, Dahl (1979) and Payne (1985). They suggest three different strategies for encoding sentential negation: negative affixes, negative particles, and negative auxiliaries. The first two strategies are exemplified by the examples in (4) and (5). In Turkish (Altaic; Turkey), sentential negation is expressed by the verbal suffix *-mI* (the vowel harmonizes with the stem) while in Russian (Slavic; Russia), the negative particle *ne* is used.

- (4) Arkadaş-ım buluş-**mu**-du-m *Turkish*
 friend-POSS.1.SG meet-NEG-PAST-1.SG
 ‘I did not meet my friend at the university.’
- (5) On **ne** igraet *Russian*
 he NEG plays
 ‘He doesn’t play.’

Aikhenvald (2000) describes a typology of noun categorization devices, where she distinguishes six types of classifiers – noun, numeral, genitive, verbal, locative and deictic classifiers. Noun classifiers are free morphemes, which classify the noun in a specific, generic class. Numeral classifiers are devices of quantification, which appear either as free or as bound morphemes while verbal classifiers combine with verbs and classify one of the (nominal) arguments of the verb. The Cherokee (Iroquoian; United States) examples in (6) show that the verb *née’a* (‘give’) combines with different classificatory morphemes depending on physical properties of the object given (Aikhenvald 2000:161; CL = classifier).

- (6) a. Àma gà-**nèèh**-née’a *Cherokee*
 water 3.SG.S/3.SG.O-CL(**liquid**)-give
 ‘She is giving him water.’
- b. Àhnàwo gà-**nvv**-nèè’a
 shirt 3.SG.S/3.SG.O-CL(**flexible**)-give
 ‘She is giving him a shirt.’

Genitive classifiers appear in possessive constructions. For locative and deictic classifiers, more examples seem to be needed “before their typological profile could be fully established” (Aikhenvald 2000:172). This is probably the reason why Grinevald (2000) leaves out these last two types, and bases her typology on morphosyntactic properties of the classifiers.

One other grammatical phenomenon that has been studied extensively is verbal agreement, and again, interesting typological variation has been found. First, languages with verbal agreement have to be distinguished from languages in which verbs do not agree (null agreement languages). Second, within the former group, we find languages with a poor agreement system, e.g. Dutch (Germanic; Netherlands), and languages with a rich agreement system, e.g. Spanish (Romance; Spain). The difference between the two types of languages is illustrated in (7). Note that only in Spanish is every feature combination (person and number) spelled out by a different phonological form.

(7) Paradigm for the verb ‘to walk’ in Dutch and Spanish

	Dutch	Spanish
1SG	wandel- \emptyset	camin- o
2SG	wandel- t	camin- as
3SG		camin- a
1PL	wandel- en	camin- amos
2PL		camin- áis
3PL		camin- en

Languages with rich agreement, such as Spanish, commonly allow for pro-drop: the pronominal subject can be dropped as “the information can be determined by the agreement morphology on the verb” (Whaley 1997:289). However, pro-drop may also be observed in languages without agreement, such as Chinese for example (for a discussion, see Lillo-Martin 1986).

So far, we have only been concerned with subject agreement. However, in addition to subject agreement – and independent of their classification as a poor or rich agreement language – some languages also display verbal agreement with the object. This is illustrated by the Itelmen (Chukotka-Kamchatka; Russia) example in (8), in which the verb agrees with its direct object by means of the suffix *-um*.

- (8) N-əlčqu-z-um *Itelmen*
 3PL-see-PRES-1SG.OBJ
 ‘They see me.’ (Bobaljik & Wurmbrand 2002:5)

Agreement typically operates “according to a hierarchy of relations (Whaley 1997:153). If the verb of a certain language agrees with only one of its nominal arguments, this will typically be the subject. If it agrees with two arguments, these will be the subject and the direct object. In the rare cases of languages where the verb agrees with three arguments, the third argument it agrees with is its indirect object. The agreement hierarchy (Whaley 1997), given in Figure 1 predicts this situation.

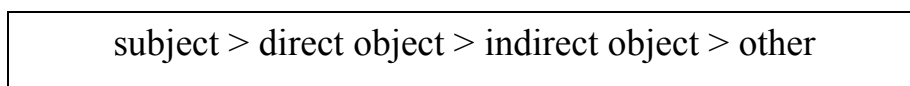


Figure 1: The agreement hierarchy.

A fully-fledged typology of agreement is still under development. Corbett (2006) attempts to create a typology of agreement using grammatical relations, but concludes that these are not nearly sufficient.

It is interesting to investigate whether the different morphological and syntactic properties sketched above are also helpful in constructing a typology of sign languages, or whether other (or additional) classifications are necessary. In the following section, a brief overview of research on variation across sign languages is given, focusing on a number of phenomena for which sufficient data are available.

2.2 Grammatical variation in sign languages

The development of sign language typology has gone hand in hand with the expansion of the body of sign languages studied. Obviously, the more sign languages are investigated, the more typological studies can be carried out. In the “mosaic of sign language data”, given in Figure 2 below, Zeshan (2008) traces the development of knowledge about sign languages. Research started with descriptions of western sign languages, followed by descriptions of non-western sign languages. When the so-called village sign languages, i.e. sign languages used in village communities with a high incidence of genetic deafness, first started to receive attention, the first two groups both received the contrasting label ‘urban sign languages’. More about this distinction will follow in §2.3 below.

The range of sign languages studied to date is widening but still there are many gaps. Nevertheless it is “increasingly giving us a clearer picture of the range of diversity in sign languages” (Zeshan 2008:674). In face of this diversity, a typological classification based on the attested grammatical variation might be

expected. However, despite the fact that grammatical variation has been established, a classification on the basis of such variation has not yet been suggested.

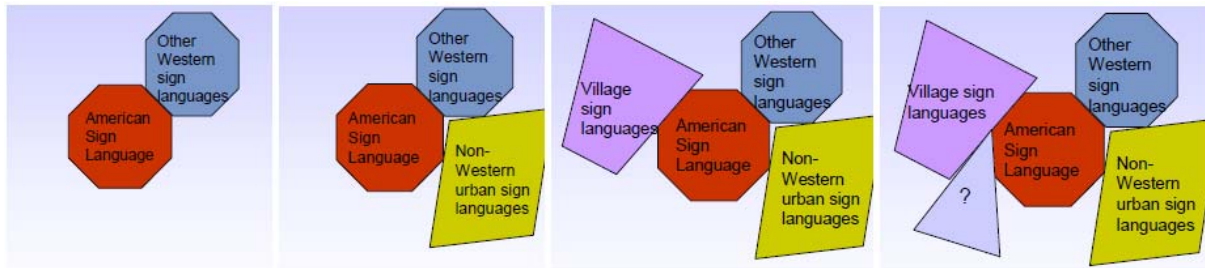


Figure 2: The mosaic of sign language data (from Zeshan 2008:675), tracing (from left to right) the development of the state of knowledge about sign languages.

In the following sub-sections, we will address several grammatical aspects that could form the basis of typological classifications of sign languages.

2.2.1 Word order

Since the 1970s and 1980s, the possibility of studying word order in sign languages has been debated in many publications. Brennan (1994) argues that the study of word order is a complex matter because sign language syntax is simultaneous, iconic, and often pragmatically organized. Establishing basic order is further complicated by the fact that alternative orders frequently occur as a result of operations such as, for example, topicalisation and pronoun copy. These operations have to be taken into account to be able to establish basic word order³.

The criteria that have been established to determine basic word order in spoken languages are not clearly applicable to sign languages. The first criterion, the most frequent order of a verb, its subject and its object, is problematic in sign languages. For one thing, sentences with an overt subject and an overt object are quite rare in sign language discourse, as Nadeau (1993) points out for *Lingue des Signes Québécoise* (LSQ). Her investigation of a discourse corpus of LSQ containing more than 1300 propositions revealed that only 11 sentences included both an overt subject and an overt object. To complicate matters, seven of these sentences had an SVO order and four SOV, making it impossible for the researchers to determine basic word order (Nadeau 1993). Similar observations have been made for other sign languages (Johnston et al. 2007).

³ See Neidle et al. (2000) for discussion.

Despite these methodological challenges, basic word order has been determined for some sign languages. From the available studies, we can infer that the two basic orders that are most frequently found in spoken languages – SVO and SOV – are also the most frequent ones in sign languages. After some debate, ASL was confirmed to have a basic SVO order (*inter alia* Fischer 1974; Liddell 1980); the same has been argued for Hong Kong SL (Sze 2003) and Brazilian Sign Language (De Quadros 1999), amongst others. In contrast, Sign Language of the Netherlands (NGT; Coerts 1994) and German Sign Language (DGS; Glück & Pfau 1998) are described as being underlyingly SOV, as are Italian Sign Language (Cecchetto et al. 2006) and the more recently investigated Al-Sayyid Bedouin Sign Language (Aronoff et al. 2008). The examples in (9) and (10) illustrate the different basic word orders of ASL (Liddell 1980:19) and NGT. It is interesting to note that the third most frequently occurring order in spoken languages, VSO, has not yet been documented for sign languages.⁴

- (9) WOMAN FORGET PURSE ASL
 ‘The woman forgot the purse.’
- (10) STUDENT APPOINTMENT FORGET NGT
 ‘The student forgot the appointment.’

Since a large amount of data is necessary and no foolproof method has been found to determine a sign language’s basic word order, this topic will not be further examined in this first study of Inuit Sign Language.


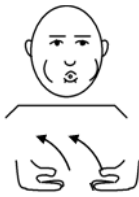
2.2.2 *Morphological typology*

Only a handful of researchers have attempted a typological classification based on sign language morphology. Signs are known to be of considerable morphological complexity but the fact that morphemes tend to be organized simultaneously rather than sequentially makes a typological classification less straightforward. Still, given the attested complexity, Bellugi and Klima (1982)

⁴ Notational conventions: As is common practice in the sign language literature, signs are glossed in English small caps. A hyphen is used when a single sign gloss consists of more than one English word (e.g. LONG-AGO). Subscript numbers represent points in the signing space used in verbal agreement and pronominalization (see Figure 3); ‘++’ indicates reduplication of a sign (e.g. in pluralisation). The sign glossed as INDEX is a pointing sign towards the signer or a location in the signing space. Depending on the context, it can fulfil the function of a locative adverbial (‘there’) or of a pronoun; in the former case, we gloss it as INDEX-LOC in the IUR examples. CL refers to classifier, and the subscript indicates which object is classified. A line above a gloss indicates the scope (i.e. onset and offset) of a particular non-manual marker (e.g. a negative headshake – glossed as *hs*).

suggest that ASL is similar to polysynthetic spoken languages. Schwager (2004) proposes an agglutinative analysis for Russian Sign Language based on the same arguments. Erlenkamp (2000), on the other hand, proposes that the morphology of DGS is partly isolating and partly fusing, but does not give clear arguments to support her claim (see Keller, Pfau & Steinbach (2002) for a critique).

Based on the study of several morphosyntactic inflections, Schuit (2007) suggests that sign languages are agglutinative languages, as the morphemes in a sign are easily segmented, even though they usually have a phonomorphemic status. For illustration, consider the NGT examples in (11). Example (11a) shows the citation form of the verb GIVE, which is articulated with a short outward movement and with a]-hand. In the inflected form in (11b), we observe numerous phonological changes, all of which are realized simultaneously: the beginning and end point of the movement change (thereby expressing agreement with subject and indirect object; see §2.2.5), the handshape changes in order to classify the direct object (e.g. BOOK; see §2.2.4), the sign becomes two-handed, and a non-manual morpheme (i.e. a facial expression) is added for adverbial modification. The sign thus consists of (at least) six morphemes.

- (11) a. 
GIVE
- b. 
 ${}_2\text{GIVE}_1:\text{CL}_{\text{book}}$
(e.g. ‘you give me a heavy book with some effort’)

All sign languages described until now are of the same morphological type, but with differences in the amount of simultaneity. Therefore, Schuit proposes to add an index of simultaneity next to Comrie’s (1989) indexes of fusion and synthesis. This index of simultaneity is not only applicable to sign languages, also spoken languages, e.g. tone languages, can be typologically classified using this index. Most important though, is the fact that the traditional morphological types as established for spoken languages can also be applied to sign languages (Schuit 2007). With regard to IUR, a first data analysis suggests that it does not exhibit a large amount of non-manual simultaneity, but manual simultaneity certainly exists. However, more IUR data have to be analysed before the language can be placed on the index of simultaneity.

2.2.3 Negation

As mentioned briefly in §2.1, spoken languages have different ways to express negation. Across sign languages, negation is expressed very similarly. Most frequently, it is realized by an obligatory head movement (e.g. a headshake), often in combination with a manual negative particle. In spoken languages, negative structures involving two negative elements can be found as well (for example, in French) and this typological pattern has been referred to as ‘split negation’. Therefore, Pfau (2002, 2008) argues for DGS that the language fits well in the suggested typology in that it exhibits split negation, with one element being an (optional) negative particle and the other one a non-manual negative affix.

In addition, Zeshan (2004a, 2006) suggests a sign language specific typology. She proposes that sign language negation comes in two different types: manual dominant and non-manual dominant systems. Jordanian Sign Language (*LIU*, Hendriks 2007) and Italian Sign Language (*LIS*, Geraci 2005) have been argued to be of the former type. Manual dominant systems are characterized by the fact that a manual negation sign is obligatory; that is, a sentence cannot be negated by a non-manual marker only, irrespective of its scope, as is illustrated by the LIS example in (12a). Additionally, the non-manual negative marker commonly accompanies the manual marker, but is unlikely to spread beyond this marker across (part of) the clause (12b).

- (12) a. $\left(\left(\left(\right) \right) \right) \text{hs}$ *LIS*
 *PAOLO CONTRACT SIGN
- b. hs
 PAOLO CONTRACT SIGN NON
 ‘Paolo didn’t sign the contract.’ (Geraci 2005:221)

- (13) hs *NGT*
 MAN BOOK BUY
 ‘The man does not buy a book.’

In contrast, in non-manual dominant systems, a manual negative particle is optional, whereas the non-manual negative marker is obligatory and capable of spreading. Besides DGS, NGT, ASL, and Indopakistani Sign Language (IPSL) display negation systems of the non-manual dominant type (Zeshan 2004a, 2006). The NGT example in (13) is representative of a non-manual dominant negative system. Note the lack of a negative particle in this example as well as the spread of the headshake over the verb phrase.

2.2.4 *Classifiers*

The grammatical elements referred to as “classifiers” here have been given many different labels in the sign language literature (see Schembri (2003) for an overview of the terms used). All the different terms refer to

“forms representing different classes of nominals in combination with other elements. The noun class forms are represented by a set of handshapes, and it is these handshapes that are [...] called classifiers” (Sandler & Lillo-Martin 2006:76).

Simplifying somewhat, there are three types of classifiers: (i) *Size and Shape Specifiers* (SASSes) which indicate the size and shape of the referent; (ii) *entity classifiers*⁵ which refer to general semantic classes; and (iii) *handling classifiers* which indicate how an object is handled or manipulated (*inter alia* Supalla 1986; Engberg-Pedersen 1994; Schick 1990). Both handling and entity classifiers combine with verb roots, that is, they can be considered predicate classifiers (Aikhenvald 2000). Handling classifiers represent the direct object of a verb, while entity classifiers classify the subject of a verb. Indeed, classifiers have been analysed as agreement markers (Glück & Pfau 1998; Zwitserlood 2003) and this analysis will be adopted here.

To date, classifiers have been described for many sign languages. Handling classifiers appear to occur in all sign languages, although the degree of consistent use may vary from sign language to sign language. It thus remains debatable to what extent handling classifiers are grammaticalised items in particular sign languages (see e.g. Zeshan (2003) for IPSL). An ongoing project regarding handling constructions in British Sign Language might shed new insights into the grammaticalisation process of handling classifiers (Sevcikova 2010).

Entity classifiers, too, have been described for many sign languages, but with respect to this classifier type, more cross-linguistic variation exists. Some sign languages allow only unmarked handshapes for entity classifiers, for example NGT (Zwitserlood 2003), while others also allow marked handshapes, for example LIU (Van Dijken 2004). Entity classifiers represent a semantic class and refer to specific form characteristics of the referent class. Many sign languages have, amongst others, dedicated classifiers that refer to vehicles, to round objects, and to long, thin objects. Zwitserlood (2003) presents a comprehensive study of the classifier system of NGT and describes 16 different, frequently occurring entity classifiers: for instance, the]-hand for vehicles, the < -hand for round objects, and the B-hand for long, thin objects, and upright

⁵ Supalla (1986) refers to these as “semantic classifiers”.

people. In striking contrast to NGT and many other sign languages, Adamorobe Sign Language (AdaSL), a sign language used in a village in Ghana, makes very little use of entity classifiers and uses directional signs with lax handshapes instead (Nyst 2007). A typological classification based on entity classifiers would therefore best be represented as a continuum, with sign languages with a large repertoire of entity classifiers (e.g. NGT) at one end of the continuum and sign languages with few entity classifiers like AdaSL towards the other end. Sign languages with no entity classifiers would be at the extreme other end, but no such sign language has yet been documented. In §4.2, we will show that IUR does employ a set of entity classifiers.

2.2.5 *Verb agreement*

Verb agreement in sign languages has been analysed in many different ways. A discussion of the competing analyses (e.g. stem-internal changes versus affixation) – not to mention the question whether agreement even exists in sign languages – is outside the scope of this paper (*inter alia* Liddell 2000; Neidle et al. 2000; Meir 2002; Rathmann & Mathur 2002; Aronoff, Meir & Sandler 2005). In the present context, it is sufficient to sketch some basic properties of sign language agreement.

Agreement inflection is realised manually in signing space. Signers localise referents in the signing space, usually by means of pointing signs (indexes) which identify locations in signing space. Indexes may occur before, after, before and after, or simultaneously with the referent that is localised. These locations (or the location of referents present in the discourse) are used in pronominalisation and verb agreement. To that end, the signing space is usually divided into ‘sections’ analogous to the grammatical category of person. As for pronominalisation, pointing to the signer thus reflects first person, pointing to the addressee second person, and pointing towards any other location in signing space third person (Figure 3). Similarly, the movement of some verbs can be modulated such that the beginning and end point of the movement coincide with previously established locations, thereby expressing agreement with the subject and object. The NGT verb VISIT, for instance, when describing a movement trajectory from 3a to 1, would be interpreted as ‘s/he visits me’.

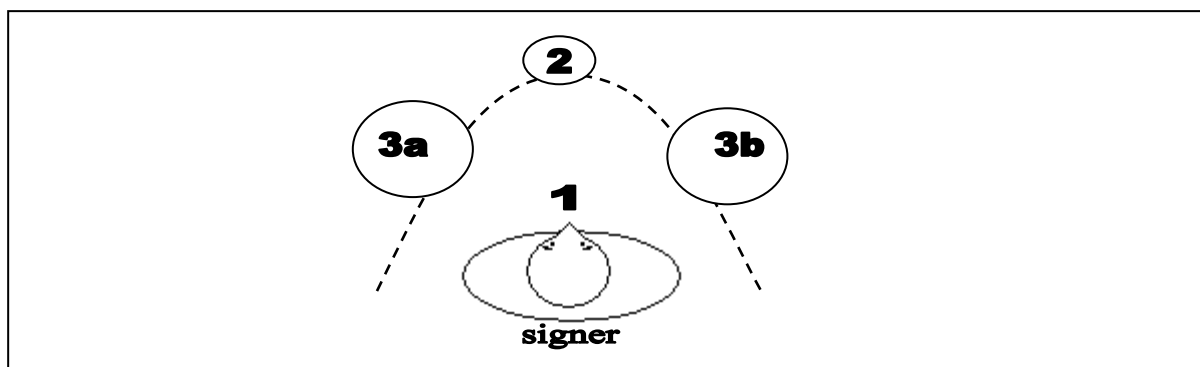


Figure 3: Locations of grammatical person in signing space, indicated by the dotted line.

Whereas this form of verb agreement is attested in many sign languages from all parts of the world, there are also several sign languages in which no, or only a few, verbs can be modified to show agreement. In Kata Kolok, a sign language from Bali, for instance, the only verb that is spatially inflected with some regularity is the verb BAANG ('give') (Marsaja 2008). AdaSL also shows an infrequent use of verb agreement; it occurs with verbs such as MARRY and INSULT (Nyst 2007). In other sign languages, like NGT or ASL, many verbs inflect.

It is important to note, however, that even in those sign languages that make frequent use of agreement verbs, not all verbs inflect. In analysing ASL, Padden (1988) refers to the class of non-agreeing verbs as *plain verbs*. These verbs cannot be modified in the way described above to express agreement with their arguments, mainly due to phonological restrictions. Since Padden's (1988) work, the distinction between agreeing and plain verbs has been found in many other sign languages (see e.g. Bos (1993) for NGT). Interestingly, even for those verbs that can inflect for agreement, the realization of agreement appears to be optional (see e.g. de Beuzeville et al. (2009) for Australian Sign Language). Furthermore, agreement verbs do not automatically agree with all of their arguments. Transitive verbs may agree with only the object, and the same holds for ditransitive verbs (Padden 1988; Meier 1987). Whereas in spoken languages, agreement with the subject is the unmarked case (see Figure 1), in sign languages, object agreement seems to be less marked and more common.

Across spoken languages, the relevant agreement features are spelled out in many different ways (see e.g. the table in (7)). In contrast, across sign languages, the (phonological) realization of verb agreement is strikingly homogenous: it always involves similar spatial modulations. There is typological variation in the use of agreement auxiliaries which are capable of realizing agreement in the context of plain verbs (see Steinbach & Pfau (2007) for an overview). Some languages have such an auxiliary, for example NGT and DGS, while others do not, for example ASL. Still, overall, the typological

variation in the realisation of verb agreement among sign languages is limited. We conclude that, as far as agreement is concerned, sign languages fall into two types: those that make frequent use of manual verb agreement and those that show minimal (or no) use of the agreement mechanism. In §4.1, we will show that IUR does not fall neatly in either of these two groups, as it shows agreement, but only to a limited extent.

2.3 *Typological classification of sign languages?*

The discussion in the previous sections has shed light on some of the attested grammatical variation amongst sign languages. We have seen, for instance, that some sign languages have (almost) no verb agreement, while others make extensive use of this grammatical device. Similarly, some sign languages employ only few entity classifiers, while others have a large set of such classifiers. The attentive reader may have noticed that some sign languages with little verb agreement also have few classifiers. Such sign languages found to date are all used in small village communities, such as Adamorobe in Ghana and the Al-Sayyid Bedouin community in Israel. Sign languages that manifest an abundance of agreement and classifiers are typically used in urban societies. It might therefore be tempting to simply group sign languages into two classes: village and urban sign languages. Several authors have indeed made this distinction, although different labels have been used (cf. Nyst (in press) for an overview of the terms used by different authors). A closer look, however, reveals that such a division is too simplistic. It is not the case that all so-called village sign languages have little verb agreement and few entity classifiers. Kata Kolok, a sign language from a village in Bali, for instance, has a wide array of entity classifiers, though only one verb that can take agreement (Marsaja 2008). AdaSL, on the other hand, has been shown to have a small set of agreeing verbs, but not many entity classifiers (Nyst 2007). Zeshan (2008) therefore concludes that, although structures of village sign languages might differ from those found in urban sign languages, structures found in one village sign language are not necessarily attested in all other village sign languages. Consequently, it is not justifiable to relate differences in sign language structure to a homogenous “village sign language type” (Zeshan 2008:689).

Moreover, there is no clear causal relationship between a sign language’s sociolinguistic setting and its typological features. For spoken languages, Kusters (2003) found a correlation between community size and language features. Interestingly, he found that a decrease in language complexity correlated with an increase in the size of the community: isolated small communities tended to have more complex languages than larger communities that have more contact with other communities. The study by Lupyan and Dale

(2010) represents a similar effort to relate language structure to social structure. Based on a large sample of languages, they found that socio-demographic factors are of influence on language structure. In particular, languages spoken in a large area, with a large population, and many linguistic neighbours tend to be isolating, nominative/accusative languages with fewer case markings and less agreement than languages spoken in smaller areas, with smaller populations, and fewer linguistic neighbours. Lupyán and Dale hypothesise that a language changes under influence of geographic spread and an increasing number of second language learners. Changes (that is, simplifications) are taken to be caused by learnability biases of adult second language learners.

For sign languages, such a correlational study has not yet been conducted. Based on the above observations, we could tentatively claim that the opposite holds for sign languages, as sign languages with a large community tend to exhibit grammatically more complex structures than sign languages with a small community. However, other influences play a role, too, and therefore, we do not opt for a distinction between sign languages based on their sociolinguistic setting.

An extensive typological classification of sign languages, based on linguistic features, is not yet available. Zeshan (2004a, b), in her cross-linguistic studies on negation and interrogatives, made an initial attempt in the direction of a sign language typology for these structures⁶. However, it is certainly worthwhile to consider the classification of sign languages based on other linguistic aspects. We have discussed a number of morphosyntactic and syntactic aspects that have been described for different sign languages, but a thorough cross-linguistic study regarding verb agreement and classifiers has not been conducted yet. In the remainder of this paper, data from IUR regarding verb agreement and classifiers will be considered with respect to their potential contribution towards a typological classification of these two morphosyntactic aspects. As IUR has only recently entered the stage of sign linguistic research, some basic demographic and sociolinguistic facts will briefly be described in the next section. In §4, preliminary data of IUR verb agreement and classifiers will be presented.

⁶ Padden (2010) suggests that in different sign languages nouns referring to the same object may be lexicalized in different ways, based on their iconic properties. The phonological form of nouns referring to objects held by hand (e.g. a toothbrush or a comb) can be motivated either by how the object is handled or by shape properties of the object (the instrument). Six sign languages showed a clear preference for either the handling or the instrument pattern, but the preference was not as strong in all languages (ranging from 60-85%).

3 Inuit Sign Language

In the following sections, some background information on IUR will be provided and the methodology will be described.

3.1 Background

Inuit Sign Language is a language of the Inuit people. It is possible that IUR is used from Greenland to Alaska, as these are regions where the Inuit people live, but this hypothesis has yet to be confirmed. In the current descriptive project, the focus is on Nunavut, Canada's Arctic territory (see Figure 4), where the sign language is used by an estimated 47 people (MacDougall 2000). Although Nunavut encompasses almost two million km², it has less than 30,000 inhabitants (Canadian Census 2006). Most of the people (85%) are Inuit, and it is from their language, Inuktitut, where Nunavut 'our land' got its name in 1999. Nunavut is thinly populated and the population is geographically spread. There is contact between communities, but it does not occur regularly because of the distances involved. In the past, the Inuit lived a nomadic life, travelling across the Arctic. When nomadic life was abandoned, the extensive contact between people from different regions decreased considerably, as people from different backgrounds settled in the same community (Condon 1983; Wachowich 1999). Contact between deaf native IUR signers was also reduced as it became practically limited to those who happened to live in the same community. Due to decreased contact between IUR signers, the sign language is now endangered.

It is estimated that the prevalence of deafness in Nunavut is 5.7/1000, a percentage that is almost six times higher than in southern Canada (Stamos-Destounis 1993; MacDougall 2000). Deaf individuals have been identified in many of Nunavut's communities, and many of them use a form of sign language. Those who use sign language are generally surrounded by a network of family and friends who use sign language, too. MacDougall (2000:13) found "little or no evidence of "social stigma" associated with deafness in the communities [...] and there was no apparent social exclusion because of deafness".

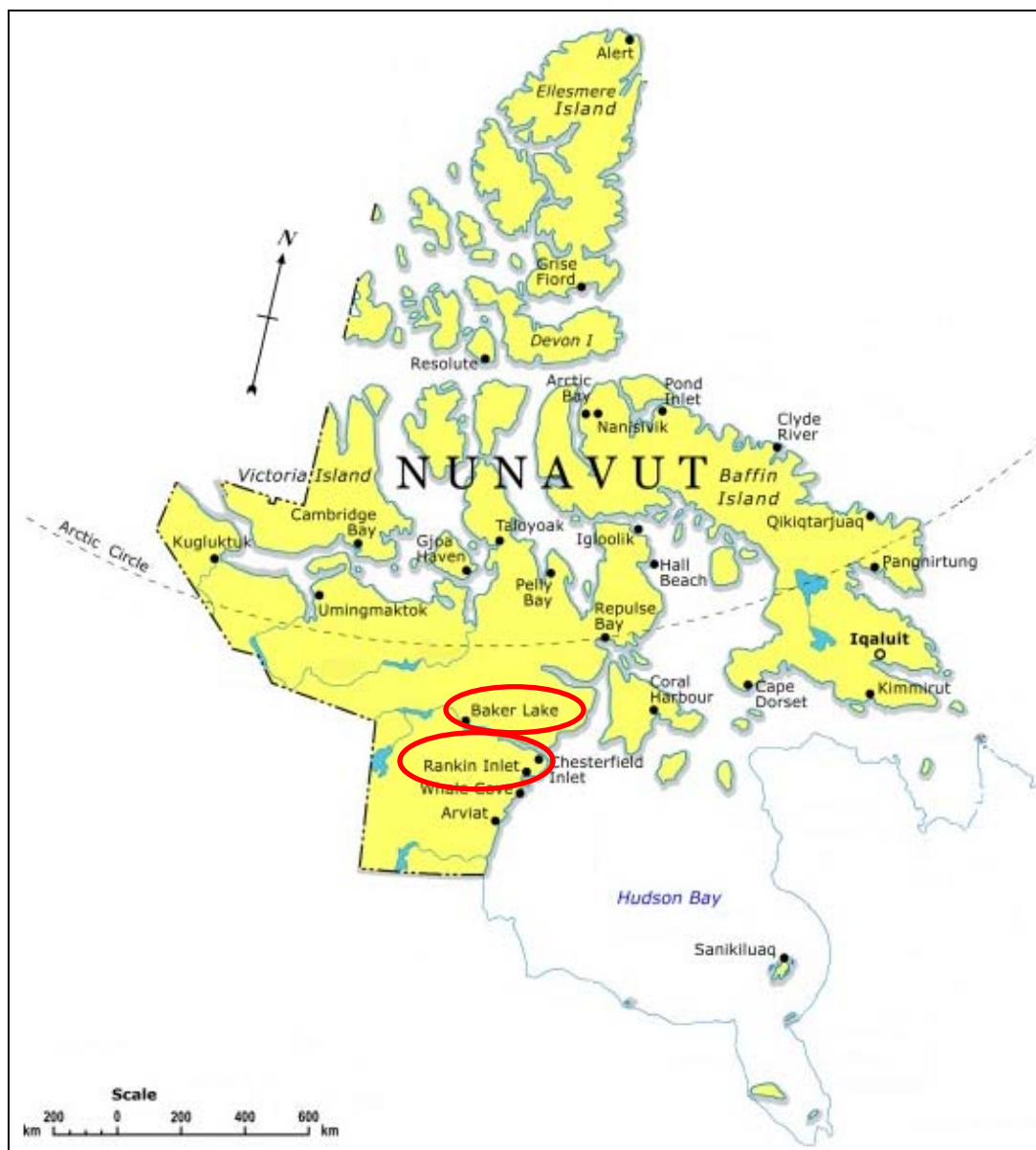


Figure 4: Map of Nunavut, with fieldwork locations indicated. (*Adapted from Nat. Resources Canada.*)

The sign language used varies from a mix of ASL and Manually Coded English (MCE) to pure IUR (MacDougall 2000). The use of ASL/MCE as opposed to IUR is mainly related to the degree of formal education. Those aged between 20 and 50 who went to school have been to residential schools for the deaf in southern Canada where ASL/MCE was used. Some of these people do know some IUR signs, but do not use the language regularly. Deaf Inuit children nowadays attend the regular school in their home community, with the aid of a qualified ASL interpreter, and do not know IUR. This is a major contributing factor to the endangerment of IUR. In fact, IUR is only used as a primary language by those deaf individuals who have not been to school, or only for a

short period. Data collection is aggravated by the fact that these people are spread out across many different communities in Nunavut.

3.2 Methodology

In the following section, preliminary results from fieldwork conducted by the first author in 2009 and 2010 in Baker Lake and Rankin Inlet (see Figure 4) will be presented. Five deaf Inuit live in each of these communities, but most of them use ASL/MCE.

3.2.1 Participants

In Rankin Inlet, the data were collected from two deaf men and one hearing woman. PU is in his early forties and bilingual in IUR and ASL/MCE. He has three deaf and five hearing siblings. The language used in the family is a combination of ASL, MCE, and fingerspelling. PU learned IUR from the age of 12 from YS, a man in his late sixties who grew up with a deaf brother, and about five hearing siblings. YS is monolingual in IUR, but as he and PU have been friends for over 25 years, he has learned some fingerspelling and now uses some ASL signs. Both men are skilled artists and work in a ceramic workshop. The hearing informant SS, the wife of YS, was only able to take part in two recording sessions.

In Baker Lake, the data comes from one deaf and one hearing man, both in their early forties. BS was deafened at the age of seven and therefore acquired Inuktitut and English as first languages. From the age of seven he learned IUR, which is now his main means of communication. He does not use spoken or written Inuktitut and English. He has no deaf relatives. Since the late 1990s, BS has also learned some ASL/MCE, and some IUR signs have now been replaced by their ASL counterparts. DK is a hearing friend of BS, and has been using IUR with him since they were in their mid-teens. DK also speaks Inuktitut and English. An overview of the participants' characteristics is provided in Table 1.

3.2.2 Data collection

Recording in Rankin Inlet was all done in the large kitchen of Kivalliq Hall, the campus building of Nunavut Arctic College. In Baker Lake, recording took place either in the home of one of the two informants or in the apartment where the researcher was staying. The researcher was present during all recording sessions. Both spontaneous and elicited data were recorded. The spontaneous data come from an unstructured interview setting. The researcher usually asked some prompting questions about Inuit culture. This led the informants to narrate

stories about past and present life. In Rankin Inlet, the monolingual informant YS was dominant in the conversation.

Table 1. IUR study: Participants' characteristics

location	subject	gender	age	deaf relatives?	languages
Rankin Inlet	PU	male	early 40s	3 deaf siblings	IUR, ASL/MCE
	YS	male	late 60s	deaf brother	IUR
	SS	female	late 50s	---	IUR, Inukt., En.
Baker Lake	BS	male	early 40s	---	IUR (Inukt., En.)
	DK	male	early 40s	---	IUR, Inukt., En.

For the elicitation, picture and video materials were used. The video material consisted of clips of *Canary Row* depicting various efforts of Sylvester the Cat to catch Tweety the Bird. Both cat and bird are personified and walk and talk like human beings. In previous studies on various sign languages, these clips have been successfully used for the elicitation of motion verbs, classifier constructions, and the use of space. The task's design is that the signer watches the clip, then recounts the story to the addressee, i.e. the other IUR signer. In both Rankin Inlet and Baker Lake, the signer started signing while the clip was still running, probably because the clips are rather long to remember (23 seconds for the shortest clip, 1:15 for the longest).

Another elicitation task was designed to elicit sentences with the verbs GIVE and/or TAKE, thereby focusing on person agreement and classifiers. A short clip was shown in which three persons are visible; one of them gives something to or takes something from one of the others. Objects given (or taken) include a rose, a notebook, a red and a white light bulb. Interestingly, the informants in Baker Lake omitted the object in all sentences they produced and showed some variation in the handshapes of the verb. In Rankin Inlet, the white bulb was taken to be an ice-cream cone, and the red bulb was seen as some object. Obviously, it was not clear to the signers what this object was, possibly due to a vision problem (glaucoma) of one of the signers.

The Volterra Picture task (Volterra et al. 1984) was used to elicit word order and/or agreement. A selection was made of six images. Only the data from Rankin Inlet has thus far been transcribed and is available for the present study.

In 2009, the bilingual informant PU translated what the monolingual informant signed into MCE for the researcher, and this was also recorded on video. In 2010, a translation for stories signed in IUR was no longer necessary in most cases, as the researcher understood most of the IUR stories of YS. In Baker Lake, the bilingual informant DK translated what the monolingual informant BS signed into English for the researcher. During both fieldwork trips, the translation was necessary, as the researcher was not able to understand all of the IUR of BS. This was due to a rather short first visit in 2009, caused by financial limitations.

During the two fieldwork trips, about 21 hours of material have been recorded, which also include the translations in 2009. Data presented in the following section comes from a total of two hours that have been translated and glossed, including data from the elicitation tasks described above.

4 Spatial grammar of Inuit Sign Language: preliminary results

In this section, two of the grammatical aspects discussed in §2, classifiers and verb agreement, will be described for IUR. Basic word order is a debatable issue as discussed in §2.2.1. Furthermore, the description of IUR word order is still in its primary stages. This aspect will therefore not be included in the present study. Also, we will leave morphological typology and negation for future investigation. Verb agreement in IUR will be addressed in §4.1, while handling and entity classifiers will be subject to discussion in §4.2.

4.1 Verb agreement in Inuit Sign Language

The three-way distinction of plain, agreement, and spatial verbs as found for many sign languages (see §2.2.5 above) is also attested in IUR. Verbs such as THINK, COMMUNICATE, SIT, CALL-ON-PHONE, DRINK, and EAT do not show spatial agreement with any of their arguments, as illustrated for the transitive verb CALL-ON-PHONE in (14), and thus probably belong to the class of plain verbs.

- (14) OTTAWA INDEX-LOC_{Ottawa} CALL-ON-PHONE LONG-AGO
 ‘Long ago, I phoned Ottawa.’ (referring to a shop in Ottawa)

Even though there is a locative INDEX in (14), which points in the direction in which Ottawa is located (i.e. absolute reference), the verb is not modulated such that it would move and/or be oriented towards this location (also see COMMUNICATE in example (16)).

Still, IUR also has several predicates that can take agreement. Subject agreement can be found on intransitive predicates like, for instance, ICE-FISHING,

BE-LOUSY, and USE-ICE-AUGER. These verb signs can be executed at different locations in the signing space, thereby agreeing with (the location of) the subject, as can be seen in (15), where the verb USE-ICE-AUGER is articulated twice at different locations.

- (15) USE-ICE-AUGER₁ INDEX_{3a} USE-ICE-AUGER_{3a} INDEX_{3a}
'I use an ice auger, and so does he.'

Object agreement occurs with transitive verbs like HATE, BULLY, SEE, SHOOT, and GIVE. These verbs follow the agreement patterns described for other sign languages: some verbs move through signing space towards the locus associated with the direct object while others change their orientation (of fingertips or palm) to agree with the object. However, agreement of a verb with both its subject and object is only rarely observed. The verb SEE in (16), for instance, only agrees with its object. The starting point of the movement is close to the signer's face, despite the fact that it is a third person who is performing the action.

- (16) INDEX₁ COMMUNICATE INDEX_{3a} SEE_{3b} INDEX_{3b} PAY-ATTENTION
'I tell him to watch this (the fishing), to pay attention.'

IUR also has spatial verbs that agree with locative arguments. Verbs such as GO, WALK, PLANE-FLY, and COME, as well as classifier constructions indicating moving objects may either agree with locations set up in signing space, as with WALK in (17), or with actual locations, as PLANE-FLY-WITH-STOPS in (18). In the latter example, the locative index points in the geographical direction of Winnipeg and subsequently, the verb starts its movement at this location. The end location of PLANE-FLY-WITH-STOPS is the location of HERE, which is always near the signer, hence the use of first person agreement.

- (17) INDEX-LOC_{3a} SCOOP DRILL-HOLE-WITH-AUGER FINISH. _{3a}WALK₁ TAKE-LONG-ITEM ₁WALK_{3a} WHITE-MAN CHISEL_v. DROP LONG-THIN-OBJECT-MOVES-BELOW-SURFACE
'Over there they started a hole with a scoop, and then drilled it with an ice-auger. Someone walked from there towards me and took my chisel. The white man walked back (to the hole) and used the chisel. Then he dropped it, and it went all the way to the bottom (of the sea).'

- (18) NEXT-DAY NEXT-DAY _{3a}PLANE-FLY_{3b}. WINNIPEG INDEX-LOC_{Winnipeg}
 w'pegPLANE-FLY-WITH-STOPS₁ HERE
 'In two days, they take a plane that flies them to Winnipeg, followed by
 the plane from Winnipeg, that flies with some stops to here (Rankin
 Inlet).'

Frequently, the set-up of locations in signing space seems to reflect how the signer experienced the original event described, staying as close to the actual situation as possible. The actual locations may be close-by, but often they are outside of the community, as can be seen in (18), where the signer points towards Winnipeg, which is almost 1500 kilometres south of Rankin Inlet, where this sentence was signed. The absolute frame of reference used in these situations reflects the importance of knowing directions among the Inuit.

Furthermore, the specification and spatial localization of locations is not obligatory, as can be seen in (19). The end point of the movement of GO remains unspecified. Based on world knowledge, the addressee should know that the goal of the journey is Landing Lake.

- (19) WHITE-MAN INUK INDEX₁ MOVE-CL_{two-vehicles} SNOW-MOBILE GO_{3a}
 'A white man and me, an Inuk, go by snow mobile (to Landing Lake).'

Not only locations can remain unspecified, also the subject argument is not always specified overtly. Transitive verbs generally agree with the object but leave the subject unspecified. While subject marker omission has been described for other sign languages, too (see §2.2.5), it appears to be much more common in IUR. The data we collected so far suggest that subject agreement is almost never specified on transitive verbs. It might be the case that omission of the subject NP and of subject agreement on the verb reflects a culture-specific pragmatic strategy. In Inuit culture, it is common not to be too explicit. For instance, instead of teaching a child how to hunt by means of instruction, it has to observe how it is done. (Wachowich 1999). Subject drop might thus be the IUR strategy to cope with this cultural tendency. An example is given in (20), where the subject of the verb BULLY remains unspecified in both instances. We might be dealing with a passive construction here ('He was bullied'), but further analysis is required to confirm this hypothesis.

- (20) INDEX_{3a} BULLY_{3a} INDEX_{3a} LONG-AGO INDEX-LOC DON'T-KNOW INDEX_{3a}.
 INDEX₁ BULLY₁ NEG
 '(They) bullied him, long ago over there [back at school]. Don't
 know why. (They) didn't bully me.'

Summarizing, we have seen that, with respect to verb types, IUR patterns with other sign languages. The IUR lexicon contains plain verbs, as well as locative verbs. In addition, IUR has intransitive and transitive verbs that show agreement in most instances. Intransitive verbs agree with the location of the subject; transitive verbs agree with their object.

4.2 *Classifiers in Inuit Sign Language*

Just like many other sign languages, IUR has handling and entity classifiers. Handling classifiers appear on transitive verbs and mark the direct object, as for instance in MOVE_{up}:CL_{box} in (21). The two-handed (-classifier refers to the handling of a box. Other examples are PICK-UP:CL_{egg} and TAKE:CL_{chip-of-ice}. In all these examples, the underlying verb is unspecified for handshape; in a given context, the handshape which surfaces reflects shape properties of the handled object, thereby agreeing with the direct object.

- (21) SODA BOX SODA BOX MANY MOVE_{up}:CL_{box} SHELFs MOVE_{up}:CL_{box}
MOVE_{up}:CL_{box}
'I put boxes with soda onto the shelves.'

Entity classifiers appear in the spontaneous IUR texts collected. So far, we have found entity classifiers for the semantic class of vehicles, animals, two-legged beings, and flying birds. This latter classifier is used only to refer to groups of birds, as can be seen in (22).

- (22) TWO THREE THREE-WEEKS WARM MOVE_{3a}:CL_{birds} GOOSE SHOOT++_{3a}
'In two or three weeks, when it's warmer, the geese will come flying in,
and I'll shoot them (out of the air).'

In the elicited IUR data, the informants make more use of the character perspective, that is, they take on the role of one of the story's character (in this case, that of the cat). As has also been observed by Perniss (2007) for DGS, in character perspective, handling classifiers are used more frequently. In contrast, entity classifiers are more likely to appear when the signer tells a story from the observer's perspective. Imagine, for instance, Sylvester the Cat climbing up a pipe. In character perspective, the signer will use a two-handed handling classifier showing how Sylvester holds on to the pipe. In observer perspective, the same event will be described by an entity classifier which represents the cat (or the legs of the cat).

As found for other sign languages, for example for DGS (Perniss 2007), IUR makes more use of the character perspective when describing the events in the cartoons. However, entity classifiers can be used, as can be seen in (23).

- (23) CAT WINDOW SWING-ON-ROPE BUMP-INTO:CL_{wall}-CL_{person}. BIRD TALK.
 FALL:CL_{person}
 ‘The cat swings from the window on a rope, and bumps into the wall.
 The bird talks. The cat falls.’

The shift from character to observer perspective occurs fluently. First the signer takes on the role of the cat in the sign SWING-ON-ROPE, which is a handle classifier construction. For the next sign, glossed as BUMP-INTO-WALL:CL_{person} the signer takes the observer’s perspective as the cat is now represented with the upside down Y-classifier for people, which bumps into the]-classifier for wall. Given that in the elicitation clip, the cat is shown walking on two legs, the entity classifier for two-legged beings is used, which is usually reserved for human beings. Since spontaneous texts are usually narrated from the signer’s perspective, it is not surprising that entity classifiers are prevalent, for example to refer to moving vehicles or animals.

4.3 *The contribution of the IUR data to sign language typology*

Summarizing, the data we discussed suggests that IUR verb agreement and classifiers constructions correspond to patterns that have been described for many other sign languages. The well-known three-way distinction between plain, agreement, and spatial (or locative) verbs is also attested in IUR. That is, verbs can inflect spatially to agree with their subject, their object, or a location. Interestingly, in IUR the subject argument of transitive verbs often remains unspecified. In our data, subject agreement is never found on transitive verbs, but this does not mean that the subject argument always needs to be expressed. Not expressing the subject argument might be motivated by the cultural frame of the Inuit, but more research is necessary to confirm this assumption.

Another interesting aspect of IUR is the use of an absolute frame of reference with locative verbs. Locations can remain unspecified, especially when the verb is inflected towards the actual location. The relevant location may be in the vicinity of the signer, but it may also be a city 1500 kilometres away. For some other sign languages, like Kata Kolok (Marsaja 2008) and AdaSL (Nyst 2007), absolute reference is also used with locations, but most often this concerns locations within a much smaller geographical area than those used in IUR. Also, it appears that absolute reference is attested only for pointing signs while verbs do not inflect toward these locations as they might in IUR.

5 Conclusion

The discussion in the first part of this paper has made clear that sign language typology is a fairly new research field and that typological classifications have yet to be established. For spoken languages, these classifications are generally based on typological parameters; for sign languages, it would thus be desirable to establish classifications following similar criteria. Based on the research described in this paper, we suggest two classifications with respect to morphosyntactic parameters. The first one is the continuum of verb agreement. At the one extreme, we would find sign languages in which all verbs take agreement (as yet unattested). At the other extreme, we would find sign languages that show no verb agreement at all (also unattested). The second classification concerns a continuum based on the use of entity classifiers in sign languages. On the one hand, we find sign languages that make abundant use of entity classifier constructions; on the other hand, we find sign languages that make no use of such constructions.

In order to locate Inuit Sign Language on these two suggested continua, we investigated verb agreement and classifiers. The results indicate that IUR makes use of a moderate amount of verb agreement. Its position on the verb agreement continuum would thus be toward the side representing a low amount of agreement. As for the entity classifier continuum, IUR can be placed toward the side representing a high amount of entity classifiers. For both aspects, IUR would not be placed at the extreme sides of the continua.

Of course, the significance of each continuum would be best understood if many sign languages were studied in detail in order to allow for more fine-grained analysis. We could represent the continua schematically in a two-dimensional schema, as suggested in Figure 5, where some of the sign languages mentioned in this paper have been placed in the positions at which we understand them to belong.

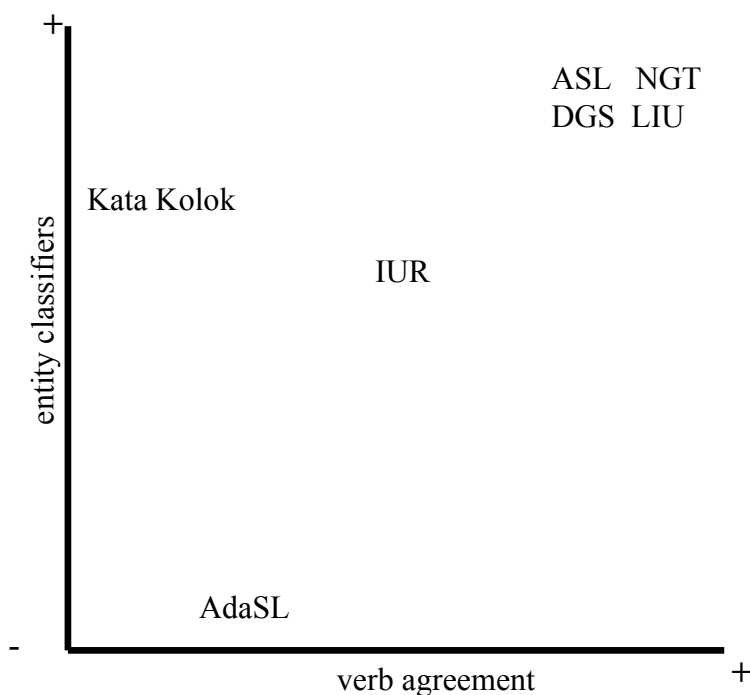


Figure 5: Schematic representation of the continua of entity classifiers and verb agreement combined.

If we follow the analysis suggested by Zwitserlood (2003) and Zwitserlood and Van Gijn (2007), this diagram would basically represent the agreement system of sign languages, as they take classifiers to be instantiations of *gender agreement*, and the aforementioned verb agreement to be *locus agreement*.

Sign language typology is a young field within sign language linguistic research. As more sign languages are being described, more cross-linguistic data on typologically interesting aspects are becoming available. Eventually, this will lead to more typological classifications, which will certainly enrich the field of sign language (and spoken language) typology. For example, it could be worthwhile to study frames of reference employed in different sign languages (see Levinson (2003) for spoken languages). Since our aim was to propose a typology based on morphosyntactic parameters, frame of reference fell outside the scope of this paper. Still, since we came across this issue in our analysis of verb agreement in IUR, we believe that frames of reference could be an interesting aspect to be included in future typological classifications of sign languages.

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