

# Complex sentences in sign languages: Modality – typology – discourse

*Roland Pfau and Markus Steinbach*

## **Abstract**

*Sign language grammars, just like spoken language grammars, generally provide various means to generate different kinds of complex syntactic structures including subordination of complement clauses, adverbial clauses, or relative clauses. Studies on various sign languages have revealed that sign languages use modality-independent strategies, i.e. strategies which are also available in spoken languages, to mark such complex subordinated structures. However, complex clauses in sign languages also display some interesting modality-specific properties, which are not attested in spoken languages. Therefore, the study of complex syntactic structures in the visual-gestural modality adds to our understanding of linguistic variation in the domain of subordination. Moreover, it offers new empirical and theoretical evidence concerning possible structures and functions of complex sentences in natural languages. In this introductory chapter, we focus on five aspects relevant to the investigation of subordinated clauses – complexity, modality, typology, discourse, and grammaticalization – and sketch how the study of subordinate structures in sign languages contributed, and still contributes, to the field of sign language linguistics and linguistic typology.*

## **1. Introduction**

According to a long-standing linguistic tradition, recursivity is a hallmark of natural languages (Hauser et al. 2002), next to other defining features such as, for instance, duality of patterning (Hockett 1960) and anaphoric reference. Recursivity implies that a certain rule can reapply to a construction that has itself been derived by that rule; for instance, a verb may take a sentence as complement, which in turn contains a verb with a sentential complement, and so forth.<sup>1</sup> Recently, the claim that recursivity at the clausal

level is a language universal has been challenged (Everett 2005; Evans & Levinson 2009). Still, irrespective of the question whether the alleged universality of recursivity holds up to typological scrutiny, it is certainly true that most spoken languages allow for recursivity at the clausal level, that is, for some sort of subordination. It would therefore be rather surprising if visual-gestural languages as a group did not allow for this type of grammatical complexity – and indeed, previous studies have shown for a number of sign languages that such complex structures do exist. This is not to say, however, that all sign languages would necessarily feature all types of subordinate structures – we simply don't know this yet. What previous findings lead us to expect is that sign languages vary from each other in this domain, just like spoken languages do. The studies compiled in this volume contribute to identifying what is possible in individual sign languages and what is not.

Let us illustrate some of the points to be addressed in this chapter by means of the following, slightly exotic, example from Cistercian Sign Language (CisSL), a monastic sign language used in St. Joseph's Abbey in Spencer, Massachusetts (Barakat 1975: 134). We refer to example (1) as "slightly exotic" because CisSL is a so-called 'secondary sign language', that is, a sign language that has been developed by hearing people – in this case, to obey a vow of silence. At least some secondary sign languages are characterized by a rather simple structure and by considerable influence of the surrounding spoken language (see Pfau (2012) for details). Consider, for instance, the use of the sign TWO for the (homonymous) infinitival marker *to* – a strategy that one would not expect to find in a deaf community sign language. Still, the example is informative as it appears to involve subordination and coordination, marked in a way that is clearly different from English. First, the example contains the predicate KNOW which seems to take a *wh*-complement. This complement is introduced by the noun RULE, which could therefore be argued to have undergone grammaticalization.<sup>2</sup>

- (1) ALL MONK KNOW RULE TWO GIVE VEGETABLE SEED  
 ALL SAME IX<sub>1</sub> IX<sub>2</sub> NOT KNOW RULE  
 'The monks know how to plant vegetables but we don't.'

Of course, one could suggest that the translation should actually be 'The monks know the rule to plant vegetables', but this structure would still involve embedding (under a noun). What the example thus also illustrates is that one should apply due caution in making inferences based on translations because translations are often content-based approximations – and this is, of course, true for deaf community sign languages as it is for secondary sign languages.

Now consider the second part of the example. It is striking that CisSL does not employ a conjunction ‘but’, but rather uses the combination of the signs ALL and SAME to express this meaning. Once again, we might be dealing with grammaticalization, comparable to English complex conjunctions like *although* and *because*. Based on the translation, it might be tempting to assume that what we observe is adversative coordination, but in principle it might well be the case that ALL SAME functions like the discourse particle *however*. If this analysis is on the right track, then the example does not illustrate coordination but rather a sequence of two independent main clauses. Still, there is a clear structural and semantic relation between the two clauses, as the second one involves ellipsis. Again, the translation is slightly misleading, as the sign RULE is repeated in the second sentence; the translation should thus either be ‘we don’t know how’ or ‘we don’t know the rule’ (note that the concatenation of a first and a second person pronoun yields the meaning ‘we<sub>inclusive</sub>’, similar to what has been described for some creole languages). In any case, part of the content of the embedded clause, namely ‘to plant vegetables’, is elided.

Taken together, what example (1) illustrates is (i) that even a secondary sign language, which is only used for limited communicative purposes, may have grammatical means to express subordination (and coordination); (ii) that grammaticalization may play a role in subordination; and (iii) that what looks like subordination at first sight may not be subordination after all. It is therefore desirable to design tests that help us in distinguishing subordinate from non-subordinate structures (see Section 2). Some of these tests may be modality-specific and apply only to sign languages. Non-manual markers, which have not been glossed by Barakat (1975) for example (1), have long been known to offer important cues in that respect (see Section 3).

As far as subordination is concerned, example (1) only provides a potential example for a complement clause. However, throughout this book, the term ‘subordination’ (or ‘subordinate structure’) is used as a cover term for complement clauses (including role shift), adverbial clauses, and relative clauses. Complement clauses and adverbial clauses are embedded under verbs while relative clauses modify nouns. In order to set the stage for the discussion in this and the following chapters, we will illustrate the most important types of subordinate structures with English examples (for an overview of subordination in sign languages, see Tang & Lau 2012). The reader should keep in mind, however, that considerable typological variation is attested in this domain, for instance, with respect to the position of the subordinate clause vis-à-vis the verb or the noun, and concerning the use of overt markers of subordination (e.g. conjunctions, dedicated affixes, or intonation).

Let us consider complement clauses first. Complement clauses are typically obligatory, that is, they saturate an argument variable of the verb (or sometimes the noun), and they are commonly in free variation with nominal arguments, as is illustrated by the sentence pair in (2ab). Note that both sentences would be ungrammatical without the material between brackets. An important distinction is the one between finite and non-finite complements. The matrix predicates that differ in this respect are commonly subsumed under the labels ‘*know*-type verbs’ (2b) versus ‘*want*-type verbs’ (2c), where the latter take non-finite complements (see Göksel & Kelepir, this volume). Finally, interrogative clauses can also be embedded, as is illustrated for a *wh*-interrogative in (2d) and for a polar interrogative in (2e) (see Geraci & Aristodemo, this volume; Davidson & Caponigro, this volume).

- (2) a. *We know [the answer].*  
 b. *We know [(that) she works hard].*  
 c. *We want [her to work hard].*  
 d. *We know [who took the last piece of chocolate].*  
 e. *We wonder [whether Peter told the truth].*

In contrast, adverbial clauses are optional, that is, they behave like adjuncts. Different types of adverbial clauses can be distinguished, depending on their semantic relation with the matrix clause. Important types are temporal clauses (3a), causal clauses (3b), and conditional clauses (3c). Crucially, in contrast to the examples in (2), all three sentences would be grammatical without the subordinate clauses (see Wilbur, this volume, for further discussion).

- (3) a. *She cried [when she heard about the accident].*  
 b. *She cried [because she had failed the test again].*  
 c. *She will cry [if he doesn't show up].*

Finally, relative clauses are embedded under nouns rather than verbs. Here, we only provide two examples, which differ with respect to the grammatical role of the head noun, that is, the noun that is being modified by the relative clause. The head noun *guy* in (4a) is subject of the matrix clause and subject of the relative clause, while the head noun *book* in (4b) functions as direct object within the matrix and the embedded clause. Note that in the latter example, the relative pronoun *that* is optional. In English, other combinations of grammatical roles (subject–object, object–subject) are also possible.

- (4) a. *The guy [who smiled at you] is my cousin.*  
b. *He bought the book [(that) I had recommended].*

The question thus emerges whether there is clear evidence for the existence of similar complex structures in sign languages and, if yes, how such structures are marked in the visual-gestural modality. To anticipate the most important outcome of the following chapters as well as of various previous studies on the matter: comparable complex structures are indeed attested, and they are marked in modality-independent but also interesting modality-specific ways.

In the remainder of this chapter, we attempt to offer an overview of the various complex structures to be addressed in this volume from a historical perspective. The presentation, however, is not strictly chronological. We will discuss various topics in more or less the order in which they came up in the sign language literature, but within every section, we will also offer a more recent perspective on the topic, most importantly data from other sign languages that either support or challenge a claim that had previously been made. In essence, it is our aim throughout this chapter to demonstrate how the study of complex sentences contributed, and still contributes, to the field of sign language linguistics and linguistic typology by adding to our understanding of a number of crucial research domains: complexity, modality, typology, discourse, and grammaticalization.

We start in Section 2 by addressing the issue of grammatical complexity, an issue that was of utmost importance in the early days of sign linguistics. This is followed by a discussion of the impact of modality in Section 3, a topic that became more and more important once it had been established that sign languages are indeed natural languages with complex grammatical structures. In Section 4, we turn to typology and sketch how the discussion of complex sentences profited from a typological perspective. Certain complex structures fulfill a clear discourse function, and we therefore address the interaction of discourse and complexity in Section 5. Finally, in Section 6, we demonstrate how subordinate structures add to our understanding of grammaticalization, a topic that has received considerable attention in the sign language literature in recent years. Section 7 concludes the chapter and offers some perspectives for future investigations. At the end of each section, we briefly outline how the individual chapters in this volume contribute to the respective research domain.

## 2. Complexity

Research on the linguistic structure of sign languages really started with Stokoe's (1960) study on the sublexical structure of American Sign Language (ASL). Following his seminal investigation, linguists – at the time, mostly North American linguists working on ASL – began a quest to demonstrate that sign languages are natural languages with complex grammatical structures at all levels of linguistic description, fully on a par with spoken languages. This was an important endeavor, as it was still commonly assumed that sign languages constitute a rather primitive gestural code, basically an elaborate form of pantomime, lacking the expressive power of spoken languages. Early linguistic studies attempted to falsify this assumption by investigating aspects of the morphology and syntax of ASL, for instance, aspect (Fischer & Gough 1972), reduplication (Fischer 1973), and other verb inflections (Fischer & Gough 1978), as well as word order (Fischer 1975; Friedman 1976), person reference (Friedman 1975), and various other topics in ASL syntax (Liddell 1977). Fischer (1974) was the first one to apply the notion of 'linguistic universal' to sign languages, thus making a strong point for the modality-independence of certain universals that had been proposed on the basis of spoken languages.<sup>3</sup>

It is thus interesting to note that the first study that focused on subordination (Thompson 1977) actually argued for the lack of such complex structures in ASL. It is important to point out that Thompson did not mean to challenge the status of ASL; his aim was "to demonstrate [...] the absence of a syntactic form in ASL, not of a linguistic function" (Thompson 1977: 195). Obviously, the question of whether a communication system is a natural language or not is independent of whether it has subordination or not: there may well be natural languages, spoken or signed, that lack (certain types of) subordination. Thompson's starting point were relative clauses – or rather, their non-existence – but he also addressed other types of subordination, such as embedded questions, indirect speech, and constructions involving complement-taking verbs like *KNOW* and *WANT*.

Here we only report his line of argumentation for the two clauses involving the verb *KNOW* presented in (5), both of which were obtained as translations of sentences presented in English (Thompson 1977: 191f). Thompson observes that *KNOW* may or may not be followed by a pause (indicated by '/'). He admits that he does not know whether these sentences involve subordination or not and puts forward three possible analyses: (i) the sentences are Signed English rather than ASL; (ii) the sentences are coordinate comment-report structures (as he also argues for constructions involving *FEEL* and

THINK); (iii) the examples are indeed cases of subordination which, however, occurs in ASL only with this verb. According to Thompson (1977: 192) “the lack of subordination elsewhere in the language suggests that of the three, the third is the least likely”.

- (5) a. YOU KNOW / MARK HATE CIGARETTE  
‘It is obvious that Mark hates cigarettes.’
- b. LYNN KNOW FOR-SURE NOTHING HAPPEN  
‘Lynn knew that nothing had happened.’

Liddell (1980) offers a detailed criticism of Thompson’s arguments for the lack of subordination. With respect to the examples in (5), he criticizes that Thompson lumps the two examples together in spite of obvious differences. Even if pauses of a certain length are indicative of a sentence boundary (as Thompson contends), the fact that pauses sometimes occur in sentences with KNOW (5a) cannot be taken to imply that all sentences including KNOW are coordinate structures. Rather, the differences should be taken seriously, and the two examples should be analyzed differently. According to Liddell’s informants, the meaning ‘it is obvious’ is commonly expressed in ASL by YOU KNOW in combination with an irritated look, a construction that is similar to the English expression ‘You know what I mean’. Thompson, however, does not provide information concerning the presence of non-manual behavior. Liddell thus agrees with Thompson that (5a) may well consist of two sentences, but suggests that the translation should actually be ‘You know [what I mean]. Mark hates cigarettes.’ (Liddell 1980: 123). Crucially, this does not mean that the same sentence without pause also consists of two separate sentences – and the same is true for (5b).

As for the other constructions that Thompson discusses, Liddell’s arguments go in a similar direction. He points out that Thompson overlooked or ignored crucial non-manual markers that may distinguish subordination from coordination as well as dedicated signs that signal subordination (in relative clauses), and that he failed to properly distinguish between direct and indirect speech (see Section 5 for discussion). Towards the end of his paper, he briefly presents two more arguments in favor of subordination, topicalization and subject pronoun copy, which were discussed in more detail a few years later in Padden’s (1983) dissertation (published in 1988).

An important contribution of Padden’s work is that she offered a number of syntactic tests that allow for the distinction between coordinate and subordinate structures in ASL: subject pronoun copy, scope of the non-manual

marker of negation, the use of certain manual conjunctions, and topicalization. Here, we only illustrate the last test by means of examples. Padden shows that a constituent can be topicalized out of an embedded clause (6a), but not out of the second conjunct of a coordinate structure (6b) (Padden 1988: 91f). The latter example is ungrammatical as it violates a universal constraint suggested by Ross (1967), the Coordinate Structure Constraint (CSC), which bans movement of constituents out of coordinate structures.<sup>4</sup> The fact that movement of TICKET is possible in (6a) thus indicates that this is a subordinate structure – contra Thompson, who suggested that the verb TELL does not take a clausal complement in ASL, but always combines with direct speech.

- (6) a.  $\text{_____}_t$   
 TICKET, INDEX<sub>1</sub> TELL<sub>2</sub> GIVE<sub>i</sub>  
 ‘Those tickets, I told you to give to him.’
- b.  $\text{_____}_t$   
 \*MOTHER, <sub>1</sub>HIT<sub>i</sub> SISTER, INDEX<sub>j</sub> TATTLE<sub>k</sub>  
 ‘His mother, I hit my sister and he told.’

Taken together, Liddell’s discussion and Padden’s tests provided evidence that complex embedded structures do exist in ASL. In subsequent studies, similar arguments have been put forward for other sign languages; see, for example, Van Gijn (2004) for Sign Language of the Netherlands (NGT) and Tang & Lau (2012) for a general discussion.<sup>5</sup>

Obviously, all **contributions to the present volume** address the issue of complexity. Characteristics of complement clauses are discussed for different sign languages in the contributions by Josep Quer (Catalan Sign Language, LSC), Aslı Göksel & Meltem Keleşir (Turkish Sign Language, TİD), and Carlo Geraci & Valentina Aristodemo (Italian Sign Language, LIS); the latter study also considers the possibility of center-embedding. Göksel & Keleşir investigate differences between *know*-type and *want*-type verbs, and Geraci & Aristodemo include in their discussion control and raising constructions. Kathryn Davidson & Ivano Caponigro briefly address embedded *wh*-interrogatives in ASL and then turn to a construction which to date has received less attention: embedded polar interrogative clauses in ASL. Ronnie Wilbur analyzes another type of embedded structure, namely adverbial clauses in ASL, with a focus on clause order. The syntactic tests proposed by Padden (1988) make an appearance in the contributions by Wilbur, Göksel & Keleşir, and Davidson & Caponigro. Carlo Cecchetto & Caterina Donati offer a new syntactic analysis of relativization

in LIS. Finally, the study by Onno Crasborn & Anna Sáfár takes a slightly different perspective on complexity by investigating the role of the non-dominant hand in complex constructions in NGT.

### **3. Modality**

As mentioned previously, in the early days of sign language linguistics, researchers made an effort to demonstrate that sign languages behave in many ways like spoken languages: they display comparable structural complexity and are subject to the same constraints (as, for instance, the CSC). Once this important fact had been established, linguists started to also address potential modality effects, that is, structural differences that result from differences in production (i.e. different articulators) and perception. After all, sign languages are visual-gestural languages, and it is therefore not unexpected that – intriguing similarities notwithstanding – they pattern differently from spoken (i.e. oral-aural) languages in some respects. Clear cases of modality effects that have been identified include: (i) the (simultaneous) use of non-manual markers for various grammatical functions; (ii) the availability of two identical articulators, the two hands; (iii) the use of the signing space in front of the body for grammatical purposes; and (iv) an increased potential to express meaning iconically, most importantly in the lexicon, but also in morphosyntax. In this section, we will briefly address the first two types of modality effects and discuss how they affect subordination in sign languages (see Meier (2012) for a general overview of the impact of modality on language structure).

As pointed out in the previous section, one of the criticisms of Liddell (1980) was that Thompson had not paid sufficient attention to the use of non-manual behavior. In fact, it has been demonstrated that non-manuals, that is, facial expressions as well as head and body movements, may play a crucial role at all levels of linguistic description. Liddell himself (1978, 1980) investigated a number of morphological and syntactic functions, Baker & Padden (1978) focused on the functions of blinks and eye gaze, and Baker-Shenk (1983) offered a fine-grained analysis of non-manuals accompanying *wh*-questions in ASL. Later research confirmed these patterns for other sign languages (e.g. Coerts (1992) for NGT) and added to the picture non-manuals with phonological and pragmatic functions (for an overview, see Pfau & Quer (2011)).

It appears that across sign languages, subordinate clauses – in particular relative and certain types of adverbial clauses – are commonly accompanied

by specific (combinations of) non-manual markers. In fact, sometimes the presence vs. absence of a non-manual marker may define a minimal sentence pair, as is illustrated by the German Sign Language (DGS) examples in (7). The raised eyebrows ('re') in (7a) signals that the sentence-initial constituent is a conditional clause, that is, that we are dealing with subordination. In contrast, the same string without non-manual marker (7b) will be interpreted as a sequence of two independent (possibly coordinated) sentences. These examples clearly illustrate that it is of utmost importance to include non-manual behavior in the analysis of complex structures (see also Tang & Lau 2012).

- re
- (7) a. TOMORROW RAIN, WE PARTY CANCEL MUST  
 'If it rains tomorrow, we will have to cancel the party.'
- b. TOMORROW RAIN, WE PARTY CANCEL MUST  
 'It will rain tomorrow. We must cancel the party.'

Coulter (1979) was the first one to demonstrate that raised eyebrows may accompany various types of adverbial clauses, often in combination with other non-manual markers such as raised chin: conditional clauses, *when*-clauses, goal clauses ('in order to'), and relative clauses. Consequently, ambiguity may arise, as is true for the sentence in (8), which may be interpreted as a conditional or a goal clause (Coulter 1979: 27; example slightly adapted).<sup>6</sup> Coulter suggests that the phrases accompanied by raised eyebrows all describe background information; also, none of these phrases are assertional (see Wilbur & Patschke (1999) for another attempt at a unified analysis of raised eyebrows).<sup>7</sup>

- re + chin up
- (8) FIX INDEX<sub>3</sub>, FIRST MUST DISCONNECT  
 'In order to fix that, first you have to disconnect it.'  
 'If you want to fix that, first you have to disconnect it.'

In the meantime, a lot of additional evidence has accumulated that further substantiates the important role of non-manuals in subordinate structures in various sign languages. For instance, it has been shown that non-manuals serve as crucial cues in distinguishing direct from indirect speech (see Section 5), neutral conditionals from counterfactuals (Dachkovsky 2008), and restrictive from appositive relative clauses (Branchini 2014; Kubus 2014).

Non-manuals appear to play a less important role in complement clauses, but in fact, their potential role in this type of construction is at present less well understood.

It is important to point out that the use of non-manual markers for grammatical purposes loses some of its modality-specific flavor, once we take into account that it has been argued that non-manuals can also fulfill prosodic roles by marking prosodic domains and boundaries (Sandler 2011). Following this line of argumentation, certain types of complex structures in sign languages are marked by specific intonation contours, just as in many spoken languages. The strategy is thus modality-independent but its phonetic instantiation – layered non-manuals vs. sequences of tones – is modality-dependent.

The second modality effect we briefly address here is the availability of two identical articulators. Just like non-manuals, the second hand (also called ‘weak’ or ‘non-dominant’ hand) may take on various functions within different components of the grammar. As for a phonological function, signs may be lexically specified for two-handed articulation (Van der Hulst 1996); in morphosyntax, the non-dominant hand may surface in pluralization, reciprocals, and locative constructions (Pfau & Steinbach 2003; Pfau & Aboh 2012); in the domain of pragmatics, the non-dominant hand can be used in various ways to structure the discourse, for instance, to encode topical elements and to express simultaneous events (Frishberg 1985; Hendriks 2008). In the context of complex sentences, a potentially important phenomenon are ‘weak hand holds’, whereby the non-dominant hand is held stationary in space while the dominant hand continues signing. As pointed out by Kimmelman (2014), a weak hand hold may simply be phonetic or may mark a syntactic domain (e.g. a DP), but it may also be used to link two clauses to each other.<sup>8</sup>

The Russian Sign Language (RSL) example in (9a) contains the two predicates OFFER and CALL; the two events that the predicates refer to happen simultaneously: a cat offers a banana to a monkey and at the same time calls the monkey. The verb OFFER is articulated with the right hand (‘rh’) and then held (as indicated by the line) while the left hand (‘lh’) signs CALL (Kimmelman 2014: 174; example slightly adapted). The translation suggests that we are dealing with coordination of two sentences, but recall from Section 1 that translations should be taken with a grain of salt. In principle, the second verb might also be contained in a temporal adverbial clause (‘while calling’). Irrespective of the appropriate analysis, however, it can be argued that the weak hand hold creates cohesion between the two parts of the utterance.

- (9) a. rh: BANANA OFFER -----  
 lh: CALL  
 ‘(The cat) offers the banana and calls (the monkey).’
- b. rh: NOW INDEX OVER. INDEX FINALLY MAY OUT  
 lh: OVER -----  
 ‘Now it was over. So he finally was allowed to go out.’

The sign OVER in the RSL example in (9b) is lexically specified for articulation with two hands. The left hand of OVER is held in space while the right hand signs the next sentence (Kimmelman 2014: 174). In this case, the two events are not happening simultaneously; rather, the first sentence specifies the reason for the event in the second sentence to take place (as indicated in the translation by ‘so’). Consequently, it might well be the case that we are not dealing with two independent sentences but rather with a main clause (‘He finally was allowed to go out’) containing a causal clause (‘because it was over’). As before, it seems likely that the weak hand hold signals the relation between the two sentences or clauses.

As for their appearance **throughout this volume**, the two modality-specific characteristics we addressed in this section, i.e. non-manual markers and the non-dominant hand, are in complementary distribution: non-manuals play an important role in all chapters except the one by Crasborn & Sáfár, while the use of the non-dominant hand is only addressed by Crasborn & Sáfár. The non-manual marker accompanying LIS relative clauses is a crucial ingredient in the study by Cecchetto & Donati. Non-manuals signaling role shift are addressed in the contributions by Quer (LSC) and Geraci & Aristodemo (LIS); both studies also describe non-manual markers accompanying sentence-initial complement clauses. Göksel & Keleşir include in their investigation of TİD complementation a description of the spreading behavior of non-manual markers (e.g. negation, body posture) in complex sentences. The non-manual markers characterizing embedded wh-questions and polar interrogatives in ASL are discussed by Davidson & Caponigro, while Wilbur focuses on non-manuals in wh-clefts and (mostly sentence-initial) adverbial clauses. Finally, when addressing the role of the non-dominant hand, Crasborn & Sáfár are not concerned with weak hand holds of the type introduced above but rather describe another intriguing phenomenon: dominance reversal.

#### 4. Typology

In an early description of Plains Indian Sign Language (PISL), another secondary sign language,<sup>9</sup> Mallery (1881: 359) highlights the fact that there is “no organized sentence such as is integrated in the languages of civilization” and that one “must not look for articles or particles or passive voice or case”. Moreover, he mentions the lack of a copula and of tense inflection. Clearly, taking the lack of these features to imply that PISL does not classify as a “language of civilization” reveals a strong anglo-centric view on language. Cross-linguistic research has shown that many spoken (and signed) languages lack one or more of these (morpho)syntactic characteristics: for instance, Turkish does not have a copula, Chinese verbs and nouns are not inflected for tense or case, respectively, and Ewe lacks an independent passive construction.

We thus enter the domain of typology. Already in some of the early linguistic studies on sign language, scholars have made an effort to compare some, apparently exotic, structures they encountered in ASL to structures in non-Western (e.g. native American) languages – see, for instance, McDonald’s (1982) comparison of ASL classifiers to classificatory verbs in Navaho.<sup>10</sup> We refer to this type of comparison as ‘cross-modal typology’, as a grammatical pattern found in a visual-gestural language is compared to a pattern in an oral-aural language. Cross-modal typology turned out to be highly informative, and it contributed, and still contributes, in an important way to demonstrating structural and functional similarities between the two types of languages.

One of the first studies to explicitly address cross-modal typology was Coulter’s (1979) dissertation *American Sign Language typology*. Coulter points out that he concentrated on “a description of several aspects of ASL structures which involve topics, including constructions which function as conditionals and relative clauses” (1979: xvi). Besides subordination, he addressed grammatical relations and word order and – as mentioned above – highlighted in his discussion the crucial role of non-manual signals. While Coulter’s study undoubtedly offers a lot of important insights, the typological component is actually not very prominent – in fact, in the abstract to his thesis, the term “typology” is not even mentioned. For cross-modal comparison, he offers a few examples from Turkish (similar marking of conditionals and topics), German, Japanese, and Warlpiri (relative clauses), Mandarin Chinese (topic prominence), and French (source marking).

Two prominent topics in spoken language typology are word order and relative clauses. It is thus interesting to note that these topics also played a central role in early studies on sign language structure. Given that this volume is about complex sentences, we will limit the discussion to relative clauses.<sup>11</sup> Studies on the structure of relative clauses (RCs) in spoken languages have revealed a crucial dichotomy concerning the position of the nominal head that is modified by the RC: head-external RCs have to be distinguished from head-internal RCs (Keenan 1985; Lehmann 1986).<sup>12</sup>

Liddell (1978, 1980) argues that ASL has head-internal RCs, and is thus typologically different from English in this domain. He takes a typological perspective by comparing ASL RCs to RCs in Diegueño, a Yuman language spoken in Baja California (Mexico). Liddell points out that ASL RCs preferably occupy a sentence-initial position, and that they are accompanied by a non-manual marker which he glosses as ‘r’ (raised eyebrows, head tilted back, and a specific mouth configuration), as is shown in (10a). Crucially, the non-manual marker (as well as other semantic and prosodic characteristics) distinguishes the RC from the corresponding non-RC construction. Two characteristics of (10a) suggest that we are indeed dealing with an internally-headed RC: (i) the non-manual marker extends over the head noun *DOG*, thus indicating that it is a part of the RC; (ii) the adverbial *RECENTLY* scopes over the verb within the RC, and if *RECENTLY* is part of the RC, then *DOG* cannot be external to it (Liddell 1980: 136).

- (10) a.  $\overline{\text{r}}$   
 [RECENTLY **DOG** CHASE CAT]<sub>RC</sub> COME HOME  
 ‘The dog which recently chased the cat came home.’
- b. [i:pac **’wa:** n<sup>y</sup>i-k wyiw]<sub>RC</sub> pu c n<sup>y</sup>imšap  
 man house that-ABL came DEM SBJ white  
 ‘The house that the man came from was white.’

Diegueño also has head-internal RCs. As in (10a), the head noun *’wa:* (‘house’) in (10b) follows another element that is clearly interpreted as part of the RC. The demonstrative *pu* nominalizes the RC, and the element *c* marks the entire constituent as subject (Gorbet 1974; in Liddell 1980: 133; example slightly adapted). Liddell points out that the RC-internal demonstrative *n<sup>y</sup>i*, which attaches to the internal head, disambiguates the RC – otherwise, *i:pac* (‘man’) could also be interpreted as the head noun of the RC. This observation is important for his discussion of ASL RCs, as he identifies a similar disambiguating element in ASL (*THAT<sub>a</sub>*), which, however, we

shall not further discuss here. The examples in (10) thus illustrate how cross-modal typology can add to our understanding of certain constructions in sign languages.<sup>13</sup>

Over time, more and more sign languages were added to the research agenda, and the accumulation of new data from various sign languages opened the door for another typological approach: intra-modal typology (or ‘sign language typology’), whereby patterns from different sign languages are compared to each other (Zeshan 2008; De Vos & Pfau 2015). The combination of both approaches allowed linguists to demonstrate that sign languages at the same time share structural properties with spoken languages, yet also differ from each other along certain typological parameters. Staying within the area of relativization, it has been shown, for instance, that DGS uses head-external RCs (Pfau & Steinbach 2005). The example in (11a) is clearly different from the ASL example in (10a). First, DGS employs a RC-initial relative pronoun (RPRO), and typological studies suggest that relative pronouns are only attested in post-nominal head-external relative clauses (Keenan 1985). Second, the non-manual marker ‘rel’, which consists of brow raise and a slight body lean towards the location of RPRO, either accompanies only RPRO or optionally spreads over the entire RC (as indicated by the broken line); crucially, however, it never extends over the head noun. Third, the adverbial preceding the head noun scopes over the matrix clause.

- (11) a. TOMORROW MAN  $\overline{\text{[RPRO}_{3a} \text{ TIE BUY}]_{\text{RC}}}$  CONFERENCE<sub>3b</sub> GO-TO<sub>3b</sub>  
 ‘Tomorrow the man who is buying a tie will go to a conference.’
- rel
- b.  $\overline{\text{[TODAY MAN}_i \text{ PIE BRING PE}_i\text{]}_{\text{RC}}}$  YESTERDAY (INDEX<sub>i</sub>) DANCE  
 ‘The man that brought the pie today danced yesterday.’

Interestingly, LIS appears to be typologically closer to ASL. In (11b), just as in (10a), the non-manual marker (raised eyebrows and tension of eyes and upper cheeks) extends over the head noun, and the sentence-initial adverbial only takes scope over the the RC (Branchini & Donati 2009: 164). In contrast to ASL, however, LIS RCs always contain the indexical sign glossed as PE, which usually appears in clause-final position. Optionally, the main clause may contain an INDEX that is co-referential with the head noun and PE. Branchini & Donati argue that PE is a determiner-like element which nominalizes the RC, a pattern that is reminiscent of what we described for

the Diegueño example in (10b). For cross-modal typological comparison, Branchini & Donati do indeed offer a Diegueño example as well as examples from Japanese, Quechua, and Tibetan.

Taken together, this brief case study reveals that a typological distinction that has been proposed on the basis of spoken language data can be fruitfully applied to sign languages. In other words: sign languages differ from each other, and they do so along similar lines as spoken languages do. Other grammatical domains that have been investigated from a cross- and intra-modal typological perspective include agreement (Costello 2015), pluralization (Pfau & Steinbach 2006b), classifiers (Zwitserslood 2012), and negation (Pfau 2015).

Admittedly, the issue of typology does not figure prominently in **the contributions to this volume**, as all of them focus on a single sign language. Cecchetto & Donati discuss LIS relative clauses and include a cross-modal typological component by comparing LIS to Japanese. Wilbur, in her study on ASL adverbial clauses, draws parallels to findings from spoken language corpus studies as well as to structural accounts put forward on the basis of English adverbial clauses. In their discussion of center-embedding, Geraci & Aristodemo include a comparison to English and Italian. As for intra-modal typology, Quer offers a brief comparison of properties of role shift in LSC and DGS. Nevertheless, some interesting intra-modal typological patterns can be distilled by comparing data presented in different chapters, for instance, role shift data from LIS (Geraci & Aristodemo) and LSC (Quer), or complementation strategies in TİD (Göksel & Kelepir) and LIS (Geraci & Aristodemo).

## 5. Discourse

In this section, we broaden the perspective on complex structures in sign languages by turning to the discourse function of subordinated clauses. As is well known from the study of spoken languages, relative clauses can, for instance, help in the identification of discourse referents or provide additional (not-at-issue) background information not directly relevant to the question under discussion. Likewise, complement and adverbial clauses typically come in various degrees of integration signaling, among other things, the discourse status of the proposition expressed by the complement clause or, in the case of adverbial clauses, the target of modification (e.g. the difference between propositional and speech act oriented readings for causal clauses).

Recent studies on discourse structure in sign languages have mainly focused on information structure, discourse referents, and anaphora

resolution (Barberá 2015; Steinbach & Onea 2015; Kimmelman & Pfau, in press). When it comes to complex sentences in discourse, different kinds of complex structures such as coordination, wh-clefts, and role shift have been investigated. In this section, we focus on wh-clefts and role shift since both construction types are well studied (for coordination in discourse, see Davidson 2013) and have been argued to involve subordination. While for wh-clefts, we find similar complex constructions in spoken languages, the grammatical use of role shift seems to be a strategy that is unique to the visual-gestural modality.

Actually, the constructions that we refer to as ‘wh-clefts’ have an interesting history during which they have undergone a number of name changes. The different labels and analyses notwithstanding, however, all authors assume that their use contributes to structuring the discourse. In early studies on ASL, these constructions were referred to as “rhetorical questions” (e.g. Baker-Shenk (1983); but also see Hoza et al. (1997) for arguments in favor of a biclausal analysis). For the example in (12a) (Wilbur 1995: 155), this would imply that the signer asks a question without expecting the interlocutor to reply, as she immediately provides the answer herself (‘Where did I leave my shoes? In the kitchen.’). According to this analysis, example (12a) consists of two independent sentences: the wh-question LEAVE MY SHOES WHERE and the corresponding (elliptical) answer KITCHEN.

- (12) a.  $\overline{\text{re}}$   
 LEAVE MY SHOES WHERE, KITCHEN  
 ‘Where I left my shoes was in the kitchen.’
- b.  $\overline{\text{re}}$   
 IX<sub>3pl</sub> GIRLS HOPE [ IX-POSS<sub>3pl</sub> FATHER BUY WHAT, CAR ]  
 ‘The girls hope that what their father bought was a car.’
- c. *What their father bought was a car.*

By contrast, Wilbur (1995, 1996) argues against a biclausal analysis for this construction type and provides various arguments in favor of a complex monoclausal structure, i.e. in favor of an analysis as wh-clefts. As opposed to independent wh-interrogatives, the first part of a wh-cleft is not marked by brow lowering but by brow raise. In addition, wh-clefts, unlike independent interrogatives, do not permit wh-doubling. Thirdly, the second part of the wh-cleft (the ‘answer’ part) typically consists of only one constituent, which is directly linked to the wh-expression in the first part. And finally,

example (12b) shows that *wh*-clefts can be used as embedded structures saturating the (propositional) argument position of the matrix verb HOPE (Caponigro & Davidson 2011: 337).

According to Wilbur (1995, 1996), *wh*-clefts are mainly used to put narrow focus on the sentence-final constituent that corresponds to the *wh*-word, that is, *wh*-clefts have a clear discourse function by licensing narrow focus on a specific constituent. Wilbur thus argues that *wh*-clefts in ASL have a similar syntactic structure as the English pseudo-cleft in (12c). In particular, she analyzes the sentence-initial *wh*-clause as a free relative clause. As opposed to English, the copula (‘to be’) is empty in ASL (note that empty copulae are common in sign languages). Caponigro & Davidson (2011) go a step further and develop an account that combines aspects of Baker-Shenk’s and Hoza et al.’s biclausal analysis and Wilbur’s monoclausal account. Just like Wilbur, they analyze examples like (12a) as complex declarative sentences with an empty copula combining both parts. However, as opposed to Wilbur – and following Baker-Shenk and Hoza et al. – they do not treat the *wh*-clause as a free relative clause but as an embedded question. The corresponding focused part is then analyzed as a (reduced) answer. Consequently, they refer to these constructions as ‘question-answer clauses’ (QAC). This analysis has the advantage that it does not only account for the specific non-manuals (brow raise) and the fact that QACs can be embedded but also for the unexpected variety of *wh*-words that can be used in QACs. In addition, it accounts for the observation that the second part (i.e. the answer) need not be reduced, as is shown in example (13a). And finally, as Hoza et al. (1997: 9f.) already pointed out, similar constructions are also possible with the first part being a *yes/no*-question. Since Caponigro & Davidson (2011) argue that the first part of a QAC is an embedded question, they can easily account for this observation.

- (13) a.  $\frac{\text{re}}{\text{JOHN BUY WHAT, (HE BUY) BOOK}}$   
 ‘What John bought was a book.’
- b.  $\frac{\text{re}}{\text{JOHN HAVE MOTORCYCLE, NO}}$   
 ‘John doesn’t have a motorcycle.’

Let us now turn to role shift, the second complex construction we want to briefly discuss in this subsection. Since role shift relies on two sign language specific properties – the availability of a three-dimensional signing space

and the possibility to use different articulators simultaneously to express grammatical features – spoken languages cannot directly make use of this specific construction to express reported speech (and thought) and reported action. Following Schlenker (2014ab), we call the former *attitude role shift* and the latter *action role shift*.<sup>14</sup> In both kinds of role shift, the signer slips into the perspective of another character by changing the eye gaze, the facial expressions, and/or the position of the upper body and head (Herrmann & Steinbach 2012; Lillo-Martin 2012). Consider the examples in (14ab), which are slightly adapted from Herrmann & Steinbach (2012: 209, 215). Example (14a) is a typical example of attitude role shift reporting a brief conversation between Emma and her mother. In this example, the signer uses all non-manual markers of role shift, that is, (14a) is an example of a maximally marked role shift. Example (14b) is an illustration of action role shift. Again, non-manual markers such as change of posture and facial expressions flag the role shift, which, in this example, describes the action of a shepherd boy. In both examples, the role shift triggers a context change or change in perspective: it's not the signer who is responsible for the proposition or action expressed in the scope of the non-manuals but the signer or actor of the shifted context, i.e. Emma and her mother in (14a) and the shepherd boy in (14b). (Note that in (14a), '≤ ≥' indicates the scope of the non-manuals expressing role shift. '3a' and '3b' stand for the loci on the horizontal plane of the signing space assigned for Emma and the mother, i.e. for the signer and addressee of the reported context. 'AC-RS' in (13b) stands for the change in body posture that indicates action role shift. The corresponding action is described in lower cases.)

- 3b< \_\_\_\_\_ >3a  
neg neg
- (14) a. IX<sub>3b</sub> EMMA IX<sub>3b</sub> MOTHER IX<sub>3a</sub> EMMA IX<sub>3b</sub> HEY IX<sub>1</sub> LIKE IX<sub>a</sub> STAY PLAY WISH  
 'Emma to her mother: "Hey, I don't want to stay here and play." '
- 3a< \_\_\_\_\_ >3b  
 IX<sub>DUAL</sub> ALWAYS IX<sub>a</sub> PLAY++ PALM-UP  
 '(Mother to Emma:) "But, the two of us always play here, what's up?"'
- b. NICE EVERYWHERE IX<sub>a</sub> BUT BORING IX<sub>a</sub> SAME++  
 AC-RS<sub>stands holding a stick, looking around bored</sub>  
 'It was nice everywhere, but very boring and always the same, like standing with a stick in one's hand, looking around bored.'

The analysis of role shift gives rise to two questions relevant for this subsection: (i) Are both kinds of role shift embedded structures? (ii) What is the discourse function of role shift? Concerning the first question, Lillo-Martin (1995) argues for a syntactic account. She assumes that (at least attitude) role shifts are best analyzed as complex constructions consisting of a matrix clause with a point of view (PoV) predicate and an embedded clausal complement (the role shift clause) which is introduced by a covert syntactic operator (for a similar analysis, see Quer 2005, 2011). This analysis predicts “that the ‘quoted’ material is understood as embedded whether or not there is an overt matrix verb” (Lillo-Martin 2012: 376). Consequently, the second clause in (14a) would also involve an (empty) matrix clause expressing the attitude (or speech act) of the embedded clause.

By contrast, Davidson (to appear) argues against a syntactic analysis that treats role shift as an embedded structure licensed by possibly empty PoV predicates (see also Lee et al. 1997 and Herrmann & Steinbach 2012). Instead, she offers a semantic account that builds on the observation that role shift is typically accompanied by non-manual markers. In her study, role shift is treated similar to quotative “be like” constructions in English. The main difference between “be like” in English and role shift in sign languages is the use of simultaneous non-manual grammatical marking, a strategy only available in sign languages. Consequently, role shift is analyzed as a monoclausal structure marked by specific non-manual markers which accompany an independent clause. In semantic accounts, it is the non-manual markers that semantically introduce a new context of interpretation.

This brings us to our second question, the discourse function of role shift. Independent of the question whether role shift is an embedded structure or not, researchers generally agree that role shift triggers a context change or shift in perspective; just like direct or free indirect speech, it introduces a second context of reported speech or reported action. In syntactic analyses, the context shift is triggered by a PoV predicate (or a corresponding syntactic operator). In semantic analyses, the context shift is indicated by the simultaneous non-manuals which accompany the role shift.<sup>15</sup>

Going again through **the contributions to this volume**, we find that wh-clefts are addressed for ASL in the contributions by Davidson & Caponigro (where they are referred to as ‘question-answer clauses’) and Wilbur, and for LIS by Geraci & Aristodemo. Wilbur includes in her discussion the possibility of embedding wh-clefts. Role shift, on the other hand, is the subject of the study by Quer on LSC, where their formal and interpretive characteristics are discussed in detail, and it also makes an appearance in the chapters by Geraci & Aristodemo and Davidson & Caponigro.

## 6. Grammaticalization

Finally, complex sentences can also shed light on the emergence of structure, as they commonly involve grammaticalization: multi-sentential constructions may develop into subordinate structures, and lexical elements (nouns, verbs, or multi-word constructions) may grammaticalize into conjunctions – often these two types of diachronic change go hand in hand (Frajzyngier 1996; Ohori 2011). Not surprisingly, grammaticalization also plays an important role in sign languages. On the one hand, scholars have identified numerous phenomena that follow paths from lexical to grammatical element that are well known from the study of language change in spoken languages, such as, for example, noun → pronoun and verb → aspectual marker (Sexton 1999; Pfau & Steinbach 2006a). On the other hand, however, we also find modality-specific changes that involve the grammaticalization of manual and non-manual gestures (Wilcox 2007; Van Loon et al. 2014). In the following, we briefly discuss a few examples of complex sentences in sign languages that (probably) involve modality-independent and modality-specific instances of grammaticalization.<sup>16</sup>

Let us consider manual conjunctions first. Pfau & Steinbach (2006a, 2011) argue that in DGS, the noun REASON has developed into a conjunction introducing causal clauses (14a) – a functional change that is reminiscent of the use of the noun *cause* in the English conjunction *because*. When used as a conjunction, REASON is phonologically reduced, as the inherent repetition that characterizes the noun is lost. Phonological reduction is a common feature of grammaticalization (Heine & Kuteva 2002). It could be hypothesized that this process of grammaticalization went hand in hand with the reanalysis of a multi-sentential structure like the one in (15b). Note that in (15a), there may be slight prosodic break between SAD and REASON, but there is no break between REASON and the possessive pronoun, that is, REASON is prosodically integrated into the subordinate clause.

(15) a. INDEX<sub>1</sub> SAD REASON POSS<sub>1</sub> DOG DIE  
 ‘I’m sad because my dog died.’

\_\_\_\_\_ re

b. INDEX<sub>1</sub> SAD / REASON / POSS<sub>1</sub> DOG DIE  
 ‘I’m sad. The reason? My dog died.’

Similarly, de Haan (2015) observes, based on naturalistic corpus data, that in NGT, the noun RESULT grammaticalized into a conjunction introducing

result clauses, as illustrated in (16a). Actually, the developmental path may be slightly more complex, as the noun is in turn related to the verb FOLLOW (in Dutch, the corresponding verb and noun are also related: *volgen* ‘to follow’ – *gevolg* ‘result/consequence’). Still, de Haan uses the noun-based gloss, as even in its grammatical use, the sign is commonly accompanied by the mouthing ‘gevolg’. Obviously, the verb’s underlying spatial meaning (‘He followed him’) has been metaphorically extended to a temporal meaning (‘It follows that ...’); the noun, however, only carries the more abstract temporal meaning. De Haan further observes that RESULT is sometimes preceded by a clear prosodic break and speculates that in this case, it introduces a main rather than an subordinate clause – comparable to English sentence-initial use of ‘as a result’ or ‘therefore’. In (16a), however, no such prosodic break is present, and it is therefore likely that RESULT indeed functions as a conjunction. The fact that both structures with and without prosodic break exist may actually be an indication of the ongoing grammatical and functional change.

- (16) a. NOW SELF EASY MAKE-APPOINTMENT MAYBE GROUP INDEX<sub>3a</sub>  
 RESULT GROUP INDEX<sub>3b</sub> DECREASE  
 ‘Now it is maybe easy/easier to make appointments yourself, as a group, so that the group (the deaf community) decreases.’
- re
- b. INDEX<sub>1</sub> GO-TO EUROPE, UNDERSTAND’ FLY-THERE-DIRECTLY  
 ‘I will go to Europe provided I can get a non-stop flight.’

Fischer & Lillo-Martin (1990) describe a verb-to-conjunction path for ASL: the verb UNDERSTAND developed into a conjunction introducing adverbial clauses. They identify various related meanings, one of which can be translated as ‘provided (that)’ (16b). In its grammatical use, UNDERSTAND is glossed as UNDERSTAND’, as it displays formal characteristics different from its verbal counterpart. First, movement in UNDERSTAND’ is repeated; second, the conjunction is accompanied by a set of non-manual markers including raised eyebrows, as is shown in (16b) (adapted from Fischer & Lillo-Martin 1990: 72). While the phonological changes seem to contradict phonological erosion (as movement and non-manual are added), the functional change is still clearly characterized by decategorialization, another hallmark of grammaticalization: Fischer & Lillo-Martin show that UNDERSTAND’ cannot combine with an overt subject or a modal verb.

In our discussion of relative clauses in Section 4, we presented a DGS example containing a relative pronoun. Actually, DGS has two relative pronouns, one referring to human antecedents – this is the one used in (11a)

– and one referring to non-human antecedents. In other words, RPRO agrees with the head noun. Interestingly, both forms may fulfill other grammatical functions: the [+human] one is also used as a person classifier (☞-hand, finger pointing upward, palm oriented towards signer's body) while the [-human] one is actually a pointing sign. It could thus be argued that we are dealing with two instances of the grammaticalization of relative pronouns from other pro-forms – as is also commonly attested in spoken languages (e.g. from demonstrative or wh-pronoun to relative pronoun; Bruyn 1995; Heine & Kuteva 2002). What is modality-specific about the process, at least about the one involving the pointing sign, is that the input to the grammaticalization chain is likely a gesture. In fact, Pfau & Steinbach (2011) hypothesize that there may be a pathway from gesture via locative and demonstrative pronoun to personal pronoun and relative pronoun. Except for the first step, whereby a gesture becomes a grammatical element, all steps on the proposed grammaticalization chain are modality-independent.

Taken together, these examples suggest that grammaticalization and reanalysis also play an important role in the emergence of complex structures in sign languages and that, for the most part, the patterns mirror those commonly found in spoken languages. So far, we have only been concerned with manual elements – but what about non-manual markers? The first thing to note is that it has indeed been argued that certain non-manuals with linguistic functions are grammaticalized co-speech gestures; see, for instance, Pfau (2015) for the grammaticalization of the negative headshake. However, to date, comparably little is known about the possible role of grammaticalized non-manuals in subordinate structures.

Remember from the discussion above that non-manuals have been shown to play an important role in conditionals, relative clauses, wh-clefts, and role shift. Referring to work by Haiman (1978), Coulter (1979) points out that the fact that conditionals and topics are both marked by raised eyebrows provides evidence for the assumption that conditionals are topics (see also Janzen 1999; Brunelli 2011). It could thus be argued that the non-manual accompanying topics, i.e. sentence-initial, usually nominal constituents, was subject to functional extension and subsequently also accompanied sentence-initial clausal constituents – this would also explain why across sign languages conditional clauses precede the main clause. However, an additional ingredient in this context is the observation that brow raise also accompanies polar questions. Similarly, in Hua, a Papuan language spoken in Papua New Guinea, the same marker (-*ve*) is used in polar questions and conditionals (17a), and also accompanies topics (17b) (Haiman 1978: 570f; C.P. = connective particle).

- (17) a. E-si-**ve**                      baigu-e  
           come-3.SG.FUT-INT      will.stay-1.SG  
           ‘Will he come? I will stay.’ or ‘If he will come, I will stay.’
- b. Dgai-mo-**ve**                  baigu-e  
           I(emph.)-C.P.-TOP      will.stay-1.SG  
           ‘As for me, I will stay.’

Based on this formal overlap, Janzen (1999) actually argues that the ASL topic construction grammaticalized from a (bi-clausal) question-answer construction. That is, an ASL topic construction like ‘As for X ...’ is derived from the question ‘Do you know X?’ Obviously, the same could be argued for the Hua example in (17b), which would then receive the translation ‘Me? I will stay.’ In ASL, however, the source of the relevant marker (i.e. the raised eyebrows) is in turn a communicative questioning gesture that is also used in the hearing population.<sup>17</sup> Janzen thus assumes a grammaticalization path from gesture to question marker to topic marker. In addition, Janzen argues that in ASL, the topic marker further developed into a conditional marker. Hence, raised eyebrows are a clear example of a grammaticalized non-manual gesture used to mark syntactic subordination.

A similar line of reasoning could be applied to the ‘wh-cleft’ construction discussed in Section 5. Based on NGT corpus data, Kimmelman (forthcoming) shows that the three accounts that have been offered for constructions like those in (12) – rhetorical question, wh-cleft, and QAC – are not necessarily mutually exclusive. Rather the three construction types may co-exist within a sign language, and they may represent different stages on a grammaticalization cline which are characterized by varying degrees of syntactic integration: from a discourse-level rhetorical strategy to a syntactic construction. Among other things, prosodic breaks and intervening signs indicate a lower degree of syntactic integration.

None of **the chapters in this volume** explicitly addresses grammaticalization. The contribution by Wilbur, however, includes a brief discussion of ASL adverbial clauses that are introduced by the grammaticalized conjunction UNDERSTAND’, highlighting the fact that clauses introduced by this conjunction follow the main clause – in contrast to the other types of adverbial clauses she considers. Wilbur also discusses (and criticizes) the claim that conditionals are topics.

## 7. Conclusion

The examples we reviewed in this chapter clearly indicate that sign languages display the same kinds of subordinate structures as have been documented for typologically diverse spoken languages: complement clauses, adverbial clauses, and relative clauses. Although more typological and theoretical research on subordination in sign languages is necessary, the available evidence allows us to conclude that the strategies used across sign languages to realize subordination do not crucially differ from those found in spoken languages. In addition, the typological variation attested in this domain often mirrors the variation previously identified on the basis of spoken language data (e.g. relativization strategies). Interestingly, in our review, some modality-specific strategies also surfaced, that is, strategies that are not attested in spoken languages – most importantly weak hand holds and role shift. Hence, just like in other grammatical domains, sign languages at the same time display modality-independent patterns and make use of the specific properties made available by the visual-gestural modality when it comes to expressing subordination. Taking a broadly historical perspective on the subject matter, we were also able to demonstrate that the study of complex sentences contributed in important ways to the development of the field of sign language linguistics.

Nevertheless, it is safe to say that complex clauses in general and subordination in particular are still understudied fields in sign language linguistics. Hence, comprehensive empirical and theoretical investigations of various kinds of subordinated clauses (including complement clauses, adverbial clauses, and relative clauses as well as clefts, question-answer clauses, role shift, and parentheticals) are necessary to improve our understanding of syntactic, semantic, and discourse-functional aspects of subordination in sign languages in particular and natural languages in general. One important step in this direction is the development of comparative reference grammars documenting the grammatical properties of different types of subordination as well as their semantic and pragmatic functions. In addition, more research is necessary on the typological variation in this domain, especially – as already mentioned above – on the intra-modal typology, which documents the typological variation between sign languages. Ideally, such typological studies would not only focus on urban sign languages but also include rural sign languages as well as home sign systems and, to the extent possible, secondary sign languages such as the ones mentioned above. A particularly interesting question in this context is the emergence of complex sentences in the visual-gestural modality. Recent studies on home sign systems and

emerging sign languages suggest that the investigation of young sign languages may shed new light on this exciting question (see, for instance, Sandler et al. 2011; Kastner et al. 2014)

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## Notes

1. Hauser et al. (2002: 1569) go so far as to hypothesize that the narrow faculty of language “only includes recursion and is the only uniquely human component of the faculty of language”. Pinker & Jackendoff (2005) agree that recursion is a crucial defining characteristic of the faculty of language, but challenge the claim that recursion is the only aspect of language that is special to it.
2. CisSL is probably a rather old sign language, as it is related to European monastic sign languages that have been in use since the 11<sup>th</sup> century (Bruce 2007). It is therefore by no means unlikely that certain lexical elements have undergone grammaticalization.
3. Obviously, there are many other important names and works, but we limit ourselves to a few influential studies on morphological and syntactic aspects. For an excellent overview of the history of sign language linguistics, we refer the reader to McBurney (2012).
4. Note that several counterexamples to the CSC have been discussed in the literature. Ross (1967) already mentioned that the CSC can be violated if a constituent is moved out of all conjuncts (i.e., in across-the-board extractions).

5. While some of the tests proposed by Padden are expected to work in the same way in all sign languages (for instance, the topicalization test, as it is based on the CSC, a universal constraint), others may not be applicable to all sign languages. Van Gijn (2004), for instance, shows that the subject pronoun copy test does not work for NGT. Subject pronoun copy is attested in simple NGT sentences (Bos 1995), but in contrast to ASL, a pronoun copy referring to a matrix subject cannot follow an embedded clause.
6. Later research, however, identified additional markers that may help in disambiguating (at least some of the) different types of subordinate structures; see, for instance, Liddell (1986) on the use of head thrust in ASL conditionals.
7. The first characteristic could also explain why topics are also marked by brow raise, while the latter characteristic could account for the fact that brow raise accompanies yes/no-questions (Coulter 1979; Liddell 1980).
8. Nespor & Sandler (1999) and Brentari & Crossley (2002) argue that weak hand holds – just like non-manuals – can also take on a prosodic function by marking a prosodic domain. For further discussion of the functions of weak hand holds, also see Sáfár & Kimmelman (in press).
9. PISL probably emerged in order to facilitate communication between members of different tribes. According to Davis (2010), use of PISL was so common during the 19<sup>th</sup> and the early part of the 20<sup>th</sup> century that it can be considered a lingua franca. The origins of PISL remain uncertain but it seems likely “that signed communication was already used among indigenous peoples across the North American continent prior to European contact” (Davis 2010: 19).
10. This comparison was later shown to be misguided, not because sign language classifiers would have no equivalent in spoken languages, but because the spoken language examples were not well chosen (and sometimes wrongly cited): the Navaho examples involve classificatory verb stems rather than classificatory morphemes.
11. For studies on word order, see Fischer (1975), Friedman (1976), Ingram (1978), Coulter (1979), and Liddell (1980) – all on ASL; for a recent comparative study, see Napoli & Sutton-Spence (2014).
12. A third important type are correlatives, as attested, for instance, in Hindi. Note that Cecchetto et al. (2006) argue that LIS employs correlatives as a relativization strategy, but Branchini & Donati (2009) challenge this analysis.
13. Fontana (1990) further discusses similarities between ASL and Diegueño and adds to the picture data from Lakhota, a Siouan language spoken in South Dakota and Montana. Following a proposal put forward by Cole (1987), both Fontana and Miller (1990) investigate the possibility that internally-headed RCs actually contain a phonologically null external head. Coulter (1983) disagrees with Liddell’s analysis and suggests a conjoined analysis for ASL RCs. Fontana also argues that ASL RCs are best described as two conjoined constituents, but proposes to analyze them as left dislocation structures. Note

finally that Liddell (1980) shows that, besides internally-headed RC, ASL also has externally-headed RCs.

14. Pfau & Quer (2010) make a similar distinction. They call attitude role shift quotational role shift and action role shift non-quotational role shift. In the literature on role shift, various notions have been used: constructed dialogue/action, perspective shift, referential shift or shifted reference, role taking or role playing, and body shift, among others. Early discussions of role shift can be found in Mandel (1977), Liddell (1980), Padden (1986), Meier (1990), Engberg-Pedersen (1995), and Lillo-Martin (1995). We refer the reader to Lillo-Martin (2012) for a comprehensive overview.
15. Herrmann & Steinbach (2012) argue, for instance, that the non-manuals are the overt realization of a semantic non-manual agreement operator, which expresses agreement with the signer and addressee of the shifted context. By contrast, Davidson (to appear) argues that the non-manuals introduce a demonstration of a proposition expressed (or thought) or of an action performed by someone else.
16. We use the qualification “probably” because claims concerning diachronic change in sign languages must often remain speculative due to the lack of historical sign language data (see Pfau & Steinbach (2006) for discussion of methodological challenges).
17. See Gussenhoven (2004) for a similar argument relating to spoken language intonation. In a nutshell, Gussenhoven claims that universal grammatical intonation patterns are grammaticalized from acoustic gestures which in turn are motivated by certain biological codes.

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