##### Chapter 15

The Linguistic Structure of Sign Languages

*Introduction*

The importance of the study of sign languages to the field of linguistics in general can hardly be overestimated. Sign languages and spoken languages are produced and perceived in different physical modalities: the manual–visual modality and oral–auditory modality, respectively. Until recently the emphasis in linguistic research has been on spoken languages and, in fact, on a rather limited number of these. The proposals that have been made about universal properties of languages and typologies have therefore been based on a rather small subset of human languages. Recent research on languages other than English, especially on languages from language families other than the Indo-European family, have often challenged the postulated universals, suggesting modifications or complete reconsideration. This, in itself, illustrates the importance of the investigation of languages other than the ones that have been used to formulate the hypotheses in the first place.

In this respect, sign languages form a very important testing ground for language universals and typologies, and for differentiating between those universals and typological features that depend on the effects of the modality of production and perception and those that depend on the innate, cognitive capacity for language.

Sign languages started to attract the attention of linguists only a few decades ago. In the early 1950s, **Ben Tervoort** from Amsterdam in The Netherlands observed the communication of some young deaf children and recorded properties of that communication system that indicated an independent linguistic system in a different modality. For example, he observed that signs had a constant form with a constant meaning, and that these were not derived from the spoken language. In this respect, Tervoort placed himself in the tradition of the French priest L’Épée (1712-1789), a pioneer in the recognition of French sign language.

Tervoort’s important work was, unfortunately, not widely noticed. The real breakthrough came when American researcher **William Stokoe** realized in 1960 that simplex signed words can be decomposed into smaller (formal, meaningless, hence: phonological) units.

His initial goal was to develop a notation system for signs because he was planning to make a dictionary that would move beyond a book with pictures associated with an English gloss. He wanted to organize the lexicon in a way that he believed would reflect the phonological structure of the signs, and he also simply wanted to move away from having pictures or drawings only. Hence, he developed a system for describing signs at the level of form or, in other words, the **handshape**, the **movement**, and the **place of articulation** (Stokoe, 1960). Together with Casterline and Cronenberg, he produced a dictionary of American Sign Language, published in 1965. This work attracted the attention of researchers both in the United States and in many other countries and helped to raise sign languages to the status of natural languages worthy of linguistic interest.

Work in the 1970s expanded the knowledge of ASL structure greatly (see Klima & Bellugi, 1979), and gradually other sign languages became the objects of serious description and analysis as well. The then commonly held views that sign language was really a limited form of pantomime, or that there was one universal sign language used by deaf people all over the world, began to make way for consideration of these languages as full-fledged separate linguistic systems. This had an effect on the deaf communities in various countries, which began to become aware of the status of their languages and of their own status as a cultural group.

A particularly important effect was that deaf education policy changed from the oral approach, which had been dominant since the banning of the use of signs during a conference in Milan in 1880, to the policy of **Total Communication**, involving the use of all means of communication to promote the communicative abilities of deaf children. Here, linguistic research contributed to making an important distinction, namely, between the **natural sign languages** of the deaf community and the **artificial sign systems** that were most frequently used in schools for the deaf under the new Total Communication policy. Signed systems, as we have discussed, are a combination of the spoken language of the hearing community and the sign language of the deaf community. It is clear that the use of the Total Communication policy, even though it promoted the use of sign systems (rather than true sign languages only), has nonetheless formed an important bridge between the oral approach and full recognition of sign languages as the means of communication and education.

A considerable amount of work in this early period was at the level of dictionary making and the description of basic grammatical rules. This, in turn, led to the development of practical tools that were of immediate use to the educational system. Such practical and descriptive projects necessarily had to precede the more theoretically oriented work that was to follow. Even today, however, much too little is known about a sufficiently large number of individual sign languages at the descriptive level to facilitate broad comparative research.

In the 1970s, 1980s, and early 1990s, the interest in sign linguistics increased rapidly, and gradually a shift in emphasis revealed itself. Early work often had the goal of establishing sign languages as **true languages**, worthy objects of linguistic research. As a result, a lot of energy was spent on showing the parallels between sign languages and spoken languages. Gradually, however, some researchers began to pay more attention to those properties of sign languages that seem to differ significantly from those of spoken languages.

Addressing modality-specific aspects of signed and spoken languages, as well as formulating more abstract principles of language structure in order to properly generalize over both modalities, was often seen as a daring step, but also as a sign of maturity of the field, only possible once sign languages had been established as respectable linguistic objects.

Meanwhile, **sign linguistics** remained a specialized field. However, the linguistic community in general (although still rather naive about sign language) no longer classifies this specialization as peripheral to linguistic inquiry. In addition to the specialized journals and conferences that have been in existence for nearly two decades, today we regularly find sign language contributions in general linguistic events, and the debate around the issue of the contribution of sign linguistics to linguistic theory has become more open.

*Phonology*

The study of the form (i.e., phonetics and phonology) of both spoken languages and sign languages is perhaps the least likely area to reveal formal equivalences between signed and spoken languages because the languages use totally different channels for production and perception. Nonetheless, as mentioned earlier, signed words, as well as spoken words, can be decomposed into meaningless, yet distinctive, chunks. As in spoken languages, we can study the “phonological” wellformedness of signs in terms of possible combinations of the various form units, and we can establish the variation in phonetic realization of these units.

By breaking down the signs into form-chunks (handshape, etc.), Stokoe showed that sign language has a level of structure that is comparable to what we call phonology in spoken language. Phonology is about the fact that words have an organization below the smallest meaningful units, an organization in terms of elements, phonemes, and syllables. When Stokoe showed that, for practical purposes, signs *can* be analyzed in terms of handshapes, movements, and so on, he open the door to a linguistic level of analysis that recognizes these units as building blocks in the mental organization of signs:

1. The handshape

2. The location of the hand

3. The movement of the hand

Each of these three units, Stokoe argued, has a fixed number of “values.” To avoid underestimating the difference between spoken language and sign language, Stokoe referred to the parameters Handshape, Location, and Movement as **cheremes**, and to the study of their combinations as **cherology**. Other researchers, however, and Stokoe himself as well, in a later edition of his study (published in 1978), started using the terms **phoneme** and **phonology**. The idea then became prevalent that the aspects Handshape, Location, and Movement are the formal analogues to phonemes, which make up syllables in spoken languages.

We have seen that in spoken language we can establish a hierarchy of units: Elements make up **vowels** (|HIGH| and |FRONT| makes /i/) and **consonants** (such as |STOP|, |LABIAL|, |VOICELESS|, which make /p/), and phonemes are sequentially grouped into syllables (pa, ta, bri), which, together, form the words. In sign, we likewise have a hierarchical organization of units: Elements characterize **handshapes** (|EXTENDED INDEX FINGER|), **locations** (|FOREHEAD|), and **movements** (|STRAIGHT|, |HORIZONTAL|), and these units together are simultaneously grouped into a smallest unit that can make up a sign; there is no generally accepted label for this unit, and, in fact, we could label it either as *segment* or *syllable*. Here I will use the label **syllable**, as is commonly done:

a. Spoken language b. Sign language

 syll

 [=] (Handshape)

 [=] [=] [=] ... syll [=] ( Movement)

 [=] (Location)

(“[=]” = a set of elements representing a particular Handshape, Movement, or Location.)

Making a parallel between parts of signs and parts of words was essentially due to the fact that the units seemed to be used in building morphemes in the way phonemes in spoken languages are used to build up morphemes.­ The main difference, then, between spoken languages and sign languages was claimed to involve the presence of linear order among phonemes in the spoken language and the absence thereof in sign language. This point has been expressed in the above diagrams by arranging the units of spoken language syllables next to each other (to indicate sequential organization), while the units from of the sign language syllables have been stacked on top of each other (to indicate simultaneity).

Just as in spoken language, we can find minimal pairs (i.e., signs that differ in just one feature).

The examples VERKLIKKEN (to fink), TANDARTS (dentist), and INSTITUUT (institute) from Sign Language of the Netherlands (SLN) show that the handshape feature can be distinctive. The three signs show the same features for place and (type of) movement and thus only differ in handshape. The examples ONSCHULDIG (not-guilty), WONEN (to live (somewhere)), and LEREN (to learn) illustrate the distinctive use of location.

In the following table these six signs have been analyzed in terms of their handshape, movement, and location:

|  |  |  |  |
| --- | --- | --- | --- |
|  | Handshape | Movement | Location |
| VERKLIKKEN | index and middle finger extended– bent | tapping | left side of the mouth |
| TANDARTS | fist with thumb extended | tapping | left side of the mouth |
| INSTITUUT | Index finger extended | tapping | left side of the mouth |
| ONSCHULDIG | Index finger – thumb contact | tapping | Chest |
| WONEN | Index finger – thumb contact | tapping | left side of the mouth |
| LEREN | Index finger – thumb contact | tapping | Forehead |

Clearly, the logic of phonological analysis is no different from that applied to spoken languages. If, for example, two handshapes appear to be never strictly contrastive, they are possibly phonetic variants of a single phonological handshape unit. And, indeed, Stokoe discussed examples of allophonic variation.

*One Hand – Two hands*

The six examples just discussed all use one hand. It does actually not matter which hand the signer uses. People will generally use their preference hand, but they can easily switch to the other hand if, while signing, they pick something up from the table, or if they are holding a bag.

There are also many signs that are made with two hands. In those cases either both hands do the same thing (they mirror each other), or one hand, generally the non-preference hand, functions as the location for the *active* hand.

# *Morphology*

As with most natural languages, there are a number of ways to make words out of other words or parts of words. As discussed in Chapter 13, we distinguish inflectional morphology from word formation. In **inflectional morphology**, affixes are added to make a word fit into a sentence, whereas in **word formation** new words are made. The two types of word formation are **derivation** and **compounding**. Although compounding is clearly set apart from inflection because it combines free words, derivational and inflectional morphology share the use of affixes that are added to bases. We say that inflectional affixes do not change the **core meaning** of bases, whereas derivational affixes do.

The second type of word formation (**compounding**) takes two words and puts them together to make a new word whose meaning may not be just the sum of its parts. One example of a compound in English is *greenhouse*, which is not simply a house that is green, but rather a house in which green things are grown. It is common in compounds not only for the meaning to change but also the phonology. For example, in *greenhouse* the primary stress is on *green*, whereas in the phrase *green house*, the primary stress is on *house*.

###### The Trade-Off Between Syntax and Inflection

Languages differ in terms of what they express with syntactic and lexical means (word order, choice of words) and what is expressed through inflectional affixes. For example, *English* has a past tense *{-ed}* and a present tense (realized as *{-s}* for third person singular, zero otherwise). It lacks an affix for future tense, however, instead using the auxiliary verb *will*. Compare a language like *Latin*, where verbs agree with their subjects in number (which is only the case for third person singular in English) and gender (i.e., nouns are masculine, feminine, or neuter, as in Old English, and the ending of verbs shows what the gender is of the subject noun.) Latin verbs also have inflectional affixes that show *tense* (more than just present and past, including future) and *mood* (passive or active). Adjectives also agree in number and gender with the nouns that they modify. We discussed such differences in Chapter 4, where we compared *English* and *Kayardild*. We learned that agreement can make word order superfluous, or at least less crucial. Also, with the marking of subject properties on the verb, we can even leave the subject unmentioned. Latin *veni, vidi, vici* must be translated as *HE came, HE saw, HE conquered.*

English, therefore, has a relatively impoverished inflectional system, which has consequences elsewhere in the grammar. For example, *English* word order is more fixed than *Latin* (or *Kayardild*), and subjects are required in English but not in Latin, because the subject in Latin can be inferred from the verb.

Thus, what one language expresses through an inflectional affix requires a separate word in another (an overt pronoun, or a word to indicate future tense), or it calls for a fixed word order (to indicate SUBJECT vs. OBJECT). Where does ASL stand in this respect when compared to English, for example?

### *Tense (Time) Marking*

ASL uses adverbs, often at the beginning of a sentence, to mark tense (or time). For example:

**LONG-TIME-AGO** ME SMALL ME GO-TO [ASPECT: HABITUAL] FISH WITH GRAND FATHER

When I was a child, I often went fishing with my grandfather.

The capital words here represent signs of ASL in terms of their meaning indicated by an English gloss. Dashes between glosses indicate that they stand for one sign. So there is one ASL sign that means LONG-TIME-AGO. The adverb LONG-TIME-AGO is used to set the time frame (i.e., to indicate past). (ASL does not have an affix on the verb; the verb GO-TO has a modifying feature represented by the gloss [ASPECT: HABITUAL], which we will explain later.)

There are also spoken languages (notably languages that have very little morphology) that indicate tense by using separate words. The past time is assumed until and unless another time is indicated. This can occur with either another time adverbial (e.g., LATER or TOMORROW, meaning the next day in a past context) or a shift of the body forward to indicate a more future time or backward to indicate a more past time. Thus, tense sign can be manual as LONG-TIME-AGO (a backward waving over the shoulder) or nonmanual (a change in body posture).

Another way of expressing past time is to use the verb FINISH in ASL.

 YOU EAT **FINISH**?

Have you eaten yet?/Did you eat?

Such an independent verb may develop into an inflectional suffix by becoming a tight unit with the verb (EAT in this case). It is not clear whether this has already happened in ASL.

 Most other western sign languages express time in the same way as ASL. However, there appear to be true past tense suffixes in *NihonSyuwa* (*NS*), the sign language of Japan, which uses a sign meaning *past* that is distinct from the NS sign OWARU (finish). This sign cannot be separated from the verb, it never occurs except after a verb, and it is accompanied by the mouthing [ta], which is how the past tense morpheme is pronounced in spoken Japanese. The similarities between the western languages may be due to a global (mutual) influence between these languages.

*Pronouns*

We first need to discuss how pronouns are expressed in ASL. As was discussed earlier, sign languages are in a modality, which, in production and perception, is very different from that of spoken languages. One of the most salient properties of sign languages is the use of **space**. Signs are articulated in a space next to and in front of the signer’s body. This space, which is referred to as the **signing space**, can be used for a variety of functions. An important function is identifying roles in the sentence (such as SUBJECT, OBJECT).

If the signer wishes to sign a sentence involving his father, the family dog, and the truck in the backyard, for example, then these referents are SITUATED (linguists say: LOCALIZED) in the signing space. Crucially, these locations are unrelated to the actual whereabouts of the relevant referents. Father may be at work, the dog may be in the house, and the truck may be in the garage. Hence, the signer is not literally pointing at these referents. He is simple painting a picture, much like a person might do when he arranges some arbitrary things on the table in order to explain what happened in a particular situation. A person might say: “Okay, this (putting a cup to his left) is my father, that (putting a spoon in the middle) is the truck, and that (putting a piece of bread to his right) is the tree. Now, on that day my father (pointing to the cup) walked over to the tree (moving the cup to the spoon), and then he stood there looking at the truck (pointing to the piece of bread).

Signers do this kind of painting the picture all the time, and they do not need an actual table or surface with objects on it.

It has often been commented that localization is a typical modality-specific property because there is no apparent analogue in spoken languages, but as we have just seen, speakers do in fact use actual spaces (tables and so on) to do something very similar. It is fair to say, though, that the signing space plays a much more prominent role in sign languages, and its use is more abstract. In a way, a location can function much like a pronoun (such as *he*, *she*) in spoken language. Once referents have been localized, the location can be referred to by means of a pointing gesture. Thus, the pointing sign and the location that it identifies together take on the function of a pronoun. Different locations that have been set up by the signer are associated with different persons.

In fact, this use of the sign space has been conventionalized to such an extent that it is a rule of grammar that pointing to one’s chest means *I* (first person), pointing forward means *you* (second person) and pointing sideways means *he* or *she* (third person).

Thus, pronouns are represented as signs that point to locations in the signing space. (These signs are called **indexes**.)

*Person Marking*

I will now show that the person locations can be also used as affixes that mark person (1st, 2nd, or 3rd person) *on* the verb. This marking can be expressed in the movement of the verb, whereby the beginning of the movement often indicates the SUBJECT (or agent) of the verb and the end point the INDIRECT OBJECT (or benefactor). The verb GIVE (to give) in ASL can be modified in its movement to indicate first the subject and then the indirect object. The OBJECT (or theme) of GIVE is represented by the moving hand itself, which is shaped as if it were holding the thing being given.

Where the agent is first person and the receiver is a third person, the movement is from the signer to the location of the third person referent.

### *Aspect Marking*

Another way in which sign languages have rich inflectional systems is in the area of marking **aspect**, which pays attention to things like beginning points or endpoints of an action or state, or the frequency of an action, irrespective of time. Take the example GO-TO. We can inflect GO-TO for habitual aspect by repeating (linguists say **reduplicating**) the sign rapidly. This reduplication changes the meaning of the sign in a predictable way; in this case, the sign means *to go to a place on a regular basis*. If the same sign is repeated with a slower, circular movement, the result is *continuous* aspect (meaning *on and on*), and the sign means to *go to a place over and over again (but not necessarily on a regular basis) for a long time*. If one begins to sign GO-TO but abruptly stops before the sign is completed, this is **unrealized aspect**: *He started going, but then he held back*.

Adjectives can also undergo aspect marking; for example, the sign SICK can be inflected for habitual aspect, resulting in the meaning *sickly*. The sign SAME can be inflected for continuous aspect to yield the meaning *monotonous*.

English doesn’t have much in the order of **aspectual affixes**, being low on inflection in general. But many other spoken languages do have aspectual affixes. Thus ASL, while being different from English, uses formal grammatical rules that are clearly within the pool of grammatical mechanisms that languages can use.

### *Plural Marking*

Many signs can form plurals with a type of reduplication accompanied by a horizontal (in the case of verbs) sweep of the hands. This is one regular way to form plurals. If we go back to our old friend GO-TO and repeat the sign while moving the hands in a horizontal arc, the resulting meaning is *go to many places*.

There are other ways of forming plurals as well, depending partly on the phonological form of the sign. The sign LOOK in ASL normally is made with two fingers extended, but if one extends all the fingers except the thumb and uses both hands, the resulting sign means many people look.

## *Word Formation*

We have looked at **inflection**, which modifies words to make them fit into sentences without changing their core meaning. We now turn to how sign languages make new words with new or different content.

### *Compounding*

As mentioned earlier, a compound is a word that consists of two words in a special semantic relationship. On the phonological side, usually the first member of the compound has the stress. In ASL, when two words combine to form a compound, we also see that certain phonological processes occur. For example, if the first member of the compound has repeated movement when it occurs as an isolated word, the repetition of that movement is lost. This is analogous to the weakening of the vowel of the second member of a compound in English examples like *chairman*. When a compound is reduplicated for plural or habitual, in ASL only the *second* member of the compound repeats.

Compounding is a very robust and often productive process in the sign languages of the world. Consider the following compounds in ASL:

NAKED + ESCAPE = streaker

ELECTRIC + M-A-I-L = e-mail (the second part is fingerspelled)

(ELECTRIC is usually signed with repeated movement, but in the compound, only one movement occurs.)

### *Incorporation*

In ASL, the handshape that is used to represent the grammatical object of verbs like GIVE can indicate the object’s shape. It is as if the object shape is incorporated in the verb. In the example below, the handshape that symbolizes the book thus functions at the same time like the pronoun *it* and as an indication of the *shape if it*. Generally it is required that the specific referent (called here **antecedent**) of the pronoun is first mentioned.

 BOOK, HE-GIVES-IT-HIM

The signer makes the sign for BOOK and then signs HE-GIVES-IT-HIM, making a handshape that looks at if the hand is holding a book.

Handshapes that thus represent object, subject, and their typical shape are called **classifiers**.

### *Derivation*

A number of verbs have corresponding nouns whose movements are different from those of verbs. They suggest a derivational process for deriving nouns and verbs from one underlying form, adding the different types of movement. Typically, verbs have one continuous motion, whereas nouns have repeated restrained movement. (Compare the ASL signs TO-SIT and CHAIR.)

It has also been claimed that ASL has affixing signs that are placed after the stem, such as a suffix that means *one who V’s* (like English *-er*).

# *Syntax*

The basic word order of ASL is SVO; the basic word order of Japanese Sign Language is SOV. However, just as in spoken languages, events may conspire to change that basic word order. Consider, for example, the use of classifiers, discussed earlier. For such classifiers, as we mentioned, an antecedent is required. This antecedent typically will precede the classifier. Assuming the classifier is incorporated in the verb, this will mean that the verb will occur last. Similarly, if we have a verb with person affixes, the referential points in the signing space must be set up first by pointing at them. The resulting sentence will have the order: noun phrase, noun phrase, verb. A concrete example is:

COW INDEXa HORSE INDEXb aKICKb

The cow kicked the horse.

Let me spell out how this sentence is articulated, bearing in mind that this set of instructions is by no means meant to be the syntactic analysis. As in the case of spoken languages, syntactic analyses of sign sentences use tree structures. Here, however, I did not supply this formal level of analysis:

1. Make the sign COW.
2. Point to a spot in the signing space where you position the cow.
3. Make a sign HORSE.
4. Point to another spot in the signing space where you position the horse.
5. Make a kicking sign with your hand from point **a** to point **b** (i.e., the back of the hand faces point **a** and you act out that **a** kicks **b**).

If we reverse the subscripts on KICK (i.e., if we reverse the direction of the verb movement), the meaning will be *The horse kicked the cow*.

Hence, the use of classifiers and person affixes on verbs necessitates a deviation from the basic word order of ASL from SVO to SOV. In short ASL uses both SVO and SOV; it depends, as in this example, on the kind of verb.

Most sign languages also have a process called **topicalization**, whereby a noun phrase that the sentence (or whole discourse) is in some sense *about* moves to the beginning of the utterance. The topic occurs with a special **nonmanual behavior** (**NMB**), here indicated by a horizontal line over the topicalized sign BOOK; the little *t* stands for *topic*:

 t \_\_\_\_\_\_

 BOOK, WHERE BUY?

As for the book, where did [you] buy it?

The topicalized constituent can even come from an embedded sentence, as in:

 t\_\_\_\_\_\_

BOOK, WHO YOU THINK WANT BUY?

As for the book, who do you think wants to buy it?

English, as most other languages, of course, also has topicalization rules (which, technically can be seen as transformational rules). You can say: “Beans, I like.” In all languages, such rules create varieties of word orders.

*Simple and Complex Structures*

In spoken languages, sentences can be complex, containing a sentence within a sentence (due to recursion). We find this in ASL too:

ME SEARCH MAN SELF HELP WASHING-MACHINE.

 I’m looking for a man who can help me with the laundry.

RAIN WILL, ME FEEL

 I have a feeling it’s going to rain.

However, the expression of complex ideas in complex sentences is an area of sign language structure that clearly warrants more research. It is, of course, quite crucial to demonstrate that the syntax of sign language is recursive because recursion has been taken as a hallmark of human language.

## *Non-Manual Behaviors*

As said before, sign language is not just a matter of hands. It is a matter of the whole upper body, or perhaps we should say the part of the body that is normally visible. A few signs exist which do not even have a manual part, consisting solely of some non-manual aspect. These are often “taboo” signs. Female ASL speakers use such a sign for *having your period*, and it involves pushing your tongue against the inside of one of your cheeks.

*Word Pictures and Mouthing*

Frequently, especially when signers address hearing people whose signing is poor, they will produce (reduced forms of) spoken words (silently); such mouth gestures are called **word pictures**. They do this especially for nouns, and especially for words containing labials, which are easy to speech read. Thus, for example, the sign glossed as FINISH is accompanied by the **mouth picture** [fI] in the North American states of the United States. However, in the state of Hawaii, where the spoken word commonly used to mean *finish* is *pau*, the sign FINISH is accompanied by the mouthing [paw]. There is controversy about the question as to whether mouthing is an inherent part of sign language or should be looked at as **pollution** of the sign language by the spoken language. In many cases the mouthing is optional and depends on the signer’s willingness to accommodate his conversational partners who don’t know sign language so well. But there are also signs in which the word picture seems to be obligatory. For example, in Japanese Sign Language past tense affix must be accompanied by a mouth gesture [ta]. In any event, mouthing is a form of influence from the spoken language on the sign language. There is also mouth activity that is not based on spoken words, involving all kinds of lip, tongue, and cheek postures. This is called **mouthing**. Mouthing is typically obligatory.

*Facial Expression and Body Posture*

In sign languages, the face and the position of the body can also serve a function that is very similar to the function of intonation (sentence melody) in spoken languages. It is certainly true that deaf people find sign language without facial expression boring, much as someone speaking in a monotone can put the user of a spoken language to sleep. Such **intonational** use of nonmanuals falls within the domain of syntax, and I will now discuss some examples of such nonmanual behaviors (NMB).

A specific way in which NMB (in particular, facial expression) is used is for indicating the negated part of a sentence, as well as questions. The NMB for negation is either a headshake or a frown. The NMB for *affirmative* is a head nod. Consider the following sentences:

 Neg (head shake)\_\_\_\_\_\_\_\_ Pos (head nod) \_

 ME UNDERSTAND PHYSICS, MATHEMATICS

I don’t understand physics, but I do understand mathematics.

 t(opic)\_\_ \_\_\_\_\_\_\_\_\_ Neg\_\_\_\_ Pos\_\_\_\_\_\_\_\_\_\_\_

 ME UNDERSTAND PHYSICS, MATHEMATICS

What I understand is not physics, but mathematics.

As before, the lines above the sentences indicate how far the NMBs extend. Although the words of the two sentences are identical (i.e., the manual part of the signs is the same), what is negated or affirmed differs. Note that in these sentences no negative manual sign such as NOT is present. The negative facial expression serves as the only negator in the sentence.

The NMB for a yes–no question (YNQ) is a raising of eyebrows and widening of the eyes.

 YNQ\_\_\_\_\_\_\_\_\_\_\_\_\_

YOU READ BOOK

 Are you reading a book?

The NMB for a wh-question involves partial eye closure and furrowing of the brows. In the following examples there are no wh-words such as WHO, WHERE, HOW, and so on; rather, we get a wh-facial expression:

 Wh\_\_\_\_\_\_\_\_\_\_\_\_\_

BOOK YOU READ

 Which book are you reading?

Wh\_\_\_

NAME

 What’s your name?

 Wh\_\_\_

WRONG

 What’s wrong?

 Wh\_ \_\_

HAPPEN

 What happened?

In addition, ASL (an other sign languages) also has question words (WHO, WHERE, etc.) which can then also be used to form questions, typically accompanied by the NMB for questions.

# *Conclusions*

I have shown here that sign languages have complex phonological, morphological, and syntactic structures that are distinct from but often parallel to those structures found in spoken languages. The serious linguistic study of sign languages is still relatively young; it can be traced back only about 45 years, compared with the study of spoken language that goes back a couple of millennia. An important lesson to come away with is that sign languages are indeed languages that deserve serious study and consideration by the linguistic community.