
Kearsy Cormier

Exclusive pronouns in ASL and BSL

Donnerstag/Thursday: 10:00

Many researchers have noted that the pronominal systems of signed languages are largely indexical. That is, pronouns in signed languages “point to” locations associated with their referents. Furthermore, it has also been noted that signed languages are quite uniform with regard to the indexicality of pronouns. This does indeed appear to be the case for singular pronominal forms. However, the indexicality of plural pronouns is not so clear. In this paper I present evidence suggesting that the pronominal systems of signed languages, particularly first person plural forms, may not be purely indexical, suggesting that there may be some variation in indexicality across signed languages.

American Sign Language (ASL) is one language that allows non-indexical forms of first person plural pronouns. One variant of the ASL pronoun WE is produced with a large arcing movement which begins and ends at the center of the signer’s chest. This form is indexical; some have claimed that this form is used to indicate referents who are present in the discourse.

However, another variant of the ASL pronoun WE (produced by two touches on the signer’s chest) is not indexical – this pronoun does not point to any of its referents other than the signer. This pronoun also has an exclusive variant (exclusive of any salient referent in the discourse), which is displaced to either the signer’s ipsilateral or contralateral side.

The exclusive variant (WE- displaced) may be indexical – that is, the location where the pronoun is produced (left or right side) may match the location associated with the included referents. For example, the pronoun WE- displaced can be located on the signer’s right side when the referents are also located on the signer’s right side. However, the exclusive variant is not always indexical. For example, WE- displaced may be located on the signer’s left side, even when the referents are located on the signer’s right.

The current study investigates whether British Sign Language (BSL), like ASL, also allows non-indexical first person plural pronouns. BSL has several different first person plural pronouns. One pronoun uses the index finger pointed downward with a small circular movement in the center of neutral space; this sign is not indexical. Like ASL, this pronoun has an exclusive variant (exclusive of any salient referent in the discourse), which is displaced to either the signer’s ipsilateral or contralateral side. If the referents are physically present, the displacement of the pronoun (i.e., to the signer’s left or right side) *must* match the location of the referents. Thus the use of non-indexical WE-displaced in BSL is ungrammatical. This is unlike ASL, where the displacement of the pronoun may or may not match the location of the referents.

We know that there is some variation across the pronominal systems of signed languages. For example, handshapes and locations can vary; there is also some variation in number distinctions. By and large, however, pronouns have been thought to be fairly uniform across signed languages. In one respect the data presented here support this assumption, since both ASL and BSL appear to have exclusive variants of first person plural pronouns. However, the data in this study also show some variation in pronominal systems, since BSL seems to be more restricted in its indexicality with exclusive pronouns than is ASL. These findings point to a need for more crosslinguistic research on signed languages, both where we might expect differences, but perhaps especially in those areas in which we expect strong similarities, such as the way that signed languages use space.

Barbara Hänel

The acquisition of verb agreement in signed languages (DGS/ASL)

Alternate

I will base my talk on two ideas: First, according to linguistic theory, child grammar should be constrained by the same syntactic rules and principles as has been suggested for adult grammar (Pinker 1984). Second, parameters specify the possible choices which languages can make. They usually relate to functional heads (Chomsky 1991, Ouhalla 1991). While Universal Grammar provides the possible sets of functional categories and features, children have to determine which one might be used for actual language.

In this paper I will argue that the development of morphological agreement markers is related to the realisation of the functional category INFL or an equivalent functional element. Following Meir (1998) and Aronoff et al. (2000) I assume that verb agreement in signed languages is expressed by copying the locative index of the structurally relevant noun phrase onto the agreement morpheme. Agreement verbs are underspecified with respect to locus features (beginning and / or end point of the movement), thus making empty slots available for the copied locus features. Copying is available if the two elements are in a specific structural relationship, usually a specifier-head relation.

The prediction is that at the same time when children use inflection markings productive the feature sharing process should have been acquired, namely the [R-locus] feature being copied to the open slots of the verb.

The study will be based on an analysis of two deaf children growing up with DGS as a first language in their deaf families. The results will be compared to earlier studies of children acquiring ASL as its first language (Meier 1982, Loew 1984, Lillo-Martin 1991). It will be shown that the DGS children as well as the ASL children acquire the underlying agreement mechanism during the same time span. Despite this crucial developmental parallel, one difference shows up. Whereas DGS learning children start using verb agreement with non-present referents, children learning ASL cease to produce this from during the period in question. I will tentatively put forward the idea that this is a performance rather than a competence effect.

Daisuke Hara

Maximum syllable complexity constraint in ASL and JSL

Mittwoch/Wednesday: 18:00

A sign language syllable is composed of elements in at least three basic components, i.e., the handshape, movement, and location components. Each of the components has a finite number of elements. The previous models impose restrictions on each component, and succeed in licensing only the elements that are actually used and in excluding the ones that do not occur in syllables. Remarkably, many of the restrictions so far proposed have been argued in terms of individual components only, i.e., intracomponentially. There is no doubt that intracomponential restrictions are indispensable to argue well-formedness of syllables. But, it is also true that they alone are not sufficient to discuss well-formedness of sign language syllables. We also need a mechanism that controls relationships among the components, i.e., **intercomponential** relationships, since not all the combinations of the legitimate

componential elements exist as well-formed syllables. Looking at actually existing syllables, we notice that it is often the case that some componential element(s) in one component requires some specific element(s) in another component(s) as the partner(s), and they all band together to create a well-formed syllable. This knowledge leads us to the idea that clarifying the mechanism of the interactions among the components should be a key to elucidating the mechanism of the syllable formation in sign language. However, we have an obstacle to overcome when we tackle the problem regarding the componential interactions: the heterogeneity among the components. Componential elements do actually interact with one another, but it is difficult to capture the interactions, because we have no mechanism that can handle qualitatively different components together in a uniform manner. To overcome the obstacle, we propose as the base of such a mechanism the concept *complexity*, which is the same concept that information theory calls *information*. Mathematically, complexity is represented as “**Complexity (X_i) = - log₂ P(X_i)**”, in which “**P(X_i)**” represents the probability of an event X_i. We assume that all the elements in each component and all the syllables have their own complexities, and also that the complexity of the syllable is the total sum of the complexities that its constituent elements bear. Based on these assumptions, we calculate the complexities of the elements in the components and those of the syllables. The corpora on which the calculations are based are the *Dictionary of American Sign Language* for ASL and the *Japanese-JSL Dictionary* for JSL. The results of the calculations provide the range of the well-formed syllables. We find that all the syllables have complexities that are less than, or at most equal to, a certain amount of value determined according to languages; there exists no ASL syllable whose complexity exceeds 21 (bits) while no JSL syllable has a complexity value more than about 26. Note that both ASL and JSL have an upper limit of complexity that the syllable can bear, the limit being set at a value that is much less than the theoretically possible maximum. The theoretically possible maximum of the syllable complexity is about 30 for the one-handed syllables, and about 40 for the two-handed ones of ASL. Likewise, it is about 32 for one-handed syllables, and about 43.5 for the two-handed ones of JSL. Although the ASL and the JSL syllables theoretically could have higher complexities, they hold down their complexities of their own accord. We describe this as *the maximum syllable complexity constraint* (MSCC):

The Maximum Syllable Complexity Constraint (ASL)

The ASL syllable complexity may not exceed the value of twenty-one.

The Maximum Syllable Complexity Constraint (JSL)

The JSL syllable complexity may not exceed the value of twenty-six.

Bernadet Hendriks

Negation in Jordanian Sign Language: A cross-linguistic perspective

Freitag/Friday: 12:30

Most European sign languages, as well as ASL, make use of a non-manual – headshake – as the primary means of negation. Headshake in these sign languages may or may not be accompanied by a manual sign and appears to be a grammaticalized variant of the non-grammatical headshake that is used by hearing people in these cultures. Not all cultures, however, use this “affective” headshake to express negation. It has been noted in the literature that the cultures of the Eastern Mediterranean tend to use a backward tilt of the head to express negation, and that this feature is also found in sign languages from that part of the world. Examining negation in sign languages from this part of the world, therefore, is not only interesting from a typological point of view, but also may give more insight into the

relationship between culture-specific gestures, and the way these may or may not be grammaticalized in sign languages.

Jordanian Sign Language (or *Lughat il-Ishaarah il-Urduniah*, LIU) appears to be one dialect of a larger Eastern Arabic Sign Language, that also comprises at least Lebanese, Syrian, Iraqi, and Palestinian Sign Language. Although Arab cultures tend to use the backward tilt of the head, often accompanied by a tongue-click and a raise of the eyebrows, the grammatical status of this gesture in LIU is questionable. Although its form seems to be reduced compared to the gesture used by the hearing population, the distribution of the gesture as used by hearing and Deaf Arabs seems to be very similar. That is, it is not generally used as a clause negator, but as a “negative interjection”, occurring on its own as a one-word utterance, although it may also accompany manual negator signs. Unlike the headshake in many sign languages, however, it does not appear to be able to occur as a clause negator by itself.

LIU has several manual negator signs, the most common of which are an existential negator MA-FI (which in Arabic means ‘there is no’, but has a much broader meaning in sign language) and a side-to-side “handshake”, using a 1-hand. These two signs can often be used interchangeably, but there is a subtle difference, in that MA-FI can apparently not be used for advice or warning, whereas the “handshake” can. This difference in distribution may be tense-related. Tense-related negation has been described for Israeli Sign Language (ISL), a language which appears to be unrelated to LIU, but is geographically very close. Apart from these two signs there are negative signs that have a specific defensive, warning, apologetic or emphatic function. LIU also appears to have a negative post-clitic, which is very similar to a negative derivational suffix in ISL, and can be added to some verbs and adjectives. This sign can also occur as a separate word and may occur with nouns as well as adjectives and verbs. When it occurs as a separate word, however, it does not affect the place of articulation or movement of the preceding sign in the way it does when it is a clitic. The clitic occurs with a strong negative facial expression, which has been observed to negate a sentence without an accompanying manual sign or head-movement, although this seems rare.

Although more research needs to be done into the precise use of different negators in LIU, and into the use and domain of negative facial expression, it appears that LIU is typologically interesting because it does not use headshake as the primary means of negating clauses, although a very subtle headshake or head turn may accompany a manual sign. It has a variety of manual negators that all seem to have subtly different meanings, which may in one case interact with tense. It also has a negative clitic which is very similar to the negative suffix described for ISL, which appears to be an unrelated sign language.

Annette Hohenberger

Cross-linguistic variation between sign languages: UG, modality and typological aspects

Donnerstag/Thursday: 10:30

This paper is concerned with delineating the possible range of cross-linguistic variation between sign languages. The range of variation is determined by three factors: UG, modality, and typology.

As for UG, there are general constraints on the possible format of natural languages which hold for any language, despite modality and typology. Such constraints include, among others, universal syntactic principles (e.g., Full Interpretation) as well as design properties of the language system (having, e.g., hierarchical, recursive, asymmetric representations). They are a part of the general conception of how the relation between grammar and its interfaces (Articulatory/Perceptual (AP) and Conceptual/Intentional (CI)) is to be construed. The

version of the conceptualization of the human language faculty adopted here is the Minimalist Program (Chomsky, 1995).

As for modality, I will investigate in how far general modality effects pertaining to all sign languages restrict possible cross-linguistic variation. This part of the analysis includes the discussion of modality differences between signed and spoken languages. Generally, no modality differences are to be expected between signed languages and spoken languages on the level of Logical Form (LF), given that the principles of forming concepts or drawing on them is universally invariant. The means for expressing universal concepts may be modality-dependent, though. In particular, I will focus on differences with respect to language processing. I will rely on Brentari's (2002) distinction of "horizontal processing" (for spoken languages) and "vertical processing" (for sign languages). Brentari claims that "sign languages constitute a typological class unto themselves" (p 57) which she characterizes with respect to canonical wordshape, namely as "polymorphemic/monosyllabic". This view corresponds to the "traditional view" of emphasizing the similarities between signed languages as opposed to spoken languages. I will adduce comparative evidence from language production, namely slips of the hand in German sign language (Deutsche Gebärdensprache, DGS) and slips of the tongue in spoken German in order to point out the effect of modality (Hohenberger, Happ, & Leuninger, 2002).

Cross-linguistic variation is to be expected to reside within the field of phonological, morphological, and syntactic typology. Within grammar, sign languages do in fact have at their disposal the whole range of variation of establishing a formal and arbitrary connection between meaning (the CI-system) and form (the AP-system) from which they can choose. Morphology "as the characteristic domain for idiosyncratic aspects in linguistic structure" (Bierwisch, 2001) is the most promising domain for cross-linguistic variation. It comes as no surprise that many cross-linguistic differences between sign languages investigated so far are morpho-phonological and morpho-syntactic in nature. Insofar comparative production data will be accessible to me by the time of the conference, I will adduce evidence for cross-linguistic differences in slips of the hand in different sign languages, most notably between ASL and DGS. I expect differences to exist in phonology (e.g., in the restriction of the use of the non-dominant hand), morphology (e.g., classifiers, inflection), and position of functional categories, inevitably showing up in language production errors in different sign languages.

Wiebke Iversen & Jill Morford

Counting on your hands: The language-dependent nature of number processing

Donnerstag/Thursday: 11:30

Cross-linguistic differences can influence not only language processing, but also other cognitive processes that are mediated by language. We report the results of a study investigating the effects of cross-linguistic differences on number processing. Specifically, we investigated the effect of form differences in the lexicons of German Sign Language (DGS) and American Sign Language (ASL) on parity (odd-even) judgements.

Cross-linguistic differences in parity judgements have already been documented in speakers of German and signers of German Sign Language. Iversen and colleagues (2003) found that speakers of German identify odd numbers more quickly when responding with the left hand and even numbers more quickly when responding with the right hand for both Arabic numerals and number words (in German, e.g., "eins", "zwei", etc.). In contrast, signers of German Sign Language identified odd numbers more quickly with the right hand, and even numbers more quickly with the left hand for Arabic numerals. These divergent results have

been explained as a linguistic Markedness Association of Response Codes (MARC) effect. According to this explanation, there is a congruent association between the unmarked (even-right) and the marked (odd-left) lexical entries leading to faster response times in these conditions. For signers of DGS, these associations are reversed because the DGS sign RIGHT is made with the left hand acting on the right arm.

When presented with DGS number signs and written German number words, the same deaf participants showed a reverse MARC effect for numbers from 1 to 5, but not for two-handed signs (6-9). This inversion for numerals larger than 5 indicates an impact of the base-5 number subsystem in DGS. The presence of the non-dominant hand indicates whether a numeral is larger than 5 or not. The exact value is specified via the dominant hand. The MARC results are influenced more by the dominant handshake than by the non-dominant one. It seems as if parity is – at least in part – represented in a base-5 (sub)system in German signers.

To determine whether these effects are in fact due to the lexical structure of German number signs, we report the results of a crosslinguistic study with American signers using ASL. Since ASL number signs are all one-handed, there should be no inversion of the MARC effect in the signing condition. Moreover the ASL signs “right” and “left” are both performed with one hand, using the L-handshape with a slight movement to the left side for “left” and the R-handshape moving to the right side for “right”. If the American signers demonstrate a reversal of the handedness effect like German signers, the results support a modality difference in number processing. If, however, the American signers respond in the same way as speakers of German, this will provide additional verification of the MARC effect and confirm a language specific influence on mental number processing.

Scott Liddell, Marit Vogt-Svendsen & Brita Bergman

**Crosslinguistic comparison of buoys:
Evidence from American, Norwegian, and Swedish Sign Language**

Donnerstag/Thursday: 9:00

One of the most salient aspects of sign language discourse is the way that different categories of signs make use of – and provide evidence for the existence of – spatial representations. The major types of spatial representations identified to date include *surrogate spaces*, *token spaces*, *depicting spaces*, and *buoys* (Liddell 2003). It appears that these categories of spatial representations are also widely used across unrelated sign languages. In addition, co-speech gestures in spoken language discourse provide evidence for spatial categories that appear similar to those found in sign language discourse. Thus, not only are these types of spatial conceptualizations not unique to sign languages, they appear to be common to human discourse regardless of whether the language is produced through the vocal tract or the hands and body.

Buoys are weak-hand signs that are held in a stationary configuration as the strong hand continues producing signs. Liddell (2003) identifies four types in American Sign Language (ASL): *list buoys*, a *theme buoy*, *fragment buoys*, and a *pointer buoy*. List buoys produce a visible representation of a list – typically an ordered list. In ASL list buoys are produced with from one to five extended digits, with each extended digit representing an element of the list. The maintained presence of the buoy gives the signer opportunities to refer to items on the list by tapping, pointing to, or directing signs toward one of the buoy’s extended fingers. The presence of the THEME buoy stands as a physical reminder of a significant discourse theme. In both ASL and Norwegian Sign Language (NSL) it takes the form of the index finger

extended from a fist and pointing upward. It signifies a significant discourse theme. There does not appear to be a THEME buoy in Swedish Sign Language (SSL). Signers create fragment buoys by pointing at the final configuration of a just produced sign. This gives the sign fragment the ability to remain in place with the significance of that just produced sign. The POINTER buoy is produced with the same handshape as the THEME buoy, but oriented so that the finger points toward a significant entity being discussed while the strong hand continues signing. What all these examples have in common is the maintenance of a meaningful buoy on one hand while the other hand produces connected discourse.

We will focus our discussions on the use of buoys in American Sign Language, Norwegian Sign Language, and Swedish Sign Language. We will, in turn, describe the use of buoys in the sign language each of us studies. We observe pointer, fragment, and list buoys in all three sign languages. While Norwegian Sign Language and Swedish Sign Language have static list buoys like those commonly used in American Sign Language, they also make frequent use of sequentially built lists. In constructing these sequentially built lists, the focus appears to shift to the extent of the list rather than on associating specific entities with fingers. Our general approach will be to contrast the apparent uniformity of the categories of spatial representations used across sign languages with language specific differences in how the use of space is manifested within the category *buoys*.

Gaurav Mathur & Christian Rathmann

Cross-sign-linguistic variation in the frequency of verb agreement forms

Mittwoch/Wednesday: 15:00

Introduction. All signed languages documented to date clearly exhibit verb agreement. What is not clear, however, is the extent of cross-linguistic variation across signed languages with respect to the form of verb agreement. In re-examining the distribution of agreeing verbs previously elicited from four signed languages (American Sign Language - ASL, German Sign Language - DGS, Australian Sign Language - Auslan, and Japanese Sign Language - Nihon Shuwa), we ask the following question: are certain forms of modulation and types of handedness more frequent than others, and if so, how much is this subject to cross-linguistic variation?

Form of modulation. With regard to form of modulation, we find three patterns. First, for all signed languages, a change in both orientation and direction of movement (= Form OrDir) is more frequent than a change in just one of them. Whether a change in orientation (= Form Or) only is more frequent than a change in direction of movement (= Form Dir) only varies cross-linguistically.

The second finding is that Form OrDir is more frequent than a similar change which involves an additional change in the relative position of the hands with respect to the body (= Form OrDirHnd). Whether this change is more frequent than another change in which involves just the orientation and the relative position of the hands (= Form OrHnd) depends on the signed language. The last pattern is Form Or and Form Dir are more frequent than Forms OrDirHnd and OrHnd, with the exception of ASL, where Form Dir is the least frequent.

The high frequency of Form OrDir can be explained by the fact that it requires signs that are easy to manipulate from an articulatory point of view. Forms Or and Dir appear less frequently, because signs are not as manipulable so that they change only in orientation or direction of movement. Forms OrDirHnd and OrHnd are even less frequent, since they are more complex in that they also change the relative position of the hands with respect to the body.

Type of handedness. Within Battison's (1978) typology of handedness, one finding is that two-handed, non-symmetric signs with the hands having different handshapes (= Type 3) appear most frequently in all signed languages (in Auslan, one-handed signs (= Type 0) are equally frequent as well). The other finding is that two-handed, non-symmetric signs with the hands having the same handshape (= Type 2) appear least frequently in all signed languages. It is the relative frequency of one-handed signs and two-handed, symmetric signs (= Type 1) that is subject to cross-linguistic variation.

It is not surprising that Types 3 and 0 are the most frequent, since they are the most prototypical types of sign, i.e. two-handed asymmetrical and one-handed signs, respectively. Type 1 may be more frequent than Type 0 in Nihon Shuwa, because Nihon Shuwa has a high number of agreeing verbs that are two-handed. Finally, Type 2 seems to be relatively rare owing to the fact that when the two handshapes are the same, there is a strong preference for the sign to be symmetrical (i.e. Type 1), as predicted by Battison's (1978) Symmetry Condition.

Conclusion. The findings above suggest that motor economy can predict which of the forms are most frequent and therefore appear universally across all signed languages, whereas it is in the less frequent forms that we see cross-linguistic variation (see Ann 1996 for a similar conclusion regarding handshape in lexical signs in Taiwanese SL and ASL). Frequency in forms of modulation, as well as frequency in types of handedness, in an apparently universal phenomenon like verb agreement is thus a tool for investigating the range of cross-linguistic variation across signed languages at the phonological-phonetic level.

Marie Nadolske & Rachel Rosenstock

A preliminary cross-linguistic study of word pictures in ASL

Mittwoch/Wednesday: 17:30

Non-manual aspects such as eye-gaze, body shift, eyebrow movement, etc. have been widely recognized as a part of the grammar of natural sign languages (Baker-Shenk 1983, Valli & Lucas 1992). One component that is still highly controversial is the use of the mouth to form what resembles spoken words (Word Pictures). While the general assumption by both Deaf and hearing researchers seems to be that the phenomenon of Word Pictures (WP) does not exist in ASL (see Hamilton 1983 for discussion), the phenomenon has been observed and described by various European researchers for sign languages in e.g. Norway (Vogt-Svendsen 1983), Germany (Ebbinghaus & Hessmann 1994) or the Netherlands (Schermer 1990). In the debates of the function of WP and their possible role as a part of sign language grammar, the obligatory nature of WP remains a point of discussion and speculation.

The present study attempts to demonstrate the occurrence of WP in American Sign Language. A quantitative method will be applied to measure the frequency with which WP occur simultaneously to a specific word class. Additionally, various factors of variation (situation, onset of learning ASL, age) were taken into consideration. The relative frequency of occurrence can indicate the status of WP as either code-switching, nonce-borrowing, or borrowing.

The data for this study consists of 80 minutes of various videotaped ASL signing. All data was glossed and the single signs categorized into word classes. Demographic characteristics and background information were noted for each individual signer. Each item produced by the signer was then classified into three categories of mouthing: (1) WP; (2) other mouthing; (3) no mouthing. More than 6000 items were included in the study.

In accordance with the working hypothesis, the highest frequency of WP was found in ASL lectures where over 60% of the signs were accompanied by WP. This was to be expected considering the highly formalized ASL that is displayed in these situations in general (see Zimmer 1989 for discussion). Against expectations, the ASL stories showed the lowest number of WP with 42%. Certain word classes showed a higher frequency for WP occurrence than others. Nouns, prepositions, plain verbs, conjunctions, negators, determiners, WH-words and modal verbs all show a frequent use of WP, ranging from 85% (nouns) to 52% (plain verbs).

The results of this study indicate not only a use of WP in ASL, but also a relation to both situational register and word class. In this, the study provides interesting data to relate to European research on these topics.

Annika Nonhebel, Wim Emmerik, Onno Crasborn, Els van der Kooij, Dafydd Waters,
Rachel Sutton-Spence, Bencie Woll, Johanna Mesch & Brita Bergman

**The mouth in the sign languages of Sweden, Britain and the Netherlands:
A comparison by means of Aesop's fables**

Mittwoch/Wednesday: 16:30

The role of the mouth in signing has received quite some attention in the past few years (e.g., Boyes Braem & Sutton-Spence 2001). The mouth can assume different positions and movements while signing. These positions and movements can be lexically associated with a specific manual sign or their domain can be phrase or sentence bound. Positions and movements of the mouth can be motivated by a spoken language, in which case the terms 'mouthing', 'word pictures' and 'spoken component' are often used. If the mouth action is not derived from a spoken language word, the term 'mouth gesture' or 'oral component' is used. In this paper we present a comparison of mouth positions and movements in three European sign languages; BSL, SSL and NGT. We investigate the behaviour of the mouth in signed stories. We focus on the different domains of the manual signing that mouth positions or movements associate to, and the linguistic functions of these mouth markers. The data we use are transcriptions of signed stories that are published online in the context of the ECHO project (ECHO 2003). The data consist of two signers per language, one male and one female, retelling in their own sign language five fables that were originally written down by Aesop. The recordings of these fables were transcribed for the two participants and the three languages using the same set of transcription conventions that was developed in Nijmegen (Nonhebel *et al.* 2003), and using the ELAN software for video annotation. The conventions for the transcription of the mouth behaviour find their base in the proposal by Wallin & Bergman (2001). The most important feature of this transcription system is that it strictly separates the form of the mouth patterns from their functions. In other transcription proposals the coding of a specific mouth pattern is often described in terms of its function (such as an adverbial or aspectual marker). Another significant feature is that movements of the mouth are expressed in terms of sequences of visually described segments.

For the analysis of the mouth patterns we concentrated on the following questions:

- Within the time span of the mouth pattern, is there a manual sign that the mouth marker is semantically associated to, or not?
- If the mouth pattern is associated to a manual sign, will it stretch over more signs, and in what direction? In other words, what is the prosodic domain of the lexically specified mouth marker?

In addition to the temporal domain of the mouth marker, we examine the functional domain of its meaning, distinguishing whether it adds to the meaning of the manual sign itself or to the meaning of a whole phrase or sentence it is associated with. Per language we categorize these meaning patterns, for instance whether the mouth marker adds adjectival, aspectual or adverbial (or idiosyncratic) meaning. Results are presented in terms of quantitative similarities and differences between the behaviours of the mouth in the three languages. Furthermore, the time precise alignment of the transcriptions that are embedded in ELAN enables us to very precisely investigate the relation between the rhythm of the manual movement and that of the mouth movement. The idea presented in the mouthing literature is that the mouth and the hands move in tandem, and that the mouth follows the rhythmic pattern and time span of the hands (Woll 2001). This rhythmic relation proposed for lexical signs is investigated in the broader context of sign sentences in the three languages.

Asli Özyürek & Deniz Ilkbasaran

**The use of space in transfer verbs in Turkish Sign Language (TID):
Implications for typological variation**

Mittwoch/Wednesday: 15:30

Turkish Sign Language (Türk Isaret Dili (TID)) is still an undocumented language with 2,5 million users within Turkey. Here we report on one of the first investigations on TID grammar, specifically on grammatical constructions involving transfer verbs (e.g., GIVE and TAKE).

The data was collected from 4 native signers of TID from Istanbul. The analysis in this talk is restricted to the grammatical constructions of GIVE and TAKE verbs used in the following contexts: a) spontaneous stories, b) picture book narrations (Balloon Story used in Lillo-Martin, 1991), c) single sentences elicited in response to simple GIVE and TAKE events. All the sentences in which GIVE and TAKE verbs used for non-present referents were coded for the number of arguments expressed, the word order, the direction of the verb signs and the type of person marking in expressing arguments (i.e., lexical versus location in space).

The analysis shows that, first of all, Turkish signers most often prefer to use SOV order in sentences where the subjects and the objects are lexicalized. Furthermore, the nouns or the pronominal forms are rarely located in space before the use of the directional verbs. Subject nouns are either lexicalized or they are mapped onto the signer without explicit pointing toward the signer. Similarly the object nouns are not localized before the use of the directional GIVE and TAKE signs. Furthermore, we find the verb directions to be half of the time directed to the sides (right or left) and half of the time directed in front of the signer on a sagittal axis. Finally, for many of the cases the GIVE or TAKE events were found to be depicted with two verbs per event as in:

- (1) MAN GIVE-BALLOON (directed from signer to his right)
BOY TAKE-BALLOON (directed from right towards the signer)
(depicting an event where the balloon man gives a balloon to a boy).

These findings indicate that Turkish signers use space in different ways for transfer verbs than has been described in the literature for ASL, NGL, ISL etc. (e.g., Lillo-Martin & Klima, 1990; Meir, 2002 etc.). They suggest that Turkish signers do not use spatial agreement morphology in a consistent way according to the definition of verb agreement proposed for sign languages as in “a verb agrees with its arguments if its initial and final locations are determined with the R-loci of its arguments” (Meir, 2002). Rather, TID signers might be relying on regular word

order for the specification of argument roles for these event types. These results are suggestive of typological variation in the use of these verbs.

Pamela Perniss & Asli Özyürek

“How many apples in the bowl?” – number and quantification in German (DGS) and Turkish Sign Language (TID)

Donnerstag/Thursday: 12:00

This paper explores the domain of quantification in two sign languages – German Sign Language (DGS) and Turkish Sign Language (TID). The domain of quantification encompasses all expressions that give an indication of quantity. Thus, we are concerned with morphological categories of number, the use of numerals and quantifiers, and other lexical or morphological means of expressing the size, extent, or configuration of a certain quantity of entities.

The visual-gestural modality makes the investigation of the expression of number and quantification in signed languages especially interesting for three reasons, in particular.

- (1) It is difficult to find morphological criteria that straightforwardly distinguish word classes in signed languages. Many signs appear in different grammatical functions without undergoing any derivational changes of form. Furthermore, articulatory constraints may block morphological processes in the domain of quantification, e.g. for indicating plural (cf. Zeshan 1999).
- (2) The shape or configuration of entities constituting a plurality can be iconically represented in sign space. The topographic use of space makes it possible to create representations in space that correspond schematically or isomorphically to real-world quantity configurations.
- (3) Communication in signed languages is necessarily face-to-face, and is thus always highly context-dependent. This context-dependency has considerable influence on the interpretation of signs with respect to number.

The effects that these features of the modality have on the means of quantifying entities and events are discussed based on the presentation of similarities and differences between German (DGS) and Turkish Sign Language (TID). The conditions under which singularity and plurality are expressed and the means of expression are contrasted in these two signed languages.

For both languages, an underlying transnumerality of signs is assumed (cf. Perniss (2001) for DGS). This means that the difference between one and many denoted objects is not obligatorily marked as a difference in the morphological form of lexical signs. In both DGS and TID, the marking of plurality is an optional morphological process that is realized under certain conditions.

The morphosyntactic means of marking plurality include the use of numerals, the use of quantifiers, the repetition of a sign, the use of indexes, the use of size and shape denoting handshapes or tracing movements, as well as movement patterns like a horizontal sweep of the hand through sign space. These means of marking plurality are used in both DGS and in TID, but important differences exist in word order, spatial modification of signs, frequency of occurrence, and the realization of specific forms. There are differences, for example, in the ways in which adjectives and nouns can be spatially modified according to the form of an accompanying quantifier in DGS and TID. With respect to word order, numerals and

quantifiers generally precede the element they modify in DGS, whereas they follow the quantified element in TID.

Roland Pfau & Josep Quer

On the syntax of negation and modals in DGS and LSC

Freitag/Friday: 13:00

The expression of sentential negation across signed languages systematically relies on the use of nonmanual markings (a headshake mostly). Negative manual signs may coappear with the negative nonmanual without changing the polarity of the sentence. Syntactic microvariation in this domain has been recently explored in Pfau & Quer (2003), where the diverging properties of ASL, DGS, and LSC negative sentences are derived from differences in (a) underlying sentence structure (SVO vs. SOV), (b) the morphosyntactic identity of the element responsible for the nonmanual (syntactic feature vs. featural affix) and (c) the syntactic status of the manual negative adverbials (head vs. XP).

This paper pursues further this line of comparative inquiry into the functional domain of clauses by examining the syntax of modal predicates and their interaction with negation in DGS and LSC.

It is widely accepted that modal predicates belong in the inflectional domain of the clause. Even those accounts that distinguish epistemic and root modals on the basis of their syntactic position and thematic properties (e.g. Picallo 1990) do generate them outside the lexical layer of VP. However, proposals about their exact position in the functional hierarchy vary significantly and range from those that uniformly locate modals in the T node (e.g. Neidle et al 2000, for ASL) to those that work with an exploded functional structure featuring different designated positions for modal predicates (up to six in Cinque 1999). The behaviour of such predicates with respect to other functional heads becomes thus crucial in order to obtain a clear picture of their syntactic properties. Here we will mainly concentrate on the interaction of modals with negation.

Crosslinguistic lexicalization patterns show a tight link between modals and negation, which often gives rise to negative modals (for an overview, see van der Auwera 2001). Signed languages often lexicalize the merger of a modal with negation either as a result of negative incorporation or by means of a suppletive lexical item. Negative modals in DGS and LSC will be argued to undergo head movement to Neg⁰ in order to support the unbound negative morpheme [+neg]. However, a further movement to the highest clausal head will be proposed in order to derive two sets of facts: (i) negative modals cannot co-appear with negative XPs, although that should be possible if the negative modal stayed in Neg⁰;

- (1) KIND EIS ESS (*NICHT) DARF⁰NEG (*NICHT) [DGS]
 child ice eat not may.not.NEG not
 ‘The child may not eat ice.’

(ii) unlike plain modals, negative modals must appear in sentence-final position.

- (2) a. IX-2 ANAR CASA NO-PODER [LSC]
 you go home cannot
 ‘You cannot go home.’
 b. *IX-2 NO-PODER ANAR CASA

An analysis with further movement of the negative modal to C° will be defended. Interaction with aspectual adverbs will be shown to provide extra support for the claim. This extra step is arguably triggered by a [+focus] feature residing in the complementizer position of these structures.

Ronice M. de Quadros, Diane Lillo-Martin & Deborah Chen Pichler

Clause structure in LSB and ASL

Freitag/Friday: 11:30

In this paper we discuss syntactic similarities and differences between Brazilian Sign language (LSB) and American Sign Language (ASL). We aim to account for both the similarities and differences with a theory employing the minimum technical machinery possible (Chomsky, 1995).

LSB and ASL have both verbs which can be inflected to indicate the subject and object ('agreeing' verbs) and verbs which cannot ('plain' verbs). They also have 'spatial' verbs, which like agreeing verbs are inflected by being signed in a referential location, but the inflection indicates a physical location rather than a referent. In addition, both allow some plain verbs to be signed in a particular location. We examine the ways in which plain verbs signed in a location behave like spatial verbs – they convey information about physical location, and they are distributed syntactically like spatial verbs.

We follow Quadros'(1999) proposal that LSB agreeing verbs are taken from lexicon fully inflected, while plain verbs are inserted into the syntactic structure 'bare' and must merge with an adjacent virtual affix. This morphological distinction leads to an important syntactic effect: the two verb types project different syntactic structures. On this analysis, plain verbs project only IP, while agreeing verbs project TP and AgrP. This difference accounts, among other things, for the different patterns with negation. Spatial verbs, and plain verbs signed in a particular spatial location, behave like agreeing verbs in LSB with respect to negation, and also with respect to word order and null arguments. This indicates that they project the same structure in this language. Despite the morphological similarity of LSB and ASL, the verb types behave syntactically differently across the two languages. In particular, the differences in LSB negation placement are not found between agreeing and plain verbs in ASL. We conclude from this that the verb types project the same structure in ASL. Theory-internal arguments lead to the postulation that this is the structure which includes both TP and AgrP.

While LSB and ASL behave differently with respect to basic clause structure, they are very similar in their use of doubling constructions, described in detail by Petronio (1993) and Quadros (1999). We find that both LSB and ASL have strict restrictions on focus doubling in contexts where more than one potentially focused element is available. For example, in WH-question contexts, only the WH-element may be doubled, not a modal or verb (as originally observed by Petronio, 1993). We propose an account for this distribution which reduces it to a type of Relativized Minimality (Rizzi, 1990). In particular, on our account only the structurally highest eligible element can be involved in focus doubling.

These results are expected under the hypothesis that languages have deep similarities with systematic lexical differences affecting a range of structures.

Ninoslava Šarac, Katharina Schalber, Tamara Alibašić & Ronnie B. Wilbur

Crosslinguistic comparison of sign language interrogatives

Freitag/Friday: 13:30

Our research compares interrogatives in Croatian (HZJ), Austrian (ÖGS) and American (ASL) sign languages. Addressed are (1) word order and the position of interrogative signs, and (2) nonmanual markers and their scope.

(1) Word order and position of interrogative signs: HZJ appears to be SVO, whereas ÖGS is SOV (Šarac 2003; Schalber et al. 1999; Wilbur 2002, in press). Although unrelated, HZJ looks like ASL with head-final CP, and other phrases head-initial. In contrast, ÖGS has head-initial CP, and head-final IP and VP. We are intrigued by this result because there was substantial contact between ÖGS and HZJ, which is not reflected in the syntax so far.

For y/n questions: (a) We are not aware of any reports of SLs that require inversion of a verb form (auxiliary/modal/verb) and a subject. However, under certain limited circumstances (doubled modals), such inversion is tolerated in ÖGS. (b) HZJ has an interrogative sign JE-LI ‘is-it’; we argue that it is an optional left adjunct (from signed Croatian) and not part of the interrogative structure itself (cf. QMwg; Neidle et al 2000).

For wh-questions: We are not aware of any SLs that do not permit wh-fronting nor any that require it (i.e. prohibit *in situ* wh-signs). In HZJ the wh-signs can be initial, final or doubled, with optional copying on the right either to C (no pause) or in Tag (following a pause) (Alibašić 2003; Šarac 2003); that is, it behaves like ASL. In contrast, ÖGS has C on the left, so there is no place for standard copying; a doubled wh-sign can only occur in TagQP (after a required pause).

(2) Nonmanuals: There appears to be a typological split with respect to the main nonmanual used to differentiate yes/no from wh-questions. From the literature and our own work, three SLs - ASL, BSL, and Swedish SL - use brow position: raise for yes/no, furrow for wh-q. Three SLs - HZJ, ÖGS, and LSQ - use head/chin position/movement instead: down(ward) for y/n, up(ward) for wh-q. (There may be other nonmanuals that serve this function in other SLs – we hope to discuss this with conference attendees.) Note that unlike the syntactic descriptions above, where ASL and HZJ seem to pattern together, with respect to the nonmanuals, HZJ patterns with ÖGS.

Consistency of marking: The markings on y/n seem to be much more regular than those for wh-q, which could be related to the presence of wh-signs that might make the nonmanuals less crucial to wh-q interpretation. ÖGS and HZJ appear to differ in the degree of obligatoriness of nonmanual marking in wh-q. In HZJ, the nonmanual marking is crucial and consistent, whereas in ÖGS, wh-q can be found marked with upward or downward tilt, as well as forward thrust of the head. This result could be due to an interaction of the nonmanual similarities (use of head) and the syntactic differences (SVO, SOV).

Intensity: Like ASL, in HZJ y/n questions, the intensity of the nonmanuals is highest at the end of the clause. Unlike ASL, in HZJ wh-q the highest intensity is initial (that is, with the first occurrence of [+wh]). In HZJ y/n questions, the sign JE-LI can be initial (or final if in Tag). JE-LI is not connected to the question operator or nonmanual intensity; hence we accord it left IP-adjunct status. This analysis has implications for the treatment of ASL IF/SUPPOSE (as a potential counterexample to the analysis of head-final CP).

These data suggest: (1) typological differences in syntactic phrase structure, but that e.g. all SVOs are not alike; (2) typological differences in choice of nonmanual articulator for marking interrogatives (and other operators); and (3) a hypothesis that nonmanuals may be more easily

influenced by language contact (hence may be regionally distributed) than syntactic structure - this will require more crosslinguistic comparison of SLs for adequate testing.

Adam Schembri

**Representing motion events in three signed languages
(Australian SL, Taiwanese SL & ASL) and in gesture**

Alternate

This paper presents the results of an analysis of 'classifier' verb of motion data collected from deaf signers of Australian Sign Language (Auslan) and Taiwanese Sign Language (TSL) using the Verbs of Motion Production stimulus material originally developed for American Sign Language (ASL) by Supalla et al. (n.d). This comparison illustrates some important cross-linguistic differences and similarities in the use of handshape units to represent referents in verbs of motion. With idealised ASL responses used as the basis for scoring results, adult native signers of ASL have been reported in the literature as scoring 84% for the appropriate use of handshape in verbs of motion (Singleton, Morford & Goldin-Meadow, 1993). This compares to results from my study where Auslan signers scored 57% and TSL signers 44% for handshape units on the same test. The greatest differences in hand configurations occurred in the so-called 'semantic' classifiers for the representation of vehicles, humans and trees, whereas 'size and shape specifier' handshapes were the most similar cross-linguistically, especially for the representation of straight and cylindrical objects.

Based on this data, however, uses of space and some features of movement in these signs appear to be identical in these three unrelated signed languages, with scores of 90% (ASL), 92% (Auslan) and 88% (TSL) respectively for movement units and 97% (ASL), 92% (Auslan) and 90% (TSL) for locative units. Moreover, the data from these three signed languages is compared to responses from a home signer and hearing American and Australian adult non-signers using the same stimulus material (Schembri, 2001; Singleton, Morford & Goldin-Meadow, 1993). The comparison highlights points of similarity in the responses from native signers, home-signers and gesturers. In particular, the data from a child home-signer resulted in scores of 83% for manner of movement, and 91% for location, with figures of 95% and 73% for American adults non-signers and 70% and 74% for Australian adult non-signers respectively.

The data has important implications for our understanding of classifier verbs of motion and location in signed languages. The most important finding from these studies is undoubtedly the surprising degree of similarity in the responses from all groups. This evidence may be interpreted as offering some support for the claim that at least some verbs of motion in signed languages represent combinations of linguistic and gestural components, although clearly more investigation is needed.

Myriam Vermeerbergen, Lorraine Leeson, Adam Schembri & Trevor Johnston

**Considering cross-linguistic analysis of constituent ordering in sign languages:
A presentation in three parts**

Mittwoch/Wednesday: 14:00

This presentation explores some of the salient issues relating to the cross-linguistic analyses of constituent ordering in sign languages. There are three main themes which we address: Part 1 considers the existing literature on constituent order in sign languages; Part 2 focuses on problems encountered in compiling the results of this body of data for cross-linguistic comparison, and Part 3 outlines the process of developing a small comparative analysis of declarative utterances in three sign languages using a widely applied elicitation task and a shared set of guidelines regarding interpretation of the data.

Part 1: Part 1 deals with consideration of the literature regarding constituent order in sign languages, focusing specifically on data collated using the Volterra et al. (1984) picture elicitation task, which discusses three types of declarative sentences (locative, reversible, and non-reversible). This material has been applied to a wide range of unrelated sign languages which leads one to expect that a broad range of data could be relatively easily compared cross-linguistically. However, there is a range of difficulties involved in comparing and contrasting the data.

Part 2: Here we problematise the issue of cross-linguistic comparisons which arise for a range of reasons. These include for example, the fact that the linguistic framework for analyses may differ significantly from study to study; the fact that the definition of basic notions, such as subject and object, are either not defined at all or are interpreted in different ways; certain structures are treated as special cases or marginal cases and excluded from any core discussion of results (e.g. polymorphemic verbs, simultaneous constructions); the assignment of semantic roles/ macro-roles is applied inconsistently across the literature, and more basic issues such as defining the scope of the sentence/ clause often remain undiscussed. All these issues conspire to make valid comparison of the available body of data on constituent order difficult. Given these issues, we designed a small three-way cross-linguistic “test-case” where the criteria for data collection, and most specifically, for the analysis and interpretation of the data were clearly defined at the outset.

Part 3: In this section we outline the results of our collaborative “test-case” which focused on three sign languages, namely Flemish Sign Language (VGT), Irish Sign Language (ISL) and Australian Sign Language (Auslan). The research was driven by the Volterra et al. picture elicitation task data. Four informants contributed to the data in each of the three sign languages (i.e., a total of 12 informants). To minimize sociolinguistic complexities associated with generational variation, we controlled for age, including only signers in the age group 30-40 years. We also considered gender as a potential influencing factor and thus this test-case includes only male signers. Native competence was also controlled. The presenters suggest that this analysis is unique insofar as it represents a collaborative attempt to apply the same notions to constituents and to the interpretation of data, allowing for a valid cross-linguistic comparison.