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9. Tense, aspect, and modality

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Abstract

Cross-linguistically, the grammatical categories tense, aspect, and modality – when they are overtly expressed – are generally realized by free morphemes (such as adverbials and auxiliaries) or by bound inflectional markers. The discussion in this chapter will make clear that this generalization also holds true for sign languages. It will be shown that tense is generally encoded by time adverbials and only occasionally (and only in a few sign languages) by verbal inflection. In contrast, various aspect types are realized on the lexical verb, in particular, by characteristic movement modulations. Only completive/perfective aspect is commonly realized by free morphemes across sign languages. Finally,

deontic and epistemic modality is usually encoded by dedicated modal verbs. In relation to all three grammatical categories, the possibility of (additional) non-manual marking and the issue of grammaticalization will also be addressed.

1. Introduction

Generally, in natural languages, every sentence that is uttered must receive a temporal and aspectual interpretation as well as an interpretation with respect to modality, for instance, the possibility or necessity of occurrence of the event denoted by the main verb. Frequently, these interpretational nuances are not overtly specified. In this case, the required interpretation is either inferred from the context or the sentence receives a default interpretation. When information concerning tense, aspect, and/or modality (TAM) is overtly marked, this is usually done by means of verbal inflection or free morphemes such as adverbials or auxiliaries. Languages also show considerable variation with respect to what categories they mark.

Sign languages are no exception in this respect. Interestingly, TAM-marking in a certain sign language is usually quite different from the patterns attested in the respective surrounding spoken language. In addition, a certain amount of variation notwithstanding, sign languages generally display strikingly similar patterns in the domain of TAM-marking (e.g. lack of tense inflection, rich systems of aspectual inflection, etc.), as will become clear in the following discussion.

In this chapter, we will address the three categories subsumed under the label ‘TAM’ in turn. We first turn to tense marking (section 2), where we discuss common adverbial and less common inflectional strategies and also introduce the concept of ‘time lines’, which plays an important role in most sign languages studied to date. Section 3 on aspect provides an overview of the most common free and bound aspectual morphemes, their meaning, and phonological realization. Finally, in section 4, we turn to the encoding of modality, focusing on selected deontic and epistemic modal expressions. In all three sections, manual and non-manual strategies will be considered and grammaticalization issues will be briefly discussed. Also, wherever appropriate, an attempt is made to compare sign languages to each other.

2. Tense

It has long been noted (Friedman 1975; Cogen 1977) that sign language verbs, just like verbs in many spoken languages, generally do not inflect for tense. Rather, tense is expressed by means of adverbials (section 2.1), which frequently make use of so-called ‘time lines’ (section 2.2). Still, it has been suggested for American Sign Language (ASL) and Italian Sign Language (LIS) that at least some verbs may inflect for tense – be it by means of manual or non-manual modulations; these proposals will be discussed in section 2.3.

2.1. Adverbials and lexical tense markers

Across sign languages, the most common strategy for locating an event on a time line with respect to the time of utterance is by means of adverbials. A sentence that contains no time reference is either interpreted within the time-frame previously established in the discourse or – by default – as present tense. Still, sign languages usually have a lexical sign meaning ‘now’, which may be used emphatically or for contrast to indicate present tense (Friedman 1975).

Across sign languages, time adverbials commonly appear sentence-initially, as in the Spanish Sign Language (LSE) example in (1a) (Cabeza Pereiro/Fernández Soneira 2004, 69). They may either indicate a (more or less) specific point in time (e.g. PAST WEEK (1a), YESTERDAY, IN-TWO-DAYS) or more broadly locate the event in the future or past, as, for instance, the adverbial PAST in the German Sign Language (DGS) example in (1b).

- (1) a. PAST WEEK MEETING START TEN END QUARTER TO THREE [LSE]
 ‘Last week the meeting started at ten and ended at a quarter to three.’
 b. PAST PETER INDEX₃ BOOK WRITE [DGS]
 ‘Peter wrote a book.’

According to Aarons et al. (1995, 238), in ASL time adverbials may occur in sentence-initial (2a) or sentence-final position (2b), or between the subject and the (modal) verb (2c).

- (2) a. TOMORROW j-o-h-n BUY CAR [ASL]
 ‘John will buy a car tomorrow.’
 b. j-o-h-n BUY CAR TOMORROW
 ‘John will buy a car tomorrow.’
 c. j-o-h-n TOMORROW CAN BUY CAR
 ‘John can buy a car tomorrow.’

Note again that the lack of tense inflection is by no means a peculiarity of the visual modality. Some East Asian languages (e.g. Chinese) display the same property and thus also resort to the use of adverbials to set up a time-frame in discourse.

Aarons et al. (1995) further argue that besides time adverbials, ASL also makes use of ‘lexical tense markers’ (LTMs). Superficially, at least some of these LTMs look very similar to time adverbials, but Aarons et al. show that they can be distinguished from adverbials on the basis of their syntactic distribution and articulatory properties. In the following, we only consider the LTM FUTURE-TNS (other LTMs include PAST-TNS, FORMERLY-TNS, and #EX-TNS; also see Neidle et al. (2000, 77) for an overview). As for the syntactic distribution, lexical tense markers behave like modals; that is, they occur between the subject and the verb, they precede sentential negation (3a), and they cannot appear in infinitival complements. Crucially, a modal verb and a lexical tense marker cannot co-occur (3b) – irrespective of order (Aarons et al. 1995, 241f.). The authors therefore conclude that LTMs, just like modals, occupy the head of the Tense Phrase, a position different from that of adverbials (for a modal interpretation of FUTURE see section 4 below).

- (3) a. j-o-h-n FUTURE-TNS NOT BUY HOUSE [ASL]
 ‘John will not buy the house.’
 b. * j-o-h-n FUTURE-TNS CAN BUY HOUSE
 ‘John will be able to buy a house.’

With respect to articulatory properties, Aarons et al. show that the path movement of time adverbials such as FUTURE-ADV can be modulated to express a greater or lesser distance in time. In contrast, this variation in path length is excluded with LTMs, which have a fixed articulation. Taken together, this shows that LTMs are more restricted than time adverbials in both their articulatory properties and their syntactic distribution.

2.2. Time lines

Concerning the articulation of time adverbials (and LTMs), it has been observed that almost all sign languages investigated to date make use of ‘time lines’ (see the previously mentioned references for ASL and LSE; see Brennan (1983) and Sutton-Spence/Woll (1999) for British Sign Language (BSL), Schermer/Koolhof (1990) for Sign Language of the Netherlands (NGT), Massone (1994) for Argentine Sign Language (LSA), Schmaling (2000) for Hausa Sign Language, among many others). Time lines are based on culture-specific orientational metaphors (Lakoff/Johnson 1980). In many cultures, time is imagined as proceeding linearly and past and future events are conceptualized as lying either behind or before us. This conceptual basis is linguistically encoded, as, for instance, in the English metaphors ‘looking *forward* to something’ and ‘something lies *behind* me’.

In sign languages, space can be used metaphorically in time expressions. Various time lines have been described, but here we will focus on the line that runs “parallel to the floor from behind the body, across the shoulder to ahead up to an arm’s length, on the signer’s dominant side” (Sutton-Spence/Woll 1999, 183; see Figure 9.1). Thus, in adverbials referring to the past (e.g. PAST, BEFORE, YESTERDAY), path movement proceeds backwards (towards or over the shoulder, depending on distance in time), while in adverbials referring to the future (e.g. FUTURE, LATER, TOMORROW), we observe forward movement from the body into neutral signing space – again, length of the path movement indicates distance in time. Present tense (as in NOW or TODAY) is expressed by a downward movement next or in front of the body. Other time lines that have been described are located in front of the body, either horizontally (e.g. for duration in time) or vertically (e.g. for growth) (see, for instance, Schermer/Koolhof (1990) and Massone (1994) for illustrations).

Interestingly, in some cultures, the flow of time is conceptualized differently, namely such that past events are located in the front (i.e. before our eyes) while future events lie behind the body (because one cannot see what has not yet happened). As before, this conceptual image is reflected in language (e.g. Malagasy; Dahl 1995), and it is expected that it will also be reflected in the sign language used in such a culture.

An example of a sign language that does not make use of the time line illustrated in Figure 9.1. is Kata Kolok, a sign language used in a village in Bali (see chapter 24,

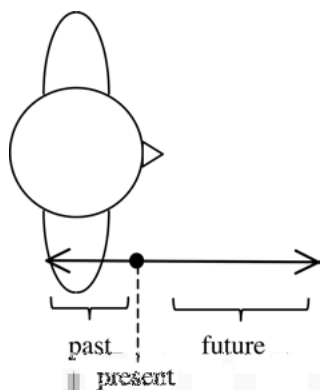


Fig. 9.1: Time line, showing points of reference for past, present, and future

Shared Sign Languages, for discussion). Still, signers do refer to spatial positions in temporal expressions in a different way. For instance, given that the village lies close to the equator, pointing approximately 90° upwards signifies NOON while pointing 180° to the west means SIX-O-CLOCK(PM) (or more generally ‘late afternoon time’), based on the approximate position of the sun at the respective time (Marsaja 2008, 166).

2.3. Tense marking on the verb

Sutton-Spence and Woll (1999, 116) note that in some dialects of BSL, certain verbs differ depending on whether the event is in the past or present (e.g. WIN/WON, SEE/SAW, GO/WENT). These verb pairs, however, do not exemplify systematic inflection; rather, the past tense forms should be treated as lexicalized exceptions.

Jacobowitz and Stokoe (1988) claim to have found systematic manual indications of tense marking in more than two dozen ASL verbs. For verbs like COME and GO, which involve path movement in their base form, they state that “extension (of the hand) at the wrist, (of the forearm) at the elbow, or (of the upper arm) at the shoulder” – or a combination thereof – will denote future tense. Similarly, “flexion at the wrist, elbow, or shoulder with no other change in the performance of an ASL verb” will denote past tense (Jacobowitz/Stokoe 1988, 337). The authors stress that the time line cannot be held responsible for these inflections as the direction of movement remains unchanged. Rather, the changes result in a slight movement or displacement on the vertical plane (extension of joints: upward; flexion of joints: downward). For instance, in order to express the meaning ‘will go’, the signer’s upper arm is extended at the shoulder. It is worth pointing out that the vertical scale has also been found to play a role in spoken language metaphor, at least in referring to future events (e.g. ‘What is coming up next week?’ (Lakoff/Johnson 1980, 16)).

A systematic change that does involve the time line depicted in Figure 9.1 has been described for LIS by Zucchi (2009). Zucchi observes that in LIS, temporal information can be conveyed by means of certain non-manual (that is, suprasegmental) features that co-occur with the verb. The relevant feature is shoulder position: if the shoulder is tilted

backward ('sb'), then the action took place before the time of utterance (past tense (4a)); if the shoulder is tilted forward ('sf'), then the action is assumed to take place after the time of utterance (future tense (4b)). A neutral shoulder position (i.e. shoulder aligned with the rest of the body) would indicate present tense (Zucchi 2009, 101).

- (4) a. $\begin{array}{c} \text{sb} \\ \text{GIANNI HOUSE BUY} \end{array}$ [LIS]
 'Gianni bought a house.'
- b. $\begin{array}{c} \text{sf} \\ \text{GIANNI HOUSE BUY} \end{array}$
 'Gianni will buy a house.'
- c. TOMORROW GIANNI HOUSE BUY
 'Tomorrow Gianni will buy a house.'

Zucchi concludes that LIS is unlike Chinese and more like Italian and English in that grammatical tense is marked on verbs by means of shoulder position. He further shows that non-manual tense inflection is absent in sentences containing past or future time adverbs (4c), a pattern that is clearly different from the one attested in Italian and English (Zucchi 2009, 103). In fact, the combination of a time adverb and non-manual inflection leads to ungrammaticality.

3. Aspect

While tense marking appears to be absent in most sign languages, many of the sign languages studied to date have rich systems of aspectual marking. Aspectual systems are commonly assumed to consist of two components, namely situation aspect and viewpoint aspect (Smith 1997). Situation aspect is concerned with intrinsic temporal properties of a situation (e.g. duration, repetition over time) while viewpoint aspect has to do with how a situation is presented (e.g. as closed or open). Another notion often subsumed under the term aspect is *Aktionsart* or *lexical aspect*, which describes the internal temporal structure of events. This category is discussed in detail in chapter 20 on lexical semantics (see also Wilbur 2008, 2011).

Across sign languages, aspect is either marked by free functional elements (section 3.1) or by modulations of the verb sign (section 3.2), most importantly, by characteristic changes in the manner and frequency of movement, as first described in detail by Klima and Bellugi (1979). It is important to note that Klima and Bellugi interpreted the term 'aspect' fairly broadly and also included in their survey alterations that do not have an impact on the temporal structure of the event denoted by the verb, namely adverbial modifications such as manner (e.g. 'slowly') and degree (e.g. 'intensively') and distributional quantification (e.g. exhaustive marking; see chapter 7, Agreement, for discussion). We follow Rathmann (2005) in excluding these alterations from the following discussion.

3.1. Free aspectual markers

For numerous (unrelated) sign languages, free grammatical markers have been described that convey complete and/or perfective aspect (i.e. viewpoint aspect). Com-

monly, these aspectual markers are grammaticalized from verbs (mostly *FINISH*) or adverbs (e.g. *ALREADY*) – a developmental path that is also frequently attested in spoken languages (Heine/Kuteva 2002; see also chapter 34 for grammaticalization in sign languages). In LIS, for instance, the lexical verb *DONE* (meaning ‘finish’, (5a)) can also convey aspectual meanings, such as perfective aspect in (5b) (Zucchi 2009, 123f). Note that the syntactic position differs: when used as a main verb, *DONE* appears in preverbal position, while in its use as an aspectual marker, it follows the main verb (a similar observation has been made for the ASL element *FINISH* by Fischer/Gough (1999 [1972])); for ASL, also see Janzen (1995); for a comparison of ASL and LIS, see Zucchi et al. (2010)).

- (5) a. GIANNI CAKE *DONE* EAT [LIS]
 ‘Gianni has finished eating the cake.’
 b. GIANNI HOUSE BUY *DONE*
 ‘Gianni has bought a house.’

Meir (1999) provides a detailed analysis of the Israeli Sign Language (Israeli SL) perfect marker *ALREADY*. First, she shows that, despite the fact that this marker frequently occurs in past tense contexts, it is not a past tense marker, but rather an aspectual marker denoting perfect constructions; as such, it can, for instance, also co-occur with time adverbials denoting future tense. Following Comrie (1976), she argues that “constructions with *ALREADY* convey the viewpoint of ‘a present state [which] is referred to as being the result of some past situation’ (Comrie 1976, 56)” (Meir 1999, 50). Among the manifestations of that use of *ALREADY* are the ‘experiential’ perfect (6a) and the perfect denoting a terminated (but not necessarily completed) situation (6b) (adapted from Meir 1999, 50f.).

- (6) a. INDEX₂ *ALREADY* EAT CHINESE? [Israeli SL]
 ‘Have you (ever) eaten Chinese food?’
 b. INDEX₁ *ALREADY* WRITE LETTER SISTER POSS₁
 ‘I have written a letter to my sister.’

Meir (1999) also compares *ALREADY* to its ASL counterpart *FINISH* and shows that the functions and uses of *ALREADY* are more restricted. She hypothesizes that this might result from the fact that Israeli SL is a much younger language than ASL and that therefore, *ALREADY* has not yet grammaticalized to the same extent as *FINISH*. Alternatively, the differences might be due to the fact that the two functional elements have different lexical sources: a verb in ASL, but an adverb in Israeli SL.

For Greek Sign Language (GSL), Sapountzaki (2005) describes three different signs in the set of perfective markers: *BEEN*, for ‘done, accomplished, experienced’ (7a); its negative counterpart *NOT-BEEN*, for ‘not done, accomplished, experienced’ (7b); and *NOT-YET* for ‘not yet done, accomplished, experienced’ (also see chapter 15, Negation, for discussion of negative aspectual markers).

- (7) a. YESTERDAY _cTELL_A MONTH AGO LETTER SEND *BEEN* [GSL]
 ‘Yesterday she told me that she had sent the letter a month ago.’
 b. GRANDDAD LESSON *NOT-BEEN*
 ‘Grandpa had not gone to school.’

The use of similar completive/perfective markers has also been described for BSL (Brennan 1983), DGS (Rathmann 2005), Swedish Sign Language (SSL, Bergman/Dahl 1994), and Turkish Sign Language (TİD, Zeshan 2003). Zeshan (2003, 49) further points out that Indopakistani Sign Language (IPSL) has a free completive aspect marker “that is different from and independent of two signs for FINISH and is used as an aspect marker only”.

For NGT, Hoiting and Slobin (2001) describe a free marker of continuous/habitual aspect, which they gloss as THROUGH. This marker is used when the lexical verb cannot inflect for aspect by means of reduplication (see section 3.2) due to one of the following phonological constraints: (i) it has internal movement or (ii) it includes body contact. The sign TRY, in which the -hand makes contact with the nose, exemplifies constraint (ii); see example (8) (adapted from Hoiting/Slobin 2001, 129). Note that the elliptical reduplication characteristic of continuous/habitual inflection is still present; however, it accompanies THROUGH rather than the main verb. Hoiting and Slobin argue that use of THROUGH is an example of borrowing from spoken Dutch, where the corresponding element *door* (‘through’) can be used with some verbs to express the same aspectual meanings.

- (8) INDEX₃ TRY THROUGH++ [NGT]
 ‘He tried continuously / He tried and tried and tried.’

3.2. Aspectual inflection on verbs

Building on earlier work on ASL verbal reduplication by Fischer (1973), Klima and Bellugi (1979) provide a list of aspectual distinctions that can be marked on ASL verbs, which includes no less than 15 different aspect types. They point out that the attested modulations are characterized by “dynamic qualities and manners of movement” such as reduplication, rate of signing, tension, and pauses between cycles of reduplication, and they also provide evidence for the morphemic status of these modulations. Given considerable overlap in meaning and form of some of the proposed aspect types, later studies attempted to re-group the proposed modulations and to reduce their number (e.g. Anderson 1982; Wilbur 1987). More recently, Rathmann (2005) suggested that in ASL six aspectual morphemes have to be distinguished: the free aspectual marker FINISH (discussed in the previous section) as well as the bound inflectional morphemes continuative, iterative, habitual, hold, and conative. Only the first three of these morphemes – all of which belong to the class of situation aspect – will be discussed in some detail below.

Before turning to the discussion of aspectual morphemes, however, we wish to point out that not all scholars are in agreement about the inflectional nature of these morphemes. Based on a discussion of aspectual reduplication in SSL, Bergman and Dahl (1994), for instance, argue that the morphological process involved is ideophonic rather than inflectional. According to Bergman and Dahl (1994, 412 f.), “ideophones are usually a class of words with peculiar phonological, grammatical, and semantic properties. Many ideophones are onomatopoeic [...]. A typical ideophone can be seen as a global characterization of a situation”. In particular, they compare the system of aspectual

reduplication in SSL to a system of ideophones ('expressives') found in Kammu, a language spoken in Laos. These ideophones are characterized by "their iconic and connotative rather than symbolic and denotative meaning" (Svantesson 1983; cited in Bergman/Dahl 1994, 411). We cannot go into detail here concerning the parallels between Kammu ideophones and SSL aspectual reduplication, but it is important to note that both systems involve a certain degree of iconicity and that Bergman and Dahl (1994, 418) conclude "that the gestural-visual character of signed languages favors the development of iconic or quasi-iconic processes like reduplication" to express ideophonic meanings similar to that of Kammu expressives.

3.2.1. Continuative

The label 'continuative', as used by Rathmann (2005), also includes the aspectual modulations 'durative' and 'protractive' suggested by Klima and Bellugi. According to Rathmann (2005, 36), the semantic contribution of the continuative morpheme is that "the temporal interval over which the eventuality unfolds is longer than usual and uninterrupted". For instance, combination of the morpheme with the verb *STUDY* yields the meaning 'to study for a long time'. There are strong similarities across sign languages in how continuative is marked. Most frequently, 'slow reduplication' is mentioned as an integral component of this aspect type. In more detailed descriptions, the modulation is described as involving slow arcing movements. According to Aronoff, Meir, and Sandler (2005, 311), for instance, ASL durative aspect is marked by "superimposing an arc-shaped morpheme on the movement of the LML sign, and then reduplicating, to create a circular movement" (LML = location-movement-location). Sutton-Spence and Woll (1999) note that in BSL verbs that do not have path movement, such as *LOOK* and *HOLD*, continuative is marked by an extended hold. Hoiting and Slobin (2001, 127) describe continuative aspect in NGT as involving "three repetitions of an elliptical modulation accompanied by pursed lips and a slight blowing gesture" (see section 3.3 for further discussion of non-manual components).

3.2.2. Iterative

Rathmann (2005) subsumes three of the aspect types distinguished by Klima and Bellugi (1979) under the label 'iterative': the 'incessant', 'frequentative', and 'iterative' (note that Wilbur (1987) groups the incessant, which implies the rapid recurrence of a characteristic, together with the habitual). The meaning contributed by the iterative morpheme can be paraphrased as 'over and over again' or 'repeatedly', that is, multiple instances of an eventuality. Phonologically, the morpheme is realized by reduplication of the movement of the verb root. Several sign languages have forms that look similar to the iterative morpheme in ASL. Bergman and Dahl (1994), for instance, describe fast reduplication in SSL, with repeated short movements. Sutton-Spence and Woll (1999) find similar patterns in BSL. Similarly, Zeshan (2000) for IPSL and Senghas (1995) for Nicaraguan Sign Language (ISN) describe repeated movements executed in the same location as being characteristic for iterative aspect.

3.2.3. Habitual

The ‘habitual’ is similar to the ‘iterative’ in that it also describes the repetition of an eventuality. The habitual, however, expresses the notion of a pattern of events or behaviours rather than the quality of a specific event. Thus, the semantic contribution of the habitual morpheme can be paraphrased as ‘regularly’ or ‘usually’. Also, in contrast to the iterative morpheme, the habitual morpheme does not assume that there is an end to the repetition of the eventualities. Just like the iterative, the habitual is phonologically realized by reduplication. Klima and Bellugi (1979) and Rathmann (2005), however, point out that the habitual morpheme involves smaller and faster movement than the iterative morpheme. Again, similar marking has been attested in other sign languages. Cabeza Pereiro and Fernández Soneira (2004, 76), for instance, also mention that LSE uses repetition of movement to indicate habitualness. Interestingly, Hoiting and Slobin (2001, 127) describe a somewhat different pattern for NGT; they observe that in this sign language, the habitual is characterized by “slower elliptical modulation accompanied by gaze aversion, lax lips with protruding tongue, and slowly circling head movement”.

3.2.4. Other aspectual morphemes

The aspect types introduced in the previous sections are the ones most commonly discussed in the sign language literature. We want to briefly mention some further aspect types that have been suggested, without going into details of their phonological realization (see Rathmann (2005) for details). First, there is the ‘unrealized inceptive’ (Liddell 1984), the meaning of which can be paraphrased as ‘was about to ... but’. Second, Brentari (1998) describes the ‘delayed completive’, which adds the meaning of ‘at last’ to the verb. Thirdly, Jones (1978) identifies an aspectual morpheme which he labels ‘unaccomplished’ and which expresses that an event is unfinished in present (‘to attempt to’, ‘to be in the process of’). Despite semantic differences, Rathmann (2005) suggests to subsume these three aspect types under a single label ‘conative’, an attempt that has been criticized by other scholars. He argues that what these aspect types have in common is that “there is an attempt for the eventuality to be carried out” (Rathmann 2005, 47). Rathmann further describes a ‘hold’ morpheme, which adds a final endpoint to an event, thereby signalling that the event is interrupted or terminated (without necessarily being completed).

Zeshan (2003) claims that TID, besides two free completive aspect markers comparable to the ones discussed in section 3.1, has a simultaneous morpheme for completive aspect which may combine with some verbs – a strategy which appears to be quite unique cross-linguistically. The phonological reflex of this morpheme consists of “a single accentuated movement, which may have a longer movement path than its non-completive counterpart and may be accompanied by a single pronounced head nod or, alternatively, a forward movement of the whole torso” (Zeshan 2003, 51). She provides examples involving the verbs SEE, DO, and GO and points out that, for phonological reasons, the morpheme cannot combine with verbs that consist of a hold only (e.g. THINK).

3.3. Non-manual aspect marking

Above, we mentioned in passing that certain aspect types may be accompanied by non-manual markers. The continuative, for instance, commonly involves puffed cheeks and/or pursed lips and blowing of air while performing the characteristic reduplication (Hoiting/Slobin 2001, 127). For SSL, Bergman (1983) observes that, at least with some verbs, durative aspect (e.g. ‘think for a long time’) can be realized with the hand held still while the head performs a cyclical arc movement – that is, in a sense, the head movement replaces the hand movement.

Grose (2003) argues that in ASL, a head nod commonly occurs in sentences with a perfective interpretation, independent of their temporal specification. The head nod may accompany an aspectual marker like FINISH, but it may also be the sole marker of perfectivity, co-occurring with a lexical sign or appearing in clause-final position. In example (9), the past reading comes from the sign PAST, while the perfective reading comes from the head nod (‘hn’) (Grose 2003, 54).

- hn
- (9) INDEX₁ PAST WALK SCHOOL [ASL]
 ‘I have walked to school / I used to walk to school.’

4. Modality

In spoken languages, modal expressions are typically verbal auxiliaries. From a semantic point of view, modals convey deontic or epistemic modality. Deontic modality has to do with the necessity or possibility of a state of affairs according to a norm, a law, a moral principle, or an ideal. The related meanings are obligation, permission, or ability. Conversely, epistemic modality is related to the signer’s knowledge about the world (Palmer 1986). What is possible or necessary in a world according to a signer’s knowledge depends on his or her epistemic state. In many languages (sign languages included), modal expressions are often ambiguous between epistemic and deontic readings. This is illustrated by the English example in (10).

- (10) Mary must be at home.
 a. Given what I know, it is necessary that she is at home now (epistemic).
 b. Given some norms, it is necessary that she is at home now (deontic).

The grammatical category of modality as well as modal expressions have been described for different sign languages: for ASL, see Wilcox and Wilcox (1995), Janzen and Shaffer (2002) and Wilcox and Shaffer (2006); for GSL, see Sapountzaki (2005); for LSA, see Massone (1994), and for Brazilian Sign Language (LSB), see Ferreira Brito (1990). Note that some modal verbs have dedicated negative forms due to cliticization or suppletion (for negative modals, see Shaffer (2002) and Pfau/Quer (2007); see also chapter 15 on negation).

4.1. Deontic modality

In their study on the expression of modality in ASL, Wilcox and Shaffer (2006) distinguish between ‘participant-internal’ and ‘participant-external’ necessity and possibility. Just like in English, necessity and possibility are mainly expressed by modal verbs/auxiliaries. In addition, the manual verb signs are typically accompanied by specific non-manual markers such as, for instance, furrowed eyebrows, pursed lips, or head nod, typically indicating the degree of modality. In ASL, the deontic modality of necessity is expressed by the modal MUST/SHOULD as is illustrated in the examples in (11), which are adapted from Wilcox and Shaffer (2006, 215; ‘bf’ = brow furrowing). The sign is performed with a crooked index finger (cf. also Wilcox/Wilcox 1995).

- (11) a. top
 BEFORE CLASS MUST LINEUP(2h) [ASL]
 ‘Before class we had to line up.’
 b. (leaning back) SHOULD COOPERATE, WORK TOGETHER, INTERACT FORGET
bf
 (gesture) PAST PUSH-AWAY NEW LIFE FROM-NOW-ON SHOULD
 ‘They (the deaf community) should cooperate and work together, they should forget about the past and start anew.’

The examples in (11) describe an external deontic necessity where the obligation is imposed by some external source, that is, either an authority or general circumstances. An example for a participant-internal use of the modal MUST/SHOULD is given in (12), again adopted from Wilcox and Shaffer (2006, 217).

- (12) top
 KNOW SOUTH COUNTRY (waits for attention) KNOW SOUTH COUNTRY [ASL]
top
 SPANISH FOOD STRONG CHILE MUST INDEX₁ (leans back)
 ‘You know how it is in the southern part. You know how it is with Spanish food. In the southern part, there’s a lot of hot chile. I have to have chile.’

The DGS deontic modal MUST looks similar to the corresponding ASL modal. As opposed to ASL MUST, the DGS sign is signed with an extended index finger and palm orientation towards the contra-lateral side of the signing space.

For the expression of the deontic meaning of possibility, the modal verb CAN is used in ASL. As in English, CAN is not only used to express physical or mental ability, but also to indicate permission or the possibility of an event occurring. Again, the condition for the situation described by the sentence can be participant-internal, as in (13a), or participant-external, as in (13b). The first use of CAN can be paraphrased as ‘the signer has the (physical) ability to do something’, while the second one involves permission, that is, ‘the teacher is allowed to do something’ (Wilcox/Shaffer 2006, 221 f).

- (13) a. INDEX₁CAN LIFT-WEIGHT 100 POUNDS [ASL]
 ‘I can lift one hundred pounds.’

- b. POSS₁MOTHER TIME TEACH, TEACH CAN SIGN BUT ALWAYS FINGERSPELL +++
 ‘In my mother’s time the teachers were allowed to sign, but they always fingerspelled.’

On the basis of historical sources, Wilcox and Wilcox (1995) argue that the ASL modals CAN and MUST have developed from gestural sources via lexical elements. CAN has originated from a lexical sign meaning STRONG/POWER, which in turn can be traced back to a gesture ‘strong’ in which the two fists perform a short tense downward movement in front of the body. Interestingly, the modal CAN has undergone some phonological changes. In particular, the orientation of the hands has changed. Likewise, Wilcox and Wilcox assume that the modals MUST/SHOULD have developed from a gestural source, which is a deictic pointing gesture indicating monetary debt. This gesture entered the lexicon of Old French Sign Language and – due to the influence of (Old) French Sign Language on ASL – the lexicon of ASL. In both sign languages, the lexical sign grammaticalized into a deontic modal expressing strong (i.e. MUST in (11a) above) or weak (SHOULD in (11b) above) obligation. Again, the modals have undergone some phonological changes. Both modals are phonologically reduced in that the base hand present in the source sign OWE is lost. But they differ from each other with respect to movement: MUST has one downward movement while the movement of SHOULD is shorter and reduplicated (cf. also Janzen/Shaffer 2002; Wilcox/Shaffer 2006; for similar LSC examples, see Wilcox 2004; for grammaticalization in sign languages, see Pfau/Steinbach (2006) and chapter 34, *Lexicalization and Grammaticalization*).

The system of modal expressions in DGS is very similar to that of ASL. One difference is that we are not aware of a lexical sign that MUST could have been derived from. It is, however, clearly related to a co-speech gesture that commonly accompanies orders and commands. We therefore assume that the DGS modal, unlike the corresponding ASL modal, is directly derived from a gestural source. In comparison to ASL and DGS, LSB appears to have a greater number of different modal expressions at its disposal. Moreover, these modal expressions belong to different parts of speech. Ferreira Brito (1990) analyzes the LSB modals NEED, CAN, PROHIBIT, HAVE-NOT, and LET as verbs, OBLIGATORY, PROHIBITED, OPTIONAL₁, and OPTIONAL₂ as adjectives, and OBLIGATION as a noun.

Note finally that the development of modal verbs expressing physical/mental ability and possibility from a lexical element is attested in spoken languages, too. Latin *potere* (‘to be able’), for instance, is related to the adjective *potens* (‘strong, powerful’). Also, modal verbs that express obligation may be grammaticalized from lexical items that refer explicitly to concepts related to obligation, such as ‘owe’ (cf. Bybee/Perkins/Pagliuca 1994).

4.2. Epistemic modality

In the previous section, we saw that the deontic interpretation of modal verbs basically affects the necessity or possibility of a participant to do something. By contrast, the more grammaticalized epistemic interpretation of modal verbs indicates the signer’s degree of certainty about or the degree of commitment to the truth of an utterance (Palmer 1986). In LSB, for instance, a high degree of certainty is expressed by the

(14) a. TODAY RAIN ... HAVE CERTAINTY [LSB]
 ‘I am certain that today it will rain.’
 top bf/hn
 b. LIBRARY HAVE DEAF LIFE SHOULD [ASL]
 ‘The library should have Deaf Life/I’m sure the library has Deaf Life.’
 top bf/hs
 c. SAME SIGN BECAUSE BAD TRANSLATION FALSE C-O-G-N-A-T-E DOUBT
 hn
 (pause) (gesture “well”) POSSIBLE
 ‘I doubt the two concepts share the same sign (now) because of a problem
 with translation, or because of a false cognate, but, well, I suppose it’s pos-
 sible.’

In addition to the modal verbs in (14), ASL also uses semi-grammaticalized expressions such as *FEEL*, *OBVIOUS*, and *SEEM* to express epistemic modality (Wilcox/Wilcox 1995). Again, in their epistemic interpretation, *FEEL*, *OBVIOUS*, and *SEEM* are often accompanied by a head nod and furrowed eyebrows. Interestingly, the sign *FUTURE* cannot only be used as a lexical tense marker *FUTURE-TNS* (as discussed in section 2.1) but also as a lexical marker of epistemic modality, cf. example (15a), which is adopted from Wilcox and Shaffer (2006, 228). A similar observation has been made by Massone (1994, 128) for the sentence-final LSA temporal marker *IN-THE-FUTURE* (15b). Let us discuss example (15a) in some more detail: The first occurrence of *FUTURE*, which is articulated with raised eyebrows, a manual wiggle marker, and longer softer movement, receives the temporal interpretation *FUTURE-TNS*. The second occurrence is performed with short and sharp movements and accompanied by the two non-manual markers head nod and furrowed eyebrows, which are typical for the epistemic interpretation.

- (15) a. RT 29 THINK-LIKE IX₃ R-O-C-K-V-I-L-L-E P-I-K-E IX₃ BUILD+ IX₃ [ASL]
 top bf/hn
 FUTURE(WIGGLE) DEVELOP FUTURE S-O WHY MUST ₁MOVE₃ NEAR
 COLUMBIA MALL?
 ‘(I live off) route 29, the Rockville Pike area. In the future I’m sure they will
 develop that area. So why do I have to move all the way up near Colum-
 bia Mall?’

- b. MARIA IX_{3a}ABANDON_{3b} IN-THE-FUTURE
 ‘Maria will abandon him.’

[LSA]

In many sign languages, the degree of modality seems to be marked mainly by non-manual means. Wilcox and Shaffer (2006, 229) argue that “it is appropriate to discuss the semantics of modal strength as a matter of degree intensification – that is, as variation along a scale of intensification of necessity, possibility, and speaker’s epistemic commitment”. Since manual and non-manual modification is a frequent means to express intensification in many sign languages, the use of both markers in modal intensification comes as no surprise. An alternative strategy would be to use lexical expressions. Ferreira Brito’s (1990) discussion of modal expressions in LSB shows that LSB chooses the second strategy in that it uses a variety of lexical modal expressions to realize modal intensification.

Note finally, that speaker- and addressee-oriented (epistemic) meaning nuances such as reference to common knowledge, reference to evident knowledge, or uncertainty, are also extensively discussed in Herrmann (2010). In many spoken languages, such meanings are, for example, triggered by modal particles or equivalent expressions. A main result of Herrmann’s typological study, which compares three sign languages (DGS, NGT, and Irish Sign Language), is that all three sign languages investigated use mainly non-manual means to express such nuances of meaning.

5. Conclusion

Sign languages employ free and bound grammatical markers to express the grammatical categories of tense, aspect, and modality. While across sign languages, free morphemes – time adverbials or lexical tense markers – are the most common strategy for encoding tense, various aspect types can be realized by verbal inflections, many of which involve characteristic movement alterations in combination with reduplication. The encoding of completive/perfective aspect is exceptional in this respect, as these aspect types are usually realized by free grammatical morphemes. The same is true for modality distinctions, which are generally expressed by modal verbs. The discussion has made clear that, when it comes to TAM-marking, sign languages are strikingly similar to each other – a pattern that is also familiar from the study of other inflectional categories such as pluralization, agreement, and classification (see chapters 6, 7, and 8); also see Meier (2002).

The attested free TAM-markers are also highly interesting from a diachronic perspective because they involve grammaticalization pathways that are well-known from the study of TAM-systems in spoken languages (Bybee/Perkins/Pagliuca 1994): future tense markers may develop from movement verbs, completive and perfective aspect markers are commonly grammaticalized from adverbials and verbs, and modals develop from adjectives and verbs. The latter are particularly interesting in this context because the lexical source of a modal can sometimes be traced back to a gestural source.

While aspects of the TAM-systems of at least some sign languages are fairly well understood, further research is required to identify (obligatory and optional) non-man-

ual markers, to distinguish truly inflectional non-manuals from non-manual adverbials, and to investigate possible gestural sources for the non-manuals involved in TAM-marking.

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10. Agreement auxiliaries

1. Introduction
2. Form and function of agreement auxiliaries
3. Agreement auxiliaries in different sign languages – a cross-linguistic comparison
4. Properties of agreement auxiliaries in sign languages
5. Grammaticalization of auxiliaries across modalities
6. Conclusion
7. Literature

Abstract

In this chapter, I summarize and discuss findings on agreement auxiliaries from various sign languages used across the world today. These functional devices have evolved in order to compensate for the ‘agreement gap’ left when a plain verb is the main verb of a sentence. Although tracing back the evolutionary path of sign language auxiliaries can be quite risky due to the scarcity of documentation of older forms of these languages,