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SIGNGRAM BLUEPRINT

A Guide to Sign Language Grammar Writing



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Current grammatical knowledge about particular sign languages is fragmentary and of varying reliability, and it appears scattered in scientific publications where the description is often intertwined with the analysis. In general, comprehensive grammars are a rarity. The SignGram Blueprint is an innovative tool for the grammar writer: a full-fledged guide to describing all components of the grammars of sign languages in a thorough and systematic way, and with the highest scientific standards.

The work builds on the existing knowledge in Descriptive Linguistics, but also on the insights from Theoretical Linguistics. It consists of two main parts running in parallel: the Checklist with all the grammatical features and phenomena the grammar writer can address, and the accompanying Manual with the relevant background information (definitions, methodological caveats, representative examples, tests, pointers to elicitation materials and bibliographical references). The areas covered are Phonology, Morphology, Lexicon, Syntax and Meaning. The Manual is endowed with hyperlinks that connect information across the work and with a pop-up glossary. The SignGram Blueprint will be a landmark for the description of sign language grammars in terms of quality and quantity.

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SignGram Blueprint: Manual

A Guide to Sign Language Grammar Writing – Manual

Edited by

Josep Quer, Carlo Cecchetto, Caterina Donati, Carlo Geraci, Meltem Kelepir, Roland Pfau, and Markus Steinbach (scientific directors)

With the collaboration of Brendan Costello and Rannveig Sverrisdóttir

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SignGram Blueprint

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Introduction: Letter to the grammar writer

The SignGram Blueprint is a tool designed to guide language specialists and linguists as they write a reference grammar of a sign language. This tool consists of two main components: the Checklist and the Manual.

The Checklist contains a list of linguistic constructions and phenomena that a sign language grammar should contain. Thus, it can be considered as a suggestion for the table of contents of the reference grammar to be written.

The Manual, on the other hand, guides the grammar writer in four ways, by providing:

- (i) basic, background information on the linguistic constructions and phenomena listed in the Checklist;
- (ii) guidelines on how to identify and analyze these grammar points;
- (iii) suggestions for data elicitation techniques and materials; and
- (iv) relevant bibliographic information that the grammar writer can consult during his/her research.

The Manual also contains a separate sub-component, the Glossary, which provides the definitions of certain linguistic terms used in the Manual.

In the following, we describe in more detail how the grammar writer can use the components of the Blueprint. However, before we move on to that, we would like to explain the context in which the Blueprint has been created, the reasons that lead us to think it is needed, and the choices we have made while writing it. We start by briefly discussing what grammar writing involves and then continue with describing the structure of the Blueprint in more detail.

Grammatical descriptions, why?

Sign language research has advanced rapidly over the past few decades, but it still faces an important stumbling block: the grammatical descriptions available for specific sign languages are incomplete and of varying reliability. Complete, thorough descriptions of sign languages are lacking, and this obviously has negative consequences – not only for the linguist studying a certain phenomenon (lack of knowledge about a certain undescribed aspect of the grammar might lead to a wrong characterization of a different, but related aspect), but also for a whole range of professionals who must rely on a comprehensive description of the language, such as sign language teachers of deaf children, trainers of sign language interpreters, teachers of sign language as a second language, clinicians involved in diagnosing language impairment and language pathologies, and speech therapists assessing language competence.

Writing a grammar may serve very different goals, but no matter what type of grammar is intended, the content should be as accurate and comprehensive as possible. The SignGram Blueprint is an attempt at helping the grammar writer achieve this goal. However, the form of the final grammar will, of course, depend directly on the goal that the grammar writer has set. A reference grammar of a language, which intends to be exhaustive, is a very different product, both in terms of depth and presentation, from a didactic grammar meant as a support for language learning. Therefore, the Blueprint must be considered as a tool that the grammar writer needs to adapt to his or her needs.

It should be kept in mind that the Blueprint can also be useful to describe partial aspects of grammar, for instance in graduate thesis projects, and thus does not need to be implemented in its entirety. Nevertheless, when a basic grammatical description of a language is lacking, it is sometimes hard to describe phenomena in isolation. Therefore, cooperative work should be encouraged to produce comprehensive grammatical descriptions of sign languages, which are very much needed.

How to use the Blueprint

As mentioned above, the Blueprint has two main components: the Manual and the Checklist. The Manual has seven parts. A part covering the Socio-historical background is followed by six parts corresponding to the major components of grammatical knowledge: Lexicon, Phonology, Morphology, Syntax, Semantics, and Pragmatics. Each part starts with an introductory chapter explaining the function of the linguistic component under investigation (e.g. Morphology), the organization of the part, and suggestions on how to use it.

Subsequent chapters and major sections within each part also contain introductory subsections providing background information including definitions, classifications, and suggestions on how to overcome the methodological and analytical challenges the grammar writer might face. The remaining subsections in each chapter contain guidelines for identification and analysis of the grammar points. These are often followed by a section on Elicitation Materials. This section contains methodology and material suggestions for data elicitation. Each chapter ends with a list of bibliographic references of the literature that addresses these grammar points – be it from a general perspective or for a specific sign language.

The aim of the Manual is to guide the grammar writer in providing the descriptions of the grammar points listed in the Checklist. To make this tool user-friendly, we have striven to maintain a one-to-one correspondence between (sub-)headings in the Checklist and (sub-)headings in the Manual. The grammar writer can read the Manual as if it were an independent book or she/he can click on a heading in the Checklist to access the relevant information in the Manual. To demonstrate how the Manual may provide guidelines for the identification of a specific construction or phenomenon,

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let us give an example. The Morphology Part of the Checklist contains the heading ‘2.1.2.1. Noun-verb pairs’. This corresponds to the heading ‘2.1.2.1. Noun-verb pairs’ in the Morphology Part of the Manual. In this subsection of the Manual, it is explained that a ‘noun-verb pairs’ heading in a reference grammar might be useful, since a morphological process by which action verbs can be derived from object nouns (say the verb *SIT* from the noun *CHAIR*) is attested in many sign languages. Representative examples of this morphological process from actual sign languages are given, and tests that can be used to distinguish the noun from the related verb are suggested. Finally, this subsection of the Manual contains the most relevant bibliographical references that deal with this phenomenon.

The Checklist and the Manual are offered as a suggestion and as a guide, but of course, it is up to the grammar writer to decide whether the relevant subsection makes sense in the grammar of the sign language he or she is describing. For example, if the morphological process by which verbs are derived from nouns is absent in that sign language, this section might be safely skipped. But if the grammar writer aims at putting his or her grammatical description in a typological perspective, he or she might opt to refer to the absence of such a process by contraposition to the languages that are mentioned to have it in the Manual. When developing the actual grammar for a given sign language, the grammar writer might want to depart from the structure proposed in the Checklist for a variety of reasons, both practical and conceptual. In fact, at various points of the Manual explicit suggestions are made for an alternative organization of the grammar.

In general, we expect that while the most general headings should be relevant for all sign languages (say, ‘1.2. Interrogatives’ in the Syntax Part of the Checklist and the Manual), more specific sub-headings might be relevant only for a subset of sign languages. For example, ‘1.2.3.6. Split between the *wh*-sign and its restriction’ is needed only for those sign languages in which an interrogative sign corresponding to ‘which’ can be separated from its restriction, say a noun like ‘book’.

Also, note that the different parts of the Checklist and the Manual such as Syntax and Morphology are internally structured with an independent numeration. We hope that the independence of each part will help the grammar writer who might be interested in describing just a single component, say only the morphology or the syntax of the sign language studied.

Since we hope the Blueprint will be used by a wide range of language specialists, we have made an effort to keep the language as accessible as possible, and have tried to avoid technical, linguistic jargon. We have worked under the assumption that the ‘grammar writer’, who is the main target user of the Blueprint, does not need to be a professional linguist, although we assume familiarity with basic linguistic notions and grammatical concepts specific to sign languages. We also assume that he or she is acquainted with one or more sign languages.

The Blueprint is a product of several authors. However, we made all possible efforts to harmonize the style. For example, a potential source of confusion can be

generated by the use of the term ‘word’ or ‘sign’ for the lexical unit of a sign language. As a rule of thumb, we used the term ‘sign’ except for linear order facts and some prosodic or morphological descriptions where the terms ‘prosodic word’, ‘word order’, and ‘word-internal’ will be used.

The Blueprint helps the reader with linguistic terminology in two ways: one is the Glossary. A number of linguistic terms in each section is automatically linked to the Glossary. The full list of glossary entries can also be found at the end of the Manual.

The other helpful tool is the cross-referencing between sections and parts of the Manual by means of hyperlinking. Typically, if there is a term/concept used in a section where it is mentioned but not described, a hyperlink connects it to the section where it is explained. In other cases, the section where one set of properties (for instance, syntactic properties) of a phenomenon is discussed is linked to another section where another set of properties (for instance, prosodic properties) are addressed. This will equip the grammar writer with a wider background knowledge on the topic and enable him/her to approach it from more than one angle if she/he intends to do so.

We mentioned that, in most cases, there is a one-to-one correspondence between the Checklist and the Manual. However, there are cases in which this correspondence does not hold. These cases are due to the fact that the Checklist contains only the list of linguistic features that should be described in a grammar. Therefore, the sections of the Manual that are more methodological in nature (typically, the introductory sections in chapters and major sections devoted to definitions, methodological and analytical challenges, elicitation materials, and references) do not have a correspondence in the Checklist. However, these methodological sections are numbered in a special way, so that they do not obstruct the parallel structures of the Checklist and the Manual.

The second area in which the one-to-one correspondence does not hold is due to a basic choice we made when we decided on the general design of the Blueprint. We believe that traditional grammars, even the most complete reference grammars available for better-studied spoken languages, tend to neglect the dimension of meaning. It is instructive in this regard to notice that in the average descriptive grammar, no comprehensive section is devoted to semantics and pragmatics; rather, the discussion of meaning aspects is usually distributed across sections describing formal aspects such as lexicon, morphology, or syntax.

We think that these traditional choices do not reflect recent linguistic achievements about the semantics and pragmatics of natural languages (spoken or signed). In addition, the traditional structure typically leads to a blending of formal and functional categories in the grammatical descriptions. One typical example is temporal categories. In many languages, the (formally unmarked) verbal present tense form is not only used to refer to the present but also to refer the future (and sometimes even to the past). Therefore, the grammatical category of tense must not be conflated with the semantic notion of tense. For this reason, we have devoted an entire part of the Blueprint to the elucidation of concepts related to meaning.

We present a couple of illustrative examples of why having fully developed Semantic and Pragmatics parts can be useful. The first still involves the ‘tense’ category. Some traditional grammars tend to conflate the discussion of tense and aspect, especially in languages in which the same morpheme express both a tense and an aspect specification. Unlike more traditional grammars, the Manual includes two sections in which these concepts are explained from a formal perspective and a meaning perspective. As the sections on tense and aspect are already present in the Morphology part (form) of the Checklist, in order to avoid a duplication, there is no Semantics part (meaning) in the Checklist, but the relevant semantic notions are displayed in the Semantics part of the Manual for the grammar writer as important background information for investigating their potential morphological realizations in the target language.

Similarly, a section called ‘conditional clauses’ is only present in the Syntax part of the Checklist describing possible formal aspects of such clauses. Nevertheless, the Manual contains a section in the Semantics part about the meaning of conditionals, since we think that a proper description of this construction cannot leave out the meaning dimension. However, other aspects of meaning, especially those related to pragmatic aspects of meaning such as discourse structure, figurative meaning, and communicative interaction, do have a counterpart in the Checklist, because it is justified to have them as free-standing sections in a descriptive grammar. Since all semantic concepts are also addressed from a formal perspective in the Lexicon, Morphology, and Syntax parts, the Checklist does not contain a part on Semantics. By contrast, the part on Pragmatics discusses aspects of meaning beyond the sentence level and is therefore included in the Checklist. With the general move to treat semantic and pragmatic aspects on an equal footing with other grammar components, we mean to boost description and analysis of semantic and pragmatic properties in signed languages, which have lagged behind until quite recently.

Methodological choices

We mentioned previously that we have adopted a plain, non-technical style, and that it is our hope that non-professional linguists will also be able to use the Blueprint. However, we must stress that this choice is not due to an anti-theoretical or anti-formalist attitude. On the contrary, the scientific directors of the Blueprint are all formal linguists who are convinced that no adequate empirical description is possible without the lens provided by modern linguistic theories. An a-theoretical description does not exist. What is considered a-theoretical is often a description that assumes commonsense, naïve conceptions, instead of more sophisticated notions from current linguistic theories that invariably help sharpen the empirical description. Therefore, the organization of the Checklist and the content of the Manual is *implicitly* theory-driven. Although the specific analyses that informed our choices are not at the center

of the stage, they can be retrieved by looking at the references that close each chapter of the Manual. This sometimes has a relative influence on the terminological choices made here (for instance, the term ‘agreement verb’ is used), but alternative denominations existing in the literature are also mentioned (‘directional’ or ‘indicating verbs’ for the example at hand).

A question that naturally arises when one projects a skeleton for sign language grammars is to what extent this should be similar to a grammar for spoken languages. The issue is tricky, even more so because no comprehensive reference grammar for any sign language exists yet. We have started from the assumption that sign languages are the products of the same language faculty that gave rise to spoken languages. So in principle, the main analytical categories that have been elaborated in the linguistic research on spoken language (for example, phonological features, verbal inflection, subordination, or implicature) and that have been fruitfully applied in spoken language research should be useful categories for sign languages as well. Thus, in those cases in which there is no sufficient information on how sign languages express a certain grammatical concept or construction, we referred to the findings on typologically diverse spoken languages, keeping in mind that if a certain linguistic phenomenon or construction has been observed in a group of spoken languages, it has the potential to be observed in the sign language studied.

Such transfer from the generalizations on spoken languages is undoubtedly useful; however, it is not sufficient. It is also very well known that the visuo-spatial modality does shape the way language is expressed, and new, modality-specific categories should at times be employed to describe sign language phenomena (for example, non-manual marking, classifier predicates, and role-shift). It is an open question whether these categories are really unique to the signed modality or correspond to mechanisms that are present in spoken languages, albeit in a less prominent form, thus having led to their exclusion from spoken language grammars. These types of questions are very important, but the Blueprint is not the place to find answers to them, since our goal is to offer adequate descriptive tools rather than to investigate the underlying issues. Thorough descriptive work on many more sign languages will hopefully contribute to (partially) answering those questions at some point by relying on more solid empirical ground. A separate issue concerns iconicity. The fact that some signs incorporate iconic features has consequences for the structure of the grammar at all levels. However, the effects of iconicity are not the same in the lexicon and in syntax, for instance. Thus, rather than having an independent section on iconicity, we decided to discuss its effects whenever they are immediately relevant for a specific aspect of the grammar or a grammatical phenomenon.

At first sight, the Checklist may look superficially similar to the table of contents of a reference grammar of a spoken language. However, we would like to stress that a category identified in spoken language may involve different exponents and linguistic processes in sign language. The Manual contains multiple examples of this where such differences are highlighted and explained in detail. For example, while compound is a

standard grammatical concept in morphology and is found in the Checklist, its application to sign languages raises some non-trivial questions. One is how to analyze compounds with multiple articulators that work in parallel and relatively independently from each other, for example, those in which one hand articulates (part of) one sign while the other one simultaneously articulates (part of) another sign.

As a final note on the Manual, we would like to point out that the current state of the art in sign language research has had some effect on the varying degree of detail across chapters and sections. Where necessary, we have tried to compensate for the existing gaps on the basis of the available linguistic information on spoken languages, as mentioned above. The grammar writer interested in further deepening his or her grammatical knowledge is encouraged to consult the selection of bibliographic pointers included at the ends of sections and chapters.

In some cases, original research has been conducted specifically for the preparation of the Blueprint, since the phenomenon to be described had not been explored at all for sign languages. In these cases, the original findings are the starting point for the relevant section. This is the case, for instance, in the section on imperatives in the Syntax part.

The Blueprint and the SignGram COST Action

The Blueprint is the main product of the SignGram COST Action (Action IS1006 “Unravelling the grammars of European sign languages: pathways to full citizenship of deaf signers and to the protection of their linguistic heritage”, website: <http://signgram.eu>). COST is a European network of nationally funded research activities which aims to promote and finance cooperative scientific projects with a specific goal. The SignGram COST Action started in 2011 and ended in 2015; its main goal was the creation of the Blueprint. Researchers from 13 COST countries (Austria, Denmark, France, Germany, Greece, Iceland, Italy, Netherlands, Norway, Poland, Spain, Turkey, and the United Kingdom) and two COST International Partner Countries (Argentina and Australia) took part in the Action. COST funded the following scientific activities: the meetings in which the design of the Blueprint was discussed and decided, scientific missions between the partners, and summer schools for junior researchers who want to start working in the sign language field, as well as four editions of a conference that has become a major venue for sign language researchers (FEAST, Formal and Experimental Advances in Sign Language Theory). Another activity promoted by the SignGram Action is the creation of a repository of materials that have been used for the elicitation of signs or structures by researchers in Europe and beyond. The repository can be found at the following link:

<https://corpus1.mpi.nl/ds/asv/?jsessionid=A0026AAA3C521F75EC5ADF8C93354297?0>.

Finally, COST has made it possible for the Blueprint to be freely available to everyone as an open-access publication.

It is important to highlight that the new research project SIGN-HUB (2016–2020) funded by the Horizon2020 program of the European Commission has as one of its goals to implement the Blueprint to write on-line grammars of the following sign languages: DGS, LIS, LSE, LSC, NGT, and TİD. This will make it possible to have the grammatical descriptions directly online and available to everyone once they have been validated.

The social dimension of the Blueprint

When we started the *SignGram* COST Action, we were motivated by scientific questions, since we are linguists. However, as is often the case for linguists working on neglected and ostracized languages (and sign languages still belong to this category!), we also had in mind a social dimension. This is what we wrote in the application we submitted to COST in 2010:

“Despite significant advances, linguistic knowledge of languages in the visuo-gestural modality is still sketchy and incomplete. This becomes an unsurmountable handicap when inclusive educational policies are proposed, as no reliable grammatical descriptions are available that could constitute the appropriate basis for curriculum development and teaching materials in bilingual-bicultural programmes, sign language (SL) teaching or SL interpreter training. As a result, the responsibility of describing the basic aspects of SLs for educational practices has been frequently left in the hands of teachers of the deaf, language therapists or SL teachers and interpreter trainers, who understandably often lack the required background. Only the best possible education in their SL, though, does guarantee personal development and full exercise of civil, linguistic and ultimately human rights for deaf signing individuals. This action aims to provide scientifically reliable tools in order to meet the broader societal challenge of ensuring equal rights for deaf signers across Europe, as expressed in several international legal initiatives (cf. Resolutions of the European Parliament in 1988 and 1998, Motion of the Council of Europe for the protection of sign languages 2001, UN Convention on the Rights of Persons with Disabilities 2006).”

At the end of the Action, we did create what we think is a scientifically reliable tool for writing grammars of sign languages. It is offered as a contribution to all those interested in setting out to accomplish this task. We hope that even when a grammar writer disagrees with some of our choices, this will be because the approach that we have adopted has advanced the discussion on how to study, describe, and ultimately reinforce the status of sign languages.

Notational conventions

Following common conventions, sign language examples are glossed in English SMALL CAPS. Glosses that appeared in a different language in the source reference have been translated to English. Moreover, the following notational conventions are used:

${}_1\text{SIGN}_3$	Subscript numbers indicate points in the signing space used in verbal agreement and pronominalization. We use subscript '1' for a sign directed towards the body of the signer, '2' for a sign directed towards the addressee, and '3' for all other loci (can be subdivided into '3a', '3b', etc.).
$\text{INDEX}_3 / \text{IX}_3$	A pointing sign towards a locus in space; subscripts are used as explained above.
$\text{SIGN}++$	indicates reduplication of a sign to express grammatical features such as plural or aspect.
$\text{SIGN}^\wedge\text{SIGN}$	indicates the combination of two signs, be it the combination of two independent signs by compounding or a sign plus affix combination.
SIGN-SIGN	indicates that two words are needed to gloss a single sign.
S-I-G-N	represents a fingerspelled sign.

Lines above the glosses indicate the scope (i.e. onset and offset) of a particular non-manual marker, be it a lexical, a morphological, or a syntactic marker. Some of the abbreviations refer to the form of a non-manual marker while others refer to the function:

<u> </u> /xxx/	lexical marker: a mouth gesture or mouthing (silent articulation of a spoken word) associated with a sign; whenever possible, the phonetic form is given;
<u> </u> top	syntactic topic marker: raised eyebrows, head tilted slightly back;
<u> </u> wh	syntactic wh-question marker, often lowered eyebrows;
<u> </u> y/n	syntactic yes/no-question marker: raised eyebrows, forward head tilt;
<u> </u> neg	syntactic negation marker: side-to-side headshake;
<u> </u> re	raised eyebrows (e.g. topic, yes/no-question);
<u> </u> hs	headshake;
<u> </u> cd	chin down;
<u> </u> wr	wrinkled nose;
<u> </u> r	relative clause;
<u> </u> cond	conditional;
<u> </u> bf	body lean forward.

Sign language acronyms

Throughout the Manual, the following abbreviations for sign languages are used (some of which are acronyms based on the name of the sign language used in the respective countries):

ABSL	Al Sayyid Bedouin Sign Language
AdaSL	Adamorobe Sign Language (Ghana)
ASL	American Sign Language
Auslan	Australian Sign Language
BSL	British Sign Language
CSL	Chinese Sign Language
DGS	German Sign Language (<i>Deutsche Gebärdensprache</i>)
DSGS	Swiss-German Sign Language (<i>Deutsch-Schweizerische Gebärdensprache</i>)
DTS	Danish Sign Language (<i>Dansk Tegnsprog</i>)
FinSL	Finnish Sign Language
GSL	Greek Sign Language
HKSL	Hong Kong Sign Language
HZJ	Croatian Sign Language (<i>Hrvatski Znakovni Jezik</i>)
IPSL	Indopakistani Sign Language
Inuit SL	Inuit Sign Language (Canada)
Irish SL	Irish Sign Language
Israeli SL	Israeli Sign Language
ÍTM	Icelandic Sign Language (<i>Íslenskt táknmál</i>)
KK	Sign Language of Desa Kolok, Bali (<i>Kata Kolok</i>)
KSL	Korean Sign Language
LIS	Italian Sign Language (<i>Lingua dei Segni Italiana</i>)
LIU	Jordanian Sign Language (<i>Lughat il-Ishaara il-Urdunia</i>)
LSA	Argentine Sign Language (<i>Lengua de Señas Argentina</i>)
Libras	Brazilian Sign Language (<i>Língua de Sinais Brasileira</i>)
LSC	Catalan Sign Language (<i>Llengua de Signes Catalana</i>)
LSCol	Colombian Sign Language (<i>Lengua de Señas Colombiana</i>)
LSE	Spanish Sign Language (<i>Lengua de Signos Española</i>)
LSF	French Sign Language (<i>Langue des Signes Française</i>)
LSQ	Quebec Sign Language (<i>Langue des Signes Québécoise</i>)
NGT	Sign Language of the Netherlands (<i>Nederlandse Gebarentaal</i>)
NicSL	Nicaraguan Sign Language
NS	Japanese Sign Language (<i>Nihon Syuwa</i>)
NSL	Norwegian Sign Language
NZSL	New Zealand Sign Language

ÖGS	Austrian Sign Language (<i>Österreichische Gebärdensprache</i>)
RSL	Russian Sign Language
SSL	Swedish Sign Language
TİD	Turkish Sign Language (<i>Türk İşaret Dili</i>)
TSL	Taiwan Sign Language
USL	Uganda Sign Language
VGT	Flemish Sign Language (<i>Vlaamse Gebarentaal</i>)
YSL	Yolngu Sign Language (Northern Australia)

Structure of the SignGram COST Action IS1006

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Chapter 3. Coordination and subordination

3.0. Introduction

In addition to a classification in **sentence types** [Syntax – Chapter 1] (declaratives, imperatives, interrogatives, and exclamatives), sentences can be classified according to their internal complexity. A sentence is simple when it consists of a single independent clause ('Mohammed arrived on time') while it is complex when it consists of a main and a subordinate clause or of two (or more) coordinate clauses. In principle, the level of subordination is unlimited ('John said that I think that Mohammed claimed that Kazuko is convinced that you arrived on time') although in practice there are limitations of the sentence length due to cognitive limitations (for example, working memory).

The main difference between **subordination** and **coordination** is that coordinated clauses have the same status while the main clause and the subordinated one do not. For example, the two clauses that form the coordinated sentence 'Mohammed arrived on time and Sarah arrived late' might be used as independent sentences. In contrast, subordination is a syntactic mechanism by which a clause becomes dependent on another one. Therefore, in the complex sentence 'If Mohammed arrives on time, Miriam will be surprised', the subordinate clause 'if Mohammed arrives on time' could never be used as an independent sentence while the main clause 'Miriam will be surprised' might.

3.1. Coordination of clauses

3.1.0. Definitions and challenges

3.1.0.1. What is coordination?

By coordination we mean the combination of at least two **constituents** / **constituents** [Syntax – Section 2.0.1], often belonging to the same syntactic category such as **noun phrases** [Syntax – Chapter 4], verb phrases, or clauses, either through conjunction or

juxtaposition. Conjunction refers to combining at least two constituents through the use of **conjunctions** / **conjunctions** [Lexicon – Section 3.9] such as *and*, *but*, and *or*. Juxtaposition, on the other hand, refers to the coordination of constituents without such conjunctions. This section focuses on properties of coordinated **clauses**. The reader is referred to sections on other types of phrases for a discussion of coordination of those constituents.

3.1.0.2. Methodological challenges

We expect sign languages to have developed **grammaticalized** forms to create complex coordinated structures, just like spoken languages have. Still, the means employed by sign languages to coordinate clauses may differ from the means employed by spoken languages. Given the multidimensionality of sign languages and their tendency to avoid **functional elements** like conjunctions, the grammar writer investigating clausal coordination in the target sign language should be aware of the fact that non-manual marking may play a key role in signaling coordinated clauses.

Non-manual markers observed in complex clauses with coordination may have (morpho-)syntactic as well as **prosodic** [Phonology – Chapter 2] functions. A non-manual marker identified by the grammar writer may, for example, function to mark a constituent as a conjunct (non-final or final) or a clause as a coordinated complex clause. However, it may also serve as a prosodic cue marking the clausal boundaries, similar to tone variation and pauses in spoken languages. In that sense, the non-manual marker identified may not be unique to clausal coordination. Non-manual markers such as eye-blinks, facial expressions, head and shoulder position, and eye gaze direction have been identified in a number of sign languages as markers of clausal boundaries. The grammar writer should be aware of the fact that all these prosodic means may be employed by sign languages as the only syntactic markers signaling the peripheries of coordinated clauses.

3.1.1. Types of clausal coordination

Recall that conjunction refers to combining at least two **constituents** / **constituents** [Syntax – Section 2.0.1] through the use of conjunctions such as *and*, *but*, and *or*. **Juxtaposition**, on the other hand, refers to the coordination of constituents without such conjunctions. The following English examples illustrate conjunction.

- a. My son received the letter **and** Carla ran to the train station.
- b. I accept your decision **but** you must explain me your reasons.
- c. She will watch the movie **or** go to bed.

The following provides an example of juxtaposition from Pacoh, a Mon-Khmer mountain language of Vietnam, where two verb phrases are juxtaposed without any conjunction.

Do [cho t'ôq cayâq, cho t'ôq apây]
 she return to husband return to grandmother

'She returns to (her) husband and returns to her grandmother.'

(Pacoh, Tang & Lau 2012: 342)

When employed, conjunctions may be used differently: some languages may use them to introduce only the last conjunct, as shown in English; some other languages require one conjunction for each conjunct, as in the Upper Kuskokwim Athabaskan example).

nongw dona? totis leka ?isdlal **ts'e?** ch'itsan'
 from.river upriver portage dog I.did.not.take **and** grass
 ch'itey nichoh **tse?** <.....>
 too.much tall **and** ...

'I did not take the dogs to the upriver portage because the grass was too tall, and ...'

(Upper Kuskokwim Athabaskan, Tang & Lau 2012: 342)

There are three main types of conjunction: adversative conjunction (corresponding to the use of conjunctions like *but* in English), disjunctive conjunction (corresponding to the use of conjunctions like *or* in English), and conjoined conjunction (corresponding to the use of conjunctions like *and* in English).

Juxtaposition may be the preferred option for conjunctive coordination signaling simultaneous and sequential events in a sign language. The ASL examples below illustrate the juxtaposition of clauses to represent sequential (a) and simultaneous (b) events, respectively.

a. ;GIVE₁ MONEY ;INDEX GET TICKET
 'He'll give me the money, then I'll get the tickets.'

b. HOUSE BLOW-UP, CAR ;CL:3-FLIP-OVER
 'The house blew up and the car flipped over.' (ASL, Padden 1988: 85)

Here the grammar writer may briefly mention how the target language expresses coordination, namely if constituents are simply juxtaposed without the use of conjunctions or whether conjunctions are employed, and how the different types of coordination (adversative, disjoined and conjoined) are expressed.

3.1.2. Coordination by manual markers

If the sign language under investigation makes use of manual markers to coordinate clauses, the grammar writer should investigate what manual signs of conjunction are used in conjoined conjunction, adversative conjunction, and disjunctive conjunction (see, for instance, Waters & Sutton-Spence (2005) for BSL). Their position in the sentence should also be described and their optionality or obligatoriness verified.

3.1.2.1. Manual markers of coordination

ASL makes use of overt lexical markers such as AND and BUT. In the example below, the second conjunct is marked by a headshake ('hs') as well.

_____hs

₁PERSUADE_i BUT CHANGE MIND

'I persuaded her to do it but I/she/he changed my mind.' (ASL, Padden 1988: 95)

It has been observed that some sign languages use manual conjunctions only for some of the functions of coordination. Auslan, for example, uses the conjunction BUT, not the conjunction AND.

K-I-M LIKE CAT BUT P-A-T PREFER DOG

'Kim likes cats but Pat prefers dogs.' (Auslan, Johnston & Schembri 2007: 213)

3.1.2.1.1. Manual markers in conjoined coordination

The grammar writer can list the manual markers in conjoined coordination here.

3.1.2.1.2. Manual markers in adversative coordination

The grammar writer can list the manual markers in adversative coordination here.

3.1.2.1.3. Manual markers in disjunctive coordination

The grammar writer can list the manual markers in disjunctive coordination here.

3.1.2.2. Position of manual markers of coordination

In this section, the grammar writer should address the following questions: do conjunctions occur in every conjunct or in only one of the conjuncts? What is the position of the conjunction: conjunct-initial or conjunct-final?

3.1.2.2.1. Position of manual markers in conjoined coordination

The grammar writer can describe the positions of the manual markers in conjoined coordination here.

3.1.2.2.2. Position of manual markers in adversative coordination

The grammar writer can describe the positions of the manual markers in adversative coordination here.

3.1.2.2.3. Position of manual markers in disjunctive coordination

The grammar writer can describe the positions of the manual markers in disjunctive coordination here.

3.1.2.3. Optionality or obligatoriness of manual markers of coordination

In this section, the grammar writer should include information related to whether the manual markers of coordination are obligatory or optional.

3.1.2.3.1. Optionality/obligatoriness of manual markers in conjoined conjunctions

The grammar writer is advised to mention the optionality/obligatoriness of the manual markers in conjoined conjunctions here.

3.1.2.3.2. Optionality/obligatoriness of manual markers in adversative conjunctions

The grammar writer is advised to mention the optionality/obligatoriness of the manual markers in adversative conjunctions here.

3.1.2.3.3. Optionality/obligatoriness of manual markers in disjunctive conjunctions

The grammar writer is advised to mention the optionality/obligatoriness of the manual markers in disjunctive conjunctions here.

3.1.3. Coordination by non-manual markers

Non-manuals marking coordinate constituents seem to be largely employed by many sign languages for which a description of the syntactic phenomenon is available. Some sign languages, like ASL, employ non-manual markers even in the presence of manual conjunctions, other sign languages, like HKSL, adopt non-manuals when lexical conjunctions are absent, namely in juxtaposition. A different set of non-manuals may be employed to mark the different types of coordination (conjoined, adversative, disjunctive coordination) and their **spreading domain** may vary accordingly.

To exemplify, HKSL employs distinct non-manuals to mark the different types of coordination: head nods mark conjunctive coordination, head nods together with body turns to the left and to the right are present in disjunction, while adversative conjunction may either require head turn or forward and backward body leans in addition to head nods (Tang & Lau 2012: 344). Note also that final and non-final conjuncts may be marked differently. It has been reported that in TID, while the non-final conjunct may be marked by a head nod, the final conjunct is marked by a backward body lean. Non-manual markers marking non-final conjuncts may be marking continuation while those marking the final conjunct may mark completion (Göksel & Kelepir 2016).

Among the different non-manual markers attested, head nods and body turn seem to be cross-linguistic cues playing a crucial role in marking coordination in sign languages.

3.1.3.1. List of non-manual markers of coordination

In these subsections the grammar writer is advised to describe the non-manual markers found in different types of coordination in the sign language investigated.

3.1.3.1.1. Non-manual markers in conjunctive coordination

The grammar writer can describe the non-manual markers in conjunctive coordination here.

3.1.3.1. 2. Non-manual markers in disjunctive coordination

The grammar writer can describe the non-manual markers in disjunctive coordination here.

3.1.3.1.3. Non-manual markers in adversative coordination

The grammar writer can describe the non-manual markers in adversative coordination here.

3.1.3.2. The spreading domain of non-manual markers of coordination

In these subsections, the grammar writer is advised to describe the spreading domains of the non-manual markers found in different types of coordination in the sign language investigated.

3.1.3.2.1. Spreading domain of non-manual markers in conjunctive coordination

The grammar writer can describe the spreading domains of the non-manual markers in conjunctive coordination here.

3.1.3.2.2. Spreading domain of non-manual markers in disjunctive coordination

The grammar writer can describe the spreading domains of the non-manual markers in disjunctive coordination here.

3.1.3.2.3. Spreading domain of non-manual markers in adversative coordination

The grammar writer can describe the spreading domains of the non-manual markers in adversative coordination here.

3.1.4. Properties of coordination

This section describes the properties of **coordination** that have been identified in the literature on spoken and sign languages. Describing these properties may help the grammar writer to tease apart complex constructions involving embedding from constructions made up of coordinated clauses, especially if the target sign language does not mark coordination with conjunctions obligatorily.

The grammar writer should be aware that not all sign languages will display these properties, but if they do, then these properties can be very useful to identify and describe coordination.

3.1.4.1. Extraction

A major property of coordinated clauses is related to **extraction**, i.e. movement of a constituent to the left edge or to the right edge of the sentence. Typical cases of extraction are movement of **wh-phrases** and **topics**. It has been observed for some languages that extraction of a conjunct out of coordination is not possible. Nor is it possible to extract a constituent from within a conjunct.

In the English example in (a) below, we see that a conjunct, here *what*, cannot be moved to a different position in the sentence, i.e. it cannot be extracted. Example (b) shows that a constituent contained in a conjunct, i.e. *what* contained in the verb phrase *drinking what*, cannot be moved to a different position, either (*t* stands for ‘trace’ and marks the original position of the extracted constituent).

- a. * What_i did Michael eat and *t*_i?
b. * What_i did Michael play golf and read *t*_i? (Tang & Lau 2012: 345)

The same violation can be observed in HKSL if an object is extracted from either the first or the second verb phrase conjunct during **topicalization** / **topicalization** [Syntax–Section 2.3.3.3] [Pragmatics – Section 4.2] [Pragmatics – Section 4.3.2]. (a) provides an example of coordination without extraction. (b) and (c) are derived from (a) and involve movement of a constituent through topicalization. In (b) COOKING has been moved from the first conjunct to the sentence-initial position, and in (c) DESIGN GAME has been moved from the second conjunct to the sentence-initial position. (d) provides another example of coordination without extraction. (e) and (f) are derived from (d) and involve movement of a wh-phrase replacing a constituent in either the first or the second conjunct to the right edge of the sentence. In (e) WHAT, replacing the constituent SPEEDBOAT, is moved from the first conjunct. In (f) WHAT, replacing the constituent COW^CL:CUT-WITH-FORK-AND-KNIFE, is moved from the second conjunct.

- a. FIRST GROUP RESPONSIBLE COOKING, SECOND GROUP RESPONSIBLE DESIGN GAME
 ‘The first group is responsible for cooking and the second group is responsible for designing games.’
 _____ top
- b. *COOKING_i, FIRST GROUP RESPONSIBLE t_i, SECOND GROUP RESPONSIBLE DESIGN GAME
 _____ top
- c. * DESIGN GAME_i, FIRST GROUP RESPONSIBLE COOKING, SECOND GROUP RESPONSIBLE t_i
- d. YESTERDAY DAD PLAY SPEEDBOAT EAT COW^{CL}:CUT-WITH-FORK-AND-KNIFE
 ‘Daddy played speedboat and ate steak yesterday.’
- e. *YESTERDAY DAD PLAY t_i, EAT COW^{CL}:CUT-WITH-FORK-AND-KNIFE WHAT_i
 Lit. ‘*What did daddy play and eat steak?’
- f. *YESTERDAY DAD PLAY SPEEDBOAT EAT WHAT_i
 Lit. ‘*What did daddy play speedboat and eat?’
 (HKSL, Tang & Lau 2012: 345)

However, no violation occurs if the structure is such that one constituent seems to be extracted from both conjuncts (Ross 1967; Williams 1978). In the example below, *who* is interpreted to be the object of the verbs in both conjuncts.

Laura wondered *who*_i [Tom hated t_i] and [Sarah loved t_i]

Extraction is, however, impossible if the constituent extracted out of both conjuncts carries out a different syntactic role in each conjunct. The ungrammaticality of the following example is due to the fact that *a woman* is the subject in the first conjunct but the object in the second one.

*John has hired a woman *who* t_i likes mountain climbing and people admire t_i

The following examples are from HKSL. In (a), the topicalized object carries out the same grammatical role in each conjunct and can therefore be extracted from both. However, (b) is ungrammatical because the extracted argument [IX BOY] is the subject in the first conjunct and the object in the second conjunct.

- _____ top
- a. ORANGE_i, MOTHER LIKE t_i, FATHER DISLIKE t_i
 ‘Orange, mother likes (and) father dislikes.’
 _____ top

- b. *IX BOY_i, t_i EAT CHIPS, GIRL LIKE t_i
 Lit. ‘As for the boy, (he) eats chips (and) the girl likes (him).’
 (HKSL, adapted from Tang & Lau 2012: 346)

The grammar writer should be aware of the fact that extraction of wh-items in sign languages may not always be possible even if the extracted wh-item bears the same grammatical role in each conjunct. The following HKSL example shows that, although the wh-item WHAT is the object of the verb in both conjuncts, it cannot be extracted from both of them.

- c. *MOTHER LIKE t_i FATHER DISLIKE t_i WHAT_i
 Lit. ‘What does mother like and father dislike?’
 (HKSL, adapted from Tang & Lau 2012: 346)

The discussion above has shown that if extraction of a conjunct or of a constituent out of a conjunct is possible, then the construction is likely not to be a coordinate structure. If, on the other hand, extraction is not possible, then the construction is likely to be a coordinate structure.

3.1.4.2. Gapping

In some spoken languages, the verb of a conjunct can be **elided** or “**gapped**” under conditions of identity with the verb in the other conjunct. The following is an example from English. The verb *eats* in the second conjunct is elided or gapped since it is identical to the verb in the first conjunct. The gapped constituent is marked with Ø.

- [Sally eats an apple] and [Paul Ø a candy] (Tang & Lau 2012: 347)

It has been observed that word order may determine whether the gapped verb can be in the first or in the second conjunct (Ross 1970: 251). More specifically, in languages with SVO order, the elided verb is obligatory in the second conjunct (a), while in languages with SOV order gapping occurs strictly in the first conjunct (b).

- a. [Sally eats an apple] and [Paul Ø a candy] (Tang & Lau 2012: 347)
 b. [Sally-wa lingo-o Ø], [Paul-wa ame-o tabeda]
 Sally-TOP apple-ACC Paul-TOP candy-ACC eat-PAST
 Lit. ‘Sally an apple and Paul ate a candy.’ (Japanese, Tang & Lau 2012: 347)

Gapping within coordinate structures has been observed in ASL (Liddell 1980). In ASL, the non-manual marker ‘head nod’ obligatorily accompanies the object of the conjunct

where the verb has been elided. ASL therefore marks gapping by means of a non-manual marker.

In HKSL, different verb types behave differently in allowing gapping of the verb in one conjunct of coordinated structures: plain verbs (a) allow gapping but agreeing (b) and classifier verbs / classifier verbs [Morphology – Section 5.1] [Semantics – Section 7.1] (c) do not (in (a), ‘bl’ stands for ‘body lean’).

- a. TOMORROW PICNIC, IX₁ BRING bl forward + hn CHICKEN WING, PIPPEN SANDWICHES,
bl forward+hn KENNY COLA, bl forward+hn CONNIE CHOCOLATE
 ‘(We) will have a picnic tomorrow. I will bring chicken wings, Pippen (brings) sandwiches, Kenny (brings) cola, (and) Connie (brings) chocolate.’
- b. *KENNY ₀SCOLD₃ BRENDA, PIPPEN Ø CONNIE
 ‘Kenny scolds Brenda (and) Pippen Ø Connie.’
- c. *IX₁ HEAD WALL Ø, BRENDA HEAD WINDOW
 CL:HEAD-BANG-AGAINST-FLAT-SURFACE
 ‘I banged my head against the wall and Brenda against the window.’
 (HKSL, Tang & Lau 2012: 347-348)

The discussion above has shown that, in a complex sentence, gapping of the verb in one clause under conditions of identity with the verb of the other clause is possible only if the structure is a coordination of two clauses.

3.1.4.3. Scope

Another property associated with coordination is the scope of certain morphemes such as question morphemes [Syntax – Section 1.2.1.3] and negation [Syntax – Section 1.5]. If a single lexical sign is interpreted to affect the meaning of two constituents, then these constituents can be analyzed as conjuncts of a coordinate structure.

3.1.4.3.1. Scope of negation [Syntax – Section 1.5] [Semantics – Section 12.2]

If a single negative marker is interpreted as negating two constituents, these constituents can be considered to be coordinated. The sign NOT-HAVE below negates both clauses (in square brackets) thus proving them to be conjuncts of a coordinated structure.

[TEACHER PLAY SPEEDBOAT] [EAT COW[^]CL:CUT-WITH-FORK-AND-KNIFE]
 NOT-HAVE
 ‘The teacher did not ride the speedboat and did not eat beef steak.’

For these reasons, it may also be useful to use elicitation techniques leading to the production of coordinated clauses in semi-naturalistic settings. As is often the case with linguistic research on sign languages, a good way to elicit coordination is through the employment of visual material depicting a situation the signer is asked to describe. Another semi-naturalistic task the grammar writer may use is the presentation of a signed story. The signer may be asked to continue the story by imagining what could happen to the characters.

Adversative coordination may be elicited through a game presenting an unlucky character who tries to do things but never succeeds in doing them. After showing some of the character's unfortunate attempts to reach a positive result, the signer may be asked to imagine some other unsuccessful adventures the character may be involved in.

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3.2. Subordination: distinctive properties

3.2.0. Definitions and challenges

3.2.0.1. A definition of subordination

By subordination, we mean a syntactic mechanism by which clauses are combined. As opposed to **coordination** / **coordination** [Syntax – Section 3.1], where clauses share an equal status in the sentence, a core property of subordination is the asymmetric status of the two (or more) clauses being in a hierarchical relation.

The main clause, also called the **independent clause**, is syntactically and semantically autonomous, while the subordinate clause, also called **dependent**, is syntactically and semantically dependent on the main clause. In this section, we will use the term “**main clause**” to refer to the independent clause and the term “**subordinate clause**” to refer to the dependent clause.

In this section, the grammar writer will be guided into the observation of a number of properties that can be associated with subordination, and is advised to use them to introduce subordinate clauses and distinguish them from coordinate clauses. Languages however vary a lot with respect to the properties that can define subordinate clauses. The grammar writer is, therefore, advised to verify their validity in the target sign language. The grammar writer is then referred to various sections in the Syntax part, namely the sections on **argument clauses** [Syntax – Section 3.3], **relative clauses** [Syntax – Section 3.4], **adverbial clauses** [Syntax – Section 3.5], **comparative clauses** [Syntax – Section 3.6], and **comparative correlatives** [Syntax – Section 3.7], where specific subordinate constructions are discussed, and for a detailed and specific description of the manual and non-manual markers of subordination that may be employed in each construction.

3.2.0.2. Different types of subordination

Subordinate clauses can be classified roughly as follows: **argument clauses** [Syntax – Section 3.3] / **argument clauses** (i.e. clauses functioning as subject or object), **relative clause** [Syntax – Section 3.4] / **relative clauses**, and **adverbial clauses** [Syntax – Section 3.5] / **adverbial clauses**. The example in (a) below illustrates an argument clause, (b) a relative clause, and (c) an adverbial clause.