Modal and Focus Particles in Sign Languages
Modal and Focus Particles in Sign Languages

A Cross-Linguistic Study

By
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Notational conventions

These initial comments on notational conventions exemplify the transcription that is used throughout this book. As is common in sign language linguistics, small capitals represent signs (SIGN). Small letters on lines above the manual glosses indicate the nonmanual features that are used simultaneously. The extension of the lines above the words indicate the scope and distribution of the respective nonmanual markers. For the purpose of discussing the examples with deaf informants and other native signers, the glosses are in German, Dutch and English for German Sign Language (DGS), Sign Language of the Netherlands (NGT) and Irish Sign Language (ISL), even though the sign languages investigated have no direct relation to the surrounding spoken language. Of course all foreign glosses are accompanied by English translations. For illustration, see the following example in (1) from DGS.

(1) a.   
\[
\begin{array}{cccccc}
\text{f} & \text{GLAUB} & \text{WAS} & : & \text{TIM} & \text{SCHON} & \text{ZU-HAUSE} \\
\text{ix} & \text{think} & \text{what} & \text{:} & \text{tim} & \text{already} & \text{at-home} \\
\end{array}
\]

‘What do you think? Is Tim at home already?’

A colon ‘:’ between the glosses stands for a pause or prosodic break. A prosodic break may be marked by different manual and nonmanual means. Thus, I do not explicitly transcribe prosodic cues such as prosodic head nods or eye blinks in the examples. I usually display the nonmanual features that are relevant for my studies, the later analysis, and the correct interpretation. This also means that regular subject marking, some confirmative nodding, and emotional facial expressions or nonmanual gestures are neglected in the transcriptions. Of course, topics, interrogatives, conditionals, role shifts, etc. are indicated by their representative nonmanuals. Compared to the fine-grained annotations, however, the examples show only a minimal transcription selected for the purpose of illustration.
Manual signs

SIGN regular signs
SIGN-SIGN one single sign that is described by more than one word in the glosses
S.I.G.N. fingerspelled sign
g-word gestures are written in small letters and are initialized by a ‘g-’
SIGN (rep) reduplication of a sign (e.g. for pluralization or aspect marking)
IX$_{1,2,3}$ IX stands for index and represents the reference to a location in the sign space indicated by indices (e.g. used for pronominalization or localization of referents in the sign space)
POSS$_{1,2,3}$ possessive pronoun

Nonmanual markers

r raised eyebrows
f furrowed eyebrows
w wide eyes
sq squint
hn head nod
hs head shake
ht head tilt
bl body lean
b blink

It is important to bear in mind that most abbreviations refer to the form of a specific nonmanual marker. However, it may also be the case that they refer to the function of a nonmanual marker or a set of nonmanual markers (e.g. in the case of nonmanuals for even). Specific nonmanuals are always introduced in the respective sections. For a full list of all the abbreviations see the transcription conventions in the appendix 9.4.
Sign language acronyms

This list provides an overview of all sign language acronyms that are used throughout the book. Note that ISL is commonly used for Irish Sign Language as well as Israeli Sign Language. Thus, I indicate Israeli Sign Language by an extra superscript. To clarify the acronyms, I also indicate the name of the sign language in the language of the respective country.

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<td>AdaSL</td>
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<td>BSL</td>
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<td>DGS</td>
<td>German Sign Language (Deutsche Gebärdensprache)</td>
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Chapter 1
Introduction

Since Stokoe’s groundbreaking work “Sign Language Structure” in 1960, modern linguistics has shown that sign languages are complex natural languages on a par with spoken languages in all respects. Sign languages exhibit the same structural and neurological foundations as any other human language and their syntax is discrete, algorithmic, recursive, and formal (cf. Roberts 2007: 428). Theories on all levels of grammar can be equally applied to sign languages and we find equivalent features to phonological elements, morpho-syntactic processes, as well as semantic and pragmatic aspects in their manifold variety. The linguistic and cognitive properties of language have been shown to be modality-independent. Modality specific aspects of sign languages are merely surface phenomena due to the articulatory system of signed languages. The findings from sign language research have now been widely acknowledged by linguists around the world. The field of linguistics benefits from sign language research in various ways and the results promote, test, and challenge linguistic theories of any kind.

1.1. SIGN LANGUAGE STUDY TOPIC WHAT?

The most important recent desiderata within sign language research today are typological studies and the implementation of the results into linguistic theory. As the title of this book points out, I provide a cross-linguistic study of three sign languages, namely German Sign Language (DGS), Sign Language of the Netherlands (NGT), and Irish Sign Language (ISL). Taking into account the three spoken languages German, Dutch, and English for comparative reasons, the study thus investigates a sample of six languages, but focuses on the triple set of sign languages: DGS, NGT, and ISL. Therefore, this work clearly addresses the need for a more detailed comparison of different sign languages across the world and contributes to answering the general question whether sign languages are more similar to each other than spoken languages.

The topics of this book are modal particles and focus particles and how they are realized in signed languages. Particles are non-inflecting words that
do not belong to any other word category such as conjunctions or prepositions. The two subgroups of the particle class that are the main subject of this study have different properties and language-specific equivalents that make them a very interesting starting point for research on sign language syntax, semantics, and pragmatics. The primary question of how sign languages realize modal particles and focus particles sheds light on the strategies that DGS, NGT, and ISL have available and employ to express these particular items or meaning nuances that the respective particles trigger. Importantly, the results are implemented into linguistic theories of spoken and signed languages. This book tests existing syntactic, semantic, and pragmatic approaches and argues for particular frameworks and assumptions, thus pushing the debates in linguistic sign language research one step further.

Being visual and highly simultaneous languages, the various sign languages have articulators such as hands and arms (manual), and body, head, and face (nonmanual) that may layer and combine in manifold ways to express words, phrases, sentences, and utterances in discourse. Sign language linguistics has revealed that the so-called nonmanual markers play an important role on all levels of sign language grammar. Apart from general affective and emotional, and therefore nonlinguistic functions, they have systematic and clear lexical, morphological, information structural, and syntactic functions. Their functions on other levels of grammar, however, have not yet been thoroughly investigated. Nonmanuals strongly influence sign language prosody and may have semantic-pragmatic and intonational functions. Thus, nonmanual markers have been highly interesting for recent linguistic debates and sowed the seeds for theoretical and methodological discussions. Nonmanual features turned out to be most relevant for the realization of particles in sign languages. This book therefore explores how nonmanuals behave with respect to the investigated phenomena of modal particles and focus particles.

1.2. Methodology and data

The experimental elicitation of video data and the development of an annotated small scale corpus resulted in a data set that built the basis for a thorough analysis of the three sign languages under investigation. Four basic tasks were developed as an elicitation battery. A picture task, a context adjustment and modulation task, a translation task, and a picture story task were created in order to elicit the specific target sentences of interest, particularly taking into account contextual information.
Using the same technical equipment and keeping the setting as constant and comparable as possible, I recorded native and near native signers in the three different countries. Native status was defined as sign language acquisition with deaf parents and the near native status as early sign language acquisition before the age of five. Two camcorders captured the torso and the face of the signers in a two hour session for each signer. The data set comprises 770 video files for the modal meaning tasks and 405 files for the focus particle tasks. As each file contains a target sentence or contexts and stories including a target sentence, the results equal the sentences investigated for this study. The videos were synchronized and annotated using the specific annotation software ELAN that allowed me to create individual tiers and annotation dictionaries. A thorough annotation guarantees a systematic transcription and is a basic prerequisite for a valuable analysis of sign language data. For the notational conventions used throughout the book, see Notational Conventions in the front matter. For a full list of all abbreviations see the transcription conventions in the appendix 9.4.

1.3. Theoretical framework

This book is both a typological and a theoretical study. I compare typologically very different languages and analyze them within the linguistic framework of generative grammar. Even though I am not strictly following the most recent approaches within the theory of minimalism, the minimalist program discussed in Chomsky (1995) is taken to be the underlying linguistic framework guiding the analysis.

Based on the results of the process described above, I provide syntactic, semantic-pragmatic, and prosodic analyses to explain the findings of the presented studies and implement them in general linguistic theory. The concept of modality as well as the basic restrictive and additive items of focus particles are thought to be universal across human languages. Thus, this book is a descriptive work showing how focus particles and modal particles are expressed in sign languages, and a theoretical work testing the existing linguistic theories whether they are adequate for the results from sign languages found in my data.

Semantically, I decompose the target sentences according to the analyses proposed for spoken languages. Assuming that meaning is conveyed on different levels, I investigate how sign languages express the different

Taking into account traditional approaches and recently debated aspects of focus particles and modal particles in spoken languages, I discuss how sign languages realize the issues investigated and whether the results confirm or disconfirm certain hypotheses about the levels of meaning that generate terminological and conceptual debates.

Syntactically, the structure of the three sign languages under investigation should be explicable within the assumptions of generative grammar. I basically follow the structural analyses within government and binding theory (Chomsky 1981, 1995, and Haegeman 1996 among others) and further apply approaches as discussed in Rizzi (1997), Cinque (1999), and Büring (2005). I take into consideration different approaches and use the linguistic tools and mechanisms provided by syntacticians working on spoken and signed languages to account for the distributional and structural properties of focus particles and modal particles and their signed or otherwise expressed equivalents, as found in this study.

As research on sign languages is still in its early stages and the target sentences did not aim at eliciting the most complex structures possible, I adopt the above mentioned linguistic tools and apply them to the results in order to find a consistent analysis of the investigated phenomena. Specific terminology and individual theoretical approaches will be discussed in the respective chapters.

In sum, taking a typological perspective based on empirical research of different languages combined with a theoretic implementation of the data into generative theories of grammar, this book aims at providing a comprehensive overview of how the sign languages under investigation express linguistic phenomena such as focus particles and modal particles. Many researchers have taken the linguistic analyses of sign languages to test and challenge the universal properties of human languages that were stated so far. As mentioned above, detailed analyses of signed and spoken languages have shown that the underlying properties of language are modality-independent. The means to express and realize the modality-independent aspects of the language system,
however, are very language-specific and might be influenced by modality-specific properties of sign language production and perception (cf. Meier 2002, 2012). The research questions guiding this work are thus:

1. Do the sign languages under investigation show universal concepts such as modal meaning and focus particles?
2. How are these phenomena expressed in sign languages?
3. How do the spoken and signed languages that build the basis for this study interrelate and behave among one another?
4. How can the findings be implemented into a generative framework of linguistic theory?
5. How can the data be analyzed syntactically and semantically-pragmatically?

The respective hypothesis and the results with regard to the above posed questions are summarized below.

1.4. **Hypothesis and results**

1.4.1. **Modal particles in sign languages**


Previously, research was done in the form of descriptive work, but since then many authors have investigated the syntax and semantics of modal particles in various languages. Modal particles have inherent properties that lead researchers to assign them a separate particle class. The interaction of semantic, syntactic, and pragmatic properties of modal particles have always made it a difficult task to define their contribution to the meaning of a sentence.
Various syntactic, semantic-pragmatic and also prosodic accounts have been proposed and each explains certain characteristics of these language items.

First of all, this book investigates whether modal particles have manual equivalents in sign languages. Previous studies of DGS and ISL have shown that modal particles have no signed equivalents (cf. Herrmann 2007). This is confirmed by the results in the present study and can also be applied to NGT and probably all other sign languages of the world. Hypothesizing that the meaning triggered by a modal particle or equivalent expressions in spoken languages is communicated mainly by nonmanual means in sign languages, I studied the nonmanuals that were used for modally modified sentences in DGS, NGT, and ISL.

Interestingly, the nonmanual expressions for specific categories of modal meaning were quite similar in the three sign languages. Minimal pairs of regular sentences and the modified target sentences clearly displayed differences in facial expressions and articulation patterns. The results showed that the elicited nonmanuals convey the modal meaning evoked by modal particles and operate on the sentence level in the same way as modal particles in spoken languages. By testing the context elicitation tasks with native speakers of German, for instance, it was possible to compare the target sentences in both modalities.

The nonmanual features used to modify an utterance spread across the entire sentence in most cases. All signers systematically and intuitively used the same nonmanuals in the elicited contexts. Furthermore, the clear alignment patterns of nonmanuals and manual signs suggest a grammatical analysis. Analyzing nonmanuals with sentential scope leaves different options for analysis. Discussing syntactic and prosodic analyses of certain nonmanuals, the data seem to support a prosodic account assuming an intonational patterning and interpretation of nonmanuals (cf. Sandler & Lillo-Martin 2006; Dachkovsky & Sandler 2009; Sandler 2010). The data reveal interesting aspects pointing towards a compositional account of various nonmanuals that can be combined to derive complex meanings. Syntactically, modal particles and modal meaning in spoken languages are assumed to be represented in a relatively high projection in the left periphery that would account for the spreading of the nonmanual features across the clause in sign languages. Contributing to the discussion about the syntax-semantics-phonology interface, this book directly hits the mark of recent debates and challenges current findings from other sign languages.
1.4.2. Focus particles in sign languages

Focus particles are another subset of the particle class with particularly interesting properties. They associate with the highlighted part of a sentence and directly relate to this focus constituent, contributing to the meaning of the sentence in a specific way. The classical representatives of the focus particle class are only, also, and even. Also is an additive particle opening up alternatives to the focused constituent, whereas only is a restrictive quantitative particle that excludes all other alternatives to the associated part of the sentence. Even is an inherently scalar additive focus particle that presupposes the existence of other alternatives and furthermore posits the focused constituent on a specific scale in relation to the alternatives. Some focus particles such as only have quantitative variants and evaluating, and therefore scalar variants.

In this study, I investigated the three above mentioned particles in sign languages and expected all of them to have manual equivalents because of their semantic content and already known lexical items from dictionaries and language experience. Nonmanuals were hypothesized to play only a minor role and rather mark focus and information structure.

As opposed to modal particles, signed variants of additive and restrictive focus particles were observed in all of the sign languages investigated. I analyzed the syntactic and semantic-pragmatic properties of the equivalents that were found. They relate to focus constituents in a similar way to spoken languages. Different variants, however, show various distributional patterns and require different analytic tools. A syntactic analysis on the basis of spoken language theories accounts for the different variants of focus particles and interesting combinatory behavior. In general, I follow an adverbial account for most of the focus particles in the data.

Surprisingly, there has not been a single sign for the scalar focus particle even in any of the scrutinized sign languages. The target sentences were mainly translated and performed using an additive manual sign such as ALSO, combined with specific facial expressions such as raised eyebrows, wide eyes, and head tilts to convey the meaning of even in the elicited contexts. The nonmanuals spread across the focus particle and the focused constituents indicating that the facial features are not merely lexical in nature. In certain cases, the manual features were even used without a manual base. Looking at scalar variants of ONLY, the same combination of manual signs plus facial expression that spread along the associates could be found. Sign languages thus explicitly realize the two semantic features [+additive] and [+scalar] in case
of even, [+restrictive] and [+scalar] in case of only) by two different articulatory channels and represent the two aspects of meaning as two syntactically different features. In spoken languages, on the other hand, these features are syntactically combined in one single word such as English even or German sogar (even), for instance.

First, the manual realization of the basic focus particles that were found in DGS, NGT, and ISL shows that sign languages universally behave as any other natural language. The concepts of additive and restrictive focus particles find their equivalents in many signs such as NUR$_1$ and NUR$_2$ for only in DGS and AUCH and DAZU for also. NGT exhibits two additive variants glossed as OOK$_1$ and OOK$_2$, and ALLEEN and EEN for only. In ISL, the signs ALSO, SAME, SAME-TIME, and AS-WELL were used in different additive contexts, whereas restrictive target sentences contained signs such as ONLY, JUST, ONE, and COMPLETION.

Second, however, nonmanuals were found to play an important role on the level of scalarity and the picture would not be complete without the analysis of these scalar aspects of focus particles. In this book, the specific scalar nonmanuals are analyzed as representations of syntactic features that c-command the focus constituents and spread along predefined domains. In sum, the hypothesis that focus particles only have manual equivalents has to be refined. The simultaneous patterns of the visual modality allow sign languages to express different features on distinct articulatory levels and use the nonmanual articulators such as body, head, and most importantly the face to express the scalar meaning nuances as an extra level of meaning triggered by certain focus particles. Sign languages thus have modality-specific means to express universal concepts of language.

1.5. Outline of the book

This book is divided into three parts. Part I provides introductory information about the investigated sign languages (Chapter 2), the functions of nonmanual features in general (Chapter 3), and a chapter on methodology (Chapter 4). Part II and Part III are dealing with the two basic research topics modal particles (Chapters 5 and 6) and focus particles (Chapters 7 and 8) and how they are represented in sign languages. A last chapter summarizes the findings in a conclusion (Chapter 9).

As a typological cross-linguistic study, this book basically investigates the three sign languages DGS, NGT, and ISL. Thus, chapter 2 provides histori-
cal and socio-linguistic information about each language and its signers and briefly sketches the structure of the three different sign languages. The historical background and the metadata about the informants are of great importance to sign language research in general as they provide information about language change and the language acquisition status of the signers.

A separate introductory chapter is dedicated to the nonmanual articulators of sign languages as they are an essential part of sign language grammar. Thus, chapter 3 discusses the various functions that nonmanuals may have and provides examples from the three sign languages for illustration. As nonmanuals play an important role with respect to modal particles and focus particles, this overview sets the foundations for a better understanding of the simultaneous and three-dimensional use of different articulators in signed languages. Chapter 4 provides an overview of the methodology used in this study and introduces the combined comparative and experimental approach taken in this study. General issues about data elicitation and settings, informants, data processing, and data annotation are explained. The elicitation battery and the individual tasks are described in the respective chapters on modal particles and focus particles. Starting with the concept of modality and modal particles in spoken languages in chapter 5, I define the relevant notions and terms and analyze particles on the basis of a moderate minimalistic account. A description of the respective particle subclasses and their characteristics classifies modal particles as a research field. I present modal particles in German and Dutch and show the equivalent expressions for modal particles in English. Chapter 6 presents the actual task and the findings of the investigation into modal particles and modal meaning in sign languages. Some basic aspects of modality such as modal verbs have already been studied for a few sign languages and a brief state of the art summarizes these findings. Nevertheless, modal meaning triggered by modal particles has not been the topic of sign language studies so far. I present the experimental setting and the procedure of the task and list a broad selection of examples from the data set. The results are tested against syntactic and prosodic approaches and are analyzed systematically with respect to spreading behavior and compositional meanings. Focus particles received much attention in spoken language research and chapter 7 provides a systematic overview of the relevant aspects for an analysis of signed focus particles. I present the characteristic properties of focus particles that assign them a separate particle class. Based on information structural assumptions following Krifka (2006) and others, I furthermore define the related notion of ‘focus’ as a discourse relevant issue.
From a semantic point of view, I describe the different variants such as restrictive, additive, and scalar, and explain their contribution to the meaning of a sentence. The syntactic behavior of focus particles has led researchers to analyze them either as adverbia-like elements or as adnominal elements forming a constituent with their associates. The advantages and drawbacks of both approaches are discussed in order to provide a theoretical basis for the analysis of sign languages in the following chapter. The data elicitation tasks, the results, and the analysis concerning focus particles in sign languages are displayed in chapter 8. After summarizing some work on focus and focus particles in sign languages, initial results of a corpus search show that experimental data are necessary to guarantee a systematic investigation. The results for each sign language are presented in detail and the transcriptions in the examples illustrate the various target sentences of the three different tasks. Completed by the results of the control group and initial findings from other sign languages, the data build the basis for a thorough syntactic analysis of only, also, and even in sign languages. Proposing a combination of an adverbia account for adjacent focus particles and a right $C^o$ position for sentence-final focus particles, my analysis accounts for the different distributional behavior and the different status of certain signs analyzed as focus particles. The spreading of the nonmanuals with respect to even provides evidence for a syntactic approach and a division of additive and scalar features in sign languages. Chapter 9 summarizes this book and provides a systematic outline of the findings with regard to modal particles and focus particles in sign languages. The results reveal new and interesting facts about further grammatical functions of nonmanual features, aspects of modal meaning, and the use of focus particles in DGS, NGT, and ISL. The findings have an important impact on both spoken and sign language theories as they promote a contemporary controversial prosodic theory of nonmanuals and intonation, and a particular syntactic structure that has been much debated in recent discourse.

This book provides an innovative contribution to recent cross-linguistic and theoretical sign language research and emphasizes the relevance of transparent data and a systematic analysis. Further, this study opens up new research fields and interesting ideas. At the end of the chapter, I therefore indicate some remaining questions and unresolved issues, a few suggestions for an improved data elicitation, and recommendations for further promising studies investigating sign languages and their fascinating grammar.
Part I

Typological, theoretical, and methodological background
Chapter 2
Sign language typology

This book is a cross-linguistic study that systematically investigates modal particles and focus particles in three sign languages: DGS, NGT, and ISL. In Herrmann (2004, 2007), DGS was only compared to ISL. The decision to include NGT as a third sign language was motivated by the following reasons. First of all, DGS, NGT, and ISL are not directly historically related and thus each offers unique insights into the structure of sign languages from different language families. Second, Dutch is a spoken language that exhibits modal particles similar to German and in contradiction to English. By considering the respective spoken languages in my analysis, I could also test whether or not the surrounding spoken languages had any influence on the realization of specific particles and meaning nuances. The latter is assumed to be more likely based on the well known fact that sign languages - compared to their surrounding spoken languages - behave very differently in many respects. Third, NGT is a well investigated language with open access to data sets from different corpora. Furthermore, because contact with research colleagues had already been established, this cooperation could facilitate and improve the search for informants. Experimentally elicited video data of native signers were taken as the basis for this cross-linguistic project comparing DGS, NGT, and ISL (see chapter 4 for methodological issues).
The following sections briefly present the cultural and historical backgrounds of the sign language communities under investigation. I provide some socio-linguistic figures and outline the linguistic structures of the respective sign languages. Generally, the Deaf communities in Germany, Ireland, and The Netherlands share many common aspects with regard to historical developments, oppression, and the problems they have faced in the past. On the other hand, the history of education and external influences on language change is slightly different for each of the three countries. I summarize socio-linguistic figures and institutional aspects for each community and describe the linguistic structure of the respective sign language. Section 2.1, looks at DGS, section 2.2 is dedicated to NGT, and section 2.3 provides the relevant information about ISL.

In a concluding section 2.4, I explain some common characteristics and oppose differing features with regard to historical developments and structural properties of the three sign languages. DGS and NGT are related in various respects. ISL on the other hand was more isolated and strongly influenced by French educators, French Sign Language (LSF, Langue de Signes Française), and British Sign Language (BSL) in the past.

All of the three sign languages are established languages with a long history and they linguistically exhibit a complex morphology and an elaborate syntax, semantics, and pragmatics. The structural differences on the surface are visible in basic word order, vocabulary, particular sign creation mechanisms, and many language-specific properties. Section 2.5 summarizes the findings against the background of the variation hypothesis, which provides the fundament for a cross-linguistic comparison.

2.1. German Sign Language (DGS)

As the native language of many deaf, hard of hearing, and also hearing people such as children of deaf adults in Germany, DGS (Deutsche Gebärdensprache) is the central issue in the Deaf Community and is seen as their social as well as linguistic heritage. This section provides an overview of the social, educational, and cultural situation of the Deaf in Germany. In addition, this section describes the structure of DGS from a linguistic perspective and provides an insight into the grammar of sign languages in general.
2.1.1. Cultural background information

DGS has been officially recognized as a language with equal rights in Germany since 2002. An estimated 80,000 Deaf people use DGS in Germany, but the actual number of DGS signers is much higher when considering family members, interpreters, researchers, social workers, etc. However, taking into account the complicated situation of sign language acquisition in Germany, the actual number of native signers is difficult to define. Less than 10 percent of deaf children receive their language input from deaf or signing parents. Usually, the children learn their language from other signing children in preschool institutions or when entering the school environment. They often lack the important adult input because a bilingual education in the German school system is still limited to pilot projects.\(^4\)

The difficulties with regard to sign language acquisition and the poor instances of bilingual education programs in Germany can be traced back to the historical developments in the 18th and 19th centuries. The so-called ‘methodological debate’ (“Methodenstreit”) between the French Abbé de l’Épée (1712-1789), who supported a sign-based education in his school in Paris, and the German teacher Samuel Heinicke (1727-1790), who founded an oral school in Leipzig in 1778, was symptomatic for the two antagonistic camps fighting for the application of different methods in the education of the deaf at that time. For all sign languages of the world, the Congress of Milan in 1880 was a significant event with radical consequences for sign language as a teaching device and as a language in general. The German oral tradition supported by various representatives and followers of Heinicke in Germany was strengthened by the enactment of this congress and signing was suppressed, eliminated, and figuratively squeezed out of the deaf schools in Europe (see Schuhmann 1940; Leonhardt 2002; Wolff 2008a,b for further reading).

In the past few decades, the Deaf community around the world has successfully started to stand up for their rights and needs. Taking America and the Gallaudet University in Washington as an example and ideal model, many Deaf people in Germany actively participate in the recently evolving Deaf Pride movement. The many forms of emancipation and the commitment to Deaf associations and the Deaf society have resulted in initiatives to achieve subtitles in all German television and improved the rights to call interpreters in certain formal situations, for example. Sign language interpreting is a fully accepted profession, and more and more universities and institutions professionally train interpreters and offer different levels of apprenticeship. In cer-
tain German states, however, Deaf people sometimes still have to pay the interpreter by themselves for official purposes such as parent-teacher conferences in school. Thus, another aim of the Deaf Pride movement is to improve this situation.

Debates and presentations about concepts like ‘Audism’ and ‘Deafhood’ and an increasing interest in linguistic research testify to the growing awareness of the importance of sign languages for Deaf identity. Linguistic studies have played an influential role and support the ongoing process in many ways. After many initiatives and protests in 2008, the election of the first Deaf Professor at the Institute for German Sign Language (IDGS) in Hamburg, Prof. Dr. Christian Rathmann, can be seen as a great success within the process of the emancipation of the Deaf community in Germany. Furthermore, many Deaf researchers and academics actively take part in linguistic research and provide a positive outlook for future developments.

The following section 2.1.2 provides an overview of the basic linguistic structure of DGS and summarizes some general grammatical properties.

2.1.2. The structure of DGS

Due to the lack of an established written system and the fact that a committee for a DGS standardization process does not exist in Germany, there is no official version of a standard DGS on the market. However, some linguistic grammar books give a comprehensive overview of the basic structure of DGS (see Happ & Vorköper 2006; Papaspyrou et al. 2008; Eichmann et al. 2012).

On a phonological level, DGS displays 35 different handshapes. Pfau (1997: 8-9) lists a handshape matrix for DGS and opposes basic and complex handshapes. The handshape repertoire is not the same in each sign language. The TENT-handshape □ in American Sign Language (ASL) cannot be found in DGS, for instance (see section 2.4 for another example of this sort). In all sign languages, the four manual components - handshape, orientation, location, and movement - are the basic distinctive phonological features and minimal pairs can be found for each phoneme. See figure 2 for an example of a minimal pair for the handshape feature.

GEB (give) and BESUCH (visit) or GESUND (healthy) and SOLDAT (soldier) are minimal pairs for orientation, the signs WARM (warm) and VERGESSE (forget) are only distinguished by the place of articulation (forehead and face), and ANTRAG (application) and ERZIEHUNG (education) are an example of a distinguishing movement phoneme.
Syntactically, DGS is analyzed as having an SOV word order in both main and subordinate clauses (cf. Happ & Vorköper 2006; Keller 1998; Pfau & Glück 2000; Rathmann 2000). Time and location occur sentence-initially, whereby tense precedes the local expressions. DGS is regarded as recursive and exhibits complex structures like coordination, subordination such as conditionals or relative clauses, cleft-constructions, etc. (see chapter 3 for further details). Topic constructions are possible and topicalization is a frequent strategy in signed discourse. The dialectal variants and regional deviations of DGS commonly exhibit the same basic structure and only vary in vocabulary and some instances of morphological variation, such as the use of PAM as an agreement marker, for instance.¹⁸

Furthermore, the figure-ground principle controls the word order due to the physical properties of the entities involved. Big and inanimate or stiff entities precede small and animate or agile entities (see example (2)).¹⁹

(2) BAUM VOGEL SITZ_{auf}
tree bird sit_{on}.
‘A bird sits on a tree.’

Concerning the hierarchical syntactic structure, I take DGS to have a similar IP and VP structure as German subordinate clauses. DGS is thus a head-final language. Following Petronio & Lillo-Martin (1997) and others, I assume a left CP with a right-branching C◦ for DGS. This will be further elaborated in chapter 7, where focus particles are analyzed in relation to the syntactic structure of the sign languages under investigation. As is also the case for some spoken languages such as Nilo-Saharan language like Kanuri, Lugbara, and Bagirmi, for instance, we do not find copula verbs in DGS (see Tucker & Bryan 1966: 52-53,58,190). In Russian, copula verbs are almost always

Figure 2. Minimal pair for handshape feature in DGS
omitted in the present tense existential context. Postnominal adjectives (HAUS SCHÖN (house nice), ‘a nice house’) and postverbal postpositions (see SIT on in example (2)) like in DGS are typologically not unusual either. Breton (see Ethnologue) and many Bantu languages (cf. Heine 1976) exhibit postnominal adjectives, and in Japanese (cf. Ethnologue), postpositions can be found as well.

Unlike spoken languages, sign languages generally have three different types or verbs. The verbal system in DGS also follows this distinction and consists of three classes: (1) plain verbs, (2) agreement verbs, which are verbs that agree with a subject and/or an object, and (3) spatial verbs, which are verbs that agree with local indices in the sign space (cf. Happ & Vorköper 2006; Papaspyrou et al. 2008; Steinbach 2007, 2008; Eichmann et al. 2012). Plain verbs cannot be modified and show no overt agreement. They are lexically specified and do not alter their citation form (e.g. MÖG (like), VERSTEH (understand), SCHLAF (sleep)). Agreement verbs and spatial verbs change according to loci with which they agree referentially or locally. Agreement verbs in DGS can either be subject-object-agreement verbs (e.g. GEB (give), HELF (help)) or object-agreement verbs (e.g. FRAG (ask), INFORMIER (inform)). The class of spatial verbs is split into local (e.g. SITZ (sit), STEH (stand)) and directional verbs (e.g. GEH (go), FAHR (drive)). Both types of agreement mainly differ in the use of sign space. Agreement verbs use space grammatically, whereas the use of space with spatial verbs is more likely motivated semantically. The pictures in figure (2) provide examples of all three verb classes in DGS.

![Figure 3. Verb classes in DGS](image-url)
As for most investigated sign languages of the world, nonmanual features play an important role in DGS grammar. Apart from affective facial expressions, which are used to express emotions, sarcasm, irony, etc., nonmanual features encode various grammatical functions such as sentence types, subordinate clauses, topicalization, negation, and adverbial modification. They have scope over a specific spreading domain and are distinctively and obligatorily used to mark the construction. Example (3) shows the nonmanuals that mark a conditional clause in DGS (r = raised eyebrows, hn = head nod).

\begin{align*}
\text{r} & \quad \text{hn} \\
\text{BUCH Ix} & \quad \text{GUT : Ix} \\
\text{book} & \quad \text{great} : \text{buy}
\end{align*}

(3) ‘If the book is great, I buy it.’

Some wh-interrogatives may even lack a manual wh-element in a few investigated sign languages. In these cases, the nonmanuals are sufficient to mark the wh-interrogative as seen in (4) for DGS (f = furrowed eyebrows, s = squint, ht-f = head-tilt forward). In the following, the individual features are not explained or specified any further, as a detailed overview of all features and its abbreviations can be found in appendix 9.4.

\begin{align*}
\text{f, s, ht-f} & \\
\text{SATZ BEDEUT Ix} & \quad \text{SATZ BEDEUT}
\end{align*}

(4) ‘What does this sentence mean?’

Many grammatical nonmanual features are analyzed as the realization of syntactic features (cf. Wilbur & Patschke 1999; Neidle et al. 1996, among others). Some researchers analyze nonmanual features as compositionally superimposed intonational contours that follow the prosodic structure of an utterance (see section 3.3 in chapter 3 for further details and Sandler & Lillo-Martin 2006 for an overview of the issue). Lexical facial expressions, on the other hand, are lexically determined expressions that belong to the lexeme and are part of the lexical entry. For more information about nonmanual features and their various functions in sign languages see chapter 3.
2.2. Sign Language of the Netherlands (NGT)

NGT (Nederlandse Gebarentaal) is the native language of Deaf people in the Netherlands and one of the three sign languages that are investigated in this book. In section 2.2.1, I present a brief socio-linguistic overview of the historical and cultural development of NGT and provide information about the educational system and recent activities of other related institutions. Section 2.2.2 summarizes work on the structure of NGT and lists relevant literature for further reading. Leading some of the linguistic research fields especially with regard to corpus studies, the researchers on NGT often raise important questions and present innovative findings and ideas that initiate fruitful debates. As NGT seems to be quite similar to DGS, it is especially important to look at these languages in detail to disentangle commonalities and differences.

2.2.1. Cultural background information

Estimating the approximate number of deaf people that live in the Netherlands today is not a trivial task. In the literature, researchers often estimate that approximately 0.1% of the Dutch population, around 16,000 people, use NGT and constitute the Deaf community in the Netherlands (Crasborn 2001: 27-28). In 1997, the Commissie Nederlandse Gebarentaal estimated 17,500 potential deaf and hearing sign language users (cf. CommissieNGT 1997: 53; Baker 2000). Note, however, that these are always estimated numbers. Most interestingly, NGT has not yet been legally recognized as part of the Government’s constitution in the Netherlands.

There are five main schooling institutes for the deaf: Groningen, Zoetermeer (Den Haag), Rotterdam, Sint-Michiels-Gestel, and Amsterdam. Furthermore, many advisory consulting institutes for families with deaf children were established over the past decades (cf. Knoors 2000: 30).

NGT has mainly been influenced by French signs as taught by Abbé de l’Épée. The first institute for the Deaf was founded in 1790 by the protestant Henri Daniel Guyot in Groningen. Before, he had visited L’Épée and Sicard in Paris and studied their manual methods. The institute soon included a boarding house and the children were encouraged to establish and cultivate their own culture. By 1808, 52 pupils attended the school and additional boarding houses for boys and girls were built in 1822 (cf. Wingerden 2003:
The curriculum included the use of natural signs and the sign alphabet. The training of written language skills was conducted with the help of manual instructions. Speech and articulation training was not given priority, but seen as a necessary condition for the deaf to participate in the society and therefore oral speech was also taught in school. “Speaking, however, was a goal and not a method of instruction” (Wingerden 2003: 407). Due to funds and state subsidies, education for the deaf was free. In 1854, 160 pupils were educated at the Guyots Institute in Groningen which was quite successful and praised by many official visitors.

In 1840, the catholics founded a second institute for the deaf in the south of the Netherlands in Sint-Michiels-Gestel. It gave residence to 46 pupils, the manual method was adopted, and deaf assistant teachers were employed (cf. Wingerden 2003: 408). Even though religion was given priority, the school gained a public character and was supported by the national government like the Groningen school.

The third institute in Rotterdam originated with a group of deaf pupils taught by the Jewish teacher D. Hirsch, who had practiced the oral method in Germany. By the time of the school’s foundation in 1853, he taught 18 pupils, rejected the manual method, and preferred foster families for the deaf children to integrate them in society (cf. Wingerden 2003: 409). D. Hirsch and his followers promoted their method and distributed their ideas in England and Belgium, for instance. Sign language was banned in his school and speech was used as a method for instruction. The debate between oralists and manualists was revived at the expense of the manual method. As Wingerden (2003: 411) notes, the new schools in Den Haag (1892) and Amsterdam (1910) were already biased towards the oral method by the time they were founded. Even though the Milan Congress in 1880 is always cited as the turning point towards oralism in deaf education, the historical developments in the Netherlands show that it was more of a gradual process.

The government played an important role in the development of deaf schools. The state had a general interest in education, so they subsidized the institutes for the deaf. The regulatory influence of the government on regular schools by legislations, however, did not affect deaf schools. It was not until 1920 that deaf schools were regarded as a form of primary education and therefore received respective treatment. The schools were required to be denominationally neutral, but after the Education Act of 1857, private Catholic or Protestant schools for the deaf were still financially supported (cf. Wingerden 2003: 412).
Due to research in linguistics and cultural studies, the need for an official recognition of sign languages and special educational changes became obvious all over the world. In the Netherlands, the eighties brought some preliminary changes such as the use of ‘total communication’ in deaf schools (cf. Crasborn 2001: 28). This is a combination of various communication methods such as speech, lip-reading, gestures, and sign, which often resulted in the use of Manually coded Dutch (NmG, Nederlands met Gebaren).

The Dutch sign language commission for NGT was founded in 1996 and published a report in 1997 about the situation of the deaf in the Netherlands and the status of NGT. They advocated an official recognition of NGT as a minority language and promoted access to bilingual education for every deaf child by using NGT as the main method of instruction in schools (cf. Knoors 2000: 31-32).

Pilot projects in Rotterdam and Sint-Michiels-Gestel testing bilingual education were conducted from 1994-1996/1997 with positive results. Since then, bilingualism is more and more implemented in deaf schools across the Netherlands. The method of ‘Team Teaching’, with a hearing and a deaf/signing teacher or assistant in the same class, is particularly challenging because of financial and coordinative reasons. Nevertheless, two languages have to be offered to the children to exhaust given potentials and preferences, and achieve the best results. Constant evaluation is done by researchers and proofs necessary to analyze and improve the concepts of bilingual education and multimodal teaching (see Knoors 2000 for details on these issues).

The Netherlands often enjoy the status of a role model within the field of sign language research and deaf education (see Hulst et al. 1999 and Baker et al. 2008 for overviews). Many institutions deal with cultural and linguistic issues concerning the Deaf and their sign language NGT. Recent developments show that schools successfully implement the bilingual and bi-cultural methodology. Progress can also be seen in the training of professional interpreters and the institutionalization of interpreter services. In addition, Deaf and hearing researchers are currently working at the University of Amsterdam and support deaf students who are given access to study at the university through the help of interpreters.

Furthermore, a committee has been established in the Netherlands concerned with a standardization process of NGT. In 1999, all institutions, schools, and federations involved in deaf education, culture, and institutionalization, and also the government decided to authorize the Sign Language Center of the Netherlands (Nederlands Gebarencentrum) to address the task
of standardizing NGT and create basic dictionaries. Three main dialectal variations (northern, western, and southern dialects) have evolved over the years across the country. Thus, standardization is a particularly challenging task. Many groups all over the Netherlands are working on such a standardization project of NGT (Baker et al. 2008: 267). The project fulfills three important conditions: that the entire Deaf community is considered in regional working groups, that deaf people themselves are involved and collaborate with hearing researchers, and that the Deaf community institutionally supports the project. Therefore, this procedure should be taken as a best-practice example for other countries. However, the size of a country and the amount of dialects in Germany, for instance, complicate such a project (see, however, section 4.2.1 in chapter 4 for information about the German Corpus Project). It should be kept in mind that conscious standardization of a sign language is only possible with the support of the entire Deaf community and an elected committee, which represents all variants and regional dialects and is authorized to promote such a project.

The active participation of the Deaf community in social, political, and academic events, the development of the NGT Corpus, and many more educational, linguistic, and social projects impressively show the ongoing progress and deserve approval and future support.

2.2.2. The structure of NGT

Without repeating too much of the phonology of sign languages in general, I only briefly mention that an NGT sign is also composed of the four manual phonological components like in any other sign language. The NGT handshapes are categorized into eight different groups according to finger position and the form of the hand configuration (see Baker et al. 2008: 307-308). An example of a handshape that does not seem to be attested in DGS, for instance, is the baby-C-handshape articulated with two fingers (index-, and middle finger).

As in other sign languages, NGT verbs can be classified into plain verbs, agreement verbs, and spatial verbs. The following pictures show an example for each class to illustrate a few signs of NGT.

Aspectual marking, classifier constructions, agreement, pluralization, and many other aspects of NGT morphology and morpho-syntax have been investigated and thoroughly described in various works (cf. Bos 1993; Zwitserlood...
Pronouns and the issue of pronoun copy in NGT have been analyzed by Bos (1995). Borrowing processes of Dutch particles into NGT such as *door* (through) and *op* (on) have been discussed by Hoiting & Slobin (2001). Particularly interesting are the adaptation phenomena with respect to typological and modality constraints on borrowing.

NGT is usually analyzed as an SOV language (cf. Baker et al. 2008). Coeerts (1992, 1994) had not decided upon a syntactic word order, but noted that number and type of semantic arguments have an impact on word order in declaratives. Up to now, many studies on NGT provided revealing insights to the structure of NGT and sign languages in general. Even though NGT lacks overt complementizers or other manual subordinators, complex sentence constructions such as coordination and syntactic dependency can be found (cf. Gijn & Baker 2003).

Issues such as interrogative markings, topicalization, and relative clauses have been studied in relation to nonmanual features and their syntactic or prosodic scope. Sentence types in NGT are similarly realized by the use of nonmanual features such as eyebrow movement and head position. For further reading on the structure of NGT, I refer the reader to Baker et al. (2008) and the above mentioned authors. The following sections now turn to ISL and similarly discuss historical, social, and linguistic issues in summarizing the characteristics of the Irish Deaf community and their language.

![Figure 4. Verb classes in NGT](image-url)
2.3. **Irish Sign Language (ISL)**

Ireland is a small country and even though there are many deaf schools in various locations today, the most important and historically influential institutions for deaf education were situated in Cabra near Dublin. This centralized situation had various effects on language change and reduced the dialectal variation in ISL. In the past decades, research on ISL has increased enormously and the corpus project ‘The Signs of Ireland’ shows the deep linguistic and socio-cultural interest in ISL. The structure of ISL is very different to DGS and NGT as it is more closely related to LSF or BSL. As in the sections above, section 2.3.1 provides a socio-linguistic cultural background on ISL and section 2.3.2 briefly summarizes some findings related to the linguistic structure of ISL.

2.3.1. Cultural background information

ISL is the language used by the Deaf society in Ireland. Estimated 5,100 deaf people live in Ireland (Matthews 1996: 11 and Census 1991). Around 4,500 Deaf people are said to use ISL. In addition to that, Leeson (2001: 17) rates the figure of all ISL users, following a calculation based on Swedish research (cf. Bergman 2001) and states: “If we add the approximate figure of 32,500 non-Deaf people who may have ISL as a first or second language, then we can estimate a sign language using population of approximately 37,000.” The Irish Deaf Society (1997: 5) points out “that ISL is not related to English or Irish, although because of the proximity of people using ISL to English, there is evidence of ‘language contact’.” The existence of two spoken languages in Ireland had no crucial influence on the development of ISL. Irish/Gaeilge is not used as the primary language in most parts of Ireland. It is mainly taught as a second language in schools. Only in some parts of Connemara, on the Aran Islands in the western part of Ireland, and in a few other places such as Donegal or Cork, families are still bringing up their children with Irish/Gaeilge as their mother tongue (cf. Matthews 1996 and ÓGliasáin 1996 for further details). However, the education of deaf people and teaching ISL is organized mostly by otherwise English-speaking institutions, so Irish/Gaeilge does not have a significant (if any) influence on the use of vocabulary, structure or mouthing. English is the second language used by signers in Ireland and there are only rarely language contact phenomena.
More importantly for ISL, the main influences came from other sign languages or signed systems. The Catholic institutions in France (Le Bon Saveur, Caen) using LSF and Manually coded French (MCF) substantially shaped the ISL as it exists today. According to the Irish Deaf Society (1997: 6) and Matthews (1996: 73), the National Institution in Britain and the Braidwood School in Edinburgh, Scotland, which are linked to BSL, had an additional impact on the development of ISL. Manually coded English (MCE) is still evident with some signers of ISL today. Mixed communication strategies are used, because MCE has always been part of the teaching methods used in the Deaf schools in Ireland. The influences of the latter can be seen with signs that incorporate an initialized handshape that is related to the finger alphabet. However, these signs are now completely lexicalized and constitute regular sign vocabulary (see figure 5 from Matthews & ÓBaoill 2000: 10).

![Image](image1)

**Figure 5.** Initialized signs in ISL\(^\text{12}\)

Interestingly, ISL was not only influenced by other languages but had an influential effect on British signing as well. Sutton-Spence & Woll (1999) point out that the signing of British Catholics was strongly influenced by ISL because Irish monks and nuns provided education for Catholic deaf children. The education was suitable for Catholic believers and Irish-trained priests served the Catholic Deaf communities in Britain.

Ireland is a relatively small country and does not show a great dialectal variation. Apart from geographical reasons, this is also due to the fact that the majority of deaf children were educated in two main centers. Some other Deaf schools scattered around the country existed from early 1816 on, but the two most important schools for the Deaf were situated in a town north of Dublin (cf. Matthews 1996: 64-65; Matthews & ÓBaoill 2000: 14). ‘St. Mary’s School for Deaf Girls’ in Cabra was founded in 1846 by the Catholic
Institution for the Deaf (C.I.D). In the first year, the school taught 15 deaf girls, as boys were not admitted. Deaf boys were taken care of by Carmelite Brothers in St. Joseph’s Prospect, Glasnevin, until a new Deaf school was established in Cabra in 1857. The new school was named ‘St. Joseph’s School for Deaf Boys’ and Christian Brothers were hired by the C.I.D. and trained in St. Mary’s School to educate the boys (cf. Matthews 1996: 65). The segregated schooling resulted in two gender variants of ISL. In addition, LSF had a greater influence in the girl’s school than in the boy’s school. LeMaster (1990, 1993) mention these gender differences and list various female and male signs that evidently differ (cf. also Lucas et al. 2001). Two examples taken from Matthews & ÓBaoill (2000: 16) are displayed in figure 6.

Figure 6. Gender-specific signs in ISL

Recent research, however, argues in favor of a unique ISL even though some gender-specific signs are still apparent. Due to the free interaction between both schools today, the gender differences become less and less important.
In Ireland, oral education only started in the 1950s. The attested high educational standards in St. Mary’s School first made teachers hesitate as to whether to employ oralism in their teaching methods. After visits to oral centers and training institutions, and due to the pressure from hearing parents, however, the schools in Ireland changed their methods to bring them into accordance with the oral policy (cf. Matthews 1996: 75). Up to now, different Deaf schools have been established around the country: Dublin, Cork, Limerick, Galway, Longford, Clare, Cavan, Mayo, Offaly, and Kerry (cf Matthews 1996: 98-99). Many local deaf schools are units affiliated with regular mainstream schools. Oralism was maintained in most institutions up to the 1990s and even today, many schools still use oral methods and mixed systems like Total Communication (TC) for teaching in class.

Following Matthews (1996)’s book about the Irish Deaf Community, a second volume of the series was published in 2000, focusing on the structural description of ISL (Matthews & ´OBaoill 2000). The linguistic research in ISL has increased enormously in the past decades and Ireland is among the first countries that created a huge annotated video corpus of ISL. These issues will be addressed in the following section 2.3.2.

2.3.2. The structure of ISL

Even though it is difficult to tell for sure, ISL is said to exhibit an SVO sentence structure. Leeson (2001) analyzes sentences of ISL and draws conclusions based on the ordering of semantic roles in elicited and natural data. An Actor Verb Undergoer-sequence was usually the case with plain verbs (cf. Leeson 2001: 197-198; Leeson & Saeed 2012a). Thus, the results for non-reversible sentences seem to emphasize the intuitions of most ISL users, namely that their sign language is structured in an SVO like manner. Leeson (2001: 243,318) further investigates uses of different topic-comment structures in ISL. She suggests a continuum of topic constructions with certain degrees of topic markings, but notes that they are not as frequent as in certain other sign languages such as ASL, BSL or Israeli Sign Language (ISL\(^2\)).\(^{14}\) Themes are often introduced sentence-initially in narrative discourse and with regard to agreement verbs. In addition and similarly to DGS, ISL tends to structure the utterances according to a figure-ground relationship, introducing the ground first, then signing the (animate) figure (cf. Leeson 2001: 182,188). An adapted example from Leeson (2001: 183) is given in (5).
Verbs in ISL are classified like in all other sign languages. The following pictures show examples of plain verbs, agreement verbs, and spatial verbs in ISL (cf. Matthews & ÓBaoill 2000: 124,128,209).

Nonmanual features may have lexical and morpho-syntactic functions and distinguish sentence types and other syntactic constructions as mentioned for DGS. As for interrogatives, similar nonmanual features are used to distinguish wh-questions from polar-questions as in many other investigated sign languages. The wh-element is accompanied by furrowed eyebrows, narrow eyes, and a forward movement of the head. A polar-question is accompanied by raised eyebrows, wide eyes, and a forward head tilt (see Matthews & ÓBaoill 2000: 182-183).

Negation works in various ways and the nonmanual head shake is a sufficient negation marker, but often co-occurs with a sign for ‘no’, ‘not’ or ‘none’. This corresponds to the split negation of so-called ‘nonmanual dominant sign languages’ such as DGS, for instance (see chapter 3 section 3.3 for further details on nonmanual negation). Matthews & ÓBaoill (2000: 45) list examples of nonmanuals in ISL and explain their functions within the grammatical system of ISL. First, the authors mention their function of expressing emotion. Nonmanuals are furthermore used as intensifiers, conveying the manner of certain actions in varying modulated ways. In addition, morphological and syntactic functions are highlighted, and Matthews & ÓBaoill (2000: 173) emphasize the syntactic and semantic status of these
nonmanuals that are systematically used and common to all signers. A summary of the list that explains the functions of nonmanuals is shown below (see Matthews & ÓBaoill 2000: 168-169). This list, however, is not exhaustive.

1. to show degrees of emotion, including non-emotion
2. to denote intensification/modulation
3. to distinguish declarative/interrogative sentences
4. to denote negation
5. to define topic/comment structures
6. to indicate conditional clauses
7. to show sarcasm

Examples of different uses of nonmanuals in ISL are given in chapter 3 in section 3.3. Lexical nonmanuals, manner markers, and some examples of syntactic nonmanuals will be shown. For further descriptions of nonmanual features in ISL, see Leeson & Nolan (1993), Matthews & ÓBaoill (2000), and Leeson & Saeed (2012b).

2.4. Common features and differences

As seen in the beginning of this chapter DGS, NGT, and ISL differ on a lexical level. Being independent languages, the vocabulary is arbitrary and only intersects on rare occasions. Even generally iconic signs such as TREE differ from sign language to sign language and between dialects within one sign language. For DGS, NGT, and ISL, a common sign TREE$_1$ exists in all three languages. Nevertheless, German signers used two variants, TREE$_1$ and TREE$_2$, Dutch signers used TREE$_1$ and another sign variant TREE$_3$. In the ISL data, TREE$_1$ was used consistently as the only sign.

In addition, one and the same sign form may mean different things in different sign languages (see figure 1 above for one sign form meaning boy, nice, and appear/seem in the respective sign languages). ISL uses much more finger-initialized signs than DGS and NGT, and also exhibits some finger-spelled signs like W.H.Y., for example, that have become part of the lexicon.

Phonologically, all signs are composed of the same parameters, but the phonological constraints on handshapes, for example, differ from language to language. The baby-C-handshape $\mathcal{B}$ articulated with two fingers (index-,
and middle finger) is allowed in NGT, but not explicitly in DGS. The set of possible hand forms and places of articulation differ in number and realization. Thus, many signs in ISL would phonologically not be allowed in DGS, as they would contradict the phonological restrictions and formation rules.

Like most other sign languages, all of the three target languages under investigation have a rich simultaneous morphology with a tripartite verb class distinction. Furthermore, they show agreement verbs, productive classifier constructions, nonmanuals for various purposes, and many other common characteristics that are shared by languages in the visual-manual modality. Some sequential morphological affixes such as agreement markers (PAM in DGS, OP in NGT) or agentive markers (the agentive suffix -PERSON in DGS and the -ER morpheme in ISL).

From a syntactic point of view, NGT and DGS both exhibit an SOV word order whereas ISL is said to be rather SVO. Even though fronting, topic-comment structures, and the figure-ground principle, for example, may change these basic word orders in certain constructions, SOV seems to be quite robust for DGS and NGT. The sentences in my corpus support this syntactic analysis. The data further confirm that ISL tends to be an SVO language. Thus, the three languages represent two main language groups with regard to syntactic structure. Nonmanual features are used for syntactic or prosodic purposes in all of the respective languages, but in slightly different ways (see chapter 3 for further information).

2.5. Variation hypothesis

The variation hypothesis states that sign languages are more similar to each other than spoken languages. Thus, within the oral-auditory modality we find much more intra-modal differences than within the visual-manual modality. The structure and the nature of a visual-manual language itself provide the reason for this variation hypothesis. This limited range of variation is due to the articulatory and perceptual constraints to which sign languages are subject (cf. Meier 2000: 1965). More important for these modality-specific similarities is the youth of sign languages in general (cf. Meier 2002: 20). The idea that sign languages are older than spoken languages, suggested by some authors such as Armstrong et al. (1995) and Armstrong & Wilcox (2003) is very interesting but neglected in this context. Rather, historical events and developments concerning education and social interaction of the deaf are taken
as the starting point of naturally evolved sign languages. Thus, many sign languages were estimated to be around 300-400 years old. Even though the origins of sign languages are difficult to analyze, as we lack written documents and clear historical evidence, many diachronic studies provided more and more insight into grammaticalization processes and idiosyncratic developments in different sign languages. Thus, sign languages are not as similar as previously expected.

The typological perspective has hardly been tested. Except for Zeshan (2004b, 2006), large scale studies on various sign languages are missing. Nevertheless, the linguistic trend is directed to more cross-linguistic studies, and cooperative studies between different researchers receive positive feedback (see e.g. Perniss et al. 2007). Comparing DGS, NGT, and ISL, this study investigates at least a small sample of sign languages and systematically incorporates specific phenomena on a high experimental and theoretical level.
Chapter 3
Nonmanuals in sign languages

Signs are said to be the signed equivalents to words. Even though this comparison is not correct considering the different morphology of signed and spoken languages, words are generally used to describe and gloss signs. As sign languages do not have an established written system that can be read and understood by everyone, the word glosses indicate the basic meaning of a sign and represent the structure of it without giving any information about the phonological structure and what the sign looks like.

Handshape, hand orientation, location, and movement are the phonological components of a sign. Minimal pairs can be found for each phoneme making the four manual components distinctive phonological features of signs (cf. Stokoe 1960; Boyes Braem 1995; Brentari 1998; Sandler & Lillo-Martin 2006, among others). However, sign languages are not just made of manual signs. The languages in the visual-manual modality have complex grammars that include nonmanual features which are necessary for the interpretation and the analysis of signed utterances. Nonmanual features as the word itself suggests are expressions that are not performed with the hands. Body movements, head movements, and facial expressions in their versatility are ‘nonmanual’.

Linguistic studies have shown that these nonmanual expressions in sign languages invaluably contribute to the language system. This chapter deals with nonmanuals in their various forms and functions. Nonmanuals are important for the expression of modal meaning as well as for specific aspects of focus particles and therefore they are an extremely relevant issue of my studies. Section 3.1 discusses whether or not everything that is not performed by the hands may be called ‘nonmanual’. Furthermore, I provide an overview of nonmanual expressions and the different functions they may convey. The distinction between affective and grammatical nonmanuals is discussed in section 3.2. In section 3.3, examples from DGS, NGT, and ISL show specific nonmanuals and how they are used in these sign languages. Generally, in different sign languages, nonmanuals have similar functions, but might differ in their realizations and the constraints they are subject to. In section 3.5, I point towards recent findings that nonmanual features may also be lexically and grammatically distinctive and may behave similarly to tones or tone con-
tours in so-called ‘tone languages’. I briefly describe these approaches and discuss the implications that this idea might have for sign language linguistics. I then turn to the question how nonmanuals are related to modal meaning and focus particles and present my assumptions and hypotheses with regard to these issues in section 3.6. This study investigates whether nonmanuals are used for these purposes and if yes, why and to what extent they are important for the realization of particles. A central issue will be whether or not they play a grammatical role with respect to focus particles and/or modal particles. These are highly interesting questions and require a thorough overview of nonmanuals and their functions. Section 3.7 gives a brief summary of the chapter.

3.1. Nonmanuals - Everything that is not manual?

Studies of signed languages have shown that nonmanual expressions may function as grammatical markers and operate on different levels of the grammar. The term ‘nonmanuals’ means that these expressions are performed without using the hands (manus, lat. = hand). As a terminological fact, however, not everything that is non-manual is subsumed under the term ‘nonmanuals’. Lower body movement by the legs, feet, and hips, for example, are principally non-manual, but usually not tagged ‘nonmanual’. Rather, all upper body movements including the head and the face are discussed under this notion in sign language research. These nonmanual expressions may have both affective and grammatical functions. Nonmanual articulators that are used for grammatical purposes are restricted to the upper body (torso), the head, and the face in most sign languages and therefore, they are the primary features discussed under the concept ‘nonmanuals’. The following list in table 1 indicates which kind of nonmanuals are thoroughly discussed in the literature as they are used for various purposes in sign languages.

As can be seen in this list, sign languages make use of various articulators that could be arranged on a continuum from vast and most visible means on the one end to small and subtle means on the other. Both the movements of the entire torso and the tiny eye aperture differences may convey linguistic information that is relevant to sign language grammar. However, like with hearing speakers and every person that communicates, facial expressions and other nonmanuals like body and head movements may also express emotions, reactions to physical triggers, and nonmanual gestures (cf. Herrmann
Table 1. Nonmanual articulators for grammatical purposes

<table>
<thead>
<tr>
<th>Body</th>
<th>forward and backward body leans</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>sideward body leans</td>
</tr>
<tr>
<td></td>
<td>shrugged shoulders</td>
</tr>
<tr>
<td>Head</td>
<td>head nods, head shakes, and head tilts</td>
</tr>
<tr>
<td></td>
<td>head and chin movements and positions</td>
</tr>
<tr>
<td>Face</td>
<td>eye aperture</td>
</tr>
<tr>
<td></td>
<td>eye gaze and eyebrow movements</td>
</tr>
<tr>
<td></td>
<td>forehead frown</td>
</tr>
<tr>
<td></td>
<td>mouth, lips, and tongue movements and positions</td>
</tr>
<tr>
<td></td>
<td>cheeks and nose movements</td>
</tr>
<tr>
<td></td>
<td>general facial expressions</td>
</tr>
</tbody>
</table>

& Pendzich in press). Even though the articulation channels are the same for both the affective and the grammatical usage of nonmanuals, they can be distinguished by different criteria. This will be explained in the next section.

3.2. Affective or grammatical - How can we tell?

When discussing nonmanual features and their role in sign language grammar, it is important to introduce a few aspects of simultaneity and sequentiality in a three-dimensional modality. Simultaneity is achieved by the layering of different articulators in a multichannel system. Nevertheless, signs are produced in time, which shows the sequentiality of signed utterances. Sign languages combine these two aspects in a typologically unusual way and use the modality-specific advantages in a fascinating manner (cf. Aronoff et al. 2005). Table 2 briefly surveys a few simultaneous and sequential aspects concerning phonology, morphology, and syntax.

With regard to phonology, the so-called ‘Hand Tier Model’ integrates the above mentioned aspects in a model of manual sign formation and combines the sequential syllable structure with location and movement features and hand configurational properties (cf. Sandler 1999; Sandler & Lillo-Martin 2006). From a morphological perspective, it can be noted that we find a high simultaneous morphology, but a restricted sequential morphology in sign lan-
Table 2. Simultaneity and sequentiality in sign languages

<table>
<thead>
<tr>
<th></th>
<th>Simultaneity</th>
<th>Sequentiality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phonology</td>
<td>2-handedness, hand configuration, and nonmanuals</td>
<td>movement patterns and locations</td>
</tr>
<tr>
<td>Morphology</td>
<td>movement change</td>
<td>reduplication, affixation</td>
</tr>
<tr>
<td>Syntax</td>
<td>layering and spreading of nonmanuals</td>
<td>sign/word order</td>
</tr>
<tr>
<td>Examples</td>
<td>agreement, classifiers, aspectual information, sentence types, intonation contours, etc.</td>
<td>syllable structure, plural formation, compounding, derivational aspects, word order, etc.</td>
</tr>
</tbody>
</table>

guages. The simultaneous change of hand movement may express agreement and aspectual information, whereas sequential aspects such as reduplication are used for pluralization, for instance. The sequential production time and the sequences of signs play an important role with respect to compounding and generally word order in sign languages. Syntactically, the layering of nonmanuals across manual signs is a highly relevant aspect of simultaneity as nonmanual features may spread across constituents and clauses to mark syntactic structure. As section 3.3 illustrates, however, nonmanuals play a role on all levels of grammar. To understand nonmanuals in sign languages, it is important to provide independent evidence that they are grammatical and not gestural in nature. Distinctive categories, functional differences, grammaticalization processes, language acquisition data, and neuro-psychological evidence have been discussed to effectively show that the hypothesis of grammatical nonmanuals is correct.

Even though distinguishing between affective and grammatical facial expressions is difficult insofar as the production is transmitted via the same articulators, there are clear conditions and rules to tell those features apart. Most importantly, they differ in their scope and timing. In addition, different facial muscles are used for affective and linguistic means (cf. Reilly et al. 1990; Corina et al. 1999). “Grammatical facial expressions have a clear onset and offset, and they are coordinated with specific constituent structures. Affective or attitudinal expressions have more global and inconsistent onset and offset patterns, and they are not timed to co-occur with specific signs or constituents” (Emmorey 1999: 150-151). In other words, if nonmanual features are used grammatically, the on- and offsets are abrupt and exact, and if they
are used affectively they are gradual and vague (cf. Wilbur 2003: 337). The timing and the coordination in connection with a constituent are of distinctive importance. Furthermore, linguistic expressions usually comprise only a few restricted facial articulators (cf. Baker-Shenk 1983). If nonmanual features show patterns according to the above mentioned characteristics of linguistic features, they can be analyzed as an integral part of sign language grammar.

Testing reliable intuitions is a further option to find out about the status of facial expressions. “There are non-obvious constraints on the form of signs and signers have clear intuitions about what is permissible and what is ill-formed. Such is not the case for gesture” (Emmorey 1999: 135). These constraints are consistent with signers of the same sign language, and the intuitions of native signers along with their grammaticality judgments provide a clear indication as to whether an utterance is grammatically correct or not. “Signers do not vary in their use of obligatory grammatical facial expression” (Emmorey 1999: 153).

I exemplify the above described difference with a specific phenomenon in sign languages called ‘role shift’ (for examples see section 3.3 below). Emmorey (1999) shows that in narratives, facial expressions often reflect emotions or feelings of characters who are the active participants in a story. While regularly signing what the participant says or does in a story (reporting speech or actions), the face often mimics the face of the character. To indicate such a perspective shift in the first place, a signer uses nonmanual features like body movement, head movement, and - in case of quotation - most importantly a break in eye gaze away from the addressee towards a point in the sign space that represents the imaginary addressee of the quoted situation. This so-called ‘quotational role shift’ is a grammatical and linguistic device of sign languages. The grammatical nonmanuals have clear on- and offsets, and the nonmanuals spread across the entire utterance that signals someone else’s utterances. A statistical evaluation of role shift examples in my data set gives further support for analyzing role shift as a grammatical device. The nonmanuals are ordered according to a specific hierarchy that shows the systematic and obligatory use of eye gaze in role shift (cf. Herrmann & Steinbach 2007, 2010). The facial expressions mimicking the character can be added, but remain optional and very often inconsistently spread over only certain signs. Thus, the facial expression reflecting emotions or feelings within quotational role shift is non-linguistic (cf. Emmorey 1999: 152). Quotational role shift and constructed action have been further investigated for different sign languages (cf. Padden 1987; Lee et al. 1997; Quer 2005, 2011; Pyers & Sen-
It is an interesting fact that many grammatical facial expressions originate in facial gestures (cf. Janzen & Schaffer 2002; Wilcox 2004, 2007). Raised eyebrows are an example of a grammaticalized facial gesture that found its way into sign language grammar and now functions as a topic marker and an indicator of polar questions in different sign languages. Therefore, it is possible that some facial expressions in certain younger sign languages, for instance, may be on the verge of being grammaticalized and are thus difficult to define and categorize. This complicates the differentiation between affective and grammatical features, but the above mentioned criteria - such as clear on- and offsets, alignment with constituents, and systematic intuitions and usage - still hold and result in a division between the two. Additional evidence comes from acquisition data, where children first use inconsistent facial gestures and only later systematically use the facial expressions as grammatical markers (cf. Reilly et al. 1990; Emmorey et al. 1995).

From a neuro-psychological perspective, studies have indicated that grammatical facial expressions are processed left hemispheric in language production and perception areas of the brain. Affective facial gestures, on the other hand, activate the right hemisphere of the brain (cf. Poizner et al. 1987; Corina et al. 1999; McCullough et al. 2005; McCullough & Emmorey 2009). These results further enhance the findings that facial expressions fulfill grammatical functions in many cases.

Thus, from different areas of linguistics, there has been strong evidence for the grammatical status of various nonmanual features in sign languages. In the following section, I discuss the different functions that these grammatical nonmanuals may have and provide examples from DGS, NGT, and ISL.

### 3.3. Functions of nonmanuals in DGS, NGT, and ISL

Nonmanual features constitute an important part of the grammar in all sign languages investigated up to now. They operate on all levels of grammar and may fulfill lexical, morphological, syntactic, and semantic-pragmatic functions. The specific purposes that nonmanuals have are explained below in relation to each linguistic module. In this section, I primarily discuss the functions of nonmanual features with respect to DGS, but I include examples from NGT and ISL whenever appropriate. Sign languages usually do not differ in
the categorical functions that nonmanuals convey, but in the realizations and instantiations of specific nonmanuals.

The nonmanual features mentioned in section 3.1 may convey various possible functions, and are listed in table 3. Please note that some aspects may fall under more than one of the mentioned categories. Agreement marking is classified as morphological, but might better be described as a morphosyntactic phenomenon. Topicalization is a kind of syntactic fronting, but also semantic-pragmatic in nature because of the information structural properties. I explain the individual items below and give examples from the sign languages under consideration.

*Table 3. Functions of nonmanual features*

<table>
<thead>
<tr>
<th>Lexical</th>
<th>nonmanuals inherently linked to a lexical item</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>distinctive nonmanuals</td>
</tr>
<tr>
<td>Morphological</td>
<td>adjectival</td>
</tr>
<tr>
<td></td>
<td>adverbial</td>
</tr>
<tr>
<td></td>
<td>agreement marking</td>
</tr>
<tr>
<td>Syntactic/intonational</td>
<td>sentence types</td>
</tr>
<tr>
<td></td>
<td>subordinate clauses</td>
</tr>
<tr>
<td></td>
<td>negation</td>
</tr>
<tr>
<td></td>
<td>topicalization</td>
</tr>
<tr>
<td></td>
<td>role shift</td>
</tr>
<tr>
<td>Semantic-pragmatic</td>
<td>information structure</td>
</tr>
<tr>
<td></td>
<td>modality</td>
</tr>
<tr>
<td></td>
<td>speaker’s attitude</td>
</tr>
<tr>
<td></td>
<td>counterfactuality</td>
</tr>
<tr>
<td>Non-linguistic</td>
<td>affective</td>
</tr>
<tr>
<td></td>
<td>emotional</td>
</tr>
</tbody>
</table>

Lexical: As mentioned above, grammatical nonmanual features encode various functions. First of all, nonmanuals are an elementary component of many lexical signs. These nonmanual markings such as lexical facial expressions, head- and body positions or movements, and mouth gestures are obligatorily linked to lexical entries of signs and are generally not productive. Thus, many signs are lexically specified for their accompanying nonmanuals and we find these kinds of lexical nonmanual features in all sign languages. Usually, nonmanuals alone cannot be lexical signs. Dively (2001) reports on some instances of nonmanual signs, but these cases constitute a limited sam-
ple of conventionalized expressions. These forms do not seem to be lexical in the strict sense and are rather used for discourse structural purposes.

In DGS, the sign SCHLANK (slim) requires both cheeks to be sucked in and EBEN-GERADE (just-recently) is signed with the tip of the tongue slightly protruded from the corner of the mouth (see figure 8).

![SCHLANK (slim) EBEN-GERADE (just recently) TRAURIG (sad)](image)

*Figure 8. Lexical nonmanual features in DGS*

The lexical entry for the sign TRAURIG (sad) exhibits corresponding facial expressions that accompany the manual sign, whereas a happy smile would be lexically inappropriate and would not mean sad. Interestingly, some of these nonmanual expressions even distinguish between otherwise identical lexical signs.\(^{18}\)

In NGT, specific negative nonmanuals obligatory accompany the sign KWAAD (angry, evil, bad) and a fearful expression together with a head tilt forward inherently belongs to the lexical sign BANG (scared). Similarly, a merry facial expression is stored in the lexicon entry for VROLIJK (see figure 9 for these examples taken from www.kegg.nl (©KEGG)). In most sign languages, nonmanual articulators such as the cheeks, the mouth, facial expressions, and body posture convey these lexical functions.

In ISL, the same applies for the sign SUFFER and the linked facial expressions, which are illustrated in figure 10. Specific nonmanuals are also obligatorily required when signing HATE. Similar to EBEN-GERADE (just recently) in DGS, the sign RECENTLY in ISL is accompanied by a specific mouth gesture that can be intensified to mean VERY-RECENTLY (see figure 10). The pictures are taken from Matthews & ÓBaoill (2000: 23,124,154) with the friendly permission of the authors. In addition to the manual components of a sign, nonmanuals play an equally important role and are stored in the mental lexicon together with many signs.
Morphological: Nonmanuals are very important features with regard to morphological processes concerning aspect, mood, and tense. Aspectual information may be conveyed nonmanually and tense markers such as a single head nod on specific verbs are used for past tense marking in DGS. Mood is often realized by nonmanual features as well. In ISL, for example, we find so-called ‘manner markers’. Matthews & ÓBaoill (2000: 162) list four facial expressions that show the actual performance of the person during the verbal action that is signed. Thus, they are aspectual markers. Examples are the ‘th’ marker, which is a clumsy marker and ‘ee’, which is an intensifying marker. The marker ‘oo’ marks thin and delicate issues and the abbreviation ‘um’ stands for a so-called ‘disappearing’ marker. The aspectual manner markers are illustrated in figure 11 taken from Matthews & ÓBaoill (2000: 162) with the friendly permission of the authors.

Furthermore, nonmanuals may fulfill adjectival and adverbial functions in sign languages. The sign HOUSE may be signed with sucked in cheeks to indicate a small house and with blown cheeks to indicate a big house. Adverbs usually accompany and modify the verb. They are productively used and simultaneously layered on top of the manual verbal base. Many nonman-
ually realized sentential adverbials, however, spread across the entire sentence. Some classic adverbial functions in DGS are illustrated in figure 12, taken from Steinbach 2007: 148.

Another recently debated phenomenon is the fact that the nonmanual feature eye gaze may be used for agreement marking in relation to agreement verbs. Neidle et al. (2000) were the first to analyze eye gaze as an agreement marker. Eye gaze shifts towards the objects during verbs in ASL. Thompson et al. (2006) and Hosemann (2009) have conducted eye tracking experiments investigating verbal agreement in ASL and DGS. Even though it does not seem to be an obligatory marker in DGS, the tendency correlations concerning the different verb classes are quite systematic. If a gaze occurs on a verb,
it is determined by the manual agreement and aligns with the duration of the path movement (cf. Hosemann 2009). It can thus be concluded that eye gaze change generally is a way of marking agreement, but, as such, not a necessary condition for grammatical agreement. In ASL, however, eye gaze change to mark agreement seems to occur more frequently than in DGS.  

Syntactic: nonmanual expressions have also been analyzed as indicators of syntactic constituents and clausal constructions. First of all, nonmanual features distinguish between sentence types in many different sign languages. If the same string of signs is accompanied by raised eyebrows and a forward head tilt in DGS, a declarative is changed into a polar question. Yet another combination of that sentence with specific nonmanuals evokes an imperative reading. As mentioned in chapter 2 above, content-questions and polar-questions are differentiated by nonmanuals and the fact that wh-interrogatives usually contain wh-elements. However, some wh-interrogatives lack overt wh-words and can be marked by the respective nonmanual expression alone.

Nonmanuals are also used to mark subordinate structures such as relative clauses, conditional clauses, and quotation. In addition, topicalization, negation, and parentheses require particular nonmanuals in DGS and many other sign languages. In DGS, relative clauses usually have two different manual relative pronouns (REL\textit{PRO}), one for humans and one for objects or abstract entities, but they additionally show specific nonmanual markings (cf. Pfau & Steinbach 2005). Conditional clauses, however, are marked solely by nonmanual expressions. The condition (protasis) is accompanied by raised eyebrows (‘\textit{r}’) and the consequent (apodosis) obligatorily requires a head nod (‘\textit{hn}’) in DGS. The conditional relation is thus indicated by nonmanuals alone (see example (6) and also Happ & Vorköper 2006).  

Without these markers, the sentence would be a mere coordination.

\begin{equation}
\begin{array}{llllll}
\text{r} & \text{hn} \\
\text{IX}_2 & \text{GESUND} : & \text{WIR} & \text{URLAUB} & \text{FAHR} \\
\text{you healthy} : & \text{we holiday} & \text{drive} \\
\text{‘If you are fit, we will go on holiday.’}
\end{array}
\end{equation}

In addition, sentential negation in DGS requires an obligatory head shake at least over the verb (cf. Pfau 2008). Manual negation signs can be used, but are optional. Negation in many sign languages has been analyzed as split negation, as two negation elements (manual and nonmanual) play a role in sentential negation. Even though ASL exhibits the same kind of split nega-
tion with manual negation signs and nonmanual head shake, the constraints are completely different with respect to the optionality of the manual negation signs and the spreading options of the head movement. Interestingly, in ASL, the head shake does not necessarily accompany the verb as in DGS. This is also the case for Catalan Sign Language (LSC), where the head shake on the manual negation sign is sufficient. Furthermore, a head shake is not universally involved in sign language negation. Indo-Pakistani Sign Language (IPSL), for instance, negates sentences by an upward head tilt (cf. Zeshan 2004a). If negation involves obligatory nonmanuals, we refer to the languages as ‘nonmanual dominant sign languages’. Sign languages such as Italian Sign Language (LIS) that simply negate sentences by the use of obligatory manual signs, are called ‘manual dominant sign languages’ (cf. Zeshan 2006; Pfau 2008). Thus, the markings and realizations of negation in sign languages are definitely language-specific, even though nonmanual features play an important role. As mentioned in section 3.2, nonmanuals are also used to mark quotation and perspective shifts. I briefly present two examples from DGS to show indirect speech (7) and quotational role shift (8) and how nonmanuals interact with the quoted material.

(7)  \textsc{PETER} \textsc{ix$_3$} \textsc{sag} \textsc{ix$_3$} \textsc{buch} \textsc{les}

\textsc{peter} \textsc{ix$_3$} \textsc{say} \textsc{ix$_3$} \textsc{book} \textsc{read}

‘Peter says that he reads a book.’

As previously described, the modality-specific way of quoting the thoughts or utterances of others is called ‘quotational role shift’. The nonmanuals used to express role shift fulfill the requirements of grammatical nonmanual features as they can spread across clausal structures, may be layered on manual signs, and convey a specific function. The nonmanual expressions such as an eye gaze change, head position change, and a shift of the upper body are indicated by the abbreviation ‘rs’ in the transcriptions of example (8). The systematicity of the marking provides evidence for a grammatical interpretation. The indexicals in the scope of the nonmanuals are interpreted in the shifted context. Thus, \textsc{ix$_1$} refers to the signer of the quoted situation.

(8)  \textsc{PETER} \textsc{ix$_3$} \textsc{sag} : \textsc{ix$_1$} \textsc{buch} \textsc{les}

\textsc{peter} \textsc{ix$_3$} \textsc{say} : \textsc{ix$_1$} \textsc{book} \textsc{read}

‘Peter says: I read a book.’

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Functions of nonmanuals in DGS, NGT, and ISL

Semantic-pragmatic: From a semantic-pragmatic viewpoint, nonmanuals are used to express information structural issues such as focus and topic. Topicalization, for instance, is often marked by raised eyebrows in various sign languages and the brow raising accompanies the entire topic constituent. For ASL, different nonmanuals have been postulated to mark different types of topics such as moved and base generated topics (cf. Aarons 1994; Sandler & Lillo-Martin 2006). Topics are mostly analyzed syntactically, even though they show discourse linking functions and can be defined via notions of givenness and aboutness. Focus is usually defined as a semantic-pragmatic phenomenon, but may also have syntactic consequences in certain languages. These information structural notions interact with all levels of grammar (see Krifka 2006 for an overview and section 7.1.2 in chapter 7 for a definition of terms and an explanation of focus). I present the work on focus in sign languages in section 8.1 of chapter 8. Initial studies on information structure and modality, for instance, clearly show how relevant nonmanual features are to realize semantic-pragmatic aspects in sign languages.

To round up the list of functions that nonmanuals convey, it shall be repeated that, self evidently, non-linguistic, affective, and emotional reactions shown by facial expressions are equally possible in both spoken and signed languages. Irony and sarcasm can be transmitted via face, eye gaze, and body behavior and both speakers and signers use affective facial and nonmanual gestures to convey paralinguistic information. In general, nonmanual marking is often compared to intonational means in spoken languages. As can be seen with distinctive intonation contours for polar questions or intonation concerning expressives, exclamatives, and echo questions, the effect of intonation plays an important role in spoken languages as well. The results from sign languages might thus lead researchers to reconsider the importance of intonational aspects for spoken language analysis.

Summarizing this section, it is important to note that nonmanuals are an integral part of sign language grammar. They contribute invaluably to sign language production and perception and grammatically encode various aspects of phonology, morphology, syntax, semantics, and pragmatics. The system of nonmanuals is also taken into account when analyzing modal particles and focus particles in this book, as nonmanuals play an important role in the realization of these phenomena in sign languages. Relating to the above mentioned issues, in section 3.4 below, I briefly discuss different theoretical approaches that analyze nonmanual features.
3.4. Analyses of nonmanuals in sign languages

Nonmanuals have been approached in two different ways. On the one hand, researchers analyze the nonmanual expressions as spell-out phenomena and instantiations of syntactic features such as topic features, interrogative features, etc. On this view, the spreading of the nonmanual expressions is determined by c-command or Spec-head relations, thus functional categories (cf. Wilbur & Patschke 1999; Neidle et al. 2000, etc.). On the other hand, researchers have argued for a prosodic analysis of nonmanuals (cf. Sandler 1999, 2005, etc.). The features are said to spread along prosodic constituents following the same prosodic hierarchy as found for spoken languages (e.g. Nespor & Vogel 1986; Selkirk 1986).

The focus is mainly on intonational phrases (IP), which structure the speech in intonational units separated by intonational breaks. These intonational phrases are further divided into smaller units called phonological phrases (PP) and phonological words (PW), where words and constituents are grouped together by assimilation processes, breaks, and small changes in prosody. As prosody is built onto syntactic structure, the domains are often very similar. For both spoken and signed languages, however, syntactic and prosodic domains are not always isomorphic. See chapter 6, section 6.4.3 for examples of the non-isomorphism between syntactic and prosodic constituency in sign languages.

Further examples showing the structuring of signed utterances according to prosody can be seen with eye blinks that are often used as prosodic markers. Eye blinks sometimes occur within syntactic domains such as DPs and compounds, so they prosodically structure signed discourse independent of syntax (see Sze 2008 for Hong Kong Sign Language (HKSL) and Herrmann 2010 for DGS). The examples show that the assumption of a prosodic level is justified and even though I am not going to claim that all nonmanual features are prosodic, we can definitely conclude that some facial expressions spread along prosodic constituents rather than syntactic ones.

Facial expressions analyzed as having independent meanings that can align with different sentence types and prosodic constituents in a compositional manner support this statement. These facial expressions can take different parts of the utterance as their constituents, depending on the prosodic structure. Syntactic nonmanual features, on the other hand, are obligatorily linked with the corresponding syntactic construction and exhibit strict rules for scope and spreading options. The spreading is obligatory, otherwise the
sentence would be ungrammatical. Whether nonmanuals should be analyzed either syntactically or on prosodic grounds - or whether the two approaches may both hold for different nonmanuals - is yet to be seen. As mentioned above, I will come back to this issue in chapter 6, when I discuss the distribution of nonmanuals for modal meaning. An excursus into tone languages and what they may have in common with sign languages is given in the following section.

3.5. Tones in sign languages

As seen above, nonmanuals have an essential effect on different levels of grammar. Although they inherently belong to certain lexical signs, they are usually not seen as a distinctive phonological component of the sign. Traditionally, handshape, hand orientation, location, and movement are the four phonological feature classes that constitute a sign. Such minimal pairs can be found in every sign language. Figure 2 in chapter 2 displays a minimal pair in DGS. However, recent studies have brought to light that in some cases, nonmanuals do indeed distinguish between otherwise identical signs.

![PITY and FALL-IN-LOVE](image)

*Figure 13. Facial expressions as the distinctive feature of two signs in LSC*

Pfau & Quer (2010) give an example from LSC, where the signs for *pity* and *fall-in-love* only seem to be distinguished by facial expressions (see figure 13, pictures taken from Pfau & Quer (2010: 383) with the friendly permission from Cambridge University Press). Figure 14 shows a possible candidate for such a case in DGS. The signs **ANDERS** (different) and **KOMISCH** (strange) are only distinguished by a mouth gesture that can be abbreviated as ‘pf’ and slightly furrowed eyebrows. In DGS, we find some more of these pairs whose members only differ in their nonmanual expressions. **SKEPTICAL** is manually identical to the sign for **MAYBE** and only facial expressions
and body posture seem to mark the difference. STAY and IGNORE and some others are further candidates that might fit the requirements of tonal distinctiveness (see Herrmann & Köhler 2009 for a discussion on tones in African languages and different sign languages).

Wilbur & Patschke (1998: 283-284) remark that a forward or backward body lean may distinguish between manually similar signs like ONLY and ALWAYS in ASL. It is doubtful that this is a true minimal pair as the radius and the movement patterns are slightly different. Nevertheless, the body lean seems to be a differentiating element of some kind. In ISL\textsuperscript{2}, the signs DANGEROUS and AWESOME are said to constitute a true minimal pair distinguished by facial expressions (Sandler & Meir 2008: 30,172). In ISL, the signs FALSE and DISBELIEF are distinguished by facial expressions alone. A cautious smile with closed lips and squinted eyes mark the sign for disbelief or being-unsure, whereas a more neutral expression parallel to the same manual sign means false in ISL.

Even though the productivity of distinctive nonmanuals is not yet investigated, we find more examples of this sort in different sign languages. It has to be discussed further whether these cases are true minimal pairs, but if they are, the question arises how these examples can be accounted for? A typolog-
Tones in sign languages

Figure 15. Facial expressions as the distinctive feature of two signs in ISL

Ical perspective might show us an answer to this question. Sign languages have much in common with African and Asian languages. Sign language properties like classifying verbal systems, many fusional morphological processes, postnominal adjectives and postpositions, and reduplication for plural marking, for instance, are quite frequent in African, Asian, and indigenous North American spoken languages. A specific characteristic of many Asian and African languages investigated so far is that they make use of tones to differentiate meaning. Due to this tonal behavior, these languages are called ‘tone languages’. Tone is a relative value and a lexically distinctive phonological feature that is realized by variations of the fundamental frequency (f0) and perceived as distinct grades of pitch (cf. Pike 1948; Reetz & Jongman 2009; Gussenhoven 2004). Apart from lexically distinctive tones in general, tone differences may also morphologically distinguish verb-noun pairs, for example. Tonal variations may also operate on a sentential level indicating that the sentence is interpreted as an interrogative or that it is negated. Pfau (2008) notes that the nonmanual part of the sentential split negation in DGS behaves similar to tonal prosodies of tone languages. Since the nonmanual head shake is obligatorily bound to a predicative manual base, but may also spread along the VP, it is analyzed as an autosegmental prosodic feature affixed to the predicate. Languages like Gã and Ogbru negate sentences exclusively by prosodic changes and seem to be typologically quite similar to DGS in this respect.

If tones are defined as phonological features that are lexically and grammatically distinctive, one might call the above discussed nonmanuals in sign languages ‘nonmanual tones’. Thus, distinctive tones seem to be a modality-independent phenomenon not only for spoken languages, but also for sign languages. The recent linguistic debate discusses examples of ‘tones’ in both
modalities, their characteristics, phonological status, and potential productivity. Whether the presented nonmanuals are productive and thus true equivalents of tones and whether sign languages might therefore be categorized as ‘tone languages’ or not, merits further investigation. We should probably never refer to them as ‘tone languages’, but more comparative studies and systematic analyses of the individual minimal pairs are needed to explain these instances. Typological perspectives often offer interesting insights into the structure of the languages that are investigated.

3.6. Nonmanuals and their relation to particles

When asking informants for equivalent signs of specific words, they often answer something like: ‘This word does not exist in sign language. We say it differently.’ In general, sign languages are able to express thoughts and utterances (words, sentences, discourse) in an equivalent way to all natural languages. As intuitions about language use are unconscious and intuitive, it is important to empirically test and elicit words, signs, and expressions and then discuss the results afterwards. The same applies for both types of particles that were investigated in this study. Focus particles were expected to be realized manually. They exhibit a semantically defined meaning and can be found in a vast majority, if not all of the spoken languages worldwide. Modal particles, however, are found in only few spoken languages. They are a colloquial phenomenon expressing meaning nuances whose status is hard to define. Operating on a semantic-pragmatic level to modify the sentence, words such as maar or well in Dutch and ja, doch or halt in German are expected not to have manual equivalents in sign languages. Instead, different nonmanuals, manual modification, and specific expressions are the expected articulatory means for the realization of modal particles.

Language is mostly used unconsciously and native speakers as well as native signers cannot always explain it sufficiently. This holds especially when they are asked about words and particles from their second language in a different modality. Even though the participants of the studies were quite elaborate in their written language skills and used focus and modal particles in their written communication, it is not fruitful to discuss translations alone. Nonmanuals in particular are less naturally performed when brought to consciousness. Thus, the elicitation tasks and interviews are also based on experimental tasks such as a context creation task, a picture elicitation task,
and a picture story task. The general procedure of the data elicitation is displayed in the methodology chapter 4 and the individual tasks are described in chapters 6 and 8 respectively.

This book investigates the realization and the use of particles in sign languages. Concerning nonmanuals, two questions are discussed: What kind of information is transmitted via the nonmanual channels? and Why is it expressed that way? The following section briefly summarizes the forms and functions of nonmanuals in sign languages that have been discussed in this chapter.

3.7. Summary

Nonmanuals such as upper body, head, and face have been shown to be relevant for sign language grammar. Most sign languages do not use the lower part of the body in signing, so that upper torso, head, and face are the nonmanual body parts that may play a linguistic role. Sign languages sometimes draw upon one and the same nonmanual element and use it both for affective and linguistic purposes. Clear criteria such as scope, timing, systematic use, and neurological representation may distinguish these two uses and categorize them into para-linguistic and grammatical. Most importantly, this section has listed a variety of grammatical functions of nonmanuals in DGS, NGT, and ISL. Operating on all levels of grammar, nonmanuals may have lexical, morphological, syntactic, and semantic-pragmatic functions. Whether they are analyzed as equivalents to tones, syntactic features, prosodic cues, or intonational means depends on the functions they convey and the framework that is pursued. For focus particles and modal particles, the following hypotheses have been stated: (1) the three sign languages investigated exhibit focus particles and express them through the use of manual signs. (2) DGS, NGT, and ISL do not have manual equivalents of modal particles and they mainly realize them by means of nonmanuals. In addition, some manual modification and intensification is expected and sign languages might have language-specific expressions available. Therefore, this research primarily considers if and in which way nonmanuals contribute to the meaning of utterances in sign languages, comparing it to the meaning that is conveyed by particles in spoken languages.
Chapter 4
Methodology

As it is the case for spoken language studies, a thorough methodology and a systematic analysis of the methods within a research discipline is equally important for sign language studies. It provides the basis for every linguistic investigation, and guarantees transparent and correct data collection and data evaluation.

Methodology issues for sign language studies have received particular attention in recent years. Debates about the authenticity of sign language data have led to a serious reconsideration of methods for data elicitation and documentation. As the title of an article that elaborates on these issues suggests, “real data are messy” (see Johnston et al. 2007). Real data are difficult to obtain under the problematic conditions of sign language acquisition and the technical effort for research on sign languages in general. The parameters of metadata about the informants and the data collection process may have an enormous impact on the results so that the metadata need to be linked to the video data and the analysis. Furthermore, the comparability of data elicitation and annotations is necessary, so that the outcome and findings might be reproduced and tested. These factors have recently provided the grounds for methodological discussions focusing on clear and transparent data and metadata for sign language research.

The following sections are thus dedicated to the methodology framework used in the presented studies. They give a systematic overview of the approaches that are taken, the methods used for data elicitation, the informants involved in the study, and the annotation conventions used and refined for my data set. This chapter sets the basis for the comparative approach (section 4.1) and the experimental approach (section 4.2) that were combined in this book. Some general issues with regard to data collection are discussed in section 4.3. I briefly mention some aspects about metadata in general and the metadata of the informants that participated in my project (4.3.1). Concerning the issue of native status, I discuss the specific situation with regard to language acquisition of deaf children by summarizing important aspects discussed in chapter 2. I argue for the respective approaches and provide evidence for the authenticity of the data. The locations of the data elicitation are listed in 4.3.2 and the setting of the video recordings is described in 4.3.3. In section 4.4, I
Methodology

explain the annotation procedure and the specific software that was used. A complete list of all tiers, categories, and abbreviations used in the annotations for this project can be found in the appendix (chapter 9.4).

The information provided in this chapter is generally valid for all data sets of my study. Further details with regard to specific constellations of informants, the different experimental designs, and the actual tasks are given in chapters 6 and 8, which investigate modal particles and focus particles in sign languages.

4.1. Comparative approach

In this study, the basic underlying question is how the three sign languages DGS, NGT, and ISL behave with respect to the realization of modal and focus particles. The results are compared with each other and analyzed against the background of the variation hypothesis, which states that sign languages are more similar to each other than spoken languages (cf. Meier 2002; Hohenberger 2007, and section 2.5). Sign languages have many common properties that all languages in the visual-manual modality seem to share. However, the recently detected cross-linguistic differences between various sign languages shed new light on the variation hypothesis. Sign languages vary in many unexpected ways and further cross-linguistic sign language research projects are required to display the various differences across languages in the visual-manual modality (cf. Zeshan 2006; Perniss et al. 2007).

Testing the variation hypothesis also means that spoken languages have to be taken into account when analyzing the results. Data from spoken languages are opposed to data from signed languages and theories based on spoken languages are considered in the evaluation of the results. The main focus of the study, however, is on the comparison of the three sign languages. Due to the different modalities of signed and spoken languages, three comparative approaches to analyze variation between languages in general can be stated: inter-modal variation (1), intra-modal variation (2), and typological variation (3) (see Hohenberger et al. 2002: 114).

The results of a comparison between spoken languages and sign languages bring to light an ‘inter-modal variation’ (1), as the comparison cuts across modalities. Spoken languages are compared to signed languages and theoretical approaches are tested in both modalities. In the early periods of sign language research, the theoretical models from spoken language research were
tested for their validity with regard to sign languages. This was done to show that the complexity of languages in both modalities is comparable. Since this period, more and more studies in the ever increasing field of sign language linguistics have revealed the need for modality-specific tools of analysis. Furthermore, results from sign language research may influence spoken language theories and prompt the reconsideration of certain theoretical approaches. Overall, however, many spoken language theories are applicable to sign languages, as natural language theories hold for both modalities.

In showing the differences between various sign languages, so-called ‘intra-modal variation’ (2) is apparent. During the last few decades it has become apparent that sign languages differ much more than previously assumed, so this intra-modal variation is of particular interest for a better understanding of the structure of sign languages. Young sign languages can be compared to well established sign language systems to unveil diachronic changes or consistencies. The variation between completely unrelated sign languages might be more evident than sign language variation within language families. On the other hand, unrelated sign languages may show extremely similar grammatical properties. Thus, studying language families and/or language bonds, their similarities and differences may especially be interesting in an intra-modal perspective.

Linguistic sign language research has always focused on very few sign languages such as ASL, BSL, and a few other, mostly European, sign languages. Zeshan (2004a,b), however, has studied a great amount of sign languages with respect to certain phenomena such as negation and interrogative constructions. These large scale studies show the various options that sign languages exhibit in marking questions and negating utterances and give an invaluable insight into intra-modal variation. Village sign languages such as Adamorobe Sign Language in Ghana (AdaSL, see Nyst 2007) or Kata Kolok (KK, Sign Language of Desa Kolok) in Bali, Indonesia (see Branson et al. 1996; Marsaja 2008; Vos 2012) have recently been described in detail; these studies revealed some interesting idiosyncrasies and specific properties like particular uses of space or a lack of metaphoric time lines, for example. Furthermore, recently studied and extensively described sign languages such as Jordanian Sign Language (LIU, see Hendriks 2008) and Mauritian Sign Language (MSL, see Adone & Gébert 2006; Croze et al. 2006) additionally give insight into how sign languages may differ cross-linguistically.

Studies on more recently developed sign languages such as Nicaraguan Sign Language (ISN, Idioma de Señas de Nicaraguensee, see Senghas et al.
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2005; Pyers & Senghas 2007) and the Al-Sayyid Bedouin Sign Language (ABSL) in Israel (see Sandler et al. 2005; Fox 2007) have shown that a sign language may evolve within three generations of deafness and signing, but may differ to further developed sign languages in certain respects. ABSL exhibits a less established syntactic structure than many older sign languages and a prosodic system emerges and develops progressively (cf. Sandler et al. 2011). It was found that classifier constructions in these young languages are not yet an elaborate system as in developed sign languages, but exist and function similarly. The comparison of extremely young, i.e. recently evolved, and old sign languages provides a fascinating basis for investigating the properties of the language faculty in general. Many more variation studies are needed to gather detailed knowledge about the similarities and differences between the world’s sign languages.

‘Typological variation’ (3) is linked to both other types of variation within comparative research. Categorizing sign languages according to typological characteristics reveals that they often behave similar to Asian or African languages and do not exhibit many properties of the respective spoken language in their country. From a typological point of view, sign languages may sometimes display two properties that are considered mutually exclusive in spoken languages. While sign languages have classifying and agreeing verbs along with non-classifying and non-agreeing verbs, the same cannot be said for spoken languages, for instance. These findings may cause a reconsideration of categories set up in spoken language theories and classification. Each language can be positioned on a continuum, with concatenative properties of grammar on one end, and fusional or agglutinating properties on the other. Sign languages, however, combine properties from both ends of the continuum and exhibit concatenative and a highly fusional morphology. Some sequential morphological operations in sign language grammar resemble the simple morphology of creole languages, but the simultaneous morphological processes, which are highly complex and well established in sign languages, resemble complex inflectional systems in old spoken languages. This is called the ‘morphological-typology puzzle’ by Aronoff et al. (2005: 302). This puzzle can be explained via terms such as ‘age’, ‘origin’, and the situation of ‘language acquisition’, as well as ‘iconic and topographic aspects’ of sign languages, which are perfectly equipped for layered multi-channel articulation that allows a fast development of simultaneous morphology.

In this book, I focus on ‘intra-modal variation’ between the three mentioned sign languages. Moreover, the variation hypothesis is tested on the ba-
sis of inter-modal variation with respect to German, English, and Dutch. I do not expect the results to suggest new typologically relevant categorizations. The questions rather aim at revealing basic structures and signed realizations of specific phenomena in the three sign languages. The study investigates how modal particles and focus particles are realized and how the results may be implemented within a broader framework of language theory.

Intra-modal variation makes an invaluable contribution to cognitive and linguistic research that looks at language variation on the background of the general search for language universals that has been proposed for spoken languages. I present possible syntactic, semantic, and pragmatic analyses of the respective phenomena under investigation. Depending on the structure of the three sign languages and varying results, this book aims at providing analyses that operate within UG.

Concerning focus particles, all languages in one way or the other have some morphological realization for at least one inclusive/additive and one exclusive/restrictive particle such as also and only (König 1991: 34). Additive particles are clearly different from restrictive particles in most languages, and König (1991) explains that, cross-linguistically, they often develop out of similar expressions such as numerals or cardinals (identifying words of order). Therefore, I expect all sign languages to exhibit equivalent expressions for such particles as also and only. Initial findings from ASL (Wilbur & Patschke 1998) and DGS (Happ & Vorköper 2006) seem to confirm this hypothesis, but so far, we lack systematic investigations and comprehensive data sets so that resulting analyses are missing.

With regard to modal particles, I assume sign languages to include the concept of modal meaning and gradually modified sentences in their language system. As it is called a universal category of meaning, sign languages should expectedly show a systematic realization pattern for various aspects of modality and modal meaning (see chapter 6 for a detailed discussion of terminology). Modal particles, however, are specific to only a few spoken languages and some languages like English, for example, do not exhibit this particle class and have other means to express modal meaning. It is thus interesting to see in which way the studied spoken and signed languages display similar or differing patterns. Overall, the aim of this study is to show whether the sign languages under investigation (DGS, NGT, and ISL) are more similar with respect to particles than the spoken languages German, Dutch, and English.
The following section 4.2 presents aspects of experimental approaches in linguistics and provides an overview of the empirical methods that are used in this book. I emphasize the need for empirical data elicitation in sign language research and introduce two relevant aspects of empirical work, namely corpus development (4.2.1) and experimental elicitation methods (4.2.2).

4.2. Data elicitation: Methods and materials

Empirical linguistics combines the need for professional data collection in search of language usage and theoretical linguistic research that analyzes the data and language structure in general. One part cannot be successfully carried out without the other. Thus, theoretical and empirical linguistics are not separate fields but need to go hand in hand (cf. Skopeteas 2012). This book is therefore based on an experimentally elicited dataset that builds the grounds for theoretical analyses of sign language structure and the use of modal particles and focus particles in DGS, NGT, and ISL.

Sign language linguistics in particular relies on experimental data and the intuitions of native signers. As a minority language in each country, sign languages are used by a heterogeneous group of people including the Deaf community, people that are hard of hearing, CODAs (Children Of Deaf Adults), interpreters, hearing parents learning sign language, teachers, social workers, educational trainers, sign language linguists, and interested people that study sign languages for private or business reasons. However, Deaf native signers in second or even third generation are very rare. Nevertheless, they are invaluable informants in guaranteeing reliable investigations into the structure of sign languages. Many native signers around the world have so far participated in different studies and projects. Most importantly, more and more Deaf researchers actively take part in the process of linguistic investigation as evidenced by the increasing number of Deaf academics and scientists working in sign language linguistics, data collection projects, and other socio-linguistic environments.

Empirical data collection can be undertaken in two different ways: 1) collecting naturally signed data through video recorded interviews, conversations, and storytelling and 2) eliciting data experimentally through various tasks, which also include neuro- and psycholinguistic experiments (see 4.2.2). Results of both methods may be integrated into language corpora (see 4.2.1), although natural signed data are more often connected to large corpus
projects. In the following sections, I briefly introduce both methodological approaches and discuss their relevance and practical value for the project of this book.

4.2.1. Corpora

Like spoken language corpora, sign language corpora are collections of large amounts of language data. For sign languages, of course, recorded video data rather than audio or written input data are necessary. This poses extraordinary challenges to researchers and technicians that work in corpus projects and sign language data collection. Canvassing informants and considering data protection laws are often as difficult as the technical problems such as data storage and data handling. Transforming the raw video data into linguistic corpora is yet another difficulty. Annotation tools and specific annotation and transcription systems are required to guarantee the accessibility of the data for linguistic research. It would exceed the scope of this book to elaborate on the problematic situation for sign language corpora in general, but I would like to emphasize that the lack of clear annotation conventions complicates a cross-linguistic comparison and the search for homogeneous results even when researchers have corpora data available. Thus, the need for a unified way of annotation, comparable conventions, and appropriate data storage is more exigent than ever. Recent conferences, workshops, and meetings have aimed at bringing together researchers that work on corpus projects all over the world, encouraging them to find appropriate solutions for these issues. Even though universal annotation conventions are hardly realistic for the near future, effort is undertaken to agree on common bases, systems, and tools.

Browsing natural corpora data principally might be the best way to obtain authentic results and gain an understanding on how languages use expressions, words or utterances. For sign languages, however, not many sophisticated large scale corpora of natural signed discourse exist up to now. However, the following corpora are extant or currently being developed:

- The BSL Corpus Project in Great Britain
  Website: www.bslcorpusproject.org (Schembri 2008, 2007)

- The DGS Corpus Project in Germany (Entwicklung eines elektronischen korpusbasierten Wörterbuchs DGS - Deutsch)
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– The ISL Corpus ‘Signs of Ireland’ in Ireland (Leeson et al. 2006; Leeson & Nolan 2008)

– The ‘Corpus NGT’ in the Netherlands
  Website: www.ru.nl/corpusngt/ (Crasborn & Zwieterlood 2008; Crasborn et al. 2008)

– Corpora from the ECHO (European Cultural Heritage Online) Project: Case Study 4, Sign Languages, with data of NGT (Sign Language of the Netherlands), BSL (British Sign Language), and SSL (Swedish Sign Language), Website: www.let.ru.nl/sign-lang/echo/ (Crasborn et al. 2004; Nonhebel et al. 2004; Crasborn 2008; Crasborn et al. 2008; Crasborn & Zwieterlood 2008)

– Australian Sign Language (Auslan) Signbank in Australia
  Website: www.auslan.org.au (Johnston & Schembri 2006)

– The LIS Corpus Project in Italy
  Website: http://w3.uniroma1.it/progettolis/index.php (Geraci et al. 2011)

Despite the fact that these projects and the development of extensive sign language corpora are currently underway, very few are open to the public and accessible for academic researchers. For NGT, it was possible to use data provided by the corpus from the ECHO Project: Case Study 4, Sign Languages, which comprises data of NGT, BSL, and Swedish Sign Language (SSL).27 In addition, the free accessible web based NGT corpus could be searched through for relevant items.28 For ISL, I was granted access to the digital ISL corpus ‘Signs of Ireland’ from the Corpus Development Project (see above and also Leeson et al. 2006).29 The results from these corpora, however, were quite scarce for both modal and focus particles. The results are summarized and discussed in the respective chapters 6 on modal particles in sign languages and 8 on focus particles in sign languages (see section 6.1.2 of chapter 6 and section 8.3 of chapter 8).

4.2.2. Empirical approach

Data elicitation is generally based on experimental tasks that are developed to test specific phenomena and theoretical assumptions. Language production and language perception can be tested using various different methods.
Regular linguistic experiments concerning production are picture elicitation tasks (e.g. descriptive task or question answer task), retelling picture stories, (re)telling narratives, performance tasks following instructions, and various types of interviews (cf. Skopeteas 2012 specifically for information structure). Perceptual experiments are, for instance, reading tasks, reaction tests, eye tracking experiments, EEG (electroencephalography) experiments, and MEG (magnetoencephalography) experiments (cf. Bornkessel-Schlesewsky & Schlesewsky (2009) on the latter methods). In addition, highly developed brain imaging tools such as PET (Positron Emission Tomography) and fMRI (functional Magnetic Resonance Imaging) have recently showed promising results. These tools neurologically test linguistic and cognitive assumptions about language and the brain (see Moro (2008) and Bornkessel-Schlesewsky & Schlesewsky (2009) for introductory books on these tools and their linguistic implications).

In this study, I elicited utterances through production tests to investigate sign language structure. Perception experiments are usually designed to verify results from previous production tasks, so that such tests would usually follow an initial pilot study like this project. The topics investigated in this book have not been studied experimentally for sign languages before. Very few papers relating to these issues mention focus particles or list such lexical items and their functions (see Wilbur 1994b; Wilbur & Patschke 1998; Happ & Vorköper 2006, for instance). This was done in passing, however, and the authors did neither scrutinize these issues systematically nor investigated the syntactic behavior of the respective items. Apart from Herrmann (2004, 2007), modal particles have not yet been analyzed for sign languages. Happ & Vorköper (2006) have briefly explained the phenomenon of ‘speaker’s attitude’ in their seminal book on DGS grammar. The authors noted one expression which they called a modal particle, but they neither specified their findings nor discussed modal meaning or modal particles any further.

Thus, I had to decide on appropriate methods and design new experiments to elicit the required data. In order to find out how the respective sign languages realize the particles of interest, the elicitation tasks needed to be systematically structured and not manipulative. As the project describes a pilot study, there were no materials from previous studies available that could be adapted. In the meantime, materials from language acquisition studies eliciting focus particles in German have been developed and might be an interesting testing ground for the sign language data (cf. Müller 2007, 2012; Müller et al. 2011). Nevertheless, it has not yet been tested whether the materials
are applicable to sign language experiments. Furthermore, as seen in section 4.2.1, I could not rely on existing corpora. Therefore, pictures, written examples, and pictures stories were tested.

Pictures were taken out of the Questionnaire on Information Structure (QUIS) developed at the University of Potsdam and the Humboldt University of Berlin and were tested for their practical value for the experiments (see chapter 8 section 8.4.3.1 for a discussion and the pictures). The pictures were embedded in a question-answer task.

Written examples were created in the respective languages German, Dutch, and English with the help of professional translators and native speakers. The target sentences were translated as close to the German original as possible. To keep the utterances of the specific situations in a natural flow, the context descriptions allowed a few adaptations towards the respective language usage and habits, like peoples names, the names of cities, and specific expressions such as idioms, tag questions, or colloquial idiosyncrasies of the language.

The picture stories were designed to elicit degree variants of the focus particle only. The stories display the same final picture for comparative reasons and consist of 3 to 4 sequenced pictures (see chapter 8, section 8.4.3.3 for a detailed description and the picture stories themselves).

In the following paragraphs, I briefly discuss the authenticity of the data as well as the shortcomings of certain materials and elicitation methods. For the most part, the presentation of pictures is a very modality-independent way of eliciting language data. Pictures are conceptually language independent and therefore generally quite useful materials for elicitation tasks. However, it is very complicated to elicit focus particles and subtle contextual information through the use of individual pictures. Furthermore, the available pictures influenced the signing of participants in different ways and made the elicitation of minimal pairs and comparable sentences impossible.

Apart from the choice of materials and methods, a second delicate issue of the elicitation process is the hearing status of the interviewer. The interviewer of the German participants was a fluent but non-native hearing signer and the entire conversation was signed in DGS. In Ireland and the Netherlands, the sessions were signed by professional interpreters who were naturally fluent in the respective sign language. Nevertheless, the fact that the interviewers were hearing may have influenced the signers to adapt to spoken language syntax or increase their use of mouthings. Most informants, however, were very aware of the interaction with hearing signers and were instructed to sign
as natural as possible regardless of the interviewers and interpreters competences. The results show very little syntactic adjustment to the spoken languages. To the contrary, many signers adapted the contexts, added signs, and used sentences in a sign language-specific way.

Many methodological considerations with regard to sign language research particularly list arguments that are skeptical towards translation tasks with written stimuli, as it might have an impact on word order and natural signing (cf. Johnston et al. 2007). In the case of a pilot study and under the given conditions, however, it was necessary to a) elicit focus particles, their distribution, and their scope behavior according to varying focus constituents, and b) create minimal pairs with regard to modal particles and elicit the respective meaning difference between the two sentences. Regarding the status of a pilot study and the resources available, this was not possible with visual stimuli alone.

Being aware of the shortcomings of a translation task, I minimized influential options and intervention effects for the focus particle translation task. I gave clear instructions to only sign when the elicitation screen had turned blank and after the participants had memorized the content of the utterances. They could choose to sign to the camera or to the interviewer. For the context creation task for modal meaning, the signers were allowed to freely retell what they had read and did not need to adhere to particular words or expressions. It was up to the participants to add further sentences to the context for clarification or an extension of the situation as long as the meaning of the target sentence was maintained. The signed sentences mostly exhibited a completely different word order than the primary written sentences and contexts, an order particular to the sign language investigated. The signing contained idiomatic signs, classifiers, and sign language-specific adaptations of the contexts and target sentences. This provides evidence for an independent translation without influences or manipulations from the written examples.

The experimental interview situation, in parts, was still different from natural sign language conversation. For some tasks, however, this was deliberately anticipated, as the purpose of the recordings was to find out how certain aspects are realized in the respective languages and whether there are further options for individual expressions. Thus, conscious debates about language use and language structure were necessary and expected. Jointly double checking the video tapes after the sessions guaranteed a selection of correct sentences. Rare instances of ungrammatical examples were rejected. These discussions and additional cross-informant confirmations also provide further evidence towards the authenticity of the data.
In sum, the methodology of the data elicitation in this project was built upon various production tasks. The general procedure of the sessions was a predefined experimental design with a post-experimental interview. I tested pictures, contexts, written examples, and picture stories and discussed the signers’ intuitions and further options of possible answers. The authenticity of the data was guaranteed as much as possible considering the predefined conditions. Influences of the methodological shortcomings were eliminated or reduced. The individual tasks are described in detail in chapter 6, section 6.2 and chapter 8, section 8.4 respectively.

4.3. Data collection

To provide as much background information as possible about the importance of metadata, this section presents the problematic situation of language acquisition as described in chapter 2. Section 4.3.1 reviews the native speaker status of the people that participated in the studies and discusses general issues about informants being involved in sign language projects. In addition, sections 4.3.2 and 4.3.3 provide details about the data elicitation and describe the setting, showing where and how the video recordings were conducted. It was important to keep the conditions of the setting and the procedure constant to guarantee comparability and the reproducibility of the experiments.

4.3.1. Informants - General issues

In this section, I discuss the relevance of metadata with regard to participants of sign language studies. Considering the educational and cultural history of the Deaf minority in nearly every country, sign language acquisition is generally a sensitive issue. The oral method practiced in most deaf schools in Europe since the Milan Congress in 1880 has formed and influenced sign language acquisition and language use. However, the increasing amount of linguistic studies and the development of cultural emancipation has changed the reputation of sign language in recent decades. Events like the student protests at the Gallaudet University in Washington, both in 1988 and 2006, and recent achievements of many Deaf individuals in economics, academia, and arts, for instance, have attracted a lot of attention towards the Deaf communities, their needs, and interests. Sign language acquisition has become an important is-
sue and bilingual education as well as early sign language training with deaf children of hearing parents have recently come to the fore. Supporting sign language as a natural minority language is especially important considering the debate about medical achievements like the Cochlear Implant. Without recapitulating this complex debate, I would just like to emphasize the importance of broad access to information in relation to both the medical and the sign language oriented perspectives. Bilingual education has been proved to be equally possible intra- and inter-modally (see Ahlgren 1994; Krausneker 2005; Leuninger 2007; Plaza-Pust & Morales-López 2008). Independent from the language modalities, bilingual deaf children have no disadvantages whatsoever. Rather, written language skills and articulatory training are most efficient if a native sign language has been previously acquired and is used as a teaching language.

In Germany, deaf schools and mixed schools for pupils that are hard of hearing in various degrees are far from optimal for signing children. The oral tradition still influences teacher training and classroom atmosphere (cf. chapter 2, section 2.1.1 for more information). The acknowledgment of sign languages as teaching languages is only slowly increasing. The faculties in deaf schools have only recently started to change their traditional opinions although sign languages have long been accepted as fully natural and complex language systems that enable children to develop further language skills (signed, written, and spoken language skills). Using their signed mother tongue in school facilitates the memorizing of taught material, informational input, and instructions in class. However, the official acknowledgment of DGS as a teaching language and method is not yet widespread in Germany and this applies to schools in most other countries.

Even though the situation is still not ideal, the Netherlands are nevertheless leading the way towards a more promising future, as the institutional progress is quite trendsetting with regard to deaf education and sign language research. Pioneering work is being done with respect to many bilingual school projects (see Baker et al. 2008; Knoors 2000; Tervoort 1991; Wingerden 2003 for information about linguistic institutions related to NGT and an overview of bilingual education in the Netherlands). Furthermore, the corpora projects and their achievements in a controlled standardization process for NGT show that cooperations between professional researchers and the Deaf community may be fruitful and productive.

As described in chapter 2, section 2.3.1, Irish Schools today are still influenced by oral methods. Even though oralism started quite late in Ireland, the
actual situation is comparable to German schools. However, within a small
country like Ireland, important changes and political awareness may develop
more quickly. The linguistic research teams and corpora projects are push-
ing towards those changes (see Crean 1997; Dunne 2006; Matthews 1996 for
further details).

Taking these conditions into account, language competences may vary a
lot within the deaf communities. The variation can be seen not only with
regard to second language written and spoken competences, but also with
regard to sign language skills. These are some of the reasons why detailed
information on metadata are necessary to understand the participants’ sign
language status and their professional background. As I investigated basic
grammatical structures and the linguistic usage of sign languages and did not
primarily intend to analyze socio-linguistic issues and variation, an important
condition with respect to the informants was that they were native signers.
This status was defined in terms of sign language acquisition before the age
of five.

Thus, the participants of the studies did not constitute representative cross
sections of the Deaf populations in the respective countries. Due to the dif-
ficult situation with regard to sign language acquisition of deaf informants,
however, some signers with late exposure to sign language have also been in-
cluded in the study. True native signers are difficult to find, so I also accepted
near-native signers and very few exceptions of participants who acquired their
sign language late. The fact that late learners of different ages were included
in the study, as a positive side effect, allowed a first approximation of the
influence of language acquisition age with respect to the investigated phe-
nomena. Self-evidently, the native background of the signers was considered
in the analysis to check whether the results differed according to native lan-
guage status.

The metadata information was gathered by a questionnaire that all signers
were asked to fill out. This questionnaire included information about name,
age, hearing status, signing competences, etc. A following text informed the
signer about the project and how the data will be used for academic purposes.
All participants signed this permission for data use willingly. As for the hear-
ing control group, which was tested with regard to the main task eliciting
German modal particles, the only criterion was their native status concerning
German. The participants were students at the Goethe-University of Frank-
furt am Main and filled out a questionnaire similar to that of the deaf partici-
pants. They also signed a text that informed them about the procedure of data
Data collection

processing and the usage for academic purposes. Thus, all of the informants gave their permission to use the video data for this study, for further research, presentations, and publications within academia.

4.3.2. Locations

The data collection for DGS took place in 2007 and 2008 at various places in Germany (Frankfurt am Main, Mainz, Berlin, Leipzig, and Freiburg). For the recordings in Frankfurt am Main, the seminar room of the ‘Graduiertenkolleg Satzarten’, the graduate school I was part of at the Goethe-University, was available. In Mainz, a session was recorded at the Johannes-Gutenberg-University. During my visits to Berlin, I was invited to set up the camcorder equipment at the sign language school ‘Gebärdensprachschule Visual Hands Schick & Schick GbR’ and at the ‘Gebärdenfabrik’. In Leipzig, a session was conducted on private grounds. For the elicitation in Freiburg, the Deaf club ‘Gehörlosenzentrum Freiburg’ offered me to use their facilities. In Ireland, I met Deaf informants in Galway (2003) and in Dublin (2008). In Galway, the ‘NAD Center’ and the ‘Conroy School’ kindly opened their doors for the recordings. The ‘Center for Deaf Studies’ in Dublin supported the sessions in 2008 and provided the room, the blue background walls, and many cups of tea. As for the Dutch informants, I visited Amsterdam and elicited the data at the University of Amsterdam (Universiteit van Amsterdam) and the Deaf Club ‘Stichting Welzijn Doven Amsterdam e.o.’ (SWDA). The German participants of the hearing control group were invited and filmed in the seminar room of the above mentioned graduate school in Frankfurt am Main.

I would like to thank all of the deaf and hearing informants for their participation and invaluable contribution and feedback to this book. I am very much indebted to the people from the various Deaf centers and sign language schools in Germany for their generous permission to use the rooms and locations. Furthermore, I wish to thank the people from the institutions in Ireland for their assistance and most friendly welcome. My gratitude also goes to the people from the Amsterdam ‘Center for Language and Communication’ and to the ‘SWDA’ (www.swda.nl/) for their spontaneous and sincere invitation.

The settings in these different locations were kept as constant and comparable as possible and included the same technical equipment. Further information about the setting is provided in the following section 4.3.3.
4.3.3. Setting

Supplied with complete video equipment, I either visited the participants and established a setting for video recordings in different locations or invited the informants to the graduate college in Frankfurt am Main and prepared the sessions in the seminar room. For each session, two camcorders were set up on tripods standing close to each other. The first camcorder recorded the person’s torso and the second camcorder captured the signer’s face. Figure 4.3.3 sketches the setting in an imaginary room and shows how the technical devices and instruments were positioned during a session. Minor differences and slightly varying adjustments due to individual locations were possible but can be neglected.

![Figure 16. The setting of the video sessions](image)

The signers were sitting on a chair in front of a blue background to avoid any interference from different backgrounds and light reflections. This also facilitated the annotation process and depersonalized the settings as the sessions sometimes took place on private grounds. The participants were facing the camcorders, the laptop, and the interviewer, who sat right next to the camcorders. Sitting had a relaxed effect on the signers, because a session lasted between 1.5 and 2 hours including pauses and time for drinks, which the participants could take whenever they wished. The signers were given an appropriate allowance for their participation.
Of course, the use of camcorders during interviews can even be more intrusive than audio taping (Hoopes et al. 2002: 145). However, most of the deaf informants were used to camcorders and signing in front of an audience. In today’s world of web-based communication, especially Deaf people continuously use blogs, video clips, video-phones, and webcams to present themselves and get in contact via videos, and use sign language in their daily conversation. In addition, some of the signers have participated in other experimental studies and four of the informants sometimes act on stage for various purposes, such as sign language poetry, theater, television, or movies. Therefore, the atmosphere was never tense or strained and the signers were not irritated by the camcorders.

The instructions were given in DGS in a predefined but natural way. The sessions which included the experiments, additional conversations, discussions, and question-answer pairs, were completely signed either by the interviewer (DGS) or by professional interpreters (NGT, ISL). Moreover, signing in between the tasks, discussing interesting issues, and giving instructions in sign language was fluently and naturally performed and perceived during the entire sessions.

The setting was identical for the hearing control group. Two camcorders were used in the same way to capture torso and face, the informants sat in front of a blue background, the screen was presented by a beamer projecting onto a white wall, and the interviewer sat next to the camcorders presenting the tasks and instructions. The hearing participants were also given an appropriate allowance for their participation and were offered to have drinks and pauses whenever they wished.

4.4. Annotation and transcription

After the recordings, the video data were processed, cut, and edited, so that small video sequences of sentences and short dialogs from both the torso material and the face videos were transformed into separate mpg-files.39 The names of the files followed a specific coding that provided information about the language, the informant, the task, and the sentence. These files were then implemented and linked to the annotation software ELAN (European Distributed Corpora Project Linguistic Annotator) from the MPI in Nijmegen.40 ELAN is widely used for sign language annotation and was designed for multiple video synchronizations and self-defined annotation tiers. It is thus
suitable for video data that either show one person from various perspectives or different discourse participants simultaneously. The time aligned tiers can be created individually according to the data or the annotators needs. They can be named and listed quite flexibly and may also be structured in hierarchical orders. Abbreviations of lexical entries that can be stored in a word list automatically pop up on the respective tiers and facilitate the annotation procedure. This tool is particularly suitable for sign language data and annotation. Neidle (2001) discusses another, similar annotation tool called SignStream (see Neidle 2001 and references for more information about this sign language annotation tool from the ASLLRP group). Hanke (2001) presents the interlinear editor syncWRITER, but shows that this software is not well-suited for large scale corpus projects. A recently development tool for the corpus based sign language dictionary created in Hamburg, called iLex, however, has the potential to work as an annotation tool with multiple layers and can be exported back and forth into ELAN and other tools (see Hanke & Storz 2008 for further information).

Annotation of signed video data imposes many challenges on linguistic researchers and annotators. The various articulators that sign languages simultaneously use to express meaning and compose utterances require separate descriptions on separate tiers. Lacking a written form that is suitable for systematic research, sign languages need to be professionally annotated for later analysis. ELAN provides such a tool and also includes invaluable search functions and the possibility of a synchronized alignment of the annotation and the video material.

Following the ECHO conventions, I created my own list of tiers and categories (cf. Nonhebel et al. (2004) and the appendix in chapter 9.4). Taking into account aspects of other annotation systems like the conventions used in the Auslan Corpus Project (cf. Johnston & Schembri 2006; Johnston 1991, 2008), I adapted and modified the ECHO suggestions. The two fitting videos were time-aligned and 14 tiers were used for the annotation of the data. English and German translations of the signed utterances were given on separate tiers. With respect to manual signs, an English gloss tier was heading two German or Dutch gloss tiers that represented the left and the right hand of the signer respectively. The manual component of the signing was glossed by words in capital letters. Apart from the manual gloss, I annotated eight nonmanual channels that may convey linguistic information in sign languages. Categories like eyebrows, eye aperture, eye gaze, mouth actions, cheeks, head movement, body posture, and additional facial expressions
displayed nonmanual aspects of the signing in different colors. An additional underspecified tier for comments left space for notes and further specifications concerning the analysis.

Table 4. List of annotation tiers

<table>
<thead>
<tr>
<th>Tier</th>
<th>Annotation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>translation English</td>
</tr>
<tr>
<td>2</td>
<td>translation (‘German/Dutch’)</td>
</tr>
<tr>
<td>3</td>
<td>gloss English</td>
</tr>
<tr>
<td>4</td>
<td>gloss RH (‘DGS/NGT/ISL’)</td>
</tr>
<tr>
<td>5</td>
<td>gloss LH (‘DGS/NGT/ISL’)</td>
</tr>
<tr>
<td>6</td>
<td>brows</td>
</tr>
<tr>
<td>7</td>
<td>eye aperture</td>
</tr>
<tr>
<td>8</td>
<td>eye gaze</td>
</tr>
<tr>
<td>9</td>
<td>mouth</td>
</tr>
<tr>
<td>10</td>
<td>cheeks</td>
</tr>
<tr>
<td>11</td>
<td>head</td>
</tr>
<tr>
<td>12</td>
<td>body</td>
</tr>
<tr>
<td>13</td>
<td>facial expressions</td>
</tr>
<tr>
<td>14</td>
<td>comments/notes</td>
</tr>
</tbody>
</table>

This list of tiers summarizes the annotation template. The following screen shot in figure 17 gives an impression of the ELAN user interface and illustrates the annotation of the data in this study.

The video of the torso seen on the left and the video of the face seen on the right were synchronized and a time-aligned viewer showed the respective annotation for the active part of the video. Each frame of the video could be scrutinized in succession. In addition, various further setting options such as slow motion play and the selection of tiers that should be displayed separately could be chosen. It was possible to mark and repeatedly replay a certain sequence of the video or single signs.

The ELAN software incorporates a search tool that allows the user to systematically comb the annotations. ELAN provides the option to search for a certain item within a single file or across various files in specific search domains and lists the results of the searched item including information about position, duration, frequency of occurrence, and further statistical computations. Results can be exported to text editors, Excel grids, and interlinear transcriptions. To guarantee a most effective usage of the search tool, a number of rules and standards for transcriptions should be maintained and followed.
Methodology

Figure 17. Screenshot of the ELAN user interface

consistently. Even though it is generally possible to specifically search tier by tier, identical abbreviations for different expressions or signs should be avoided (see the transcription conventions in the appendix). One form of a sign should generally have one single gloss, the so-called ID that functions as an identification number for a sign form. This is generally a word from the respective spoken language or English that describes the meaning of the sign best. However, there are a few problematic cases like verb/noun pairs in DGS, for instance, or signs that may convey various functions like the sign FERTIG, which can be a perfect marker that is often glossed as PERF. CHAIR and SIT are phonologically not distinguished in DGS. Many signs are thus not specified for word class. The question arises, which gloss should be chosen - the verb form or the noun? As there are no clear conventions yet, this remains up to the annotator or research group. The general rule, however, states that even if the context is clear in DGS, two different IDs for a single form are not desirable. In ASL, the distinction between CHAIR and SIT is realized by a change in movement. As movement is a phonological distinctive feature, two different glosses (IDs) must be used in this case. Another difficult case in DGS is the sign for person. This noun sign has undergone grammaticalization towards an agreement marker functioning as an auxiliary. Both signs coexist within the language. For an ID, it might be best to choose the source
sign, but I sympathize with many researchers that prefer to gloss the noun as PERSON and the auxiliary as PAM (Personal Agreement Marker), as the latter has reduced movement and can change according to the context and the loci that it associates with. The rather underspecified PAM is thus phonologically different to the lexically determined sign PERSON. Solutions to these problematic cases are yet to be discussed and agreed upon.

Furthermore, the abbreviations for nonmanual expressions should be logically understandable. Additional explanations can be given in the word lists of the dictionary in ELAN. The logic of sign language transcriptions and their abbreviations is not always straightforward and also depends on the theoretical framework and the analytic background interest of the researcher. We still lack clear conventions and many issues are under constant debate. In Herrmann (2008), I argue for a consistent annotation of a continuous signing stream and exact alignment of nonmanuals. In this proposal, I discuss how classifiers or indexicals might be transcribed in an attempt to refrain from theoretical assumptions. However, many issues still remain unresolved. As research groups use different annotations and different transcriptions for their projects, the comparability and handling of annotated data (natural corpora data or elicited data) is very difficult. A meticulous list and description of existing transcription sets would at least facilitate data exchange and cross-linguistic comparative research (see Herrmann 2009 for an initial Excel grid and a systematic comparison).

The transcriptions used in the examples throughout this book are based on the annotated data. Following my own ID system, I represent the signs as glosses in small capitals and display all of the nonmanuals and prosodic features that are relevant for the analysis. As three different sign languages were investigated, the data were glossed in the respective spoken language of the country, even though the sign languages, of course, are not related to these spoken languages. The fact that I also discussed the data with deaf informants from Germany and the Netherlands required transcriptions in the respective written languages. In this way, they were more easily accessible to the deaf informants and also guaranteed a better attribution to the respective sign language.

In a nutshell, ELAN is a powerful tool to work with, systematically annotate, and linguistically analyze sign language video data. My self-developed small scale corpus that comprises the elicited video data was thoroughly annotated and builds the ground for the theoretical analyses presented in this book.
4.5. Summary

Discussing the methodological framework of this study, this chapter has set the basis for the following sections that investigate the three sign languages in a comparative approach. Sign language research requires particular considerations and a strict methodological procedure. The problematic acquisition situation, the status of minority languages, the age of sign languages, and the specific modality impose extra challenges on the choice of informants, data collection, data elicitation and processing, and the analytic tools that are used. In this book, I have combined a cross-linguistic comparative approach with an empirical approach, using both corpora and elicited data. Based on experimental tasks, translations, and grammaticality judgments of native signers that were videotaped, a considerable amount of data was processed and annotated. The results have been compared and applied to different theoretical analyses set up for spoken languages. The findings have thus been analyzed to test language universals in general and language-specific or modality-specific effects in particular.
Part II

Modal meaning
Chapter 5
Modality and modal particles in spoken languages

Modality is a semantic-pragmatic concept that has recently attracted increased attention and is discussed in detail with respect to spoken languages worldwide. Portner (2009) suggests the following introductory definition: “Modality is the linguistic phenomenon whereby grammar allows one to say things about, or on the basis of situations which need not be real.” Various linguistic aspects fall under the notion of modality and a variety of modal words, modal phrases, and modal constructions have been identified so far. Most prominently, research on modality includes the description of lexical items such as auxiliary verbs (e.g. must), adverbs (e.g. maybe), and adjectives (e.g. possible) (cf. Portner 2009: 2-3). Specific aspects of modal meaning such as modal particle induced meaning components, however, are often neglected in a taxonomy of modality.

Therefore, this chapter discusses the notion of ‘modality’ and specifically focuses on modal meaning that is triggered by modal particles in spoken languages. The first section 5.1 defines modality (section 5.1.1) and modal meaning (section 5.1.2) and integrates modal particles into a broader framework of modality. I show that modal particles are instantiations of modal meaning along with various means such as sentential adverbs, tag questions, and prosody. The meaning nuances that are triggered by modal particles or equivalent expressions are the main issue of interest in this study. Related terms like ‘context’ and ‘common ground’ are defined briefly in this section as well.

Section 5.2 deals with the notion of ‘particles’ and discusses different approaches to the categorization of this class of words. By explaining the properties of particles in section 5.2.1, it becomes obvious how they can be distinguished from other lexical elements. Opposing the minimalistic and the maximalistic approach to particles and more specifically modal particles, the word class debate is explored in section 5.2.2.

Section 5.3 looks more closely at modal meaning that is evoked by modal particles. The properties of modal particles are discussed in section 5.3.1. A brief overview of the state of the art summarizes the research on modal particles as they are crucial for the context development of the target sentences used in the studies of this book. Examples of the relevant German and Dutch
modal particles that have been used as resources for the investigated modal meanings are given in section 5.3.2. In section 5.3.3, a list of English expressions that can be used as equivalents to the German or Dutch modal particle sentences, explains the different strategies used in a language that does not have modal particles.

Modal meaning triggered by modal particles is one of the main issues of this investigation. As a further subgroup of the particle class, focus particles such as only, also, and even are the second of the two major topics of interest in my cross-linguistic study. The analysis and distribution of focus particles in spoken and signed languages are elaborated on in chapters 7 and 8.

5.1. Modality and modal meaning

Starting from a broad perspective of modality in language, this section discusses, first, the different aspects of modality such as deontic, epistemic, and further subgroups of modality related to speaker’s attitude. Second, it disentangles the basic levels of meaning that an utterance may convey. This is particularly relevant for a modal particle analysis, as modal particles contribute to the meaning of an utterance in a very specific way that is independent from truth conditional content.

Thus, the terminological section in 5.1.1 generally defines modality from a spoken language perspective and section 5.1.2 explains the more specific issue of modal meaning. A list including various means of how modality might be expressed in language provides an overview of the realization methods for modality. I focus on modal meaning defined as a specific aspect of modality that is conveyed by modal particles and equivalent instantiations. A separation between the propositional content and the modality-related meaning aspects of a sentence provides insight into compositional approaches to meaning.

5.1.1. Modality

Modality is defined as a semantic category that conveys the attitude of a speaker towards the validity of the content of a proposition. Apart from morphological forms of mood (indicative, conjunctive, and imperative), modality also relates to sentence types such as declaratives, interrogatives, and impera-
Modality and modal meaning

Dietrich (1992: 23) defines modality as a category specifying the manner of an event or state described by a sentence, and the speaker’s attitude towards the utterance expressed by this sentence. Research on modality traditionally distinguishes between two forms of modality. On the one hand, there is ‘deontic modality’, referring to obligations, recommendations, permissions, and intentions, and thereby to the speaker’s attitude towards the necessity or possibility of an act or event. On the other hand, there is ‘epistemic modality’, referring to the speaker’s judgment about the probability and truth of a proposition (knowledge and belief). Similarly, Portner (2005) distinguishes between epistemic and deontic meaning and notes that epistemic meaning concerns what is known, whereas deontic meaning concerns possibility and necessity. He defines modality from a possible worlds semantic point of view and says that “modality refers to language whose meaning depends on alternate possible worlds” (cf. Portner 2005: 154). The identification of which worlds are relevant is essential for the understanding of the modal meaning of a sentence.

Portner (2009) more specifically discusses three different categories of modality, namely sentential modality, subsentential modality, and discourse modality. Focusing on sentential modality, he subdivides sentential modality into epistemic (pertaining to the speaker’s knowledge), priority (including deontic and goal oriented modals), and dynamic (volitional and quantificational) (cf. Portner 2009: 135). Other researchers have categorized modality in slightly different ways. Palmer (2001: 7-8), for instance, distinguishes between propositional modality (epistemic and evidential), which is related to the speaker’s judgment of the proposition, and event modality (deontic and dynamic), which is related to the speaker’s attitude towards a future event. Bybee (1985) and Bybee & Fleischman (1995) further subdivide the deontic category and generally suggest a tripartite distinction between ‘agent-oriented modality’, ‘epistemic modality’, and ‘speaker-oriented modality’.

As briefly indicated in the above definitions, mood is a subsystem of modality. It is important to differentiate mood and modality terminologically, as these notions are often confused. Usually, ‘mood’ is used to refer to verbal
mood, thus verbal inflections such as ‘indicative’ and ‘subjunctive’ or ‘realis’ and ‘irrealis’. As an instantiation of modality, I subsume mood under the notion of modality, which comprises all the different phenomena related to the modal aspects of languages.

Considering the various strategies to express modality related meanings, I distinguish between lexical, morphological, syntactic, and prosodic means. Lexical elements are, for instance, modal verbs/auxiliaries (deontic and epistemic), modal adverbs (e.g. probably), modal nouns (e.g. it is a necessity), and modal adjectives (e.g. possible). Morphological phenomena related to modality are tense and aspect (future tense, progressive, etc.), affixation (evidential markers), and verbal mood (indicative, subjunctive), for instance. Syntactically, modality is related to clause type distinctions, conditionals, and perhaps modal subordination. Intonational pitch variations and intonation contours are prosodic means that may express modal aspects of language. These means, of course, are not mutually exclusive and very often overlap and co-occur (cf. Portner 2009).

Modal verbs are classical examples of lexical instantiations of modality. They have been studied extensively in research on modality in various languages (e.g. Kratzer 1981; Brennan 1993; Auwera & Dendale 2000). As seen in the above definitions, modality might be categorized into ‘deontic’ or ‘dynamic’ when the attitude is related to a later action or potential event, and ‘epistemic’ and ‘evidential’ modality when the speaker’s attitude is referring to the actual proposition judging the truth of the sentence. Modal verbs in German can either be used in a deontic or epistemic way. See (9) for an example of sollen (should) conveying different meanings depending on the modal reading. Other modal verbs such as dürfen (may) and müssen (must) function similarly in these respects. Example (9a) clearly expresses a recommendation that Tim should eat a banana. The sentence refers to an event in the future and the speaker somehow expects it to take place. When using soll in an epistemic way as in (9b), the speaker adds information about the probability of the proposition and about how evident this information is. Indicating a distance to the content of the utterance, the speaker is not committed to the truth of the sentence, whereas in example (9a) s/he is.

(9) Tim soll eine Banane essen.
    Tim should a banana eat
    a. ‘Tim should eat a banana.’ (deontic)
    b. ‘Someone told me (so it is possible) that Tim eats a banana.’ (epistemic)
Selected examples of modality-related expressions such as prosodic means, sentential adverbs, and modal particles that are relevant for this research are listed and described in section 5.1.2. In the literature on modality, modal particles are only discussed very rarely. Palmer (2001: 60) briefly mentions their existence, but claims that they are more or less irrelevant to discourse and probably not even part of a grammatical system. Portner (2009) does not refer to modal particles within his book on modality as most research is based on English. Fintel (2006) mentions German modal particles and points out that these expressions deserve special attention.

I do not discuss the above mentioned issues such as modal verbs and mood in further detail, but concentrate on modal meaning induced primarily by modal particles, as this investigation focuses on the specific realization of modal meaning in sign languages. Therefore, the following sections define the term ‘modal meaning’ more precisely. I explore the effects that modal particles have on discourse and show in which way they express modal meaning as a separate level of meaning in addition to the descriptive content of a sentence.

5.1.2. Modal meaning

As mentioned above, modal particles can be subsumed under the notions of ‘modality’ and more narrowly ‘modal meaning’. As the latter term is not yet defined clearly, I briefly summarize what I understand it to be and what can be gained from this notion for the analysis in this book.

I assume modal meaning to be the meaning of an utterance that does not contribute to the truth-conditional meaning of an utterance and is componentially added on a separate level of meaning in order to convey different degrees and shades of probability, speaker’s attitudes, and implicit discourse functional updates to the common ground. Modal meaning is very much dependent on the context and can therefore be linked to the notion of expressive meaning as defined by Potts (2007a). An important aspect of expressive meaning is its general independence, so it is detached from the descriptive content and always related to a particular perspective evaluating the content. The term descriptive ineffability shows how difficult it is to grasp the meaning of expressives. Immediacy, non-displaceability, and repeatability are further characteristics of expressive meaning (cf. Potts 2007a: 166-167,176). Modal meaning operates on a similar extra level of meaning and Potts (2007a: 194)
briefly discusses the modal particle *ja* in German and suggests further studies on the relation between modal particles and expressive meaning. Modal meaning is independent of the descriptive content, dependent on the perspective, immediate, and their description is usually vague (ineffability). Therefore, expressive meaning and modal meaning have many characteristics in common. Expressive meaning, however, is a broad category and includes a variety of phenomena excluded here in the narrow definition of modal meaning. Thus, I take them to be separate concepts operating on the same level of meaning.

Modal meaning is a universal property of language, but the linguistic devices used are clearly language-specific. In various languages, different methods can be used to modify the meaning of a sentence in such a way as modal particles do in German or Dutch, for instance. Without the aim of completeness, the following list provides means for the realization of modal meaning. Note that modal verbs are excluded from the narrow definition of modal meaning that refers more directly to the epistemic and modal particle induced aspects of modality.

- prosodic means, intonation
- sentential adverbs
- interjections
- tag questions
- specific collocations
- modal particles

Prosodic elements of language such as intonation and accentuation play an important role as a means of expressing modality and modal meaning in many languages of the world. Particularly for English, the functions of intonation have been analyzed extensively (cf. Bohlinger 1989; Wells 2007; Halliday & Greaves 2008; and more specifically Kärkkäinen 2003 on epistemic stance in English conversation). Intonation may express the speaker’s attitude towards the addressee or towards the utterance. It may show certainty or uncertainty about the proposition and indicate whether a sentence is self-evident for the speaker or not (cf. Féry 1993; Gussenhoven 2004 on such issues in German intonation). Different shades of politeness may also be expressed by prosodic patterns. Kohler (1991: 162) explicitly mentions specific tonal patterns like a late peak of the fundamental frequency (f0) co-occurring with modal particles.
to reinforce their meanings. Even without the modal particle, the peak is said to convey a modal meaning similar to that of a modal particle in certain cases. The strong interrelation between modal particles and intonational patterns is quite obvious, but requires more systematic investigation in the future (see Ikoma 2007; Ikoma & Werner 2007 for a prosodic analysis of different modal particles in German).

Sentential adverbs such as *vermutlich* (supposedly) and *wahrscheinlich* (probably) are lexical forms that may express modal meaning. They relate to the entire clause and modify the sentence inasmuch as they express the speaker’s judgment of the proposition. Adverbs such as *hoffentlich* (hopefully) and *leider* (unfortunately) express the attitude of the speaker towards the proposition.

Modal particles usually modify the illocutionary force of a sentence and express a certain attitude towards the proposition and not towards a future issue. They may relate to the speaker’s and addressee’s knowledge and refer to their common ground. Thus, Doherty (1985) discusses modal particles as epistemic modality markers. As members of the above list, modal particles are clear instantiations of modal meaning. The above means are language-specific to a high degree. This is why we find modal particles in languages such as Dutch and German, but not in English. In most languages, including German, Dutch, and English, intonation plays an important role to express modal meaning. As mentioned above, the strategies may often be combined as can be seen with the interrelation of intonational means and modal particles. I further discuss this issue and the consequences for sign language studies in chapter 6.

In general, the functions and communicative goals conveyed by modal meaning may be paraphrased as follows:

- soften or enhance an utterance
- express the speaker’s attitude towards a proposition
- indicate the speaker’s judgment of the discourse situation
- refer to the addressee’s knowledge or common knowledge
- place the content of a sentence on a continuum from probability to improbability

This study focuses on meaning nuances that are mainly induced by modal particles in German and Dutch or similar expressions in English. Thus, I build up a basic framework for particle research and specifically discuss modal
particles as the most relevant group. I explain the different means that are used to express modal meaning in the three investigated spoken languages to gain further insight and a theoretical basis for the investigation into the equivalent means found in sign languages.

As mentioned in the methodology chapter, I am aware that it is not possible to explicitly compare specific modal particles in spoken and signed languages, but I base the analysis of modal meaning in those languages on modal particle induced meaning nuances that are triggered in certain situational contexts in discourse.

Within the actual experiments, however, I do not assume a spoken language perspective, as the tasks are independent of particular modal particle items. Thus, this study more abstractly investigates modal meaning, although it is based on modal particle contexts. This is a huge advantage of this approach and the data still guarantee comparable sentences and results.

5.2. Particles

To explore the difficulties of pinning down a general definition for particles, it is necessary to briefly summarize the debate about the status of particles as a word class. More specifically, along the lines of a rather minimalistic approach, I argue that modal particles constitute a separate subclass within the particle class.

A short list of common properties that all particles inherently share is given in section 5.2.1. Furthermore, the differences between various particle groups are described to distinguish individual particle classes. Some overall distinctions and systematic differentiations of various types of particles help to categorize and integrate modal particles and focus particles in a classification system, even though the literature still lacks a consensus and a clear use of terminology.

Section 5.2.2 briefly opposes minimalistic and maximalistic accounts for particles. In principle, core meanings for identical and historically related elements (heterosemy) and unified semantic bases for various functions of the same particle (polysemy) are preferred over complex semantic and functional differentiations. I also explain the implications that the different approaches have for modal particle research.
5.2.1. The particle class and its properties

Different approaches for how to separate particles from other elements of speech have been proposed in the literature. Thus, it is important to list the general properties of the words categorized as particles. In the debate about word class distinction, categorical classifications are made following semantic, syntactic-distributional, and/or morphological properties of words. In some cases, the paradigmatic category and substitution tests are included in the scheme of distinctions. However, different grammars consider different categories and also rank them differently. A homogeneous criterion can be the basis for a word class distinction, but very often a heterogeneous classification is applied. The Duden Grammar (Eisenberg & Klosa 1998; Razum & Eisenberg 2005) uses the three above-mentioned classical criteria for word classification and, hence, follows a heterogeneous account. However, the morphological component has priority over the other criteria. The Wahrig Grammar (Götze & Hess-Lüttich 2002) also considers the three categories within a heterogeneous approach, but in this case the syntactic component is ranked most important. The Grammars of Gerhard Helbig and Joachim Buscha (Helbig & Buscha 2000, 2002) solely regard syntactic properties as relevant. These few examples show that the underlying definitions and applications of criteria may lead to different views on how to categorize words. The systematization of particles is an especially challenging task. The following list provides an overview of the general characteristics of particles.

- Particles are non-inflecting
- Particles cannot be expanded and cannot project
- Particles can be combined
- Particles have flexible distributional properties with some restrictions depending on sentence types

There are two main divergent views concerning the definition of particles: a broad and a narrow perspective. All of the approaches, however, define particles as non-inflecting entities. The broader definitions explained below differ with respect to the fact that they either include or exclude prepositions, adverbials, and junctions. More narrow definitions either assume particles to be a subgroup of adverbials or apply the term to only a few particular items.

The Duden Grammar (Razum & Eisenberg 2005: 573-575) follows a medial definition, saying that all non-inflecting words apart from prepositions,
adverbials, and junctions are called particles. Parts of speech are thus divided into two main categories (see table 5).

Table 5. Division of parts of speech

|---------------|----------------------|

Furthermore, the following categories are listed in an attempt to further distinguish different types of particles: scalar particles, focus particles, negation particles, modal particles, discourse particles, interjections, and onomatopoeia. This medial account is also supported by Musan (2008) who follows a definition of particles similar to the definition of the Duden Grammar. According to her, all of the items in the particle class are non-inflecting entities, but adverbs, junctions, and prepositions are excluded. Particles are subdivided into many subclasses because of their very different functions. Musan (2008: 27-30) lists scalar or intensifying particles (ziemlich, sehr), focus particles (nur, selbst), negation particles (nicht), modal particles (schon, ja), discourse particles (ja, hm, bitte?), interjections (Oh!, Huch!), and onomatopoeia (boing, kikeriki). Helbig (1988: 31) assumes six subgroups of particles, namely modal particles, scalar/focus particles, comparative particles, answering particles, negation particles, and infinitive particles.

Menzel (1986) is another representative of a broad definition of particles. Menzel (1986: 17) notes that particles are on a par with non-inflecting words in general and lists adverbials, junctions, prepositions, and interjections as subgroups of that class. He does not propose any further distinctions with respect to particle subgroups like those mentioned above.

Taking a narrower perspective, Götze & Hess-Lüttich (2002: 127) subsume particles under the category of adverbials and differentiate between modal particles, scalar particles, and negation particles that either enrich and modify or negate a sentence. Another concept using a narrower definition only applies the term ‘particles’ to a small group of words that can be summarized as modal and focus particles (Zifonun et al. 1997).50

Despite various differences in the categorizations and no clear consensus regarding the different subgroups of particles, modal and focus particles are mentioned in almost all classification systems. The terminological indecisiveness, however, is due to various aspects that are still unresolved in particle research. To separate particles from adverbials and conjunctions, for instance, it is usually argued that adverbials can occur in the German ‘Vorfeld’ (hence-
forth pre-field), whereas particles cannot be topicalized and are not found sentence initially. However, the distinction is not always clear-cut.

(10)  

Auch hat MaRIa sich gefreut.
also has MaRIa self happy
Also MaRIa was happy.

Some examples like in (10) from Musan (2008: 30) are discussed as evidence for an adverbial analysis of some particles. I revisit this debate when discussing the theoretical approaches to focus particles in chapter 7, section 7.1.1. Nevertheless, I follow the medial broad definition as suggested by Musan (2008) and the Duden Grammar (Razum & Eisenberg 2005) and categorize particles as a separate word class independent of adverbials, prepositions, and junctions. Modal particles are a subgroup of the particle class and as instantiations of modal meaning, they are further characterized in section 5.3.1.

Some researchers have introduced the term ‘discourse markers’ as a superordinate concept for non-inflecting words. Fraser (1999: 931) states that discourse markers have also been studied under different terms like “discourse connectives, discourse operators, pragmatic connectives, sentence connectives, and cue phrases.” Discourse particles are defined as a subclass of particles within the above definition and sometimes they are used synonymously to the term ‘discourse markers’. In addition, modal particles, for example, are sometimes included and sometimes excluded from this category, which shows the vague usage of these terms. This is the reason why I decided not to include these terms in the word class debate.

Different elements such as conjunctions, adverbs, prepositional phrases, and according to Fraser (1999: 943), idioms may function as discourse markers and are therefore excluded by the medial definition of particles discussed above. A further differentiation of the respective terms is required as it might be useful for discourse and narrative analysis. However, being irrelevant for the purposes of this study, this will be neglected in the course of this book.

Summarizing the results, I use the generic term ‘particles’ for a separate word class as defined above, and then distinguish between subcategories such as focus particles, negation particles, modal particles, discourse particles, interjections, and onomatopoeia. From a semantic and syntactic point of view, a clear description and separation of particles and modal particles is of utmost importance. The following section discusses two opposing approaches to the linguistic analysis of particles and further applies the discussion to modal particles.
5.2.2. Minimalistic and maximalistic analyses of particles

As seen above, particles are a very heterogeneous class. Most problematic is the fact that they have corresponding expressions across other word classes (heterosemy) and additionally exhibit various functional variants within one subclass (polysemy). One lexical item may function as a particle, sentential adverb or conjunction. Even within one and the same sentence, the German lexical item *doch* may be a modal particle (11a), a sentential adverb (11b), a conjunction (11c), or an answering particle (11d) (cf. Karagjosova 2004: 15).

(11)  

<p>| | |</p>
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| a. | Maria ist doch **verreist.**  
Mary is modal-particle left  
‘Mary has left.’ |
| b. | Maria ist doch **verreist.**  
Mary is sentential-adverb left  
‘Mary has nevertheless left.’ |
| c. | Doch **Maria ist verreist.**  
conjunction Mary is left  
‘But Mary has left.’ |
| d. | Maria ist nicht **verreist. - doch.**  
Mary is not left - answering-particle  
‘Mary has not left. - She has!’ |

German *einfach* (simple) and *ruhig* (quiet) are further examples for words that can be modal particles and adverbs. *Aber* (but) and *denn* (because) may be modal particles and conjunctions, for instance. Also within the particle class, we find heterosemous lexemes. Some items such as *auch* (also), *nur* (only), and *schon* (already) may be modal particles in one sentence and focus particles in another (see (12) for an example with *nur* (only)).

(12)  

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
</table>
| a. | Warum hat Emma nur **angerufen?**  
why has Emma PRT called  
‘Why on earth did Emma call?’ (modal particle interpretation) |
| b. | ‘Why did Emma just call? I told her to also visit Tim personally.’ (focus particle interpretation) |

Furthermore, a particle may show various meaning nuances and functional differences within one single subcategory such as the modal particle class. Pursuant to Helbig (1988: 165-166), there are four different variants of the
modal particle *ja* (yes), two unstressed variants and two stressed variants. They are categorized according to the distributional properties concerning sentence types and the meaning nuances that the particles may convey. The examples in (13) show two of the unstressed items as used in declaratives and exclamatives. Stressed *ja*, by contrast, occurs in imperatives or polar questions.

(13)  
\[\text{a. } \text{Monika ist ja wieder aus England zurück.} \]
\[\text{Monika is PRT again from England back} \]
\[\text{‘Monika is back again from England, as you know.’} \]
\[\text{b. } \text{Du hast ja keinen Bart mehr!} \]
\[\text{you have PRT no beard more} \]
\[\text{‘Oh, your beard is gone!’} \]

Example (13a) represents *ja* in declaratives, which signals the content as evident, relates to common knowledge, or reminds the addressee of formerly known content. In exclamatives as in (13b), the modal particle expresses surprise and astonishment about an unexpected event. To subsume the different functions under one single meaning description, Helbig (1988: 172) defines the meaning of the lexical item *ja* as a commitment of the speaker to an assertive attitude, judging the content of a proposition or an event to be correct. This, however, is a vague paraphrase that cannot always account for all variants that can be found.

This vagueness in describing the meaning and the problem of polysemy or heterosemy is the reason why there are two contrasting approaches for describing individual particles: the minimalistic and the maximalistic account. The minimalistic strategy gives one lexical entry for all meanings of a particle, which sums up the general meaning of the particle and tries to find a common base. The account thus tries to find a core meaning for each particle. On the other hand, the maximalistic account simply assumes two or more lexical entries for different kinds of particles, defines them as homonyms, and further subdivides the entries of a subgroup according to their different functions and meaning nuances in different contexts.

Authenrieth (2002) - similarly to Doherty (1985) - assumes an underlying semantic basis for the homonyms and supports a minimalistic approach. Although Helbig (1988) lists different variants of the particles, he similarly tries to find a generic meaning for each lexical item. Even though the definitions are often unspecific and difficult to grasp, this approach is much more effec-
tive than just giving an extensive list of all particle items that show different functions and uses.

In addition, the diachronic perspective of how individual particles developed from their homonyms does not logically allow a maximalistic point of view. Some modal particles developed from other words quite early and are already found in Old High German, but others such as *halt* constitute a more recent phenomenon emerging sometime between the 13th and 18th century (see Hentschel 1986). Their historical developments clearly relate them to their origins. A purely minimalistic account traces back the etymological source and tries to find a core semantic base underlying the different variants.

Concerning specific subgroups of particles such as modal particles (see section 5.3 below), it is even difficult to find core meanings for a single modal particle as it may convey various meaning nuances in different contexts or sentence types. It might also be the case that prosodic marking and contextual information are the reasons for different interpretations and seemingly variants. This multi-functionality, however, can be similarly accounted for by either minimalistic or maximalistic descriptions. Since the seminal works of Krivonosov (1963, 1977) and Weydt (1969, 1977), modal particles were given much attention in linguistic research. Over time, they overcame their negative reputation as unnecessary and stylistically negative items of speech. Due to increasing linguistic research, the relevance of modal particles for discourse and interaction has been emphasized and the discussions have led to fruitful debates about whether modal particles constitute an individual subclass or not. I briefly review the different positions within this debate.

Abraham (1991a) is close to the minimalistic position, but he also emphasizes a few weak points. The general meaning of a modal particle may often be vague and context-dependent and one and the same modal particle may have contrasting and differing meanings as seen in (13) above. This is the reason why the maximalistic viewpoint merely assumes different lexical entries for the heterosems, calling them homonyms (cf. Hopper 1988, for instance). However, “modal particles may be seen as true samples of an ongoing process of grammaticalization” (Abraham 1991a: 250). This diachronic perspective is a clear argument against the maximalistic account. Thus, Abraham assumes that the differences between the various functions of a modal particle are triggered by the context, and he argues for a strong minimalistic position. Abraham (1991a: 208) sums up ‘Ockam’s razor principle’ in saying that lexematic listing is unnecessary “unless it can be shown that no derivational reconstruction can be invoked.”
Jacobs (1991: 154) carefully attenuates these assumptions by saying: "Although I am very sympathetic to this strongest variant of the minimalistic approach, I think it is bound to fail." He offers a compromise by pointing out the relation between two functions of a particle and that they have a 'common denominator' (cf. Jacobs 1991: 155), which means that they have something like the same basis and are related diachronically but still provide different functions that have to be accounted for separately.

Favoring the minimalistic position, this book treats the problem in a similar way. I assume a core meaning for each modal particle, but define separately the individual contributions of a particle with respect to different sentence types, contexts, and communicative functions.\(^5\) This investigation is restricted to 30 specific situations and contexts. As this study does not deal with a particular set of modal particles, the definition and description of particular modal particle items of spoken language will only play a secondary role. I define the modal meaning contribution that is triggered by modal particles in the contexts I created to elicit modal meaning. The target sentences of the data elicitation are based on modal particles such as *ja, wohl, doch, denn, nochmal, nur*, etc., but I also include further strategies in the analysis that may convey the same meaning such as intonational patterns (see chapter 6 for further details on the elicitation method and the task).

5.3. Modal particles under investigation

Modal particles are a language-specific phenomenon not found in many spoken languages of the world. However, all languages have means to express the modal meaning triggered by modal particles in languages such as German, Dutch, Frisian, and Italian. This is why these lexical items are such an interesting linguistic issue with respect to typology. The question whether sign languages exhibit lexical items like modal particles or how visual languages such as DGS, NGT, and ISL realize these specific meaning nuances is a fascinating issue of investigation that allows a typological subcategorization of sign languages.

In the final section 5.3.1 of this chapter dedicated to modal particles, a systematic overview of the properties of modal particles is given. I explain the meaning contribution of modal particles to an utterance and the different communicative functions they may have. Finally, sections 5.3.2 and 5.3.3 present a cross-linguistic spoken language overview of particular modal particles or
equivalent expressions in more detail. I exemplify the functions of modal particles by showing contexts from my data set and analyzing the meaning contribution in these cases. From a list of German and Dutch modal particles, a few examples are selected that are relevant for this study. Furthermore, I briefly mention English strategies to express the modal particle induced meaning in certain contexts and explain the differences between these means and modal particles.

5.3.1. Properties of modal particles

In this section, I recount the properties of modal particles in spoken languages and discuss their functions in language use. A sentence is composed of different levels of meaning and modal particles contribute to a non-propositional extra level of meaning. Up to now, modal particles have mostly been a colloquial phenomenon, but they also appear in certain genres of literature, in letters, and informal written correspondence. It is possible that some modal particles may find their way into formal written German in time.

Bußmann (1990: 491-492) lists various names for this particle class, which is primarily defined according to the semantic-pragmatic functions. Modal particles are called *Abtönungspartikeln* (softening particles), *Satzpartikeln* (sentence particles), *Illokutive Partikeln* (illocutionary particles), and *Einstellungspartikeln* (attitudinal particles). They either modify a proposition or express an attitude towards the proposition. Thus, modal particles modify the illocutionary force of a sentence and specify its conversational function, thereby adding a certain usage constraint to the sentence meaning. The lack of clear definitions is due to the strong linguistic and situational context dependency of modal particles.

As mentioned above, heterosemy is an essential aspect in particle research. Modal particles have corresponding lexical items in other non-inflecting word classes such as adverbs (*doch* (nevertheless), *vielleicht* (maybe)) and conjunctions (*denn* (because/than), *auch* (also)), but also among other particle classes such as discourse particles or answering particles (*ja* (yes), *schon* (already)) and focus particles (*nur* (only) and *auch* (also)), for instance. Karagjosova (2004: 16-17) distinguishes between the lexical elements of a language that have a relatively clear semantic function in discourse (adjectives, adverbs, conjunctions, and focus particles) and the more pragmatic aspects and functions of elements of speech such as modal parti-
Modal particles under investigation

Modal particles have inherent properties that distinguish them from other word and particle classes. Some of the properties, however, are still debated. In certain borderline cases, the distinction between modal particles and other word classes such as adverbials, for instance, is not always clear-cut. Nevertheless, I assume with Meibauer (1994), Ormelius-Sandblom (1997), and Authenrieth (2002) that modal particles constitute a distinct particle class. These discussions are briefly outlined in the following, but I focus on standard assumptions and analyses. The meaning contributions investigated in this study are triggered by modal particles that represent the classical cases.

Table 6. Properties of modal particles

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lexical-morphological</td>
<td>are non-inflecting</td>
</tr>
<tr>
<td>Lexical-morphological</td>
<td>cannot be asked for or appear in isolation</td>
</tr>
<tr>
<td>Lexical-morphological</td>
<td>usually cannot be stressed or intensified</td>
</tr>
<tr>
<td>Lexical-morphological</td>
<td>are insensitive to information structure</td>
</tr>
<tr>
<td>Lexical-morphological</td>
<td>can not be involved in word formation processes</td>
</tr>
<tr>
<td>Syntactic</td>
<td>operate on sentence level</td>
</tr>
<tr>
<td>Syntactic</td>
<td>are optional</td>
</tr>
<tr>
<td>Syntactic</td>
<td>cannot be expanded and do not project</td>
</tr>
<tr>
<td>Syntactic</td>
<td>cannot be negated</td>
</tr>
<tr>
<td>Syntactic</td>
<td>have scope over and precede modal adverbials</td>
</tr>
<tr>
<td>Syntactic</td>
<td>can be combined and occur adjacent in a restricted distributional way (even more than two items)</td>
</tr>
<tr>
<td>Syntactic</td>
<td>cannot be coordinated</td>
</tr>
<tr>
<td>Syntactic</td>
<td>cannot appear in the pre-field</td>
</tr>
<tr>
<td>Syntactic</td>
<td>appear in the middle field</td>
</tr>
<tr>
<td>Syntactic</td>
<td>are subject to selectional restrictions with regard to sentence types</td>
</tr>
<tr>
<td>Semantic-pragmatic</td>
<td>are non-truth conditional</td>
</tr>
<tr>
<td>Semantic-pragmatic</td>
<td>modify the illocutionary force of the sentence</td>
</tr>
<tr>
<td>Semantic-pragmatic</td>
<td>express the speaker’s attitude towards the proposition</td>
</tr>
<tr>
<td>Semantic-pragmatic</td>
<td>are mainly oriented to the addressee in dialogs</td>
</tr>
</tbody>
</table>
Reviewing the lexical, syntactic, and semantic-pragmatic properties sketched in table 6 is essential to distinguish modal particles from other particle classes. It is, however, not always obvious how to categorize the properties according to lexical, syntactic or semantic aspects. Depending on the approach, some properties may be either semantically or syntactically driven.55

Like all particles, modal particles are non-inflecting. To systematically separate them from other particles, further properties have to be considered. Modal particles cannot serve as an answer or appear in isolation and are thus distinguished from answering particles such as doch or ja. In addition, modal particles are traditionally said to be incapable of bearing stress. However, Helbig (1988) also lists stressed modal particles in his descriptive work. Doherty (1987) analyzes stressed modal particles as having contrastive accent and Thurmail (1989) distinguishes between contrastive and emphatic accent. Stress on denn, wohl, and doch is analyzed as contrastive accent. In sentences with stressed JA or BLOSS, it is argued that the increased pitch level is an emphatic stress (see (14)).

(14) Mach JA deine Hausaufgaben!
‘Do your homework now, in any case!’

Due to these terminological and categorical differences, some items such as stressed DOCH, for instance, have been either analyzed as modal particles or as adverbs. See Meibauer (1994: 88-90) for an extensive discussion on this controversy of stressed or unstressed modal particles. He explains the stress on modal particles such as eigentlich, ja, doch, schon, denn, and eh as modal contrast. Modal contrast is a form of contrastive stress related to modal particles.

Modal particles are insensitive to information structure and cannot refer to a specific constituent as focus particles do. The specific properties of focus particles such as only, also, and even are discussed in chapter 7. Focus particles systematically relate to the focus of a sentence whereas modal particles modify the entire sentence. For this phenomenon, Hentschel (1986: 25) introduces the term ‘meta-communicative deixis’ as modal particles externally refer to the text or the spoken utterance on a meta level.

Syntactically, modal particles operate on the level of the clause, but not beyond the sentence domain. Therefore, they are also different from discourse particles that structure the discourse beyond the sentence unit. Modal par-
Modal particles under investigation

Modal particles take a propositional argument and have sentential scope, even though Potts (2005: 42) calls them ‘scopeless’, as they do not interact with other sentential operators. Furthermore, it is usually said that modal particles cannot project, as they cannot be expanded (see (15)).

(15) *Emma hat sehr halt das Fenster bemalt.
    Emma has very PRT the window painted
    *‘Emma has very PRT painted the window.’

Thus, an interesting aspect with regard to the syntactic status of modal particles within the X-bar theory is the fact that modal particles seem to be neither heads (X°) nor phrases (XP). They are quite similar to other functional elements, but can be separated from their complement. Usually, functional elements are projecting heads. Modal particles, on the other hand, do not project (Meibauer 1994: 53-54). They are somehow maximal, but not classical XPs. They cannot be extended and, furthermore, they cannot be topicalized; these should be seen as arguments in favor of a head analysis and against an XP status of modal particles. Unlike adverbs, which are XP categories, modal particles cannot be modified and cannot occur in the pre-field. Nevertheless, arguments against a head status come from syntactic analyses of verb movement (cf. Grosz 2005; Gutzmann 2008). In German, modal particles in head positions between CP and VP should block verb movement to C°, but actually do not interfere. This means that they cannot occupy a head position in the middle field.

Thus, modal particles are somehow neither true XPs, even though they are maximal, nor of a X° category, even though they are lexical elements. Brandt et al. (1992: 73-75) analyze them as adjuncts attached to the VP in German. To derive the different positions of modal particles within the middle field, many approaches assume scrambling. Furthermore, assuming projections in the left periphery, Coniglio (2007a, 2011) provides a syntactic analysis of German modal particles and their distribution in main and embedded clauses. I will not discuss these approaches any further, but briefly come back to the issue in chapter 6, section 6.4.2.

Example (16) shows that modal particles cannot be negated. This means that they scope over negative elements and not the other way round. Again adverbs and focus particles, for instance, can be negated.

(16) *Das ist nicht halt typical
    that is not PRT typical
Ifmodal particles co-occur with sentential adverbs like *vermutlich* (presumably), modal particles have scope over these modal adverbs and always precede them. Example (17) exemplifies this scope behavior (cf. Karagjosova 2004: 20).

(17)  

a. *Peter kommt ja vermutlich.*  
Peter comes PRT probably  
‘Peter probably comes, as you know.’

b. *Peter kommt vermutlich ja.*  
Peter comes probably PRT

In addition, other operators such as quantifiers, question-forming, conditionalization, and modals, never scope over modal particles (cf. Gutzmann 2008: 23 for examples).

An interesting phenomenon is the fact that modal particles can be combined, but not coordinated as, for instance, adverbs can be (cf. Lindner 1991: 168). See (18a) for a correct and (18b) for an ungrammatical sentence containing the modal particles *ja* and *halt*.

(18)  

a. *Tim hat ja halt keine Zeit.*  
Tim has PRT PRT PRT no time  
‘It’s the way it is. Tim doesn’t have time, as you know.’

b. *Tim hat ja und halt keine Zeit.*  
Tim has PRT and PRT no time

Modal particles often occur in clusters that can contain many more than two items. See (19) for an example in German, which is a border case but judged to be grammatical.

(19) *Emma hat ja halt wohl doch mal eben das Fenster bemalt.*  
Emma has PRT PRT PRT PRT PRT PRT PRT the window painted  
‘Emma has painted the window, hasn’t she?’

Thurmair (1989) has extensively studied the combinatory properties of different modal particles in German and defines rules on how modal particles may combine. Authenrieth (2002: 29) assumes a maximum number of four combinable modal particles in discourse.

With a few exceptions, modal particles occur in the middle field only. As mentioned in the list of properties above, they cannot appear in the pre-field of a sentence. In X-bar terms, modal particles appear between C° and
VP. This makes them distinctively different from other non-inflecting word classes such as adverbs and conjunctions. Even focus particles may appear in the pre-field, for instance. Thus, the positional restrictions are one of the main reasons for assuming that modal particles are a distinctive part of speech.

Meibauer (1994: 31) provides an example of a rhetorical question where a modal particle connecting with a wh-element appears in the pre-field of a sentence (see (20)).

(20) Wer denn von uns allen will das?
who PRT of us all wants that
‘Who if anyone of us wants this?’

If *denn* is analyzed as a clitic, the distributional constraint would still hold for modal particles in general (see Brandt et al. 1992). However, modal particles do not seem to exhibit typical properties of clitics, as they do not phonologically fuse with a host and inherently show a complex syntactic distribution. Meibauer (1994: 56-58) shows that they are neither clitics nor affixes. Adverbs such as *sonst* may equally attach to the wh-word without being analyzed as clitics. Thus, the exceptional cases are rather due to some properties of the wh-word and do not generally constitute counter examples to the rule that modal particles cannot appear in the pre-field. At this point, I will leave this discussion an open issue for further research.

Modal particles are subject to selectional restrictions with regard to sentence types. Gutzmann (2008: 24-25) refers to these restrictions as intersentential restrictions as opposed to intrasentential positional restrictions. Unstressed *ja*, for instance, exclusively occurs in declaratives and exclamatives, and not in interrogatives or imperatives. If the modal particle *ja* appears in imperatives, it is usually the stressed variant. Under the condition that JA combines with *auch* (*auch JA*), the stressed variant can also appear in interrogatives. *Denn* only occurs in interrogatives and *wohl* is restricted to interrogatives and declaratives. Unstressed *doch* can be found in declaratives, assertive questions, interrogatives, imperatives, wh-exclamatives, and optatives (cf. Meibauer 1994: 108).

In a nutshell, modal particles share the property of non-inflectability with adverbs, conjunctions, interjections, and prepositions. They have many characteristics in common with adverbs and they are very similar to interjections as they can occur quite flexibly in different positions within a sentence. It has become obvious, however, that modal particles have additional inherent
properties, which make it impossible to assign modal particles to one of the aforementioned or any other word category. Even though they were sometimes referred to as modal adverbials or subsumed under the word class of interjections, I favor the separate word class approach for modal particles which clearly differentiates them from other particle subgroups (cf. Meibauer (1994) and examples above).

With respect to the semantic-pragmatic characteristics and functions of modal particles, it is noteworthy that they are non-truthconditional. This distinguishes modal particles from adverbs and other particle classes such as focus particles, which may contribute to the truth conditions of a sentence. This characteristic property has usually lead to the assumption that modal particles are a pragmatic phenomenon. Modal particles are generally used to reflect the attitude of the speaker and used to contribute to the illocutionary force of a sentence.

Note, however, that there is a debate on the way modal particles contribute to the meaning of a sentence. Gutzmann (2008) argues along the lines of Kaplan (2004) that modal particles interact with the sentence mood of an utterance and provides a semantic account for modal particles. Kwon (2005) discusses the interaction of sentence mood and German modal particles in a minimalistic syntactic approach based on corpora data. The term ‘sentence mood’ is taken to be on a par with sentential force as defined in Chierchia & McConnell-Ginet (2000).57 To briefly elaborate on the different categories for the analysis of utterances, table 7 distinguishes terminologically between clause type, sentential force, and illocutionary force.

Table 7. Clause type, sentential force, and illocutionary force

<table>
<thead>
<tr>
<th>Clause type</th>
<th>Sentential force</th>
<th>Illocutionary force</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grammatical level</td>
<td>syntax</td>
<td>syntax-semantics-pragmatics interface</td>
</tr>
<tr>
<td>Example</td>
<td>declarative assertion</td>
<td>depending on communicative aim (stating, asking, threatening)</td>
</tr>
</tbody>
</table>
Cognizant of the above mentioned debate, I take a more classical pragmatic perspective and analyze modal particles as modifiers of the illocutionary force and indicators of the speaker’s attitude towards a proposition. Thus, I assume they are illocutionary force indicating devices like intonation, punctuation, interrogative pronouns and adverbs, modal verbs, special affixes and constructions, performative expressions, etc. (cf. Bußmann 1990: 324).

Modal particles may interact with sentence types such as imperatives, interrogatives, and declaratives and modify the impact of a sentence type. Thus, they change the illocutionary force of an utterance. Whether modal particles directly interact with the sentence type or the sentential force of an utterance is an interesting question, which I leave to future exploration. In the target sentences of the studies in this book, sentence type and sentential force have the same attributes as I do not consider specific cases where the two categories diverge.

For now, I investigate modal particles as instantiations of modal meaning and as means that may change the illocutionary force of a sentence. The function of modal particles is thus to denote the speaker’s attitude towards the proposition and to influence the addressee in a certain manner that differs depending on the discourse context and the sentence type. Modal particles are mainly addressee oriented elements of modality and are frequently used in daily dialogs. This context dependency is an important point of issue for modal particle research. The exact semantic contribution is defined by the combination of a core meaning and the different usage constraints based on the communicative aim in the situational context.

As modal particles are non-truth conditional, they contribute on a separate level of meaning. For the purpose of this chapter, I call this extra level of meaning that is separate from the propositional level ‘modal meaning’. More specific distinctions will be given in the analysis in chapter 6. As mentioned above, Potts (2007a) defines expressive meaning, which can be assumed to be on the same level as modal meaning.

I illustrate the way that modal particles contribute to the meaning of an utterance with two of the contexts from my data set and analyze the respective meaning contributions in these cases. The regular sentence of the first context is given in (21a). The information in (21b) provides a background and sets up a context in which the utterances or dialogs are embedded. (21c) shows the discourse in which the target sentence was supposed to be inserted ([. . . ]). Section 6.2.3 in chapter 6 explains the experimental design in detail.
   Tim has his car sold
   ‘Tim has sold his car.’

b. *Info: Tim fährt eigentlich immer mit dem Auto.*
   Info: Tim drive usually always with the car
   ‘Info: Usually, Tim always takes his car.’

c. *Lena: Oh. Das ist aber komisch, Tim kommt zu Fuß.* […]
   Lena: Oh. That is but strange, Tim come by foot […]
   ‘Lena: Oh. That’s strange, Tim is walking. […]’

d. […] = ‘*Tim hat wohl sein Auto verkauft.*’
   Tim has PRT his car sold
   ‘Tim has probably sold his car.’

In (21) the target sentence that should be inserted as indicated by […], usually contains the modal particle *wohl*. In contrast to the regular sentence without the particle, the sentence ‘*Tim hat wohl sein Auto verkauft*’ is not a clear statement. The particle turns an assertion into an assumption and expresses the attitude of a speaker towards the sentence. The speaker is not committed to the truth of the proposition (cf. Helbig 1988: 238). In general, *wohl* is said to be an indicator of emphatic affirmation on the one hand (usually stressed WOHL) and of assumption or supposition on the other hand (unstressed *wohl*).

(22) a. *Wir kommen immer zu diesem Spielplatz.*
   we come always to this playground
   ‘We always come to this playground.’

b. *Emma: Mama, ich will hier nicht länger spielen!*
   Emma: Mum, I want here not longer play
   ‘Emma: Mum, I don’t want to play here any longer!’

c. *Mutter: Was ist los mit dir? […]*
   mother: what is up with you […]
   ‘Mother: What’s up with you? […]’

d. […] = ‘*Wir kommen doch immer zu diesem Spielplatz.*’
   we come PRT always to this playground
   ‘We always come to this playground, I don’t understand.’

Example (22) most effectively triggers the modal particle *doch*, which indicates that the mother does not understand the intention of Emma, as their common knowledge is based on the fact that they usually come to the same playground and usually Emma likes it. As the child’s reaction contradicts
common experiences, the mother reminds the child of this inconsistency. Thus, in general, the particle *wohl* verifies contradictions or inconsistencies (cf. König 1997: 69). The speaker contradicts another interlocutor and confirms the content of dispute (cf. Helbig 1988: 119).

In spoken languages, the meaning differences triggered by the contexts may be expressed by a combination of means such as modal particles, intonation, and gestural means. Nevertheless, the modal particles are quite prominent and frequently triggered in these contexts (see section 6.3.4 in chapter 6 for the results of a control group experiment with German native speakers).

5.3.2. Modal particles in German and Dutch

For German, different researchers have different suggestions for which lexical item may be called a modal particle. Thurmair (1989: 49) lists German modal particles without aiming at an exhaustive list. This list comprises the canonical modal particles *ja, schon, nur, wohl, doch, halt,* and also *bloß, aber, auch, denn, eben, etwa, mal, ruhig,* and probably more. Borderline cases are *vielleicht, eigentlich, überhaupt, genau, nämlich,* and *mir* (the ‘dativus ethicus’) (see Wegener 1989; Gutzmann 2007).

Hartmann (1998: 660) similarly suggests the following list: *aber, auch, bloß, denn, doch, eigentlich, eben, etwa, einfach, erst, halt, ja, nun, mal, nur, schon, vielleicht, ruhig, wohl.* The bold marked modal particles are not mentioned by Thurmair (1989). Ikoma (2007: 107-108) additionally lists *allerdings, eh, einmal, gar, glatt, gleich, immerhin, jedenfalls, man, ohnehin, schließlich, sowieso, überdies,* and *überhinaus.* I do not discuss these items further, but concentrate on the modal particles that were relevant to my experiments (see section 6.2 in the next chapter).

Like German, Dutch exhibits different modal particles such as *maar, toch, een keer, wel, gerust, rustig, eventjes,* etc. The most intensely investigated particles in Dutch are *wel* and *toch.* The Dutch modal particles behave similarly to the German modal particles, exhibit the same general properties, and are subject to selectional constraints. Nevertheless, there are some differences. Foolen (1995) investigates *toch* and compares it to German *doch* on the basis of translation corpora. In declaratives, *toch* is frequently translated by German *doch.* In wh-interrogatives, however, *doch* rarely replaces *toch.* Various means and particles such as German *nur, dann, bloß, eigentlich,* and even a zero marking were used instead.
From a semantic point of view and adopting a core meaning analysis, Dutch *toch* and German *doch* are quite similar. In their contextual uses, however, the two particles behave differently in certain sentence types. The examples of my Dutch data set quite systematically triggered specific particles in Dutch that were comparable to the respective German modal particles. Further investigations between German and Dutch modal particles, however, were not a primary issue and will be neglected throughout this book. The German and Dutch contexts created identical situations and clearly triggered comparable modal meanings.

5.3.3. Modal particles or equivalent expressions in English

English is a language without modal particles. Equivalent lexical expressions to German or Dutch modal particles cannot be found. Even though English as well as German and Dutch belong to the family of the West-Germanic languages, English behaves more like Romance languages in this respect (cf. Waltereit 2001: 1392). In part, this is due to the lack of a structural middle field in these languages, as this is an idiosyncratic property of German, Dutch, and Frisian (cf. Abraham 1991a: 205). Bublitz (1978) and Waltereit (2001) mention, however, that all languages can convey the same meanings. Everything that a speaker of one language may say, can equally be expressed by a speaker of another language (cf. Bublitz 1978: 209 and also the ‘principle of expressibility’ in Searle 1969: 19-22). Thus, the meaning expressed by modal particles in German and Dutch should have equivalent expressions of some kind in English. Some authors doubt this and say that equivalence across languages cannot exist (cf. Scuffil 1982: 77). Especially with regard to modality, cross-language comparison has proven a difficult task, as languages differ in the way they map semantic content onto linguistic form (cf. Bybee & Fleischman 1995). Nevertheless, I adopt the concept of translatability across languages and assume that an equivalent meaning may be conveyed through different linguistic means.

The German-English translations given in König et al. (1990) show that there are no one-to-one translations for the required German modal particles in English. English uses different lexical items, prosodic, and morphosyntactic means to attain the same meaning that modal particles convey in other languages. This is mostly achieved implicitly by minimal accommodation of the sentence or the speech situation to express the different modal
meaning nuances. Various means are used to modify the meaning such as intonation, tag questions, change of sentence type, implicit questions, adverbs, collocations, and paraphrases or combinations of two or more of these devices. A translation of one modal particle often has more than one realization in English depending on the context. In many cases, complex combinations of different means are used to gain a modal meaning parallel to the German sentence with a modal particle.

I explain a few of the different means such as intonation, tag questions, and adverbs, and show the translation for the above mentioned context in example (22). Speaker’s attitude in spoken German can be expressed through either intonational means, gestures, modal particles or other illocutionary devices. Esser (1984) claims that modal particles are optional means and can be replaced by German intonation. Altmann (1993) points out that, within the debate of sentence types, intonation is often underestimated. Nevertheless, intonation alone is not sufficient and specific enough to express certain modal particle interpretations in German (cf. Bublitz 1978: 207). English intonation, however, is frequently used to express speaker’s attitude in translated utterances (cf. Tench 1988: 382-385). On the prosodic level, intonation in English is quite strong and a crucial method of expressing modal meaning. In many English cases, intonation functions as an equivalent means for modal particles (Bublitz 1978: 191).

Intonation is often used in combination with other modal expressions. Interjections, adverbs, and tag questions usually trigger particular intonation patterns that are expressed with the sentence. Furthermore, English often uses collocations to create the modal interpretation of a sentence. Examples of such paraphrases are to be sure, I suppose, don’t dare, and where on earth.

Tag questions fulfill many different functions and can also be used to evoke modal meaning. The tag alleviates the illocutionary force of a question or utterance and indicates the speaker’s attitude towards the proposition (cf. Holmes 1982: 46). For the expression of modal particle meaning, both invariant tags such as eh? or huh?/hunh? (see Norrik 1995) and canonical tags such as has she? or haven’t you? can be used (Holmes 1982: 41). Tags can be affirmative or negative. In example (23), the tag aren’t we? in combination with intonational patterns translates the meaning contribution of the German modal particle doch (cf. Herrmann 2004: 34).

(23) Wir wollen doch heute Abend ins Theater gehen!
we want PRT today evening in theater go
‘We’re to go to the theater tonight, aren’t we?’
The particle *doch* and the tag question both link the sentence to previous discourse. The speaker reminds the addressee of a certain appointment and expresses a lack of understanding towards something that was said or has happened before. Thus, through the use of tag questions, “the speaker modalizes the utterance by introducing implicit information denoting her or his attitude about the communicative exchange” (cf. Cuenca 1997: 10). Similarly to modal particles in German, tags relate to the knowledge and the attitude of both the speaker and the addressee.

In many cases, modal particles are translated by English sentential adverbs such as *really* and *probably*. Operating on a sentential domain, they may similarly express attitudes or degrees of probability. *Probably* may be used to translate modal particles such as *schon* and *wohl*.

There are no systematic rules for how to translate an individual modal particle into English, as the translations are very context dependent. It is thus possible that different modal particles are translated in the exact same manner, and yet by contrast, one individual particle may have various translations in English.

As there are no modal particles in English, the contexts and situations in the experimental tasks were meant to elicit the instantiations of modal meaning that equate with modal particles in German and Dutch. These could be means mentioned above such as intonation, tag questions, adverbs, and collocations.

(24) a. Sentence: Tim has sold his car.
   Info: Tim usually drives around in his car.
   Emma: Look, how strange, Tim arrives by foot. [...
   Engl.: ‘Tim has probably/Maybe Tim has sold his car.’
   Ger.: ‘Tim hat wohl sein Auto verkauft.’

In the case of the above context (example (24)), this means that the combination of the sentence adverbs *probably* or *maybe* and intonational means would replace the modal particle and similarly expresses the meaning that is conveyed by the modal particle *wohl* in German.

For the ISL data, however, the English realizations were not directly relevant. The task described in chapter 6 ‘Modality and Modal Particles in Sign Languages’ independently elicited modal meaning without the spoken/written language specifications of a modal sentence in English. For comparative reasons, the English expressions were considered when analyzing
the results for sign languages. The important question, however, was to find out how modal meaning is realized in sign languages. The results are shown in chapter 6.

5.4. Conclusion

Setting the stage for an investigation of modal meaning in sign languages, this chapter has discussed modality, modal meaning, and modal particles by summarizing spoken language research on these issues. As a semantic-pragmatic notion, ‘modality’ was defined as the linguistic phenomenon of expressing thoughts about situations that need not be real. The various means such as modal words, modal phrases, and modal constructions can broadly be divided into epistemic and deontic expressions. A specific subcategory of modality defined as ‘modal meaning’ in this book equates the meaning that is usually conveyed by modal particles in some languages such as German, Dutch, and Italian. Modal particles have inherent characteristics that allow us to distinguish them from other particles. Reviewing the debate about a minimalistic and a maximalistic approach, this book takes side with a moderate minimalistic account and divides the particle class into subgroups such as focus, particles, modal particles, negation particles, and discourse particles.

Modal particles operate on the level of the clause and modify the illocutionary force of the sentence in a non-truth conditional way. More specifically, they express the speaker’s attitude towards the proposition. The particular meaning contribution triggered by modal particles in German and Dutch is investigated in this study. In English, modal particles do not exist and usually find their equivalents in means such as intonation, sentential adverbs, tag questions, and collocations. I developed and presented a specific context creation task that triggers modal particles in spoken languages and elicits modally modified target sentences without direct written translations. Thus, the task elicits aspects of modal meaning in general, and the results from spoken languages and signed languages can be compared with each other in a modality-independent fashion. The results of the task showing how this extra level of meaning is expressed in sign languages are presented and explained in chapter 6 that investigates modal particles in DGS, NGT, and ISL.
Chapter 6
Modality and modal particles in sign languages

As natural languages, sign languages are expected to show expressions for phenomena such as modality and verbal mood. Universally, languages systematically convey modally modified meaning and express modal aspects as described in chapter 5. Despite many common realization methods for modal aspects of speech, many languages have various different means available and show language-specific patterns. Lacking cross-linguistic research on modality in signed languages, it is the aim of this book to add an important part of the puzzle and investigate the realization of one particular aspect of modal meaning in sign languages, namely the meaning nuances triggered by modal particles or modal particle related contexts.

Section 6.1 summarizes the state of the art concerning research on modality in sign languages and presents studies on modality in general and a preliminary study on modal particles in particular. Section 6.2 focuses on the modal meaning task that was developed to elicit the contexts and target sentences that express modal meaning. The results of the elicitation process are presented in section 6.3 through systematically transcribed examples. On the basis of a debate between representatives of syntactic and prosodic approaches to nonmanual intonation patterns, I discuss nonmanuals and their interpretation in sign languages. The analysis of the realization patterns of modal meaning, the semantics of the nonmanual components, and their distribution behavior are discussed in section 6.4 of this chapter.

6.1. Modal meaning and modal particles in sign languages

In an attempt to provide an overview of research on modality in sign languages worldwide, this section presents the literature concerning the aspects of modality that have been investigated in sign languages so far. As research on modality in sign languages has been extremely rare, I summarize different papers on this issue and present results found for DGS, ASL, Spanish Sign Language (LSE, Lengua de Signos Española), and Brazilian Cities Sign Languages (BCSL) in section 6.1.1. Interesting work on modality in ASL has been done by Wilcox & Wilcox (1995), Schaffer (2000, 2002, 2004), and
6.1.1. Modality and modal meaning

So far, modality has not been systematically studied for sign languages. Nevertheless, some interesting work was dedicated to deontic and epistemic modals, and investigated modal verbs and other lexical forms of the realization of modality and modal meaning. Therefore, I summarize a few approaches to modals in different sign languages such as BCSL, ASL, LSE, and DGS. Ferreira-Brito (1990) investigates epistemic, alethic, and deontic modality in sign languages of Brazil and shows that BCSL have equivalent lexical signs for various Portuguese modals, even though the number of items is said to be smaller. The gradual differences of meaning nuances are expressed by movement alternations (Ferreira-Brito 1990: 232). In an attempt to support the twofold distinction of modality (deontic/epistemic) suggested by Lyons (1977) and instead of the threefold distinction including alethic modals, Ferreira-Brito (1990: 233-235) scrutinizes modals in BCSL and lists various explicit lexical means to express deontic and epistemic modality: sentence initial modal verbs such as THINK, KNOW, DOUBT, NEED, and CAN (see example (25a)), sentence-final modals such as OBVIOUS (see example (25b)), and modal adjectives such as IMPOSSIBLE, OBLIGATORY, and OPTIONAL (see example (25c)).
Modal meaning and modal particles in sign languages 109

(25) a. (1) DOUBT SHE LIKE YOU
   ‘I doubt that she likes you.’

b. THEY FIANCÉ, OBVIOUS
   ‘It is obvious that they are fiancés.’

c. IMPOSSIBLE . . . YOU NOT WATER WET THIS RAIN
   ‘It is impossible for you not to get wet in this rain.’

Furthermore, modal adverbs such as NEVER and MAYBE and nouns such as OBLIGATION fulfill similar functions. Ferreira-Brito (1990: 232,250-251) argues that deontic modality is more concrete than epistemic modality and she establishes scales of degree variants for deontic and epistemic expressions.

Deontic modality in ASL is expressed by lexical modals such as MUST, SHOULD, and CAN. The ambiguity of lexical signs with regard to deontic and epistemic interpretations can also be found in ASL (cf. Wilcox 1996: 481,488-489 on MUST and MAYBE). However, the author agrees with Wilcox & Wilcox (1995: 145) that in general, MUST and SHOULD cannot have epistemic readings in most cases, and concludes that the exceptional cases indicate a grammaticalization from deontic to epistemic uses of modals in ASL (cf. Wilcox 1996: 490).

Wilcox (1996: 482) notes that the phonological form of weak modals are often reduplicated versions of stronger signs and exhibit cyclic movements instead of a single stressed movement (MUST/SHOULD, CAN/POSSIBLE, FEEL(sense)/FEEL(epistemic). Furthermore, the authors investigating ASL state that the deontic modals grammaticalized from other signs of ASL and signs of Old French Sign Language: STRONG → CAN and IL-FAUT (it is necessary) → CAN’T. Syntactically, modals may either occur at the end of the VP, preceding the verb or in a doubling construction preceding and following the VP (cf. Wilcox & Wilcox 1995). The ASL examples (26a) and (26b) can be found in Schaffer (2004: 183,186).

(26) a. [BEFORE CLASS]-top MUST LINEUP-2h
   ‘Before class we had to line up.’

b. LOOK SENTENCE MUST
   ‘They needed to watch the whole sentence.’

Epistemic possibility is encoded in items such as POSSIBLE and MAYBE and their negated variants. IMPOSSIBLE, however, is a separate lexical sign and not a negated variant of POSSIBLE. Negated forms of deontic and epistemic modals are not necessarily derived from the positive modal. Schaffer 2002
demonstrates this with CAN and CAN’T in ASL. For epistemic modals in ASL, similar grammaticalization processes have been noted as for deontic modals: BRIGHT → OBVIOUS, MIRROR → SEEM. Epistemic modality may also be realized through signs such as FEEL, SEEM, and OBVIOUS, through the sign FUTURE, through tag questions such as RIGHT? and HUH?, for instance, and through nonmanual signals (cf. Wilcox & Wilcox 1995: 144,146).

It has to be emphasized that Wilcox & Wilcox (1995: 146-147) include a brief discussion about nonmanual expressions for modality. The authors show the interrelation between epistemic probability and the nonmanuals accompanying imperatives, obligations, and requests for information. The nonmanuals that convey the degree of the signers’ confidence and commitment, for instance, are compared to intonation. In deontic modals, the nonmanuals accompany the entire verb phrase. Nonmanuals for epistemic modality may either accompany manual modals in ASL or modify the entire sentence (cf. Wilcox & Wilcox 1995: 148).

Generally assuming modality is expressed by either modals or grammatical mood, Schaffer (2000) investigates the forms of modality in ASL and discusses equivalent expressions. Adopting Bybee (1985)’s notion of ‘agent-oriented modality’, she distinguishes between pre-verbal markers, which are always agent-oriented, and clause-final markers, which have either deontic (agent-oriented) or epistemic functions. Schaffer (1999, 2000, 2004) argues that most epistemic modals occur sentence-finally in ASL and are thus higher with respect to speaker subjectivity than pre-verbal markers. The syntactic position indicates the sentential scope of the epistemic modal. Thus, the position of a modal may mark the difference between deontic and epistemic interpretation. A constellation of nonmanual features is further associated with the sentence-final modal in epistemic contexts. If the following lexical items occurred in sentence-final position, they were analyzed as epistemic markers in ASL: MUST/SHOULD, CAN/POSSIBLE, SEEM, FEEL, OBVIOUS, FUTURE, MAYBE, DOUBT, and IMPOSSIBLE (cf. Schaffer 2004: 189).

On a continuum of epistemic modals ranging from IMPOSSIBLE to OBVIOUS, every stage of epistemic commitment may be strengthened or softened through nonmanual features. The signs may thus be manually (movement, reduplication, intensity of articulation) or nonmanually (body, head, and face) modified (cf. Schaffer 2004: 192). The fact that manual and nonmanual markings in combination contribute directly to the meaning in a specific way and mark the degree of commitment in certain cases is an important aspect to modality in sign languages. The spreading options of the nonmanuals and their specific functions, however, were not explicitly discussed.
As mentioned above, Schaffer (2002) has also studied the negation of modal expressions marking necessity and possibility in ASL. Furthermore, Schaffer (2006) provides insight into the acquisition of modality markers among deaf children and offers interesting results concerning the acquisition stages of modal markers in ASL.

Another paper by Wilcox & Schaffer (2006) provides an overview of modality in ASL and summarizes the above discussed results for ASL. Most importantly they confirm the findings that epistemic modals and the degree of certainty are expressed by a combination of manual and nonmanual means (e.g. furrowed eyebrows and head nods). As the epistemic modals have scope over the entire sentence, they mostly occur sentence-finally in ASL. Deontic modals, on the other hand, were typically found pre-verbally. See example (27) for the different interpretations of SHOULD. In (27a), a deontic modal occurs pre-verbally (cf. Schaffer 2004: 187) and in (27b), the sentence-final position leads to an epistemic interpretation of the modal (cf. Wilcox & Schaffer 2006: 226).

(27) a. SHOULD COOPERATE, WORK TOGETHER, INTERACT
   ‘They (deaf community) should cooperate and work together.’
   b. [LIBRARY HAVE DEAF LIFE]-top [SHOULD]-bf/hn
   ‘The library should have/I’m sure the library has Deaf Life.’

Within the framework of Dik’s Functional Grammar, Salazar (2008) investigated modality in LSE (Spanish Sign Language). As LSE does not show morphological modification on the verb to indicate mood, Salazar (2008) concludes that modality is expressed through lexical items. He opposes signs expressing inherent modality, such as MUST, CAN, and WANT to signs related to objective and subjective modality. The latter is expressed by adjectives, nouns, and adverbs such as SURE, IMPOSSIBLE, DOUBT, OPINION MINE, and WISH (as in the Spanish adverb ojalá).

In Happ & Vorköper (2006: 448-451), modality in DGS is explained along three basic categories for modality, namely deontic modality, epistemic modality, and modality related to the speaker’s attitude. In the following, I briefly list the options for the realizations of modality in DGS. The realization patterns of deontic and epistemic modality and the expressions of speaker’s attitude in DGS are discussed below.

With regard to deontic modality, DGS exhibits modal auxiliaries such as KANN (can), SOLL (should), MÜSS (must), DÜRF (be-allowed), etc., which
are used to modify the sentence similarly to German modals. Exceptional cases are MÜSS and SOLL, as they can only be used if a third person has ordered or suggested the respective activity. The sentence ‘Ich muss einkaufen gehen. Mein Kühlschrank ist leer.’ (I have to go shopping. My fridge is empty.) could not be translated by a sentence including MÜSS in DGS, but can be expressed by a sign glossed HINNEHM (accept), nonmanuals, and movement marking on the verb (cf. Happ & Vorköper 2006: 364). The modals usually occur in sentence-final position (see (28)), but some modal verbs like WÜNSCH, for instance, may also occur after the subject in a VP-adjoined position. The intuitions of signers seem to differ with respect to which of the modal verbs might occur in the VP-attached position. No study has yet tested modal verbs and their distribution in DGS. Particularly interesting is the fact that a doubling option is widely accepted as in ASL (see (29)).

(28) EMMA KLAVIER SPIEL KANN
    emma piano     play can
    ‘Emma plays the piano.’

(29) EMMA WÜNSCH GEBÄRDENSPRACHE LERN WÜNSCH
    emma wish     sign-language    learn wish
    ‘Emma wants to learn sign language.’

Modal verbs in DGS do not have epistemic readings. Epistemic modality in DGS is realized mainly by nonmanual means such as facial expressions, head movements, and body positions. The scope of these modal nonmanuals is the complete sentence. In addition, sentential adverbs such as VIELLEICHT (maybe), WAHRScheinlich (probably), MöGLICH (possibly), SICHER (surely), and BESTIMMT (certainly) are very often used to indicate the epistemic modality of a sentence. These adverbs usually co-occur with specific nonmanuals expressing the epistemic reading. Syntactically, they appear sentence initially with a few sentence-final exceptions (cf. Happ & Vorköper 2006: 367-369). Most importantly, nonmanuals such as facial expressions and body positions that co-occur with the sign MöGLICH (possible) and scope over the modal sentence may indicate gradual differences of the sentence along the continuum of probability and improbability (see Happ & Vorköper 2009). Conjunctive, for instance, is expressed by body movements showing the degree of probability with which the meaning of a sentence is conveyed. The conjunctive use as in spoken language can be expressed by the use of body leans in DGS. The body lean may function as an indicator of the degree
to which the speaker is committed to the proposition. A description of those nonmanual expressions and an analysis of their grammatical status, however, is still missing in the literature.

Speaker’s attitude is also said to be realized nonmanually (facial expressions and body leans) and via sentential adverbs such as GLÜCKLICHERWEISE (happily) and HOFFENTLICH (hopefully) (cf. Happ & Vorköper 2006: 366). The interplay of the nonmanuals is said to express the attitudinal meaning and its degree variants but has not been clarified systematically. In a side note, the authors mention a sign glossed as MODALPARTIKEL (modal particle) that looks like SO-IST-ES (it’s like this). No further explanations are given. I suppose it is not meant to be a modal particle in the same sense as modal particles were discussed in chapter 5. Personal discussions with the authors confirm this impression. However, more research is required to discuss and clearly identify the different functions of this sign.

In a nutshell, for sign languages, most research has been done on lexical items to express modality such as modal verbs, adverbs, nouns, and adjectives. Epistemic modals that seem to have evolved from deontic modals in many cases are often realized nonmanually and take sentential scope. Thus, sign languages exhibit various means to express the different categories of modality.

The modality aspects defined as modal meaning in section 5.1.2 of chapter 5 are mainly expressed by nonmanual features and specific sentential adverbs in DGS, NGT, ISL, and most probably other sign languages as well. This book specifically investigates the sign language equivalents of exactly those aspects of modal meaning that are triggered by contexts involving modal particles in German and Dutch and equivalent expressions in English.

6.1.2. Modal particles in corpora data

Searching the corpora that were available did not prove to be a useful method for detecting modal particles or related expressions. From the corresponding items that were automatically found in the corpora data, it was hard to determine which of them were used as modal particles. As expected, it was not possible to find answers to the question of how sign languages realize modal particles and the respective modal meaning.

The English language does not have modal particles and the various alternative ways of modal expressions could not be systematically searched for in
corpora. As I was interested in a particular subset of modal meanings that correspond to German and Dutch modal particles, this process would not have been very fruitful either. This is the reason I did not use the ISL corpus for a ‘modal particle’ search.

In the NGT corpus, I searched for *wel, maar, dan, even, toch*, and *eens*. A hit within the annotations was sometimes part of a longer expression such as DANKJEWEL (thank you), EVEN-WACHTEN (wait a moment), and HET-WIL-MAAR-NIET-LUKKEN (it just won’t work). The appropriate matches are summarized in table 8. It was not possible to analyze all of the items as to whether they were modal particles or some corresponding homonymous items. I leave this deeper investigation for further post elicitation testing in cooperation with Dutch native speakers and indicate this with the use of question marks in the table below.

<table>
<thead>
<tr>
<th>Searched item</th>
<th>Hits: all</th>
<th>Hits: individual item</th>
<th>Modal particle</th>
</tr>
</thead>
<tbody>
<tr>
<td>wel</td>
<td>14</td>
<td>5</td>
<td>?</td>
</tr>
<tr>
<td>maar</td>
<td>147</td>
<td>64</td>
<td>?</td>
</tr>
<tr>
<td>dan</td>
<td>41</td>
<td>40</td>
<td>?</td>
</tr>
<tr>
<td>even</td>
<td>30</td>
<td>10</td>
<td>?</td>
</tr>
<tr>
<td>toch</td>
<td>51</td>
<td>50</td>
<td>?</td>
</tr>
<tr>
<td>eens</td>
<td>8</td>
<td>0</td>
<td>?</td>
</tr>
<tr>
<td>Sum</td>
<td>291</td>
<td>169</td>
<td>?</td>
</tr>
</tbody>
</table>

Glosses such as ZEG-MAAR (say-PRT) (5 occurrences) or LAAT-MAAR (let-PRT) (64 occurrences) indicate that the signs *SAY* and *LET* were signed in a modal modified way. Interestingly, the translations comprised only four of the investigated items, one *dan*, one *wel*, and two *maar*. Only one was judged to be a modal particle, but it was not obvious which manual or non-manual expressions corresponded to the modal particle or what part of the signing made the annotator decide to use the modal particle in the respective context. Sign language annotations are either performed by deaf researchers who had learned written language as a second language and were not natives in their translations, or by hearing usually non-native signers who might have missed the subtle expressions that would have triggered the use of a modal particle. Either way, the corpora were not designed to account for these meaning nuances and thus the results were scarce and hardly analyzable.
As mentioned above, findings from previous studies indicated that the respective sentence modifications tend to be realized nonmanually and that sign languages additionally have other means to express the expected modal meaning. However, it was not yet clear what kind of facial expressions and variations I needed to look for. The data of natural signing could not give further evidence concerning which facial expression or which combination of features were meant to express modal meaning because contrastive examples and minimal pairs were missing. It was thus not possible to make any serious predictions or theoretical assumptions about these topics by searching natural corpora data alone. Nevertheless, the results formed an interesting and important starting point for further systematic investigation. The following section briefly summarizes preliminary studies on these issues related to modal particles.

6.1.3. Modal particles in sign languages

Modal particles have not been previously investigated in sign languages. Initial results on modal particles in DGS and ISL are presented in Herrmann (2004, 2007). Based on written stimuli, Herrmann (2007) discusses minimal pairs with and without the elements modifying a sentence and compares the realization methods of both sign languages to the spoken languages German and English.

The shortcomings of this kind of data elicitation are discussed in chapter 4. Still, this pilot study brought to light some very interesting results. The informants had proficient written language skills and systematically translated between both languages. The data revealed consistent differences between the regular and the modal particle modified sentences.

The results show the importance of nonmanual features for the expression of modal meaning in both sign languages. The nonmanuals usually took the sentence as their domain and scoped over the full proposition. In addition, both languages used gestures, sentential adverbs, and in rare cases, changed the word order accordingly. Even though ISL used circumlocutions, adverbs, and gestures more frequently than DGS, the nonmanual features were most systematically used in both sign languages. The consistency of the nonmanual markers in terms of scope, spreading domain, constituent alignment, and clear on- and offsets led to a grammatical analysis of the features at least for DGS (cf. Herrmann 2007).
Nevertheless, we still lack systematic syntactic, semantic, and prosodic analyses. In this book, contexts and independent tasks were created to avoid written modal particles or modal expressions in the elicitation material. I provide the systematic approach that is required following the initial findings. The information concerning the task is given in section 6.2, the results are described in section 6.3, and the analysis is presented in section 6.4.

6.2. Modal meaning task

Developing a method to elicit modal meaning is in itself a difficult task. The contexts created for the target sentences involving modal particles very often required situational specificities of spontaneous speech and included the dialog interaction between two participants. Contexts were thus created in order to reflect communicative interaction as naturally as possible incorporating conversations, attitudinal aspects, and varying expectations. As mentioned before, written stimuli are problematic, but necessary and thus treated with care.

The information about the experiment for modal meaning is based on chapter 4, and everything discussed in that chapter is also valid for this section. In section 6.2.1, the relevant metadata of the informants that participated in this study can be found. I provide a similar list of the deaf informants as in chapter 4 and also show the metadata of the hearing control group. The experimental design is explained and discussed in section 6.2.2 and the actual task is described in section 6.2.3. In section 6.2.4, a brief summary of the resulting data set and the specific annotation requirements conclude this section on the methodology that was used for this study eliciting modal meaning in sign languages.

6.2.1. Informants

The full range of participants performed the modal meaning task, so the overview of the metadata is comparable to the table in chapter 4. First, I provide information about the main group of interest in 6.2.1.1, namely the Deaf informants that were video recorded when they performed the task described in this chapter. The sign language data for DGS, NGT, and ISL are not complete without the respective metadata of the participants. Even though native
status was one of my criteria for participant selection, the status among the deaf individuals varied. In the following section 6.2.1.2, I also provide some information about the hearing participants of the German control group that performed exactly the same experiment as the Deaf informants.

6.2.1.1. Deaf informants

The video data of the Deaf informants constitute the heart of the project and provide the invaluable basis for the digitized corpus that was created, annotated, and analyzed. The respective metadata for each informant were elicited by a short questionnaire that the participants filled out before the sessions. Furthermore, they gave their permission for data processing and publication.65

The following table 9 summarizes some relevant metadata of the Deaf informants from each country, listing an anonymous name abbreviation for each signer, age, gender, sign language acquisition status including deafness and signing competence of the parents, the signers’ first language, and the percentage of sign language usage in daily life communication. Due to privacy reasons, I did not individually list the cities or regions they were from and/or lived in.

All German informants were between 27 and 45 years old. Three of the signers were women and five of them men. Most of the signers were deaf native signers, meaning that they had signing parents, and were either born deaf or became deaf. Two informants were near-native signers, which per definition in this book were signers that have non-signing parents, but still acquired sign language early in childhood, namely before the age of five. All of them considered DGS their preferred language and indicated that they use DGS approximately 70-90% of the time in their daily life.

Note that for signer HH the age given for the category “signing at the age of” gives two figures. The signer explained that she got in contact with DGS at the age of six. Nevertheless, she emphasized that the use of DGS as it is described in linguistics only started at the age of 28. Compared to the other informants, age six would nevertheless be the most comparable figure. It would generally be more appropriate to describe and judge the signing competences by using independent test systems or categorizations such as the ‘Common European Framework of Reference for Languages (CEFR)’ and its six levels of competence categories, for instance.66 Furthermore, the RWTH
Table 9. Metadata of the deaf participants

<table>
<thead>
<tr>
<th>Signer</th>
<th>Age</th>
<th>Gender</th>
<th>Born</th>
<th>Deaf at age</th>
<th>Signing at age</th>
<th>Deaf, signing parents</th>
<th>Signing environment</th>
<th>First or preferred language</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA</td>
<td>35</td>
<td>m</td>
<td>/</td>
<td>2</td>
<td>4</td>
<td>/</td>
<td>60-70%</td>
<td>DGS</td>
</tr>
<tr>
<td>BB</td>
<td>33</td>
<td>m</td>
<td>yes</td>
<td>/</td>
<td>0</td>
<td>yes</td>
<td>70%</td>
<td>DGS</td>
</tr>
<tr>
<td>CC</td>
<td>39</td>
<td>m</td>
<td>yes</td>
<td>/</td>
<td>0</td>
<td>yes</td>
<td>90%</td>
<td>DGS</td>
</tr>
<tr>
<td>DD</td>
<td>39</td>
<td>m</td>
<td>yes</td>
<td>/</td>
<td>4</td>
<td>/</td>
<td>70%</td>
<td>DGS</td>
</tr>
<tr>
<td>EE</td>
<td>36</td>
<td>f</td>
<td>yes</td>
<td>/</td>
<td>0</td>
<td>yes</td>
<td>70%</td>
<td>DGS</td>
</tr>
<tr>
<td>FF</td>
<td>28</td>
<td>m</td>
<td>yes</td>
<td>/</td>
<td>0</td>
<td>yes</td>
<td>80%</td>
<td>DGS</td>
</tr>
<tr>
<td>GG</td>
<td>27</td>
<td>f</td>
<td>/</td>
<td>3</td>
<td>0</td>
<td>yes</td>
<td>90%</td>
<td>DGS</td>
</tr>
<tr>
<td>HH</td>
<td>43</td>
<td>f</td>
<td>/</td>
<td>5;10</td>
<td>6/28</td>
<td>/</td>
<td>60-70%</td>
<td>DGS</td>
</tr>
<tr>
<td>II</td>
<td>41</td>
<td>m</td>
<td>yes</td>
<td>/</td>
<td>5</td>
<td>/</td>
<td>70%</td>
<td>NGT</td>
</tr>
<tr>
<td>JJ</td>
<td>28</td>
<td>m</td>
<td>yes</td>
<td>/</td>
<td>0</td>
<td>yes</td>
<td>80%</td>
<td>NGT</td>
</tr>
<tr>
<td>KK</td>
<td>34</td>
<td>f</td>
<td>yes</td>
<td>/</td>
<td>14</td>
<td>/</td>
<td>95%</td>
<td>NGT&amp;NmG</td>
</tr>
<tr>
<td>LL</td>
<td>45</td>
<td>f</td>
<td>yes</td>
<td>/</td>
<td>0</td>
<td>yes</td>
<td>100%</td>
<td>ISL</td>
</tr>
<tr>
<td>MM</td>
<td>46</td>
<td>f</td>
<td>yes</td>
<td>/</td>
<td>9</td>
<td>/</td>
<td>90-100%</td>
<td>ISL</td>
</tr>
<tr>
<td>NN</td>
<td>41</td>
<td>m</td>
<td>yes</td>
<td>/</td>
<td>10</td>
<td>/</td>
<td>85-95%</td>
<td>ISL</td>
</tr>
<tr>
<td>OO*</td>
<td>48</td>
<td>m</td>
<td>/</td>
<td>0;6</td>
<td>4</td>
<td>/</td>
<td>90%</td>
<td>ISL</td>
</tr>
<tr>
<td>PP*</td>
<td>54</td>
<td>f</td>
<td>yes</td>
<td>/</td>
<td>20</td>
<td>/</td>
<td>90%</td>
<td>ISL</td>
</tr>
</tbody>
</table>

Aachen has created independent testing systems to evaluate sign language competences. Haug (2011) presents computer-based tests for German Sign Language skills of deaf children. As this was not part of the project and requires independent tests and evaluations, I take the questionnaires and the basic metadata that were elicited for this study as reference points.

The age of the NGT participants ranged within an age bracket of 28-41, similar to the German DGS group. Two men and one woman participated in the study. Two signers were native signers with deaf parents. Having hearing parents, one signer acquired NGT quite late at the age of 14. Until NGT was correctly learned, the informant used Manually coded Dutch (NmG, Nederlands met Gebaren). However, this signer has worked in a signing environment for many years and was judged to be very proficient in NGT by various linguists and deaf and hearing colleagues.
With respect to the informants from Ireland, the age bracket was 41-54. Three female signers and two male signers took part in the data collection process. However, the signers OO and PP have to be separated from the group. Their starred name abbreviations in table 9 indicate that videos from these signers were recorded in 2003/2004 within the framework of a former study. These informants worked as teachers at the NAD (National Association for the Deaf) and in a private school. Despite being slightly older than the other informants, their education, lifestyle, work environment, and social activities are comparable. Ninety percent of their private and business contacts in daily life are deaf or hearing signers. The data from these two informants originate from a slightly different experiment and are therefore considered separately. The results were just analyzed as supportive elements to the presented studies and actual investigations.

In sum, all 16 signers, 9 male and 7 female participants, were between 25-55 years old. 7 were native signers, 4 near-native signer, and 5 acquired their sign language after the age of 5 in their teens. Sign language was their first language and/or preferred means of communication and they indicated a high percentage of signing in their daily routine (average of ca. 82%), including social interaction, private life, and business.

6.2.1.2. Hearing informants - Control group

The metadata of the German control group briefly discuss the relevant issues with regard to the participating hearing informants. The same condition as for the deaf participants concerning native language status applied to the hearing group. The following table 10 lists relevant information about the participants and gives an overview of the group. The metadata comprise name abbreviations, age, gender, and native language(s).

One male and four female participants took part in the experiment as a control group. Their native language was German and one of them was bilingual, German and Turkish. They were between 19 and 27 years old. All of them were university students from different faculties, and did not know the name of the interviewer, the department involved, the research field, or what the study was about. They had responded to an anonymous notice in a copy shop or on bulletin boards of the Goethe-University of Frankfurt am Main and communicated with an imaginary ‘Research-Team’ via a newly created e-mail address.
Table 10. Metadata of the hearing participants

<table>
<thead>
<tr>
<th>Speaker</th>
<th>Age</th>
<th>Gender</th>
<th>First language</th>
<th>Bilingual</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>27</td>
<td>f</td>
<td>German</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>27</td>
<td>f</td>
<td>German</td>
<td>Turkish</td>
</tr>
<tr>
<td>C</td>
<td>20</td>
<td>f</td>
<td>German</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>22</td>
<td>m</td>
<td>German</td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>19</td>
<td>f</td>
<td>German</td>
<td></td>
</tr>
</tbody>
</table>

6.2.2. Experimental design

Profiting from the experience of former studies, the elicitation of modal meaning in this study applied an approach based on contexts. Thus, the study worked without written target sentences involving modal particles or equivalent expressions. It was, however, hardly possible to elicit modal meaning and the specific contexts by visual stimuli in an experimental setting, so written stimuli for the contexts were still necessary. To avoid mere translations, I decided on a context creation and story telling task based on dialogs and necessary background information. The signing was then performed independently from the reading. Further details about the procedure of the task are given in section 6.2.3.

To elicit the sentences that constituted minimal pairs of the regular sentence and the modified target sentence, I created 30 sentences and suitable contexts and dialogs that triggered the particular modal meanings I was interested in (see table 12 for the categories). The following table in 11 lists the basic non-modal sentences in German, English, and Dutch. These sentences had to be adopted and modified according to the context that was created for each sentence.

The data set comprised 11 declarative sentences, 5 imperatives, and 14 interrogatives. In these sentences, the sentence type also determines the sentential force of the utterance (see chapter 5 section 5.3.1 for a distinction). I categorized the target sentences according to the modal meaning that they convey. The sentences were grouped into five categories as described in table 12. The categories explain the meaning contribution of the modal elements triggered by the contexts. Thus, the meaning of a target sentence can be described in terms of the interrelation between the sentential force and the contribution due to modal modifications.
Table 11. German, English, and Dutch target sentences for the modal meaning task

<table>
<thead>
<tr>
<th>Nb.</th>
<th>German</th>
<th>English</th>
<th>Dutch</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Wir sind schon in diesem Park gewesen.</td>
<td>We have been to that park before.</td>
<td>We zijn al een keer in dit park geweest.</td>
</tr>
<tr>
<td>3</td>
<td>Wie heißt dein Hund?</td>
<td>What’s the name of your dog?</td>
<td>Hoe heet je hond?</td>
</tr>
<tr>
<td>4</td>
<td>Mach deine Hausaufgaben!</td>
<td>Do your homework!</td>
<td>Maak je huiswerk!</td>
</tr>
<tr>
<td>5</td>
<td>Tim hat sein Auto verkauft.</td>
<td>Susan has sold her car.</td>
<td>Tim heeft zijn auto verkocht.</td>
</tr>
<tr>
<td>6</td>
<td>Ist Tim schon zu Hause?</td>
<td>Is Peter at home already?</td>
<td>Is Tim al thuis?</td>
</tr>
<tr>
<td>7</td>
<td>Wer hat diesen Brief geschrieben?</td>
<td>Who wrote that letter?</td>
<td>Wie heeft deze brief geschreven?</td>
</tr>
<tr>
<td>8</td>
<td>Hat du ein Auto?</td>
<td>Do you have a car?</td>
<td>Heb je een auto?</td>
</tr>
<tr>
<td>9</td>
<td>Warum muss Tim ins Krankenhaus?</td>
<td>Why does Peter go to hospital?</td>
<td>Waarom moet Tim naar het ziekenhuis?</td>
</tr>
<tr>
<td>10</td>
<td>Wo ist mein Schuh?</td>
<td>Where is my shoe?</td>
<td>Waar is mijn schoen?</td>
</tr>
<tr>
<td>11</td>
<td>Laß sie spielen!</td>
<td>Let them play!</td>
<td>Laat ze spelen!</td>
</tr>
<tr>
<td>12</td>
<td>Spring ins Wasser!</td>
<td>Jump into the water!</td>
<td>Spring in het water!</td>
</tr>
<tr>
<td>13</td>
<td>Was bedeutet dieser Satz?</td>
<td>What does this sentence mean?</td>
<td>Wat betekent deze zin?</td>
</tr>
<tr>
<td>14</td>
<td>Wo ist mein Autoschlüssel?</td>
<td>Where are my car keys?</td>
<td>Waar is mijn autosleutel?</td>
</tr>
<tr>
<td>15</td>
<td>Ich werde den Vortrag bis morgen fertig machen.</td>
<td>I will finish the presentation by tomorrow.</td>
<td>Ik heb de presentatie morgen klaar. Dat lukt me wel.</td>
</tr>
<tr>
<td>16</td>
<td>Mama nimmt immer die gleichen Zutaten.</td>
<td>Mum always uses the same ingredients.</td>
<td>Mama gebruikt altijd dezelfde ingrediënten.</td>
</tr>
<tr>
<td>17</td>
<td>Das ist Herr Berg, dein Englischer Lehrer.</td>
<td>This is your former English teacher from school.</td>
<td>Dat is meneer Berg, je leraar Engels.</td>
</tr>
<tr>
<td>18</td>
<td>Wer ist dein bester Freund?</td>
<td>Who is your best friend?</td>
<td>Wie is je beste vriend?</td>
</tr>
<tr>
<td>19</td>
<td>Mach das Fenster sauber! Putz das Fenster!</td>
<td>Clean the window!</td>
<td>Poets dat raam! Maak dat raam schoon!</td>
</tr>
<tr>
<td>20</td>
<td>Tim ist schon zu Hause.</td>
<td>Peter is already at home.</td>
<td>Tim is al thuis.</td>
</tr>
<tr>
<td>21</td>
<td>Hat Tim sein Auto verkauft?</td>
<td>Has she sold her car?</td>
<td>Heeft Tim zijn auto verkocht?</td>
</tr>
<tr>
<td>22</td>
<td>Ich werde den Weg finden.</td>
<td>I’ll find the way.</td>
<td>Ik vind de weg.</td>
</tr>
<tr>
<td>23</td>
<td>Bist du wieder gesund nach deiner Grippe?</td>
<td>Are you fit again after that pneumonia?</td>
<td>Ben je weer beter na je verkoudheid?</td>
</tr>
<tr>
<td>24</td>
<td>Wie viel Uhr ist es jetzt?</td>
<td>What’s the time?</td>
<td>Hoe laat is het?</td>
</tr>
<tr>
<td>25</td>
<td>Wir haben über Tim geredet.</td>
<td>Yesterday, we were talking about Peter.</td>
<td>Gisteren hebben we over Tim gesproken.</td>
</tr>
<tr>
<td>26</td>
<td>Wir kommen immer zu diesem Spielplatz.</td>
<td>We’ve always come to this playground.</td>
<td>We gaan altijd naar deze speelplaats.</td>
</tr>
<tr>
<td>27</td>
<td>Wo gehen wir hin?</td>
<td>Where are we going?</td>
<td>Waar gaan we heen? Naar welke stad gaan we?</td>
</tr>
<tr>
<td>28</td>
<td>Mach die Tür zu!</td>
<td>Close the door!</td>
<td>Doe de deur dicht!</td>
</tr>
<tr>
<td>29</td>
<td>Emma ist krank.</td>
<td>Susan is ill.</td>
<td>Emma is ziek.</td>
</tr>
<tr>
<td>30</td>
<td>Ist es legal die Schienen zu überqueren?</td>
<td>Is it legal to cross the train tracks?</td>
<td>Is het legaal/toegestaan het spoor over te steken?</td>
</tr>
</tbody>
</table>

6.2.3. Task

A thorough and transparent description of the materials, the instructions, and the procedure for the actual task to elicit modal meaning in sign languages offers insight into the methodology used for the data elicitation in the study. First, I provide examples of the slides which were displayed on a laptop screen or projected onto a wall via beamer. The sentences and contexts appeared successively and alternated with blank slides (cf. figure 18). As mentioned in chapter 4, a signing interviewer was leading the participants through the task. The instructions were always given in sign language and could be paraphrased as follows.

*The task is always structured in the same systematic way. First, a sentence appears on the screen. Please read the sentence and keep it in mind. This*
Table 12. Categories of modal meaning

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Sentences</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1 Reference to Common Knowledge</td>
<td>addresssee is knowing, speaker and addressee are committed to the information</td>
<td>1, 3, 17, 18, 25, 27</td>
</tr>
<tr>
<td>A2 Reference to Evident Knowledge</td>
<td>addresssee is not knowing (anymore), the knowledge is evident, and often the speaker reminds the addresssee of formerly common knowledge</td>
<td>2, 16, 26</td>
</tr>
<tr>
<td>B Uncertainty and Degree of Commitment</td>
<td>uncertainty and distance to proposition; if interrogative: the uncertainty is attributed to the addressee, if declarative the uncertainty is attributed to the speaker</td>
<td>5, 6, 7, 13, 20, 21, 29</td>
</tr>
<tr>
<td>C Unexpectedness</td>
<td>the current state of affairs expressed by the utterance is unexpected</td>
<td>8, 9, 23, 24, 30</td>
</tr>
<tr>
<td>D Strengthening of the Utterance</td>
<td>emphatic strengthening of the utterance, often combined with lack of understanding or disagreement</td>
<td>4, 10, 14, 28</td>
</tr>
<tr>
<td>E Softening of the Utterance</td>
<td>softens the utterance, if declarative: calm down or advise the addresssee, if imperative: softens the strength of the command and makes it more friendly</td>
<td>11, 12, 15, 19, 22</td>
</tr>
</tbody>
</table>

sentence has to be translated into DGS/NGT/ISL if the screen turns blank. Then, a context is created with additional information and a dialog appears on the screen. You should read, understand, and keep in mind the situation and the context. The three dots in brackets [...] mean that the sentence from above should be inserted appropriately to the context situation. When the screen has turned blank again, please recount the story and sign the dialog.
It is not necessary to translate the exact words given on the screen. It is more important that the sentence is inserted appropriately to the context as natural as possible.

Thus, the participants were told to insert the regular sentence they had memorized into the dialog appropriately to the situation. The informants were free to modulate the sentences as long as they broadly kept the grammatical word order of the sign language sentence they had translated before. The remainder of the dialog should only contain the content of the utterances and could be changed or modified according to the wishes of the signers, who often used some kind of free retold narrative style. The adjusted sentences were thus performed quite naturally and at the same time were comparable to the regularly signed variants. The results concerning these minimal pairs are discussed in section 6.3.

As mentioned in chapter 4, two camcorders (torso and face) were used to capture the signing of the informants. The figure of the setting is repeated here for convenience in figure 19. The modal meaning task was conducted in the middle of a session following the translation task for focus particles and preceding the picture story task (see chapter 8). The examples were not displayed in a systematic order. They were listed neither according to sentence type nor according to modal meaning categories. The sentences were randomized, so that similar contexts did not appear in succession.
6.2.4. Data

The data set that resulted from the above described task is summarized in table 13. The minimal pairs reveal the difference between regular translations and the experimental elicitation through contexts and dialog story telling.

Table 13. Target sentences for the modal meaning task

<table>
<thead>
<tr>
<th>SL</th>
<th>Regular sentences</th>
<th>Modal meaning sentences</th>
</tr>
</thead>
<tbody>
<tr>
<td>DGS TS</td>
<td>30 x 8 = 240</td>
<td>30 x 8 = 240</td>
</tr>
<tr>
<td>DGS</td>
<td>204</td>
<td>235</td>
</tr>
<tr>
<td>NGT TS</td>
<td>30 x 3 = 90</td>
<td>30 x 3 = 90</td>
</tr>
<tr>
<td>NGT</td>
<td>100</td>
<td>113</td>
</tr>
<tr>
<td>ISL TS</td>
<td>30 x 3 = 90</td>
<td>30 x 3 = 90</td>
</tr>
<tr>
<td>ISL</td>
<td>54</td>
<td>64</td>
</tr>
<tr>
<td>Sum</td>
<td>358</td>
<td>412</td>
</tr>
</tbody>
</table>

The number of sentences investigated did not directly match the ideal number of the target sentence (TS) of the experimental setting. On the one hand, the number of sentences might exceed the actual target items as the contexts were sometimes performed twice or even thrice by one signer. On
the other hand, not every signer performed all of the 30 target sentences. This was particularly the case for the Irish signers and was due to time limitations. In addition, some of the sentences were excluded from the analysis.

In sum, the data set for the modal meaning task comprised 770 annotated files, composed of 358 regular sentences and 412 modified sentences within the respective contexts. The sentence pairs were opposed to see the difference between regular translations and the modified versions. The differences were quite obvious when comparing the minimal pairs and very often it was most revealing to disentangle the various manual and nonmanual means for the expression of modal meaning. The following section presents the results and transcriptions for most of the target sentences investigated.

6.3. Results: Modal meaning in sign languages

The task described in section 6.2.3 was performed by eight DGS signers, three NGT signers, and three ISL signers. The results of the sessions and the subsequent annotation process show that sign languages provide their idiosyncratic means to convey modal meaning. The contexts triggered the predicted meaning differences and the signers had clear intuitions as to how to respond to the task. It was found that DGS, NGT, and ISL slightly differed with particular contexts, but overall used a similar strategy to express the triggered meaning contributions in the elicited data. One of the main findings of this study was that nonmanual features play an important role in the realization of modal meaning. Furthermore, the specific variability of the instantiations highly contributed to the degree in which the modal meaning was conveyed and interpreted. The scope of the nonmanuals gave insight into the syntactic and semantic behavior of modal meaning in sign languages.

The results of the task are systematically displayed in the three following sections. According to the categories illustrated in table 12 above, similar target sentences are grouped together and show the respective aspect of modal meaning. For each category, I show at least one example of a declarative, an interrogative, and an imperative, if available. As modal meaning interacts with the sentential force of a sentence, which is primarily based on the sentence type in my data, it is important to differentiate between these cases. Whereas the term ‘sentential force’ is a more semantic notion, the term ‘sentence type’ is a classical syntactic category. As mentioned in chapter 5 in this book, both categories converge as I excluded cases where the two differ.
Grouped into the five categories of the specific aspects of modal meaning, representatives of the target sentences thus demonstrate the realization of the elicited modal meaning in the three investigated sign languages. The results are transcribed according to the transcription conventions explained in section 1.2 of the introduction. Please also consult the appendix 9.4 for a detailed overview of the transcription conventions.

The DGS data are explained in section 6.3.1, the results of the NGT sessions can be found in section 6.3.2, and the ISL examples are provided in section 6.3.3. The responses of the German control group are summarized in section 6.3.4. A condensed overview of the results in section 6.3.5 collects the basic findings and concludes this section.

6.3.1. DGS data

A1 Reference to common knowledge

Category A1 lists the target sentences that mark something as evident and as part of the common knowledge between the signer and the addressee. As mentioned in table 12, the sentences 1, 3, 17, 18, 25, 27 were grouped together as they refer to common knowledge under the condition that the addressee is expected to actively or passively know the proposition expressed. This reference to common knowledge was consistently expressed by a squint and a forward tilted head in the DGS responses. (30) is an example of a declarative from this group. The unmodified sentence is shown in (30a) and the reply that was adjusted to the context is given in (30b).

In general, the target sentence was signed in a similar way by all of the signers. Some signers used an introductory expression such as IX₂ WISS (you know) or IX₂ MERK (you memorize), others included the temporal adverb GESTERN (yesterday). Nevertheless, the same nonmanuals were used in all cases and spread across the entire sentence.

(30) a. TIM PAM IX_{dual} GEBÄRD PAM
tim pam ix_{dual} sign pam
A second example is particularly interesting in comparison to the first as it shows that the same nonmanuals were used for the reference to common knowledge and an additional meaning was conveyed by further nonmanuals in a compositional manner.

(31) a. IX₂ KENN PAM
    ix₂ know pam

b. TIM GEMEIN ENORM IX₁ FAST WEIN :
    tim mean enormous ix₁ nearly cry :
    ht-f,sq,f,att
    ÄRGER BRAUCH穿梭 neg IX₂ KENN PAM
    be-annoyed need-not ix₂ know pam
    ht-f,sq,att

c. IX₂ KENN PAM-MOD g-pu
    ix₂ know pam g-pu

In (31), the context triggered a target sentence that expressed the above mentioned reference to common knowledge, plus an additional attitude that the state of affairs cannot be changed and should be accepted and not taken seriously by the addressee. Thus, two meaning nuances interacted in this example. It can nevertheless be seen that the reference to common knowledge is expressed by slightly squinted eyes and a forward head tilt as in (30) above. The additional attitude is expressed by very subtle facial expressions that can hardly be described by listing individual articulators (here transcribed as ‘att’). A specific mouth pattern showing slightly open lips was the main indicator of the described attitude. Furthermore, optional means such as gestures glossed as g-pu (palm up) and g-abwink (wave-aside) were used. As layering
is possible in sign languages, these features combine to express the intended complex meaning. Furthermore, the strength of the utterance may be modified either manually and/or nonmanually. Some signers use a modified PAM (see (31c) and the pictures in figure 20). PAM is usually signed with one hand and two fingers, but in the modified version the signers used two hands, flat handshapes, and all fingers extended. Whereas the manual modification is optional, the nonmanual means are necessary to express the modal meaning in the respective context.

For the purpose of space, the regular target sentences are henceforth only transcribed if they diverge from the modified sentences in word order or other relevant aspects. If the basic sentence structure is identical or very close to the sentence signed in the context, the sentence will not be repeated for reasons of convenience.

Looking at interrogatives within category A1, the following example summarizes the three target sentences as they similarly express the same modal meaning. The signer asks the addressee about previously known, but forgotten information and thus refers to a common ground that the addressee is expected to definitely know.

(32)   a.  SORRY IX₁ VERGEß POSS₂ HUND NAME WAS  
      sorry ix₁ forget poss₂ dog name what  
      sq,ht-f,f

b.  POSS₂ HUND NAME  
      poss₂ dog name  
      sq,ht-f,f

  c.  IX₁ VERGEß WER POSS₂ BEST FREUND WER  
      ix₁ forget who poss₂ best friend who  
      sq,ht-f,f

Figure 20. PAM-MOD: Modified PAM in DGS
The sentences in (32a and b) are examples of the third target sentence and (32c) is an example of target sentence number 18. They clearly belong to the same category, which only includes interrogatives. The contexts triggered the same nonmanuals for each target sentence in this group. The nonmanuals used for the modal meaning in the sentences above (squint, head tilted forward, and furrowed eyebrows), can be decomposed according to their functions: the marking of the wh-interrogative and the marking of the modal meaning. In (32a-c) a squint indicates the modal meaning and in particular the reference to common knowledge, whereas the furrowed eyebrows with a forward head tilt are attributed to the wh-interrogative. Note that (32b) is an example of a wh-interrogative without a wh-element. In contrast to the regular sentence that contains the wh-element, the wh-word is omitted in the modified version. Such instances of wh-interrogatives without wh-elements can be found quite frequently in many sign languages (see Zeshan 2004b; Zeshan 2006).

As shown in (33), one of the signers used the lexical item nochmal (again) within the reply. This might have been a spoken language influence of some kind, as the context in spoken German naturally triggers this lexical item.

(33) ENTSCHULDIGUNG POSS₂ HUND NOCHMAL NAME WAS excuse-me poss₂ dog again name what ‘Excuse me, what was the name of your dog again?’

As the task did not provide any prompt for the word nochmal or a similar expression, we may only speculate whether it was used as a lexical modal item adopted from spoken German or whether it is used in the sense of again (please tell me again).

The signers optionally used expressions such as ENTSCHULDIGUNG (sorry) or explicitly stated IX₁ VERGESS (I forget) to embed the question in the appropriate context. Nevertheless, the signer always used nonmanuals as described above. The scope of the nonmanuals indicates that the the modal force takes the entire sentence as an argument.

A2 Reference to evident knowledge

The examples of category A2 differed from category A1 insofar that the signer signaled something evident but did not assume or expect the addressee to know the proposition. Thus, the signer indicated that the proposition should
be clear, even though the addressee did not previously know it. This category includes the target sentences 2, 16, and 26, all of which are declaratives. In (34), the clear use of a squint triggers the modal meaning that is usually triggered by the modal particle *doch* in spoken German. *Doch* indicates the reference to a common background that contradicts an utterance or behavior preceding the sentence. In addition, a slightly wrinkled forehead (frown) indicates the lack of understanding about this behavior and shows the idea of unexpectedness.

(34) a. 

```
SPAZIER : HEY SCHÖN HIER BAUM SCHAU
go-for-a-walk : hey nice here tree look

hn

sq,frown

SKULPTUR g-pu HEY IX2 KENN HIER g-pu :
sculpture g-pu hey ix2 know here g-pu :

sq,frown

VORHER GEWESEN IX_dual HIER
before been ix_dual here
```

Even though the regular target sentence was slightly different in sentence structure, the same words were used. No specific nonmanuals were present in the regular declarative shown in (35).

(35) 

```
IX_dual GEWESEN HIER IX_dual SCHON EINMAL HIER
ix_dual were here ix_dual already once here
```

The example in (36) is a slightly different case, as the signer did not show a lack of understanding with respect to the uttered context of the addressee. In this case, marking something as evident without adding further meaning was expressed by either raised brows or small and slow head shakes. The respective regular sentence did not deviate from the target replies with each signer.

It is quite noteworthy that the signers used a slow head shake to express the modal meaning and to refer to evident information. Whereas in (36a and c), this head shake spreads continuously across the entire sentence, in (36b) only the verb is accompanied by a head shake. The head shake is clearly distinct from the head shake used to negate a sentence. In (36b), raised eyebrows scope over the entire clause.
In the literature, raised brows indicate evidence and a continuation dependency. This will be discussed in the analysis section. Interestingly, a manual sign glossed as KLAR (obvious) or the affirmative JA (yes), explicitly show the high degree of evidence that is expressed in the above sentence.

**B Uncertainty and degree of commitment**

The target sentences 5, 6, 7, 13, 20, 21, and 29 were subsumed under this group and categorized as showing uncertainty and a particular degree of commitment. The modal meaning shows in how far the signer is committed to the proposition or in how far he wants the addressee to be committed to a reply. Here we investigate how uncertainty regarding the truth of the proposition is expressed. Uncertainty may be very gradual and may be expressed on a continuum from uncertainty to certainty.

With respect to declaratives, target sentences 5, 20, and 29 were relevant for this group. In general, the modal meaning that is triggered in the contexts finds its equivalent in the modal particle wohl in spoken German. The contexts thus indicated a reference to the proposition insofar as the signer expressed a distance towards the content of the proposition. The signer is not committed to the truth of the utterance. In DGS, the signers used slow head nods to indicate the degree of certainty and uncertainty towards the proposition.
The regular sentence of a specific context evoking uncertainty towards the proposition was consistently translated by the utterance in (37) for all signers.

(37) TIM POSS₃ AUTO VERKAUF
tim poss₃ car sell

The sentences in (39) give an overview of the replies of different signers for the same context: *Tim usually drives around in his car. Now he arrives walking and two friends see him coming along by foot.*

(38) a. TIM KOMM ZU-FUSS AUTO VERKAUF hn
tim come by-foot car sell

b. f, ht-f VIELLEICHT STIMM POSS₃ AUTO VERKAUF hn
maybe right poss₃ car sell

c. TIM POSS₃ AUTO VERKAUF MÖGLICH hn
tim poss₃ car sell possible

d. IXₐ KOMISCH STIMM IX₃ KOMM ZU-FUSS IX₃ : hn,ht-f
ixₐ strange right ix₃ come by-foot ix₃ :
poss₃ AUTO VERKAUF g-pu
poss₃ car sell g-pu

In (38), I listed a few more examples than usual to show the gradual differences of commitment. The modal meaning is expressed mainly by slow head nods, but usually in combination with raised eyebrows and a forward head tilt. Thus, the default strategy to express uncertainty is the use of slow head nods. However, the nodding does not always spread across the entire sentence, which is due to the rather punctual properties of this nonmanual fea-
ture. Of course, the features themselves are multifunctional and may express different aspects in DGS, but the specific combination of facial expressions such as head nods, raised brows, and head tilts are clearly used to express the modal meaning of the target sentences for category B. In section 6.4.4, I discuss the semantics of the nonmanuals described in the examples and how they are chosen to contribute to the meaning of an utterance.

The facial expressions were gradually modified to show different degrees of certainty. Starting with a very uncertain utterance in (38a), the example in (38d), on the other hand, is very affirmative and might not even express uncertainty at all2. In this case, the head nods were faster and additional raised brows and open eyes were indicative of more obvious evidence. Depending on whether the signers interpreted Tim’s arrival on foot as a certain indicator of the fact that he sold his car, the results varied. In many examples a shrug, a head tilt, a furrowed forehead, etc. underlined the uncertainty about the proposition.

The g-pu gesture was quite frequently used in DGS to mark uncertainty in a direct manner. However, despite this gestural option, the nonmanuals were sufficient to mark the lower degree of commitment. Furthermore, the use of adverbs such as VIELLEICHT (maybe) in (38b) and MÖGLICH (possible) in (38c), which were also triggered in ISL (see section 6.3.3), were quite typical for these contexts in DGS.

For the target sentence 20 ‘Tim is already at home.’ as seen in (39) and 29 ‘Emma is ill.’ as seen in (40), the same results as above could be found. In addition to the nonmanual features, which I neglect in the transcriptions of (39), modal verbs such as IX1 GLAUB (I think) in (39b) and adverbs such as VIELLEICHT (maybe) and BESTIMMT (surely) as in (40b and c) were used to mark the distance of the signer towards the proposition explicitly.

(39) a. SEH LICHT IXA TIM WOHNUNG LICHT g-pu : TIM DA
   see light ixA tim flat light g-pu : tim there
   ZU-HAUSE g-pu
   at-home g-pu

   b. IX1 GLAUB JA TIM ZU-HAUSE GRUND LICHT DA g-pu
      ix1 think yes tim at-home because light there g-pu

In (39a), a backward body lean in combination with the palm-up gesture and uncertain facial expressions (slight frown) were used to realize the modal meaning (see also the backward body lean in (40c)). Backward body leans
are used to mark exclusion and distance. In DGS, the differentiation between the formal and the informal way of addressing someone is made by a slight backward body lean.

\[(40)\]

a. \[\text{bl-r,bl-l}\]
\[\text{r,ht-f}\]
\[\text{bl-r,bl-l}\]
\[\text{g-pu}\]
\[\text{EMMA}\]
\[\text{KRANK}\]
\[\text{g-pu}\]
\[\text{g-pu}\]
\[\text{g-pu}\]
\[\text{g-pu}\]
\[\text{g-pu}\]
\[\text{bl-r,bl-l}\]

b. \[\text{EMMA}\]
\[\text{KRANK}\]
\[\text{VIELLEICHT}\]
\[\text{emma}\]
\[\text{ill}\]
\[\text{maybe}\]
\[\text{sq}\]
\[\text{bl-b}\]
\[\text{f,hn}\]

c. \[\text{BESTIMMT}\]
\[\text{IX}\]
\[\text{KRANK}\]
\[\text{sure}\]
\[\text{ix}\]
\[\text{ill}\]

Even though in (40), raised eyebrows and forward head tilts seem to indicate an interrogative, these features are not question features, but mark a mixture of surprise, guessing, lack of knowledge, and uncertainty. It becomes obvious that question marking and ignorance are semantically related, which may explain that the features are similar. The signers clearly judged the sentences to be declaratives, even though in this situation it would also be a correct strategy for most informants (deaf and hearing) to use a question.

In interrogative target sentences, the same modal meaning attributes the uncertainty towards the addressee. Thus, the signer does not expect an explicit unequivocal reply but asks for an estimated evaluation of the situation. Therefore, the utterance may very often receive the interpretation of a monologue as in target sentence 7 repeated in (41).

\[(41)\]
\[\text{Wer hat wohl diesen Brief geschrieben?}\]
\[\text{‘Who might have written this letter?’}\]

In (42) to (44), I show two examples for each of the target sentences to compare different target sentences, as most signers consistently used the same features for this modal meaning. The uncertainty was expressed by a frown and specific mouth patterns that were added such as a downwards movement of the mouth corners. Furthermore, many of the signers added a matrix clause such as ‘What do you think?’ (see (42a)). If this was the case, the specific
modal nonmanuals were often missing in the question as the explicit expressions were sufficient to mark the required reading.

(42) a. \( \text{IX}_2 \) GLAUB WAS : TIM SCHON ZU-HAUSE
ix2 think what : tim already at-home
c-down
b. \( \text{IX}_3 \) SCHON ZU-HAUSE g-pu
ix2 already at-home g-pu

The examples in (43) explicitly show the monologue-effect that the context had triggered. The verb ÜBERLEG (ponder) expresses the situation appropriately. This meaning contribution realized by wohl in German is supported by a ponding facial expression not transcribed in the example.

(43) a. ÜBERLEG IX\(_A\) SCHREIB WER
ponder ix\(_A\) write who
b. ÜBERLEG UMDREH-CL\(_{flat}\) : IX\(_A\) BRIEF WER SCHREIB
ponder turn-cl\(_{flat}\) : ix\(_A\) letter who write
UMDREH-CL\(_{flat}\)
turn-cl\(_{flat}\)

Without extra manual material, the nonmanuals in (44) clearly indicate that the question is a monologue question instead of a regular interrogative. The facial expressions accompanying the utterance show a clear lack of understanding and the signer did not expect an answer. Note that these are interrogatives without wh-elements, so nonmanuals alone contribute on both levels: the interrogative marking (ht-f, f) and the marking of modal meaning (frown, sq, hs).

(44) a. \( \text{IX}_{dem} \) SATZ BEDEUT
ix\(_{dem}\) sentence mean
\( \text{frown,ht-f,f,sq,hs} \)
b. \( \text{IX}_3 \) BEDEUT g-pu STILL g-pu BEDEUT g-pu SATZ g-pu
ix\(_3\) mean g-pu silent g-pu mean g-pu sentence g-pu
The nonmanuals (frown, head tilt, furrowed brows, squint, and head shake) were sufficient to express the respective interrogative meaning in the context triggering the modal meaning (cf. example (44a)). If forward head movement and brow furrowing is attributed to the interrogative marking, frown, squint, and head shake build the nonmanuals for the modal meaning in category B. Different interpretations of the context, however, led to different nonmanuals in (44b). The signer did not ask a question about something s/he did not understand, but indicated the nonsense of the previously uttered sentence (head shake, rolling of the eyes, and shrug). Thus, the features were no direct expressions for the modal particle *wohl* and were excluded from the analysis.

The following example is separately explained as it was a special case combining two categories of the classification. The question is not just a monologue reaction towards some utterance or event, but is addressed to a third person that is asked to give an answer that may be uncertain.

\begin{equation}
\begin{aligned}
(45) \quad & a. \quad \text{SCHAU TIM ZU-FUSS KOMM ALLEIN PF} : \\
& \quad \text{look tim by-foot come alone pf :} \\
& \quad \begin{array}{c}
\text{w,r,ht-f} \\
\text{w,r,hn}
\end{array} \\
& \quad \begin{array}{c}
\text{rs}_j \\
\text{rs}_i
\end{array} \\
& \quad \text{SCHON AUTO VERKAUF : MÖGLICH} \\
& \quad \text{already car sold : possible}
\end{aligned}
\end{equation}

\begin{equation}
\begin{aligned}
& b. \quad \text{HEY SCHAU IX$_3$ TIM ZU-FUSS PF} : \\
& \quad \text{hey look ix$_3$ tim by-foot pf :} \\
& \quad \begin{array}{c}
\text{frown,f,ht-f} \\
\text{f,shr}
\end{array} \\
& \quad \begin{array}{c}
\text{rs}_j \\
\text{rs}_i
\end{array} \\
& \quad \text{JA IX$_2$ : IX$_3$ STIMM AUTO VERKAUF g-pu} \\
& \quad \text{yes ix$_2$ : ix$_3$ right car sell g-pu}
\end{aligned}
\end{equation}

Example (45a) could also be subsumed under the category of unexpectedness, as the event is unexpected and the features indicate surprise (wide eyes and raised brows). A translation of (45a) in German would be “Hat er denn schon sein Auto verkauft?” (‘But, has he already sold his car?’). The other signers, however, interpreted the context in such a way, that they asked an insecure question not expecting a sure answer of the addressee. Thus, the features in (45b) are similar to the above discussed examples (frown, furrowed brows, and shrug). The choice of the nonmanuals depends on the modal meaning and how much the signer expects and forces an answer.
Thus, degree variants led to different combinations of nonmanuals. The huge range of commitment options and the interpretation flexibility allowed by the contexts within this category explain the heterogeneous results with respect to nonmanual components. It is significant, though, that signers definitely change the sentences within the modal contexts and have various means available to modify the meaning.

C Unexpectedness

In this group, I only investigated interrogatives that were reactions to unexpected events or utterances. Thus, the target sentences 8, 9, 23, 24, and 30 express various degrees of unexpectedness within questions. Some induce surprise, some trigger doubts about the correctness of previous propositions or actions. In spoken German, most of the cases in this group can be expressed by the modal particle denn. As seen in the control group in section 6.3.4, this modal item was consistently used by all speakers in the context.

Even though - strictly speaking - it is inappropriate to divide the category into ‘surprise’ and ‘doubt’, I list examples more expressively indicating surprise in (46) and (47), whereas in (48), the intention is more of a contradiction towards a proposition, indicating doubt about an unexpected utterance.

(46) a. ht-f,r,w
    DA AUTO
    there car
    
    b. ht-f,r,w
    DA AUTO : IX₁ VORHER POSS₂ AUTO NIE SEH
    there car : ix₁ before poss₂ car never see

(47) a. f,sq f,sq
    IX₁ WISS IX₂ KRANK IX₂ : POSS₂ ERKÄLTMG JETZT
    ix₁ know ix₂ ill ix₂ : poss₂ pneumonia now

    w,r,ht-f,w
    GESUND IX₂
    fit ix₂

    f

    b. r,ht-f,hn
    IX₁ DENK IX₂ KRANK : ERKÄLTMG FERTIG GESUND
    ix₁ think ix₂ ill : pneumonia finish fit
Wide eyes as in (47a and b) were clear indicators of surprise within unexpected situations. On the other hand, similar contexts also triggered interrogatives as reactions to unexpected utterances that include nonmanuals expressing doubt and lack of understanding. This is expressed by a squint and head shake, as illustrated in the listed examples below (see (48a-d), ‘sh’ here stands for a shocked facial expression).

\[(48)\]

\begin{align*}
\text{a.} & \quad \text{RICHITG} : \quad \text{WARUM TIM KRANKENHAUS GEH g-pu} \\
& \quad \text{right} : \quad \text{why tim hospital go g-pu} \\
& \quad \text{ht-f,f} \text{ f,sq,hs} \\
\text{b.} & \quad : \quad \text{WARUM2 KRANKENHAUS OPERIER g-pu} \\
& \quad \text{what} : \quad \text{why2 hospital operate g-pu} \\
& \quad \text{f,sq} \\
\text{c.} & \quad \text{WARUM KRANKENHAUS : BIS-HEUTE BFF KRANK} \\
& \quad \text{why hospital : up-to-now neg ill} \\
& \quad \text{ht-f} \text{ hs} \\
\text{d.} & \quad \text{TIM IX KRANKENHAUS WARUM g-pu} \\
& \quad \text{tim ix1 hospital why g-pu} \\
\end{align*}

In (49), the two aspects of unexpectedness were somehow combined. The nonmanuals such as a squint and raised eyebrows were used simultaneously in the following cases. The wide eyes used to indicate surprise, however, are overridden by the squint. Squint here contributes to the meaning in a way I described category A. The signer refers to the expected shared knowledge that Tim has never been ill. The examples are clear cases of category ‘C Unexpectedness’ and are perfect illustrations of the interplay of nonmanuals. Even though it seems counter intuitive to combine frowning, raised brows, and squinting at the same time, it is possible and perfectly well-formed. The same combination of raised brows with squints is also stated for ISL by Dachkovsky (2008).

\[(49)\]

\begin{align*}
\text{a.} & \quad \text{g-hey DÜRF ÜBERQUER-CL}_{2\text{linien}} \text{ neg} \\
& \quad \text{g-hey be-allowed cross-cl}_{2\text{lines}} \text{ neg} \\
& \quad \text{ht-f,r,frown,nw} \\
\text{b.} & \quad \text{IX}_3 \text{ DÜRF ÜBERQUER-CL}_{2\text{linien}} \text{ DÜRF} \\
& \quad \text{ix}_3 \text{ may cross-cl}_{2\text{lines}} \text{ may} \\
\end{align*}
c.  

<table>
<thead>
<tr>
<th>ht-f,sq</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNSICHER</td>
</tr>
<tr>
<td>RICHTIG</td>
</tr>
<tr>
<td>SCHIENE</td>
</tr>
<tr>
<td>DÜRF</td>
</tr>
<tr>
<td>ÜBERQUER</td>
</tr>
<tr>
<td>DÜRF</td>
</tr>
</tbody>
</table>

Insecure right tracks may cross may

In sum, the unexpectedness category was performed by nonmanuals such as wide eyes (unexpectedness/surprise), frowning (doubt), and squinting (for common/shared knowledge of the doubts) in combination with other nonmanuals for question markings. In some cases, head shakes enhance the unexpected interpretation. This category was expressed differently depending on the imagined situation and the individual interpretation of the context. Even the same context triggered slightly different realizations. The first example in (46) above not only triggered the interpretation of clear surprise and astonishment with wide eyes and exaggerated raised eyebrows, it also evoked responses like in (50).

\[(50)\]

<table>
<thead>
<tr>
<th>frown,sq,ht-f,f</th>
</tr>
</thead>
<tbody>
<tr>
<td>DA AUTO</td>
</tr>
<tr>
<td>there car</td>
</tr>
</tbody>
</table>

The frown, the furrowing of the brows, and the squint indicate that the signer clearly had opposing expectations and again, the gradual change of the nonmanuals indicated a continuum of modal meaning nuances. Still, the nonmanuals clearly spread across the entire relevant sentence.

It is important to note that these facial expressions of course have their origin in facial gestures and affective expressions. The distinction between linguistic uses and affective purposes is not always straightforward, but grammaticalization processes have been found for various nonmanual features (see section 6.4.5 for a brief discussion).

\[D\]  

**Strengthening of the utterance**

The fourth category shows how a sentence might be strengthened by modal means. Modal particles very often soften an utterance, which can be seen with category E. In some cases within this category D, however, modal expressions might strengthen an utterance. Sentences 4, 10, 14, and 28 are examples of this type. I tested two interrogatives and two imperatives.
Interrogatives were signed with more extensive and tense articulation of either the wh-element or the complete signed utterance. Tense and large signing is indicated by bold letters in the transcriptions below.

\[(51)\]

\[\begin{align*}
(51) & \quad \text{a. LENA IX}
\quad \text{POSS}_1 \quad \text{SCHUH} \quad \text{HAUS} \quad \text{SUCH}_{rep} \quad \text{g-pu} : \\
& \quad \text{lena ix}_3 \quad \text{poss}_1 \quad \text{shoe} \quad \text{house} \quad \text{search}_{rep} \quad \text{g-pu} : \\
& \quad \text{frown, f,sq,cb}
\end{align*}\]

\[\begin{align*}
(51) & \quad \text{b. WO}\n\quad \text{POSS}_1 \quad \text{SCHUH} \quad \text{WO} \\
\quad \text{where} \quad \text{poss}_1 \quad \text{shoe} \quad \text{where} \\
\end{align*}\]

In many cases of the modified target sentences, the wh-element was doubled as in (51a). In DGS, doubling is one of the three options for marking wh-interrogatives. It seems that in the examples, this strategy was used to strengthen the utterance. Lacking studies on the factors that influence the choice of positioning the wh-element in wh-interrogatives in DGS, this is an interesting discovery. It shows that more detailed studies might provide promising results and deeper insights into pragmatic and information structural influences to word order variations. In (51b), the signer used the palm-up gesture (g-pu) at the end of the question which is sometimes also analyzed as a question particle. In (52a), the same construction was found in the data as in (51b) above. The sentence-final wh-element in (52b) is emphasized by an additional forward head tilt and strong head nods.

\[(52)\]

\[\begin{align*}
(52) & \quad \text{a. WO}\n\quad \text{POSS}_1 \quad \text{AUTO} \quad \text{SCHLÜSSEL} \quad \text{g-pu} \\
\quad \text{where} \quad \text{poss}_1 \quad \text{car} \quad \text{key} \quad \text{g-pu} \\
\end{align*}\]

\[\begin{align*}
(52) & \quad \text{b.}\n\quad \text{ht-f,hn} \\
\quad \text{f,frown} \\
\quad \text{ht-f,hn} \\
\quad \text{f,frown} \\
\end{align*}\]

Thus, the strengthening of interrogatives is expressed by large and tense signing, doubling of wh-elements, the use of g-pu, explicit and exaggerated non-manual question marking, head tilts, and frowns.
The imperatives were strengthened by the use of tense signing and an enforced imperative marking such as strongly furrowed eyebrows. Expressive head nods emphasized the intention. For the purpose of illustration, bold type letters again indicate tense and fast signing in the following examples, which did not necessarily involve large signing. In (53), the entire utterance was strengthened and marked by nonmanuals.

(53) a. \[ \text{JETZT $\text{POS}_2$ HAUSAUFGABE ARBEIT $\text{IX}_2$} \]
    now poss$_2$ homework do/work $\text{ix}_2$

  b. \[ \text{HAUSAUFGABE ARBEIT BITTE} \]
    homework do/work please

The following example shows a case where the predicate was marked and strengthened. Syntactically, however, (54a) is a clausal predicate, so that the modal modification can still be interpreted as taking sentential scope.

(54) a. \[ \text{hn $\text{JETZT$ AB $\text{ZU}$} \]
    now go shut

  b. \[ \text{BITTE $\text{TÜR-ZU}$} \]
    please door-shut

Even though the sign PLEASE was used, the facial expressions and the tense marking of the signs were sufficient to show the degree of the command.

**E Softening of the utterance**

The final category includes the target sentences 11, 12, 15, 19, and 22, which are declaratives and imperatives. This category is best described in terms of the modal meaning that the German modal particles schon and doch usually express in such contexts.

In declaratives, softening is generally achieved by slow signing and relaxed facial expressions, head nods, body leans, and mouth gestures. The glosses in (55) illustrate the results for the target sentences 15 and 22.
Similar to the category of uncertainty, the examples show the degree of insecure attitudes and the continuum from softened to strengthened propositions. The means to soften utterances were pursed lips and body leans to each side (see example (55a)). In (55b), slow head nods in combination with furrowed brows and slight squinting indicated that the signer was not entirely sure about the promise made and therefore softens the declarative.

The same nonmanuals (slow head nods with squints and frowns) were used in most of the target sentences such as in (56). Again pursed lips in combination with head nods mark the respective modal meaning that is usually expressed by schon or wohl in spoken German.

As opposed to the imperatives of the last category, the softened imperatives were marked by slightly forward body leans, head movements such as slow head nods, and frowning. Thus, the commands in the dataset were performed in a quite friendly manner.
The same nonmanuals were used in all of the respective examples and the features had sentential scope with clear alignment patterns. Again, it was possible to modify the strength gradually.

In sum, all categories indicated a systematic use of specific individual nonmanual features. The important finding was that the modal meaning is primarily expressed by nonmanuals. Some aspects of strength and degrees of certainty involve the use of manual means such as large signing, tense articulation, and doubling of elements. The modal meaning such as reference to the common knowledge, uncertainty, unexpectedness, etc. can be distinguished from the markings of sentence types and the affective expressions that were often added to the utterances in specific contexts.

Interestingly, compositional layering of different nonmanual features used to achieve complex meanings were detected across the data. I discuss this specific approach to nonmanual features in section 6.4.4. Most of the features spread across the whole sentence. The clear alignment patterns could also indicate a syntactic analysis of the expressions for modal meaning (see section 6.4.2 for discussions). In the following sections, I present the results of the data from the Netherlands and Ireland and list NGT and ISL examples in the same fashion as for DGS above.

6.3.2. NGT data

For the NGT data, I present one or two examples per group. Table 14 is a reduced form of the full version in table 12, repeated here for convenience. The results show that NGT expresses the modal sentences similarly to DGS. The means used to realize the modal meaning in the elicited contexts are described in this section and the relevant excerpts from the examples of the data set are provided according to the section 6.3.1 for DGS.
### Table 14. Categories of modal meaning

<table>
<thead>
<tr>
<th>Category</th>
<th>Sentences</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1 Reference to Common Knowledge</td>
<td>1, 3, 17, 18, 25, 27</td>
</tr>
<tr>
<td>A2 Reference to Evident Knowledge</td>
<td>2, 16, 26</td>
</tr>
<tr>
<td>B Uncertainty and Degree of Commitment</td>
<td>5, 6, 7, 13, 20, 21, 29</td>
</tr>
<tr>
<td>C Unexpectedness</td>
<td>8, 9, 23, 24, 30</td>
</tr>
<tr>
<td>D Strengthening of the Utterance</td>
<td>4, 10, 14, 28</td>
</tr>
<tr>
<td>E Softening of the Utterance</td>
<td>11, 12, 15, 19, 22</td>
</tr>
</tbody>
</table>

#### A1 Reference to common knowledge

The first category, comprises sentences 1, 3, 17, 18, 25, and 27 of the target sentences. In NGT, the nonmanuals used to express the reference to common knowledge in category A1 clearly included squinting in exactly the same way as in DGS. Examples of declaratives of this sort are given in (59).

\[(59)\]
\[\begin{array}{ll}
\text{a.} & \begin{array}{llllll}
\text{GISTEREN} & \text{iX}_\text{dual} & \text{SPREEK} & \text{TIM} & \text{iX}_3 & \text{VADER} & \text{WAT} \\
& \text{c.f,sq} & \text{g-pu} & \text{f,ht-f} & \\
\text{IX}_{\text{dem}} : & \text{VADER} & \text{iX}_2 & \text{VERTEL} & \text{WAT} & \text{g-pu} & \\
\text{iX}_{\text{dem}} : & \text{father} & \text{iX}_2 & \text{tell} & \text{what} & \text{g-pu} & \\
\end{array} \\
\text{sq,f} \\
\text{b.} & \begin{array}{llllll}
\text{g-hey} & \text{iX}_\text{dual} & \text{GISTEREN} & \text{iX}_\text{dual} & \text{SPREEK} & \text{CL}_{\text{persoon}} & \text{TIM} & \text{iX}_3 : \\
\text{ht-u,f,frown} & \text{WAT} & \text{SPREK} & \text{iX}_3 & \text{VADER} & \text{WAT} & \\
\text{what} & \text{speak} & \text{iX}_3 & \text{father} & \text{what} & \\
\end{array} \\
\end{array}\]

A reliable indicator of the reference to common ground or shared knowledge of signer and addressee were squints. Furthermore, the degree of modal meaning was expressed by additional furrowed eyebrows in (59a) and an upward head-tilt as seen in (59b), for instance. The squint feature was used by all of the signers and in all other examples of this kind. In (60) and (61), a squint and slightly furrowed eyebrows marked the specific modal meaning that might be expressed by the German modal particles *ja* and *doch*.
Very interesting with respect to the analysis was the result in (61), as the nonmanual marking of the modal meaning was interrupted by raised eyebrows and otherwise neutral facial expressions and head position. Depending on whether this construction is analyzed as a parenthesis or a relative clause, this example could be evidence for or against a specific analytic approach. Section 6.4.2 discusses these issues in more detail.

In interrogatives, the same analysis holds with regard to the expression of squint for shared information, but in these cases, the nonmanuals combined with the respective question markings.

The primary nonmanual features for wh-interrogatives in NGT and many other sign languages are furrowed eyebrows and usually a forward head tilt. In (62b), however the head is tilted upwards, which is most probably due to issues of politeness. Furthermore, a frown may accompany the furrowed eyebrows such as in (62a). The question markings and the squint can clearly be separated from another and each seems to fulfill a specific function. The alignment of the nonmanuals with the entire sentence show that the interrogative markers and the modal markers both have sentential scope as expected.
A2 Reference to evident knowledge

In this section, I provide examples from NGT with respect to the category A2 dealing with the reference to evident knowledge. Sentences 2, 16, and 26 constitute a separate subgroup that more generally refers to evident information not necessarily known by the addressee. The main nonmanual features used to express the declarative sentences appropriate to the created contexts were squinted eyes as in category A1.

As mentioned before, this nonmanual feature is systematically used as a marker for shared information. However, the squint was less defined than in the other examples. In addition, as can be seen in (63), raised eyebrows were used, because the signer wanted the addressee to understand that the information was evident.

(63) \text{f.frown} \quad \text{sq.r.frown}

\begin{align*}
\text{WAT} & \quad \text{g-pu} : \quad \text{i} & \text{X}_{\text{dual}} & \text{ALTIJD} & \text{SPEELPLAATS} & \text{GA} & \text{i} & \text{X}_{\text{dual}} & \text{g-pu} \\
\text{what} & \quad \text{g-pu} : \quad \text{i} & \text{X}_{\text{dual}} & \text{always} & \text{playground} & \text{go} & \text{i} & \text{X}_{\text{dual}} & \text{g-pu}
\end{align*}

Example (64) illustrates another sentence of this group. The features that were used can be decomposed similarly as in (63) above. Squinting referred to a common background that should be evident to the addressee, this evidence is further emphasized by a clear nodding of the head. The furrowed eyebrows indicated the specific attitude of the signer and was used to indicate to the addressee not to worry and to take the state of affairs as a given fact.

(64) \text{sq.f.hn}

\begin{align*}
\text{g-ach} & \quad \text{KEN} & \quad \text{AL} \\
\text{g-well} & \quad \text{know} & \quad \text{already}
\end{align*}

Thus, reference to common knowledge is equally expressed by squinted eyes in declaratives and interrogatives of the A1 group. Squinting was used even if the addressee did not know or was not expected to know the respective information (Category A2). The indication of evidence is marked using squints in combination with head nods or raised eyebrows. Additional facial expressions derive the speaker’s attitude from the combinatory interplay of the nonmanuals. The nonmanuals usually take sentential scope and spread across the respective clausal units. This is the same with DGS and was hypothesized because modal particles and modal meaning operate on a sentential level in other languages as well.
B Uncertainty and degree of commitment

This category contains three declaratives (target sentences 5, 20, and 29) and four interrogatives (target sentences 6, 7, 13, and 21). For each sentence type, the section presents one sample sentence as signed by all signers and one other example illustrating the identical facial features as they were used in different target sentences. Furthermore, gradual degrees of certainty and uncertainty were used and showed the attitudinal aspects of the modal meaning. Starting with declaratives, example (65) lists three versions of one target sentence.

(65) a. g-pu AUTO VERKOOP f,sq,frown r,c-down,shr g-pu g-pu
   g-pu car sell
   hn hn,ht-l,(sq),frown

b. AUTO VERKOOP (yes) car sell

(c) TIM AUTO VERKOOP g-pu
   tim car sell g-pu

Adding a transcription note here, it should be mentioned that the nonmanuals in brackets mean that they were used in a subtle way. In (65a), the distance towards the truth of the proposition was most obvious. The nonmanuals comprised a frown, a squint, a furrowing of the brows on the main clause, and an additional shrug accompanied by raised eyebrows and a skeptical mouth pattern (corners down) on the final palm-up gesture. The latter indicated the uncertainty explicitly, but the facial expressions on the main clause showed that furrowing and frowning are not neutral declarative markings. The squint again referred to common knowledge as signer and addressee were aware of the situation and Tim’s behavior from which evident conclusions could be drawn.

In (65b), the squint was subtle but clearly present. In combination with the squint and the head-tilt, the frown indicated uncertainty towards the proposition. The head nods, however, place the sentence in the middle of a scale from uncertain to certain as is the case in (65c). In this specific example (65c), I indicate the large articulation of the final palm-up gesture by bold type letters. The sentence in (65c) is the most affirmative statement and the uncertainty
about the proposition manifests itself only through the context and the final gesture. Thus, the context may be interpreted in different ways and the nonmanuals indicated the various degrees of commitment to the proposition that were possible. The same was true for the rest of the examples from this group. On one occasion, a signer used the explicit sentential adverb MISSCHIEN (maybe) in combination with the respective nonmanuals (see (66)).

(66)  
\[
\begin{array}{cccc}
\text{r,w,frown,c-down,shr} \\
\text{MISSCHIEN} & \text{ZIEK2} & \text{IX}_3 & \text{g-pu} \\
\text{maybe} & \text{ill2} & \text{ix}_3 & \text{g-pu}
\end{array}
\]

In interrogatives, the facial features such as head tilt, squint, and frown similarly indicated the degree of certainty about the issue under question and systematically combined with the respective interrogative markers. In (67), by contrast, the facial expressions indicated that the signer expected no full commitment of the addressee towards the reply and expressed an additional attitude conveying skepticism.

(67) a.  
\[
\begin{array}{cccc}
f,ht-u \\
\text{sq,frown} \\
\text{ZIN} & \text{IX}_A & \text{BEDOEL} & \text{g-pu} \\
\text{sentence} & \text{ix}_A & \text{mean} & \text{g-pu}
\end{array}
\]

b.  
\[
\begin{array}{cccc}
\text{hs,f,frown} \\
\text{WAT} & \text{BEDOEL} & \text{IX}_3 \\
\text{what} & \text{mean} & \text{ix}_3
\end{array}
\]

Apart from frowns and squints, small head shakes may also be used to refrain from strong commitment to the proposition or to allow the addressee to be unspecific (see (67b)). The utterance in (68) displays an additional example of group B.

(68)  
\[
\begin{array}{cccc}
c-down \\
r,w,ht-f \\
\text{IX}_3 : \text{g-pu} & \text{AUTO} & \text{AL} & \text{VERKOOP} \\
\text{ix}_3 : \text{g-pu} & \text{car} & \text{already} & \text{sell}
\end{array}
\]

The nonmanuals show that the sentence meaning can be placed on the more affirmative end of the continuum expressing certainty and strong commitment.
Modal particles in spoken languages may express that the proposition or event was unexpected. The contexts of the target sentences 8, 9, 23, 24, and 30 evoke such modal meaning in NGT. Even though it is also possible to show unexpectedness in declaratives, this group only includes interrogatives.

Like above for DGS, the results for this category show that unexpectedness in interrogatives may be expressed in two ways. Usually unexpectedness triggers astonishment or surprise and thus the common nonmanuals used in NGT for these examples were wide eyes, raised eyebrows, and a frown. Nevertheless, unexpectedness may also be combined with an attitude of doubt and contradiction. For these cases, we find a frown with furrowed eyebrows, and squints. Regular interrogative head movements accompanied both types of markings.

Interestingly, the distinction does not show the same distribution as in DGS. In DGS the sentences 8 and 9 were signed with surprised facial expressions and in 23, 24, and 30, the contexts triggered different expressions showing contradiction and doubt. In NGT, the modal meaning in target sentence number 30 was signed by wide eyes, overly raised eyebrows, and a frown, showing clear astonishment, but mixed with doubt. Thus, the distinction is not always clear-cut. Furthermore, one target sentence was signed differently by different signers. This shows that the contexts generally triggered nonmanuals showing unexpectedness, but the actual attitude and interpretation may vary due to interpretative differences that change the nonmanuals accordingly. Thus, the three groups of replies that I provide for illustration exemplify the nonmanuals for astonishment (see (69) and (70)), for doubt and contradiction (see (71)), and the signer variation due to different interpretations of a single context (see (72)).

(69)  
\[
\begin{array}{c|c|c|c|c|c}
\hline
\text{w,r,frown} & \text{IX}_2 & \text{HEB} & \text{AUTO} \\
\text{ix}_2 & \text{have car} \\
\hline
\end{array}
\]

(70)  
\[
\begin{array}{c|c|c|c|c|c|c}
\hline
\text{w,r,frown,ht-f} & \text{g-pu} & \text{IX}_A & \text{SPOOR} & \text{MOOG} & \text{OVERSTEEK} \\
\text{g-pu} & \text{ix}_A & \text{tracks} & \text{be-allowed} & \text{cross} \\
\hline
\text{w,r,frown,bl-f} & \text{MAAR} & \text{MOOG} & \text{OVERSTEEK} & \text{g-pu} \\
\text{but} & \text{be-allowed} & \text{cross} & \text{g-pu} \\
\hline
\end{array}
\]
The replies in (70) contained expressions such as wide eyes, raised eyebrows, and a frown. Being an interrogative, the head or body movements including the raised brows, were clearly related to the question markings. The unexpectedness that may be expressed by spoken German *denn*, can be seen in the combination of facial expressions. If the interrogative more directly indicated contradiction to an unexpected utterance or event, nonmanuals such as furrowed eyebrows and squints added the respective meaning (cf. example (71)).

(71) $f, sq, frown, nw, ht-b$

\[
\begin{array}{ccccccc}
I X_2 & I X_1 & \text{DENK} & \text{ZIEK} & I X_2 : & \text{ZIEK} & \text{BETER} \\
ix_2 & ix_1 & \text{think} & \text{ill} & ix_2 : & \text{ill} & \text{better} \\
\end{array}
\]

The same context triggered both of the above described variants. In (72a), surprise is dominating, in (72b) the lack of understanding and an additional contradictory attitude about the truth of the proposition can be seen.

(72) a. $f, frown, ht-f, bl-f$

\[
\begin{array}{cccccccc}
g-pu & & & & TIM & GA & \text{ZIEKENHUIS} & \text{WAAROM} \\
g-pu & & & & \text{tim} & \text{go} & \text{hospital} & \text{why} \\
\end{array}
\]

b. $f, frown, sq, nw$

\[
\begin{array}{cccc}
\text{ZIEKENHUIS} & \text{GA} & \text{WAAROM} & g-pu \\
\text{hospital} & \text{must} & \text{why} & g-pu \\
\end{array}
\]

The facial expressions indicating the signer’s attitude override the unexpected wide eyes and replaces it with a squint.

\textit{D Strengthening of the utterance}

Modal expressions that strengthen the utterance were investigated through the contexts for the target sentences 4, 10, 14, and 28. Interrogatives such as in (73) were strengthened by means of large and tense signing (as indicated by bold type letters) and forward head tilts. Note that the bold letters are not part of the general transcription conventions and may stand for different manual modifications in different examples. Raised eyebrows gradually strengthened the force of a question. Usually, interrogatives in NGT are marked by furrowed eyebrows as in many other sign languages. However, the choice of specific nonmanual features may depend on the situation (e.g. polite ques-
tion, emphasis, sentential force) as can be seen from the examples. This is interesting with respect to the analysis of nonmanuals either as syntactic or prosodic features (see section 6.4 for a discussion).

Imperatives such as in (74) were emphasized by comparable nonmanual features. Interrogatives and imperatives are expressed similarly in NGT and many different sign languages and these features interact with the nonmanuals for modal meaning comparably.

(73) a. \[\text{ht-f,r,w} \quad \text{WAAR} \quad \text{SLEUTEL} \quad \text{WAAR}\] where key where

b. \[\text{ht-f,r,w} \quad \text{POSS}_1 \quad \text{SLEUTEL} \quad \text{WAAR}\] poss_1 key where

In (73a), a clear doubling construction resulted from the intention to strengthen the utterance. To get the same effect, it was also possible to exaggerate the sentence-final wh-element and use tense and large signing as indicated by the bold type letters. In imperatives, the strengthening was performed by tense articulation of the entire sentence and stronger facial expressions and imperative markings than usual (cf. examples in (74)).

(74) a. \[\text{ht-f,bl-f,f,sq} \quad \text{g-hey} \quad \text{DEUR} \quad \text{IX}_A \quad \text{DICHT}\] g-hey door ix_A shut

b. \[\text{ht-f,w,r,hn} \quad \text{ALSJEBLIEFT} \quad \text{DEUR-DICHT}\] please door-shut

Similar to the DGS imperatives that were modified to strengthen the utterance, the NGT signers used manual and nonmanual methods to reach this objective.

\[E \text{ Softening of the utterance}\]

When softening the force of an utterances as in 11, 12, 15, 19, and 22, the signers used strategies similar to those found for DGS. Slower signing, head nods, and mouth patterns such as pursed lips may soften the declaratives (75)
and imperatives (76) of this group. In declaratives, the modal meaning softens the declarative and instead of a firm statement, the sentence indicates slight insecurity. Still, the aim of the utterance is to calm the addressee. In German, this is expressed by the modal particle schon, which was triggered by the respective contexts.

In nearly all of the examples, forward head tilts and head nods were used, as the utterances were directed to the addressee directly. Pursed lips were used in combination with slight head nods, once on the verb alone (75a) and once after the utterance (75b), without sentential scope. The relevant nonmanual features for this category are the head nods. Depending on the degree of affirmativity or insecurity, frowning may be combined with nodding (see (75b)).

For imperatives, raised eyebrows and pursed lips were added to the general imperative marking of furrowed brows, frown, and forward head tilts and were even used to replace or override these markers. The tense signing usually used for commands was softened by slow and more relaxed signing.

| (75) | a. pursed | pursed  
g-nee : WEG IX₁ VIND  
g-no : way ix₁ find  
hn,pursed  
hn.frown  
hs  
 b. g-abwink  
g-wave-aside  
ix₁ way find ix₁ pursed lips

| (76) | a. hn,ht-f, sq.f,pursed  
SPRING WATER  
jump water  
hn,pursed,f  
 b. TIM ZEG LAAT SPEEL LAAT GOED  
tim say let play let good  
hn,ht-f,r  
c. WATER SPRING  
water jump  

Slow and/or very small head nods indicate the softening of the commands. Again, pursed lips were used frequently to express the attitude towards the imperative. In (76), the sentence is turned into a permission rather than an imperative. The modal expressions may change the illocutionary force of the utterance.
6.3.3. ISL data

In the same systematic way, I present the results of the ISL sessions concerning the modal meaning task. A brief version of the table summarizing the categories according to which the examples are ordered can be found in table 15, repeated here for convenience (see table 12 for the full version).

Table 15. Categories of modal meaning

<table>
<thead>
<tr>
<th>Category</th>
<th>Sentences</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1 Reference to Common Knowledge</td>
<td>1, 3, 17, 18, 25, 27</td>
</tr>
<tr>
<td>A2 Reference to Evident Knowledge</td>
<td>2, 16, 26</td>
</tr>
<tr>
<td>B Uncertainty and Degree of Commitment</td>
<td>5, 6, 7, 13, 20, 21, 29</td>
</tr>
<tr>
<td>C Unexpectedness</td>
<td>8, 9, 23, 24, 30</td>
</tr>
<tr>
<td>D Strengthening of the Utterance</td>
<td>4, 10, 14, 28</td>
</tr>
<tr>
<td>E Softening of the Utterance</td>
<td>11, 12, 15, 19, 22</td>
</tr>
</tbody>
</table>

A1 Reference to common knowledge

As seen in table 15 above, category A1 comprises the target sentences 1, 3, 17, 18, 25, and 27. In ISL declaratives, the reference to common knowledge was expressed by squinting the eyes. This was the same feature as found for DGS and NGT in these contexts. A squint was combined with forward head-tilts in most of the examples. A frown and raised eyebrows very often accompanied the squint as well. In (77), different signers used different constructions, but the same facial expressions.

(77)  a. \[
\text{ht-f,sq,r,frown} \\
\text{IX}_2 \text{ KNOW} \text{ IX}_3
\]

b. \[
\text{ht-f,sq,r,frown} \\
\text{KNOW}
\]

c. \[
\text{ht-f,sq,frown} \\
\text{KNOW} \text{ POSS}_3 \text{ WAY} \text{ KNOW} \text{ IX}_3 \text{ g-pu}
\]

In (77b), nonmanuals alone were sufficient to express the respective modal meaning indicating common knowledge combined with the attitude that the issue under debate is not worth bothering. Another strategy was the use of specific expressions such as English ‘You know his way!’ . This was also used
in ISL quite naturally and two of the three signers spontaneously indicated this as an appropriate option in the respective context.

The squint definitely functioned as the indicator of the reference to common knowledge. Whereas in (77), specific speaker attitudes combined with the squint feature, the sentence in (78) is an example where a squint is used in isolation as no attitude is added. The sentence only refers to a common background in a neutral way.

\[
(78) \text{sq} \quad \text{r,ht-f,sq} \\
\text{YESTERDAY \textit{IX}}_{\text{dual}} \text{TALK ABOUT P.E.T.E.R.} : \text{REMEMBER \textit{1X}}_2
\]

Looking at interrogatives, the same basic feature of squinting is used compositionally with the nonmanual interrogative markers. Thus, the squint is combined with a forward head-tilt and furrowed eyebrows in wh-interrogatives (see (79a and b)).

\[
(79) \begin{align*}
\text{sq,ht-f,f} \\
\text{D.O.G. NAME g-pu}
\end{align*} \\
\begin{align*}
\text{IX}_1 \text{FORGET NAME TOWN} : \text{NEED TELL Poss}_1 \text{HUSBAND} : \\
\text{sq,ht-f,f,hs} \\
\text{WHERE IX}_p \text{GO} : \text{WHERE IX}_p \text{GO}
\end{align*}
\]

The signer asks for something that is assumed to be formerly known by the signer herself, i.e. unretrievable information that was part of the common ground before. Hence, an interrogative including squint asks for a reactivation of former shared knowledge.

**A2 Reference to evident knowledge**

If propositions are evident but not necessarily common ground (either not expected to be known or obviously forgotten), modal particles such as \textit{ja} or \textit{doch} in German can be used to refer to evident knowledge. This is also the case for specific nonmanuals used to refer to common knowledge in sign languages. Category A2 was therefore separated from A1 and includes target sentences 2, 16, and 26.

In (80), the complete context dialog between two people is given. As usual, ‘rs’ means role shift and the indexed name refers to the person signing. The target sentence is marked by furrowed eyebrows, and the squint -
in combination with head nods - scopes over parts of the sentence. As the modal markings generally receive sentence scope, this example is a case of more narrow referent marking. The relevant information here concerns the reference tracking and retrieval of information about the subject, the inclusive dual pronoun. Thus, in this context, the signer reminds the addressee of the fact that both signer and addressee have been in the park before. The emphasis on the subject and the reactivation of this particular part of information is ranked higher than marking the entire sentence by squinting. Furthermore, the interrogative marking (f) may override the squint in this case. Apart from this, also the Ah-sign is accompanied by its typical nonmanuals including body lean and squint, which also indicate the modal meaning overtly.

(80)  
\[
\begin{array}{llllllll}
\text{ANNA}_i & \text{TELL} & \text{NICE} & \text{PARK} & \text{BEAUTIFUL} & \text{STATUE} & \text{TREE} : \\
\text{bl-l,cb} & \text{sq,hn} & \text{sq,nw} & \\
\end{array}
\]

\[
\begin{array}{llllllllll}
\text{PETER}_j & \text{AH} & \text{BUT} & \text{g-pu} & \text{IX}_{\text{dual}} & \text{BEFORE} & \text{IX}_{\text{dual}} & \text{IX}_A & \text{PARK} \\
\text{ht-f,hs} & \text{f} & \text{rs}_j & \text{g-pu} & \\
\text{REMEMBER} & \\
\end{array}
\]

The other two target sentences are shown in (81a) and (81b). In both cases we find a more restricted patterning of the nonmanuals, but squinting can be found in all instances. The example (81b) indicates referent marking comparable to (80), as the squint again accompanies the subject. The locations park and playground are given information in the respective contexts and do not require an instruction for information seeking or referent reactivation.

(81)  
\[
\begin{array}{llllllllll}
\text{ht-f,f,sq,frown} & \text{hn,r} & \text{OF} & \text{COURSE} : & \text{MUM} & \text{SAME}_{\text{rep}} & \text{RECIPE} \\
\text{f,sq} & \text{shr} & \text{ht-f,f} & \text{g-pu} & \text{IX}_{\text{dual}} & \text{OFTEN} & \text{COME} & \text{PLAYGROUND} & \text{g-pu} \\
\end{array}
\]

Forward head-tilts and furrowed brows are used in both examples. In (81a), the information that is given is not directly linked to shared knowledge but evident knowledge. Therefore, raised eyebrows and head nods are added. In
(81b), it is obvious that in addition to reference to common ground, the signer expresses some doubts and contrastive skepticism towards a formerly uttered sentence. In this manner, the different meaning components are expressed simultaneously and systematically add up and layer to convey the respective contextually triggered meaning of the target sentence.

B Uncertainty and degree of commitment

As in the sections for DGS and NGT above, I present the examples of this group according to sentence type. Thus, examples 5, 6, 7, 13, 20, 21, and 29 are divided into declaratives (5, 20, and 29) and interrogatives (6, 7, 13, and 21). Uncertainty towards a proposition was expressed in different ways in ISL. First of all, the adverb *maybe* was used quite frequently and directly conveyed the meaning that was triggered by the context. Furthermore, body leans shifting from one side to the other or a similar head position change to the left and right were used to show indecisiveness.

Simultaneously with the manual sign or the body movement, nonmanual features indicated the modal meaning that was investigated in declaratives. However, if a direct method was used, the nonmanuals were not obligatory and therefore not always consistent. Depending on the degree of commitment, different means could express the certainty of the signer along a continuum. Frowning, shrugs, squints, and furrowed brows indicated a higher degree of uncertainty, whereas raised eyebrows and head nods pointed towards the other end of the continuum. (82a) is a classic example of this group and the signer performed both head movements and facial expressions such as raised brows and frowning. Note that a triple ’XXX’ indicates a slip of the hands.  

(82)  

\[
\begin{align*}
&\text{(a) c,hn} \\
&\text{ht-r} \quad \text{ht-l} \\
&\text{r,frown} \quad \text{hn} \\
&\text{g-pu} \quad \text{S.U.S.A.N} \quad \text{SELL} \quad \text{CAR} \quad \text{g-pu} \\
&\text{hn} \quad \text{shr} \\
&\text{ht-l,f} \\
&\text{MA} \quad \text{HC} \quad \text{BEE} \quad \text{S} \quad \text{SELL} \quad \text{CAR} \quad \text{XXX} \quad \text{g-pu}
\end{align*}
\]

In (82b), the sign for *maybe* in ISL clearly shows the position that the signer takes. The contexts triggered the expected reading, but in ISL, the adverb is
the most prominent means to convey the modal meaning. This can also be seen in (83b) and (84a) below. The nonmanuals used in (83a) are used by a signer who is quite certain that the person he is talking about is at home. The signer interprets the light as a clear indicator of this and hence used head nods in combination with raised brows and wide eyes.

\[(83) \begin{align*}
\text{a. } & \text{ht-f, hn, r, w} \\
& \text{SEE LIGHT IX} \\
& \text{MEAN HOME g-pu} \\
\text{b. } & \text{S.U.S.A.N. WHY S.U.S.A.N. NOT HERE g-pu} \\
& \text{hs r, frown} \\
& \text{KNOW g-pu : MAYBE SICK g-pu}
\end{align*}\]

Example (83b) in comparison to (82b) shows that - despite and in addition to the use of the manual adverb in both cases - the nonmanuals may vary depending on the degree of certainty.

Interrogatives in the category named ‘Uncertainty and Degree of Commitment’ refer to the addressee’s degree of commitment with respect to the answer that is expected. As these questions ask for a suggestion or an assumption instead of a clear statement, the interrogatives themselves express a high degree of uncertainty. The signers used body leans to the right and left, MAYBE as a lexical means, and nonmanuals such as raised brows and wide eyes in combination with nose wrinkling, squints, and frowns. Similar to the results for DGS and NGT, the nonmanuals for category B in ISL cannot be narrowed down to one or two facial markers. The meaning may vary and is often expressed by various means.

\[(84) \begin{align*}
\text{a. } & \text{bl-l, ht-f, r, w} \\
& \text{MAYBE IX}_3 \text{ IX}_A \text{ HOME RIGHT} \\
\text{b. } & \text{ht-f, f, ht-f, r, w} \\
& \text{g-hey IX}_2 \text{ IX}_A \text{ KNOW WHO WRITE IX}_A \text{ WHO IX}_A
\end{align*}\]

Irrespective of the prominent use of the adverb \textit{mabye}, nonmanuals in ISL may sufficiently fulfill the function of expressing the modal meaning alone. The example in (85) clearly induces the modal reading and shows the uncertainty about the state of affairs. The signer is not expecting the addressee to know a straight answer to the question.
Modality and modal particles in sign languages

The last example in (87) shows the interplay of all features described above. Body leans, the sign MAYBE, and facial expression interact to convey the particular modal meaning.

C Unexpectedness

The context for the elicitation of target sentences 8, 9, 23, 24, and 30 either triggered surprised unexpectedness or unexpectedness combined with a negative attitude and disbelief. This combination of unexpectedness and speaker’s attitude leads to different realizations. As this group only contains interrogatives, the examples for DGS and NGT were subdivided according to these additional meaning nuances for the purpose of illustration. Even though, for ISL, the distinction can not so easily be drawn, as is shown below, the following examples are described following this overall distinction. Examples (87a) and (87b) provide the results for questions used as reactions to unexpected utterances of the conversational partners.

\[
\begin{align*}
(87) & \quad (85) \quad \underline{\text{ht-f,f,sq,frown,nw}} \\
& \quad \underline{\text{IX}_2 \ \text{KNOW} \ \text{WHAT} \ \text{IX}_3 \ \text{MEAN}} \\
& \quad \underline{\text{bl-r}} \quad \underline{\text{bl-l}} \quad \underline{\text{bl-f}} \\
& \quad \underline{\text{r,w}} \\
& \quad \underline{\text{NO CAR} : \ \text{LEAVE HOME OR BRAKE OR MAYBE SELL}}
\end{align*}
\]

Both signers, as seen in (87a and b), very explicitly signed SURPRISE, and the facial expressions accompanying the interrogative are symptomatic of the realization of unexpectedness. Both questions in (87) exhibited nonmanuals such as raised eyebrows, wide eyes, and frowning and the facial expressions most effectively conveyed the modal meaning.

Unexpectedness can also be combined with the attitude of contradictory doubt. More expressive frowns, furrowed eyebrows, and nose wrinkling may express less surprise and more of an opposing attitude towards the proposition uttered before. Frown and nose wrinkling were also used in (88). The surprise
was articulated by wide eyes and the forward body lean in an introductory question ‘Really?’ An additional head shake at the end of the sentence further enhanced this attitude of doubt.

(88) bl-f,f,w,nw ht-f,nw,cb hs,ht-b
down,(r)
REALLY g-sigh : P.(E.T.E.R.) HOSPITAL AGAIN
g-pu

What all examples have in common though, is the fact that raised eyebrows and wide eyes clearly indicate unexpectedness. In some cases the negative attitude might override one of the features to layer specific attitudes. Nevertheless, the commonalities clearly indicate the modal function of the nonmanuals.

In (89a), the interrogative markings such as forward head-tilt and raised eyebrows are combined with more intense and emphatic raising of the brows and a frown. Example (89b) again combines surprised unexpectedness (bl-r,r,w) with skepticism (nw,frown).

(89) a. f hu shr
  g-pu BUT g-pu TRAIN L.E.G.A.L. CROSS CAN g-pu ht-f, r, r, frown

b. rsj
  ixdual SWIM : AH PNEUMONIA RECENTLY IX2 F.I.T. IX2

In a nutshell, unexpectedness is expressed by raised brows and wide eyes and very often a forward head-tilt. Depending on the attitude with regard to the proposition or event, additional features such as frowns and nose wrinkles may be layered.

D Strengthening of the utterance

This category comprises two interogatives (10, 14) and two imperatives (4, 28). It summarizes the contexts which invoked a strengthening of the utterance. German modal particles such as schon and stressed JA may have similar functions. In ISL, the results showed that manual modifications had the effect of strengthening an utterance in the respective contexts that were elicited. Both in the interogatives and the imperatives, tense signing, enlarging the
signs, and fast articulation were used for these purposes. In the following ex-
amples, these manual articulation patterns were indicated by bold type letters.
Nonmanual features such as forward head movements, raised eyebrows, and
head nods were used to intensify the interrogatives in (90), for instance. Note
that the wh-interrogative was not marked by furrowed brows as expected syn-
tactically.

\[(90)\]
\[
\begin{array}{ll}
\text{a. } & \text{ht-f,} \text{hn}_r, \text{r} \\
\text{WHERE} & \text{POSS}_1 \text{ SHOE} \\
\text{b. } & \text{w} \text{ } \text{sq} \text{ } \text{bl-f,} \text{ht-f} \\
\text{g-pu} & \text{SHOE} \text{ SEARCH} \text{ WHERE} \text{ g-pu} \\
\end{array}
\]

Particularly the wh-elements were signed larger and were articulated in a
tense manner. In (90b) the wh-element was signed without the actual sen-
tence that I wanted to elicit. The instruction to perform full sentences was not
a preferred option in many cases. Nevertheless, example (90a) shows that the
nonmanuals may spread across the entire sentence to strengthen the interro-
gative.

\[(91)\]
\[
\begin{array}{ll}
\text{a. } & \text{bl-f,} \text{ht-f} \\
\text{r,w} & \text{r} \text{,} \text{w} \\
\text{HOMEWORK} & \text{NOW} \\
\text{b. } & \text{hn,} \text{ht-f} \text{,} \text{sq} \\
\text{g-go} & \text{TURN-KNOB} \\
\end{array}
\]

Regarding the imperatives of category ‘D’ (4, 28), the same means are used.
Tense and large articulation was combined with strong nonmanuals in (92a)
and added to the more impatient, but encouraging expression in (92b).

\[E \text{ Softening of the utterance}\]

Category ‘E’ comprises the target sentences number 11, 12, 15, 19, and 22
and lists examples of the ISL responses concerning the softening of utterances
in particular modal contexts. The transcriptions in (92) show three examples
of declaratives as given by different signers. Head nods and forward head
tilts indicated a modal meaning of assuring confirmation. The softening is
very subtle and the signers are quite committed to the proposition.
All of the signers interpreted the context in such a way that the target sentence was signed very assuringly, affirmatively, and confidently instead of insecurely. As both variants were possible in the given contexts, the ISL examples thus only give insight into the more affirmative markings of the modal meaning that was investigated. The German particle schon may also be used in both interpretations and receives its specific meaning in combination with intonational means in spoken German. The same assuring interpretation as seen above, was also used in other contexts (see example (93)).

The examples in (94) show the results for the imperatives in category D.

In sum, head tilts and head nods were used most consistently and efficiently to indicate an assuring way of uttering softened declaratives.
6.3.4. Control group data

The results for the German control group consistently pointed towards the fact that the created contexts clearly triggered the modal meaning of modal particles in these cases. As spoken German exhibits many different options to express modal meaning, the results did not show a perfect correspondence, but the following table 16 summarizes how often the speakers used a modal particle in the respective target sentences of the task (MP = modal particle, SA = sentential adverb, MM = modal meaning, and TS = target sentences).

<table>
<thead>
<tr>
<th>Speaker</th>
<th>MP+SA/TS</th>
<th>MP/TS</th>
<th>MM/TS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>20/30</td>
<td>17/30</td>
<td>30/30</td>
</tr>
<tr>
<td>B</td>
<td>21/30</td>
<td>18/30</td>
<td>29/30</td>
</tr>
<tr>
<td>C</td>
<td>24/30</td>
<td>24/30</td>
<td>28/30</td>
</tr>
<tr>
<td>D</td>
<td>14/30</td>
<td>12/30</td>
<td>30/30</td>
</tr>
<tr>
<td>E</td>
<td>22/30</td>
<td>19/30</td>
<td>30/30</td>
</tr>
</tbody>
</table>

In approximately two third of the cases, a modal particle was chosen as an appropriate means of modification. If sentential adverbs are included in the count, the rate is accordingly higher. In the remaining cases, the speakers often relied on intonation alone, used modal verb constructions such as ‘ich glaube’, or sentential adverbs such as bestimmt, vielleicht, wahrscheinlich. The latter clearly indicated the closely related modal meanings, which modal particles and sentential adverbs similarly induce in the respective cases. This is why they are listed together in the table above. The high number of modal particle usage in these cases indicate that the contexts clearly trigger the modal meaning that was intended. Furthermore, the speakers mostly used the same modal particle in the respective contexts. All of the speakers used the modal particle doch in target sentence 26 and the modal particle schon in target sentence 22, for instance.

As seen above, speaker D somehow stands out against the other informants and used intonational means more than average. This was most likely due to particular expectations regarding the experiment. The participant later admitted that s/he thought the experiment was about intonation. In later discussions the sentences were not judged to be the most appropriate replies in the given contexts.
6.3.5. Summary of the results

Presenting examples grouped according to the different categories A-E and investigating the results looking at cross-signer comparisons has revealed an overall nonmanual realization of the meaning levels that were investigated. Systematic consistencies in the use of nonmanual markings for modal meaning have been found. As expected, manual signs for modal particles or similar manual expressions did not occur. It is safe to say that manual items for such particles do not exist, at least in the three sign languages investigated.

Except for strengthening imperatives and interrogatives, which were performed mainly by manual modifications such as tense and large articulation, nonmanuals were always used for the realization of the specific modal meanings that were investigated in this study. All of the three sign languages used the nonmanual features predominantly for the modification of the contextually adapted target sentences. Furthermore, sentential adverbs, gestural means such as the palm-up gesture (often used in the function of a question particle) or the wave-aside gesture, additional matrix clauses, or other means were optionally used to make the meaning nuances explicit. Signers consistently used the same features and in most cases the same combinations to mark the respective modally modified sentences in the appropriate contexts. Due to interpretative differences of a few vague contexts especially in category B, the features for specific categories sometimes differed. The differences could be explained individually on the basis of meaning nuances and degrees of commitment and were discussed during the presented examples above.

Similar to modal particles in spoken languages, the means for expressing modal meaning were expected to operate on the clausal domain. Unsurprisingly, the nonmanual features spread along the entire sentence in nearly all of the examples. The systematic alignment with manual constituents and clear on- and offsets propose a grammatical use. Most interestingly, however, the results indicate that specific features seem to add specific meaning components to the sentence and that combinations of nonmanuals can be explained in terms of complex meaning compositions. The question markings can be clearly separated from nonmanuals for modal meaning, for other levels of meaning, and for affective aspects, but the linguistic components interact systematically.

The results were extremely similar for the three sign languages DGS, NGT, and ISL. Squint, eyebrow raise, wide eyes, head nods, frowns, and some other nonmanual features are used in the same contexts to express the
same meaning nuances. Table 17 provides a compact summary of the findings. The table illustrates the features for each category in each sign language in a condensed way.

Table 17. Results for modal meaning task

<table>
<thead>
<tr>
<th>Category</th>
<th>Nonmanuals DGS</th>
<th>Nonmanuals NGT</th>
<th>Nonmanuals ISL</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>sq, ht-f, (f)</td>
<td>sq, f, (ht,frown)</td>
<td>sq, ht-f (r,frown)</td>
</tr>
<tr>
<td>A2</td>
<td>sq - hs (r)</td>
<td>sq (r,frown,hn)</td>
<td>sq (hn,f)</td>
</tr>
<tr>
<td>B</td>
<td>hn, r - slow hn, f, frown, bl-l, bl-r</td>
<td>frown (sq,hn,r,w)</td>
<td>hn (ht-l,ht-r,bl-l,bl-r)</td>
</tr>
<tr>
<td>C</td>
<td>w, r - sq, f</td>
<td>w, frown (r,sq,nw)</td>
<td>w, r, frown - frown, w, (nw)</td>
</tr>
<tr>
<td>D</td>
<td>tense, large, ht-f, intensifying NMFs</td>
<td>ht-f, tense, r, w</td>
<td>tense, large, ht-f, r, w</td>
</tr>
<tr>
<td>E</td>
<td>frown - hn</td>
<td>hn, pursed (f,r,ht-f)</td>
<td>hn, ht-f</td>
</tr>
</tbody>
</table>

Except for category B, where different nonmanuals were used due to a high variability in context interpretation both within sign languages and across sign languages, the remaining four categories show intriguing similarities across signers and languages. Squint was the prominent feature in category A, wide eyes and raised brows systematically marked unexpectedness in category C, manual means and additional nonmanuals were used to intensify utterances, and head movements indicated affirmative softening of declaratives.

It can be seen that particularly the squint, raised eyebrows, wide eyes, and the frows were performed for the same purposes in all of the three languages. Concerning the other means that were used, it was evident that ISL preferred sentential adverbs. DGS used these adverbs similarly frequently. ISL often combined adverbs with nonmanual modifications, which was predicted by former research. Nevertheless, the layering related to the visual modality and the use of nonmanuals were equally consistent. An earlier finding that ISL might use gestures more frequently than other sign languages could not be maintained.

Thus, modal particle induced modal meaning is equivalently expressed by nonmanual markings in DGS, NGT, and ISL and the systematic use of various features will be analyzed in the following sections.
6.4. Analysis

In the following sections, I discuss two possible analyses for nonmanual features that are actually very much related, but they both approach the data from different perspectives.

In a syntactic tradition, authors have argued that nonmanuals are instantiations of syntactic features and that nonmanuals spread along the c-command domain of the respective feature. Similarly syntactic, the spreading of nonmanuals can be analyzed as being determined by Spec-head relations. In a prosodic tradition, on the other hand, authors have argued that many specific nonmanuals are intonational in nature and that these features spread along prosodic constituents. In particular, a compositional account has been suggested.

Taking the syntactic viewpoint, Neidle et al. (2000) have analyzed the scoping of nonmanuals as marking the c-command domain of a syntactic feature, for instance. Wilbur & Patschke (1999) and Wilbur (2000) argue for movement-related explanations of nonmanual markings in terms of Spec-head agreement and feature checking. In a more semantic account, Wilbur (1995, 2009) proposed a semantic operator analysis for ASL with semantically restricted spreading options due to a dyadic operator in SpecCP on the left (cf. Krifka et al. 1995). Section 6.4.1 summarizes the syntactic perspectives analyzing nonmanuals. In section 6.4.2, I discuss some of these approaches with regard to the nonmanual expressions of modal meaning found in my data.

Nonmanual spreading has also been analyzed prosodically, which is presented in section 6.4.3. Sandler & Lillo-Martin (2006) and Sandler (2005, 2010, 2012) present arguments for a prosodic analysis of certain nonmanual expressions. As discussed in section 6.4.4, the nonmanuals align with prosodic constituents and are analyzed as having inherent meanings that can be decomposed and combined systematically. In section 6.4.5, I apply these findings and suggestions to the nonmanuals found in my data for modal meaning in sign languages.

The ongoing debate between the different approaches requires more data and systematic investigation. I discuss the two options of a syntactic and a prosodic approach to nonmanuals in the following sections and draw conclusions for the analysis of the nonmanuals concerning modal meaning in section 6.5.
6.4.1. Syntactic analysis of nonmanuals

The syntactic analysis of nonmanuals links facial expressions directly to syntactic structure. The spreading and occurrences of these nonmanuals have been taken to explain sentence type markings and structural relations such as embedding or topicalization. Facial expressions are seen as instantiations of syntactic features. After briefly summarizing a few related accounts, I discuss the syntax-approach with regard to modal meaning and the expressions that have been detected to convey the different meaning components described in the results above.

Specific nonmanual markers that have been found to indicate interrogatives, conditional clauses, and relative clauses, for instance, were analyzed as spell-outs of syntactic features. According to Wilbur & Patschke (1999) and Neidle et al. (2000) the nonmanuals spread along the c-command domain of the respective features (see also Aarons et al. 1992 among others). The spreading domain is thus restricted by formal mechanisms such as syntactic features or operators (cf. Wilbur 2000). This has lead researchers to argue both for and against particular syntactic structures of ASL (see chapter 8 section 8.6 for a note on the positioning of CP and C° in ASL).

The basic syntactic analyses of nonmanual features have been proposed for interrogatives and the respective brow raise and brow furrowing associating with the [+wh] or [-wh] features. Wilbur & Patschke (1999: 3-4) argue that a [+wh] feature for furrowed brows is responsible for the c-command spreading of wh-nonmanuals, whereas raised eyebrows are instantiations of a [-wh] feature that needs to be checked in a Spec-head relation, thus triggering movement of the respective material to an A’ position that reflects an operator-variable relation. In case of polar questions, the entire sentence is raised to SpecCP to check the feature by Spec-head relation and thus all signs receive brow raise (cf. Wilbur & Patschke 1999: 20-21). Recently, Wilbur (2009) assumes a restrictive semantic operator (dyadic operator) that determines the scope of the brow raise feature. This approach is meant to explain ASL structures with brow raise that the pragmatic prosodic approach cannot account for. Wilbur & Patschke (1999) and Wilbur (2009) thus argue against previous pragmatic analyses by Coulter (1979), which have recently been adopted by Dachkovsky & Sandler (2009). This opposing view, that nonmanual marking and spreading is due to functional and semantic-pragmatic triggers, is discussed in section 6.4.3 below. The semantic-pragmatic account, however, is said to be incapable of explaining brow raise on structures such
as quantified and focused NPs that are not given or salient, for instance. Furthermore, obviously given elements such as subjects are not always marked by brow raise (cf. Wilbur & Patschke 1999: 5). Thus, the syntactic arguments go against a correlation of the nonmanuals with “commonly identified communicative functions, information status, intonational phrases, or other non-syntactic domains” (cf. Wilbur & Patschke 1999: 3).

6.4.2. Syntax of nonmanuals for modal meaning

Taking the syntactic perspective to analyze the results for modal meaning, the scope behavior of the respective nonmanual features builds the starting point for a syntactic account. As seen in the results above, in nearly all of the cases, the nonmanuals that were used to modify the regular sentence according to the contexts exhibited sentential scope. Similar to modal particles and modal modifications through sentential adverbs, for example, the nonmanual expressions operate on the level of the clause. Modal particles have also been analyzed as specifiers of mood phrases (cf. Coniglio 2006, 2011).

Assuming a mood phrase in the left periphery as supported by Rizzi (1997), it is possible to deduce abstract features in Mood$^\circ$ that may trigger $A'$-movement of the entire clause to SpecMoodP to check the feature.

\[(95) \text{MoodP} \]
\[\text{SpecMoodP} \quad \text{Mood}' \]
\[\quad \rightarrow \quad \text{Mood}^0 \quad \text{FinP} \]
\[\quad \rightarrow \quad [+\text{mod}] \quad \rightarrow \]
\[\ldots \]

Whether the different nonmanuals and their combinations in the investigated categories each require different features is an interesting question. In Cinque (1999), different projections for various mood phrases such as speech act, evaluative, evidential, epistemic, and irrealis are postulated.

A squint can be analyzed as an epistemic marker and wide eyes or head nods definitely marked evidence in the data. Whether frown can be analyzed as an evaluative modifier has not yet been stated or investigated. More research would be needed to determine which kind of features would fit the
proposed options and which features would be reasonable to assume. Thus, the suggested associations clearly remain speculative.

The scoping of the modal nonmanuals would be determined either by Spec-head relation (locally) if a strong feature attracts the entire clause to SpecMoodP, or via c-command in case we assume a weak feature. As the entire sentence is modified, the syntactic account predicts the correct sentential scope. The scope behavior of the nonmanuals with clear on- and offsets as found in the data seems to be evidence for a syntactic approach.

An interesting example that occurred in the corpus is worth examining in more detail. The transcriptions given in section 6.3.2 are repeated in (96). The NGT utterance was elicited within the context of two friends going for a walk when an old man passes by on the other side of the street.

\[(96)\quad f_{,sq,hn} \quad r \quad r \quad r \quad g_{-anstoss} \quad IX_{3} \quad ZELFS \quad IX_{3} \quad MENEER \quad BERG \quad BERG \quad IX_{dem} \]
\[g_{-nudge} \quad ix_{3} \quad self \quad ix_{3} \quad mister \quad Berg \quad Berg \quad ix_{dem} \]
\[IX_{2} \quad LERAAR \quad ENGELS \quad IX_{3} \quad sq_{,f} \]
\[ix_{2} \quad teacher \quad English \quad ix_{3} \]

The raised eyebrow movements accompanying the sequence ‘MENEER BERG BERG IX\textsubscript{dem}’ interrupt the facial expressions which indicate the modal meaning by squinting and furrowing the brows. As the facial expressions did not align with ZELF, which is often used as a relative pronoun, the example suggests we analyze it as a parenthesis rather than a relative clause. The subject pronoun IX\textsubscript{3} precedes the included name specification and is copied at the end of the clause. Such a parenthetical construction would not contradict a syntactic analysis of the nonmanuals as parentheses are syntactically independent.

As the raised eyebrows were not consistently held during the entire parenthesis, and frowning and squinting ‘shine’ through at some points, a clear syntactic division is weakened. The interaction of the nonmanuals seems to be more complex. Nevertheless, the general scope behavior neither favors nor conflicts with a syntactic analysis.

Given the variety of nonmanuals used for modal meaning, the interplay, the different combinations, and the degree modifications found in the data, it seems promising to take into account a pragmatic viewpoint as proposed in the prosodic approach described in the following section 6.4.3.
6.4.3. Prosodic analysis of nonmanuals

The general categories of prosody in spoken languages can be equally applied to sign languages. A signed utterance is prosodically structured similar to spoken discourse. Researchers have found equivalent units of the prosodic hierarchy\(^\text{72}\) such as the prosodic word, the phonological phrase (PP), and the intonational phrase (IP), thus proving that prosody is a modality-independent notion (cf. Brentari 1998, 2012; Nespor & Sandler 1999; Sandler 1999, 2012; Brentari & Crossley 2002; Pfau 2005; Sandler & Lillo-Martin 2006; Nicodemus 2007). In a parallel fashion to spoken languages, prosody in sign languages consists of the three generally assumed components: rhythm, prominence, and intonation. Domain and edge markers indicating intonational tunes and prosodic breaks are expressed through manual and nonmanual features. Phrase boundary markers and the spreading of nonmanuals mark structures like parentheticals, non-restrictive relative clauses, and topics, for example (cf. Sandler & Lillo-Martin 2006: 253). Even though nonmanual features are the predominant means for prosodic marking, it is important to note that manual and nonmanual means interact. Tense articulation, larger signing, repetitions, and pauses are equally relevant to prosodic structure in sign languages.

Proposing a prosodic account for nonmanuals and their distribution, Sandler & Lillo-Martin (2006) and Sandler (2010) argue against the syntactic account described in section 6.4.2 above. They object that a syntactic approach cannot account for sentence-final brow raise in ASL, for instance. The sentence-final doubles (modal verbs, pronouns, etc.) are in ‘non-wh-A-bar positions’ and thus wrongly predicted to be marked by brow raise. Note that there might also be sign language-specific differences concerning the analysis of certain nonmanual features. The negation feature [+neg] is argued to be syntactic in ASL but morphological in LSC and DGS (cf. Pfau & Quer 2007). Recent papers have furthermore discussed the possible prosodic nature of head shake with respect to negation in DGS (cf. Pfau 2008).

According to Selkirk (1984, 2011) and Hale & Selkirk (1987), prosodic constituency is derived from syntactic structure. However, like prosodic cues in spoken languages, prosodic phrases and their respective facial expressions in sign languages do not always directly reflect syntactic structure. Some nonmanual expressions and their domains are non-isomorphic to syntax. This fact is often taken to build the grounds for the assumption that at least some linguistic nonmanual features are prosodic in nature and should therefore be
analyzed as part of an intonational system (cf. Wilbur 1994a, 2000; Sandler & Lillo-Martin 2006; Dachkovsky & Sandler 2009).

It is thus important to clearly distinguish the syntactic level from the prosodic level. Non-isomorphism is said to provide evidence for a prosodic level of language and justifies the discreteness and autonomy of the prosodic system. In opposition to that, Selkirk (2011), in recent work, recommends that we follow the Match theory of syntactic-prosodic constituency correspondence and explain non-isomorphism and phenomena at the phonology-syntax interface via constraint mechanisms. However, for a critical discussion about non-isomorphism and the existence of the mapping rule interface between syntax and phonology, see Scheer (2011: 320,354-361), who favors the modularity argument for the explanation of prosodic interference. Without going into detail concerning the recent debates, this book will present some of the standard arguments for a prosodic account. Therefore, the following examples in (97) are provided in order to show isomorphic alignment (97a) and non-isomorphic alignment (97b) of prosodic and syntactic constituents (cf. Sandler 2010: 307).

(97) a. \[BAKE]_{PP} [CAKE]_{PP} \\
    b. [BAKE CAKE]_{PP}

Usually, the object NP and the verb form independent PPs, especially when they contain more signs (cf. (97a)). In the example from Israeli Sign Language, however, BAKE and CAKE are prosodically grouped together into one PP (cf. (97b)), making it obvious that syntactic constituency is not a reliable indicator for prosodic constituency. Other such examples concern adjectives that are restructured into the preceding PP of a noun. In (98a), the non-branching adjective (small) - being an independent syntactic unit - forms a PP with the noun (dog) (cf. Nespor & Sandler 1999: 164). Such a restructuring of an adjective into the PP of a noun phrase is analyzed as non-isomorphism between syntactic and prosodic constituency.

(98) a. [[[DOG SMALL]_{PP} [SON-MY]_{PP}]_{IP} [[[SLEEP]_{PP}]_{IP}
    ‘My son’s small dog sleeps.’ \\
    b. [CAKE]_{PP} [VERY TASTY]_{PP}

In cases of additional modifiers, e.g. the intensifying particle in (98b), such processes are blocked. Thus, the prosodic structuring is different from the syntactic structuring in many cases (cf. Nespor & Sandler 1999: 164).
Pfau & Quer (2010: 393) present the DGS example in (99) as a possible candidate for non-isomorphism. The sign glossed as RPRO is a relative pronoun that is co-referent with the head noun MAN. The brackets indicate the prosodic constituency that is different from syntactic structuring. In syntax, the head noun and the relative clause form a unit, which is disrupted by prosodic nonmanuals (re) that are reported to be obligatory for relative clauses in DGS.

(99) \[ \text{TOMORROW MAN} \_I3a_ \_IIP \_RPRO\_3a_ \_IIP \_TIE \_BUY\_IIP \_CONFERENCE\_3b_ \_GO\_3b_ \_IIP \]

‘Tomorrow the man who is buying a tie will go to a conference.’

If the same sentence is signed by different signers, prosodic alignment may also differ according to idiosyncrasies of the signers and non-syntactic factors such as speech rate. Thus, prosody may become visible in signer variation and a different alignment of the same sentence is definitely not syntactic in nature (cf. Sandler 2010). A popular argument from spoken languages is the structuring of choice questions, as different intonational patterns result in different interpretations (see Pierrehumbert & Hirschberg 1990). Sandler & Meir (2008) argue that this is also the case for ISL². Furthermore, interruptions of the domain of specific nonmanual features, as is the case with topics after initial wh-elements or with relative clauses, contradicts a syntactic analysis. However, this argument is quite weak as it can always be criticized by the explanation of overriding nonmanual expressions, which are stronger and are superimposed on the other facial expressions.

Important evidence for a prosodic account comes from wh-questions that lack the regular wh-intonation such as in echo questions, rhetorical questions, exclamatives, and wh-clefts, for instance, and the fact that wh-intonation may occur without wh-elements. The intonational patterns are said to be triggered by pragmatic force (cf. Sandler & Lillo-Martin 2006). Syntactic representatives argue that not all wh-words are [+wh], such as wh-elements in relative clauses or wh-clefts, and that the feature alone is responsible for the respective nonmanual expression (cf. Wilbur 2009).

The prosodic account is also supported by results from acquisition studies and research on the emergence of a new sign language, which indicate a step by step acquisition and development of nonmanual markers and a gradual acquisition of individual markers (cf. Reilly et al. 1990; Reilly & Anderson 2002; Sandler 2010; Sandler et al. 2011). Fenlon et al. (2007) have studied prosody from the perceptional point of view and showed that signers of
British Sign Language (BSL) as well as non-signers frequently detected sentence boundaries and segmented BSL utterances according to prosodic cues like head movement, eyebrow movement, eye gaze and blinks, holds, pauses, and drop of the hands. Thus, they conclude that the system works independently from grammatical marking (cf. Fenlon et al. 2007: 197). The authors also found similar results for BSL signers segmenting a foreign sign language like Swedish Sign Language (SSL), indicating that the realization of prosody might be similar across (at least some) sign languages (cf. Fenlon et al. 2007: 186-187).

In sum, a prosodic analysis of nonmanuals discusses various individual features and has recently received closer, more detail-oriented attention. Based on the general prosodic account, the compositional analysis of specific nonmanual cues is explained in the following section.

### 6.4.4. Compositional account for nonmanuals

In ISL\(^2\), nonmanuals were analyzed as having inherent meanings that can be combined to derive complex meanings. The semantic analysis of specific nonmanuals suggests that facial expressions combine systematically to derive certain interpretations and mark specific constructions. In ISL, the markers for polar questions or wh-questions, for instance, may compositionally combine with a squint, which is a marker indicating shared information and/or the retrieval of accessible information (cf. Dachkovsky & Sandler 2007). The vague overall meaning attribution for squint is ‘low accessibility/shared information’. Another example investigated from this point of view is brow raise. Raised eyebrows are said to express some kind of a ‘continuation dependency’ as in topics, conditionals, polar questions, etc. (cf. Dachkovsky 2008). In analogy to the prosodic analysis of intonation in spoken languages presented in Pierrehumbert & Hirschberg (1990), brow raise is analyzed as corresponding to the high edge tone of intonational phrase boundaries.

However, there are differences between spoken and signed intonation. The former consists of intonational tunes and the tones cluster on specific parts of speech, whereas intonational features in sign languages spread along constituents simultaneously (see Sandler 2010). The layering of various different grammatical nonmanual features is possible.

Engberg-Pedersen (1990) investigates nonmanual behavior in Danish Sign Language (DSL) with regard to pragmatics. She finds that squinted eyes,
raised eyebrows and a pulled back chin may have pragmatic functions and contribute to the utterance meaning by information packaging. Native signers themselves commented on the functions of squinted eyes and noted that it marks something important that you want the addressee to understand. The squint indicates that the signer wants attention and tries to check whether the addressee knows what is being talked about (Engberg-Pedersen, 1990: 122). “Signers only squint their eyes when they assume that the receiver already knows the referent, but may have problems accessing it” (cf. Engberg-Pedersen 1990: 123). In response, the addressee usually nods in an affirmative fashion. In sum, squinted eyes mark an item thematically relevant and signal givenness and low accessibility (Engberg-Pedersen, 1990: 123). Nominals, adverbials, and restrictive relative clauses were accompanied by squinting and in fact restrictive relative clauses usually specify a referent and make it more accessible. This basically corresponds to Dachkovsky (2008)’s ‘low accessibility/shared information’ and my category of ‘reference to common knowledge’.

In a similar way, raised eyebrows were analyzed as marking an item thematically important in DSL, without making any assumptions about the addressee’s knowledge. This correlates with topic marking functions and a shift in theme. The same marking is often used for conditional clauses, which resemble topics with regard to form and pragmatic function in many languages (cf. Engberg-Pedersen 1990: 124).

A quote from a manuscript by Sandler 2009 sums up the basic idea of the compositional prosodic account that will be applied to the data of my experiments for modal meaning in section 6.4.5 below:

“The content of intonational patterns is determined by semantics and pragmatics, while their temporal distribution is accounted for by alignment to prosodic constituents, which in turn are derived from linearized surface syntactic representations.”

6.4.5. Intonational semantics of nonmanuals for modal meaning

Adopting the prosodic and compositional account, I present regular nonmanual patterns found in the data for modal meaning in DGS, NGT, and ISL, and test some individual features with respect to the semantic-pragmatic definitions already postulated. Furthermore, I provide suggestions for the meaning contribution of features such as wide eyes and frown, which systematically combined and contributed to the meaning of the target sentences in my data.
As shown in the above results, squinting was clearly used to reference common and shared knowledge. In declaratives, the squint added this meaning component in order to mark the sentence as already part of the common ground. Example (100) is taken from the DGS data set and example (101) shows the same target sentence in NGT (*You know him./You know what he is like.*). The additional nonlinguistic attitudinal expressions glossed ‘att’ in (100) were hard to describe but roughly correspond to nose wrinkling and frowning in NGT. Both facial expressions for the speaker’s attitude aim at expressing similar meaning nuances on top of the modal meaning.

(100) \[
\begin{array}{llll}
ht-f,sq,f,att \\
x_2 & Kenn & Pam \\
\end{array}
\]

The important finding is the fact that a squint is used for shared information in a consistent and compositional manner. This was the case in all of the three sign languages and the squint is a feature that many sign languages have in common. Squinting was used most consistently for these purposes by all signers of DGS, NGT, and ISL. In interrogatives, the signers added a squint to mark that they ask for actually known or forgotten information. The sentences in (102) (DGS) and (103) (ISL) show two of these interrogatives. The wh-element in such cases is optional and was omitted frequently.

(102) \[
\begin{array}{llll}
sq,ht-f,f \\
poss_2 & Hund & Name & (was) \\
poss_2 & dog & name & (what) \\
\end{array}
\]

The squint was also used to retrieve or tell evident information that might be accessible to the addressee. Thus, the squint signals the addressee to search for common or evident propositions, even though it was not explicitly given in the conversation. The data clearly support the intonational analysis proposed by Sandler & Lillo-Martin (2006), Dachkovsky & Sandler (2007), and Dachkovsky (2008).
Applying this strategy to further nonmanuals that were found to be used systematically in the data, I suggest two meaning attributions to specific nonmanuals. Wide eyes were seen to express unexpectedness and may combine with raised brows to indicate surprise or with frown to indicate skepticism and doubt about the unexpected event or sentence.

Raised eyebrows in my data were regularly used in contexts with polar questions, which is in accordance with the continuation analysis. This was a testing ground for compositionality and the data clearly show such instances where question marking was combined with squints or wide eyes. Compare the pictures in figure 21 which show a snapshot of the regular question and the modified question with the additional squint (see Dachkovsky 2008 for examples from ISL).

![furrowed brows, head-tilt](wh)

![furrowed brows, head tilt, squint](wh + squint)

*Figure 21. Regular and modified wh-interrogative with squint*

Another example of compositionality is given in figure 22, where wide eyes combine with interrogative nonmanuals and frowning. In this example at least four identifiable features combine simultaneously (head tilt, raised brows, wide eyes, and frown).

As frowning seems to be combinable in a similar way to the other above described features, it could be another intonational tune that is used to add meaning to an utterance in a specific way. The data showed frowns in cases where aspects of doubt and disbelief play a role. It is a marker of contradiction and was used in declaratives, interrogatives, and imperatives. In the data, frowns occurred with declaratives that showed a degree of uncertainty about the proposition. The doubt about the proposition was often marked by frowning in combination with slow head nods. Interrogatives that received a frown were used when expressing the disbelief and contradicting opinions towards an utterance or event in discourse (see (104)).
In (104), a frown was combined with wh-interrogative markings, first without a wh-word (104a) and second including a wh-word (104b). Frowning was also combined with nonmanuals for polar questions as in (105). In each case, frowning was used to indicate doubt and disbelief. Interestingly, the frowning on imperatives that strengthened the utterance can also be interpreted in terms of contradiction. As opposed to the addressee’s behavior, the signer wants the addressee to really do something, but expects the addressee to dislike it and doubts that he will follow as requested.

In (106), the frowns strengthened the impact of imperatives and added a specific meaning component of skepticism. The signer is still friendly, but more forceful in emphasizing the sentence. In (106a) the signer wants the addressee to know that he really means what he says even though the addressee has acted otherwise and in (106b), the signer is skeptical and strengthens the imperative because s/he feels that the addressee is not willing to do as s/he is told. Thus, the nonmanuals for imperative marking (ht-f,f) combine with
the frown to derive the complex meaning. The different levels of meaning in form of separate elements add up and simultaneously express the meaning of the sentence.

(106) a. TIM LASS SPIEL LASS  
    tim let play let  
    hn,f,frown

b. g-ach PROBIER SPRING  
g-well try jump

Head nods are usually used to give affirmative feedback. In the data, the pace of the nodding resulted in important changes to the meaning. Slow head nods were used to mark uncertainty, fast or punctual head nods are used to assert and confirm something affirmatively. Thus, head nods were systematically used and modified depending on the meaning nuances that were expressed. The lack of commitment was shown by slowly produced affirmative markers. Slow head nods spread across the entire sentence. The head nod as a punctual marker is usually used on a singular sign indicating affirmativity (see (107) from the DGS examples above).

(107) f, ht-f  
    VIELLEICHT STIMM POSS3 AUTO VERKAUF g-pu  
    maybe right poss3 car sell g-pu

Similarly interesting is the fact that head shake, apart from negation, can also express evidence and obvious information if it is performed slowly and in combination with raised eyebrows, for instance. Repeated in (108), the sentence is an example of such a use of head shake.

(108) sq,hs  
    Klar POSS1 MAMA IMMER ZUTAT GLEICH g-pu  
    obvious poss1 mum always ingredients same g-pu

Obviously, the discussed nonmanual features have their origin in the emotional and cultural gestures of their surrounding languages and people. The grammaticalization of nonmanuals has been noted in many sign languages as sign languages in general make efficient use of gestural components and in-
corporate them in the language system (cf. Pfau & Steinbach 2006a; Wilcox 2007; Loon et al. in press). The systematic patterns of nonmanuals and their common functions across languages combined with pragmatic meaning associations point towards promising results when analyzing nonmanuals with a compositional approach.

It is important to take into account various aspects of signing such as manual signs, the pace and the size of the signing, and the nonmanual expressions. As speculative as the last few paragraphs might still be, it is safe to say that nonmanuals have to be scrutinized for much more linguistic phenomena and in much more detail than previously done.

In sum, it is important to clearly distinguish and separate prosody from syntax. As intonational phrases and syntactic constituency on the sentence level usually align, it is crucial to clarify whether the nonmanual spreading follows syntactic or prosodic constituents. The prosodic alignment of some examples where the nonmanuals did not take sentential scope might conflict with a purely syntactic account. Especially the semantic attribution of particular nonmanual articulation such as eyebrow movements, squints, wide eyes, and frowns indicate core meanings that combine in specific ways to derive complex meanings. In the modal modification contexts, these features were used to mark specific modal meanings and the signers combined it with prototypical interrogative markings, for instance. In the conclusion in section 6.5, I summarize the findings and indicate how this analysis might be tested further.

6.5. Conclusion

In this chapter, I presented the results of the investigation into modal particles and their equivalents in signed languages. Some work has been done on modal verbs and modality in general and was summarized to provide an overview of recent findings. Modal meaning and modal particles in particular, however, have not yet been investigated systematically in sign languages. Therefore, this book provides a pilot study on these issues and furthermore addresses recent debates on the analyses of nonmanual features.

As expected, modal particles have no manual counterparts in sign languages and are mainly expressed through nonmanual features and manual modifications. Even though the elicitation task was based on written language, it was developed as a context creation task and elicited data that were far from mere translations. The minimal pairs of basic sentences and modal
particle modified target sentences were compared against each other and the nonmanual features used to express modal meaning were investigated. Interestingly, the facial expressions, head tilts, and other means were i) consistent with the signers of the same language and ii) quite similar in all of the three sign languages. Some nonmanual features were analyzed as having common properties across sign languages. Analogously to different studies of other sign languages, the features were assigned specific semantics. The results of DGS, NGT, and ISL were illustrated in detail and the transcriptions built the basis for the presented analysis.

According to Sandler (2010), it is essential to separate syntax from prosody. Intonational tunes should not be directly linked to syntax. On the contrary, nonmanuals were often interpreted as instantiations of purely syntactic features. This might not always be the correct approach for many nonmanuals that instead follow prosodic constituents and seem to have inherent meanings that can be combined systematically.

For the data in this study, the target sentences and particularly the spreading of the relevant nonmanual markers to express modal meaning in sign languages did not provide obvious arguments for or against a syntactic analysis of a high Mood-projection containing the respective feature that c-commands the clause. Short sentences usually form an intonational phrase in prosodic terms. The nonmanuals thus show an identical syntax-prosody interrelation in terms of alignment patterns. In principle, both options are possible to account for sentential spreading and both analyses make the same predictions for the vast majority of the cases. Nevertheless, two aspects pointed towards an intonational account following Pierrehumbert & Hirschberg (1990), Dachkovsky & Sandler (2007), and Sandler (2010). A few instances of non-clausal spreading and interruptions of the facial expressions for modal meaning indicate a prosodic alignment. Furthermore, the compositional meaning contributions of individual features explain the various categories of modal meanings and semantically define in which way the modal meaning contributes to the meaning of a sentence.

I do not decide on one or the other option, even though the data seem to support a prosodic and most importantly a compositional analysis. Testing further data particularly with respect to alignment and scope is necessary. Examples of syntactic and prosodic non-isomorphism in the context of modal meaning might provide further evidence for a prosodic account.
Part III

Focus particles
Chapter 7
Focus particles in spoken languages

Only Also Even  Nur Auch Sogar  Alleen Ook Zelfs

*Dabei sollte man auch überprüfen, ob man die wp-config.php sogar neu erstellen muss. Ich glaube, hier wurde nur die Sprachdatei entsprechend angepasst. So schön, wie automatische Updates sind, sie bergen immer auch ein Risiko.*

*It should also be checked, whether the wp-config.php even has to be recreated. I think, only the speech file has been adjusted appropriately. Even though automatic updates are quite nice, most of the time there is also a certain amount of risk.*

Focus particles can be found everywhere in daily language. In newspapers and formally written documents, however, they are not often used due to stylistic considerations. Journalistic language generally avoids focus particles. The reason may be that they often exhibit some judgmental or evaluating character. Focus particles are associated with the highlighted part of a sentence and relate to this constituent in a very specific way. They may either appear as neutral and quantitative variants, or evaluating and scalar variants. In this study, I investigated the three focus particles that occurred in the above quote: *nur* (E: only, NL: alleen), *auch* (E: also, NL: ook), and *sogar* (E: even, NL: zelfs). As mentioned in chapter 5, the particle class can be further subdivided into different particle subgroups such as *focus particles*, *negation particles*, *modal particles*, and *discourse particles*. This chapter concentrates on focus particles in general (section 7.1) and particularly discusses the properties that make them a separate and unique class of words (section 7.1.1). Focus particles, as the name suggests, are particles that relate to the focus of a sentence, which usually is a specific constituent marked as prominent within a given sentence. However, this brief definition requires terminological explanations that would exceed the frame of this book. Nevertheless, section 7.1.2 defines the notion of ‘focus’ in as far as it is relevant for the description of focus particles and the initial investigation of focus particles in sign languages.
Section 7.2 of this chapter investigates the semantic behavior of focus particles and how they are analyzed in spoken languages. More precisely, the section looks at three specific focus particles, namely only (section 7.2.1), also, and even (section 7.2.2). These sections aim at summarizing the core meanings of the focus particles and discuss in which ways focus particles contribute to the meaning of utterances. I present the differences and similarities of the focus particle subgroups within the framework of alternative semantics (cf. Rooth 1992). Apart from the English focus particles, the section also lists the relevant equivalents for German and Dutch.

Section 7.3 introduces different syntactic theories analyzing focus particles in spoken languages and concentrates on analyses of German sentences. I present theories guided by quite different theoretical assumptions, as there is an ongoing debate about two controversial approaches. Following Jacobs (1983) and Büring & Hartmann (2001), a unified adverbial based analysis is presented in section 7.3.1, whereas the opposing view suggests that the focus particle forms a syntactic unit with the associated constituent. Based on this general assumption of co-constituency, Bayer (1996) and Reis (2005) promote a mixed analysis for focus particles. This approach is displayed in section 7.3.2. As focus particles behave differently in different languages, both options are principally at hand for the analysis of focus particles in general. Without the aim of completeness, section 7.4 summarizes the definitions of terms and the different approaches as a basis for an analysis of the sign language data.

Provided with the analytic tools from spoken language theories, chapter 8 ‘Focus Particles in Sign Languages’ investigates how the three sign languages DGS, NGT, and ISL realize focus particles. I tested whether the results may be implemented in existing linguistic theories pointing towards a specific view or whether sign languages require different approaches and analyses. Within a unified theory of language, the former is expected. Even though the realization and the articulatory form of focus particles might possibly be modality-specific, a theoretical analysis is expected to operate within the rules of UG, following the basic assumptions about language structure.

How do sign languages realize focus particles and what does it tell us about the language faculty? With this question in mind, the following sections should be taken as an introductory overview of the most relevant aspects of only, also, and even that indicates how the realization of focus particles in both modalities, spoken and signed, might be analyzed.
7.1. Focus particles and information structure

Focus particles are a relatively homogeneous subgroup of particles that share specific linguistic properties and syntactically behave in a similar way. Traditionally, focus particles have been analyzed as adverbs, but some of their distributional properties such as constraints on the pre-field occurrence have led researchers to assign them a separate subclass (see section 7.1.1). As they systematically relate to the focus of a sentence, section 7.1.2 briefly clarifies the relevant notions regarding information structure and focus. The section discusses general definitions, the projection problem with regard to the assigned focus constituent, and the scope behavior of focus particles. Assuming a syntactic representation of focus, I briefly present the constitutive theories dealing with focus particles and their relation to the focus and its evoked alternatives.

7.1.1. Properties of focus particles

This section discusses the properties that define focus particles and presents the specific items that were selected for this study. As mentioned above, focus particles are a subclass of particles and therefore share the properties of particles like non-inflectability and the general distributional behavior. What makes them focus particles is their inherent capacity to select a certain constituent that they are associated with. The properties of focus particles can be listed as seen in table 18 (see König 1991; Reis 2005 for details).

Syntactically, a focus particle is quite flexible, but interacts with the focus of a sentence and the sentence structure in a very specific way. I will refer to the notion of focus in the following section 7.1.2. Removing focus particles from a sentence does not influence the grammaticality of the sentence, but it may affect truth conditions in certain cases (see below). Many of the focus particles can be coordinated and conjoined in appropriate contexts.

Most focus particles occur in combination with all major constituents such as DP, PP, AP, VP, and CP. As explained below for German in section 7.3, different approaches assume different attachment options and derivations for the syntax of focus particles. German focus particles may also adjoin to verbs and adjectives and this idiosyncrasy requires specific explanations, which have inspired different analyses and an ongoing debate.
Table 18. Syntactic and semantic properties of focus particles

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Syntactic criteria</td>
<td>are non-inflecting like all particles</td>
</tr>
<tr>
<td>Syntactic criteria</td>
<td>positional variability: they have a very flexible distribution and may wander down a sentence interacting with the focused constituent</td>
</tr>
<tr>
<td>Syntactic criteria</td>
<td>are subject to some distributional restrictions depending on sentence types</td>
</tr>
<tr>
<td>Syntactic criteria</td>
<td>have syntactic scope over their associate constituent and the focus of a sentence</td>
</tr>
<tr>
<td>Syntactic criteria</td>
<td>in most cases optional in terms of grammaticality</td>
</tr>
<tr>
<td>Syntactic criteria</td>
<td>can be coordinated and many of them can also be conjoined</td>
</tr>
<tr>
<td>Semantic criteria</td>
<td>are focus sensitive and thus associate and interact with the focus constituent</td>
</tr>
<tr>
<td>Semantic criteria</td>
<td>have semantic scope over an assigned constituent</td>
</tr>
<tr>
<td>Semantic criteria</td>
<td>denote a relation to a set of alternatives</td>
</tr>
<tr>
<td>Semantic criteria</td>
<td>may have an effect on truth conditions</td>
</tr>
<tr>
<td>Semantic criteria</td>
<td>some focus particles assign elements a context dependent place on a scale (scalar particles)</td>
</tr>
<tr>
<td>Semantic criteria</td>
<td>have homonyms in other word classes or can have different functional variants</td>
</tr>
</tbody>
</table>

The opposing views discussed in sections 7.3.1 and 7.3.2, assume focus particles are either adverbial in nature and adjoining to maximal projections only or they allow \( X^o \) and \( X' \) categories to form a constituent with the focus particle. Semantically, focus particles usually associate with the information structural focus of an utterance and denote a relation to a set of alternatives (cf. Rooth 1992). As further explained in section 7.1.2, in many languages, focus is expressed by intonational means like pitch accent. However, focus particles may bear on a larger constituent than the actual phonologically stressed part of the utterance as exemplified in (109).

(109)  

a.  *Emma bemalt auch [alte FENster]_F.*  
Emma paint also old windows  

b.  *Emma bemalt auch alte [FENster]_F.*  
Emma paint also old windows  
‘Emma also paints old windows.’
I indicate the focus constituent in the example (109) by brackets and a subscript ‘F’ as usual and call the constituent with which a focus particle combines ‘associate/focus constituent’ and not ‘focus’. I keep those two notions separate along the lines with Dimroth (2004) and many others.

As focus particles in certain cases have a scalar function, they were often labeled ‘scalar particles’ (Gradpartikeln), a term first introduced by Altmann (1976). For the investigated particles nur, sogar, and auch in this study, however, I use the notion ‘focus particles’ and further distinguish between additive, restrictive, and/or scalar variants. The three particles investigated may generally be seen as representatives of the focus particle class for various reasons. They prototypically convey either a restrictive or an additive, and/or scalar function. They are frequently used in speech and written form, and are less restricted in their distributional properties compared to other focus particles.

7.1.2. Focus and its relation to focus particles

The definition of focus in the literature is not very clear cut. Focus theories deal with a complex phenomenon of the syntax-semantics interface and have studied focus, focus marking, and the interaction of focus and focus particles in a wide variety of languages. Thus, we find syntactic, semantic-pragmatic, and phonological approaches to focus. I discuss the notion of ‘focus’ within the field of information structure and summarize general definitions and theoretical models that shall suffice for the present purposes. The relation between focus and focus particles is also explained and illustrated in this section.

7.1.2.1. Focus and information structure

Terms such as ‘focus’ or ‘topic’ are discussed under the broad thematic field of information structure. Thus, the definition of focus developed out of information structural research investigating how information is conveyed in utterances. Focus is a discourse relevant notion and supposedly a universal phenomenon. Information structure (the term goes back to Halliday 1967), which is also called ‘information packaging’ (see Chafe 1976), describes the structure of discourse and analyzes how an utterance is composed of different parts. Information structure has an impact on phonology, semantics, and syn-
tax, and shall be part of any concise theory of grammar (cf. Reich 2012). The packaging of information is arranged according to the communicative needs of the interlocutors (cf. Krifka 2006; Krifka & Musan 2012).

Depending on the theoretical framework, utterances have been divided into such opposing terms like ‘theme’ and ‘rheme’, ‘focus’ and ‘background’ or ‘focus’ and presupposition’, ‘topic’ and ‘comment’, ‘givenness’ and ‘newness’, and ‘informative’ and ‘uninformative’. Thus, the various notions and definitions have led to terminological vagueness and inconsistencies. Acknowledging that these twofold distinctions do not always coincide and may overlap, I take these opposites to hold as basic ideas of information packaging and henceforth adopt the division of the two categories focus and background as defined in Krifka (2006).

Therefore, the semantic representation of sentences in all languages of the world are more or less divided into a part including new information (e.g. focus) and a part providing background or old information. However, the means utilized to mark focused elements are language-specific. For a general overview see Lambrecht (1994), Vallduví (1992), and Swart & de Hoop (2000).

In most languages, prominence and focus are marked either prosodically by means such as pitch variation, duration, and intensity (e.g. German, see Gussenhoven 2004), morphologically by morphological markers (e.g. Somali, see Saeed 1984: 37), or syntactically by word order and specific sentence constructions (e.g. Hungarian, see Kiss 1981; Kiss 1998: 249). Of course, many languages may use a combination of these means.

(110) a. **Lena besucht [BerLIN]_{F}**
   Lena visit Berlin
   ‘Lena visits Berlin.’

b. **[ninkii]_{F} baa aalaabrii keenay**
   man.the focus-marker things.the brought
   ‘The man brought the things.’

c. (i) **Mari ki nészett magának egy kalapot.**
   Mary out picked herself a hat
   ‘Mary picked for herself a hat.’

(ii) **Mari [egy kalapot]_{F} nészett ki magának.**
   Mary a hat picked out herself
   ‘It was a hat that Mary picked for herself.’
This study deals with spoken languages that mark focus mainly by prosodic means like in (110a). In an utterance of a language from this group, the lowest embedded part of a sentence usually carries the sentence accent, which is called ‘nuclear pitch accent’ (cf. Cinque 1993). If a certain constituent, however, is marked as the focus of an utterance in discourse, the focus constituent receives the main pitch accent. Thus, the feature [F] in English, German, and Dutch is prosodically realized by stress via pitch variation. As briefly noted above, the prominent part or pitch accent of a sentence, however, is not always isomorphic to the assigned focus constituent of a sentence. Depending on the context or a given question, a focus particle may be associated with different parts in one and the same sentence. Focus may project to the VP of a sentence, even though the phonological realization remains the same. As object focus and VP focus in German are indicated by the same pitch accent on the object, the sentence in (111) as in example (109) is ambiguous with regard to the assigned constituent interacting with the focus particle.

(111) a. Tim hat nur [eine BaNaNe gegessen]$_F$.  
   Tim has only a banana eaten  
   ‘Tim has only eaten a banana.’

b. Tim hat nur [eine BaNaNe]$_F$ gegessen.  
   Tim has only a banana eaten  
   ‘Tim has eaten only a banana.’

This aspect of focus is called ‘focus projection’ and operates independently of focus particles as can be seen with different questions such as in (112) (see also König 1991: 11 for examples in English), which may trigger the above sentence in (111) without the focus particle.

(112) a. Was hat Tim gegessen? (object focus)  
   ‘What did Tim eat?’

b. Was hat Tim gemacht? (VP focus)  
   ‘What did Tim do?’

c. Was ist passiert? (sentential focus)  
   ‘What happened?’

The answers are phonologically identical and thus ambiguous. A theoretical analysis must account for these scope differences in (109), (111), and (112). Syntactically, this means that a focus particle must bind the assigned focus constituent, but the focus particle does not need to be adjacent. The semantic
interpretation must be defined in terms of alternatives of the respective focus values, which are determined by the constituent type and contextual factors. The stress patterns are thus no direct indicator of the focus constituent of a sentence.

Most sign languages investigated so far seem to similarly express focus prosodically through stress and syntactically through word order variation. We still lack systematic cross-linguistic studies on these issues in sign languages. Research on focus in sign languages is summarized in section 8.1 in the next chapter. For spoken languages, many different types of focus have been established in the literature so far. The sentences in (113) illustrate ‘information focus’ (113a), ‘corrective focus’ (113b), and ‘semantic focus’ with focus particles (113c).

(113)    a. Who knows the best café in town?
     [Tim]$_F$ knows the best café in town.
     Where does Emma go?
     Emma goes to [the best café in town]$_F$.

    b. Emma and Lena know the best café in town.
     No, [Tim]$_F$ knows the best café in town.

    c. Tim knows only [the best café]$_F$ in town.
     Tim knows only the best café [in town]$_F$.

Further types of focus have been defined, such as ‘verum focus’, ‘exhaustive focus’, ‘contrastive focus’, ‘confirmative focus’, and ‘emphatic focus’, for example, but it is controversial to what extent different focus types should be assumed and whether they should be distinguished at all (see Rooth 1985; Krifka 2006; Féry & Krifka 2008; Büring 2007). Thus, I will not elaborate on specific focus types, but concentrate on one relevant distinction that became apparent in the above example. If focus particles come into play as in (113c), this is usually called ‘semantic uses of focus’, because the placement of stress in combination with a focus particle may result in a difference in meaning. The other above mentioned types of focus are often referred to as foci that have ‘pragmatic uses’. The context determines the selection of the alternative sets and the difference between certain types of foci would be due to pragmatic effects. This is also called ‘the context controls the focus’ (cf. Uhmann 1991). The following paragraphs illustrate the impact that focus particles have on sentences. In addition, I briefly present approaches that argue for and against a semantic or pragmatic definition of some aspects of focus particle interpretation.
7.1.2.2. Focus and focus particles

Usually, focus and information structural aspects of utterances have no direct effect on truth conditions.\(^{77}\) Pitch accents imposed on different constituents may guide the appropriateness of certain utterances or answers within discourse and varying contexts, but the semantic truth value remains the same. With regard to focus particles, however, it is mentioned that \textit{only} may have an impact on truth conditions. Thus, focus particles are subsumed under the semantic type of focus usage, even though most focus particles like additive and scalar focus particles are non-truth conditional. König (1991: 12) calls focus particles overt focus inducers along with attitudinal verbs, sentence adverbs, and certain adjectives. As Féry & Krifka (2008: 3) note, the sentences in (114) are true under different conditions (see also example (113c) above).

\begin{align*}
\text{(114) } & \quad \text{a. We only saw a tiger [on the ROAD]}. \\
& \quad \text{b. We only saw [a TIGER] on the road.}
\end{align*}

Example (114a) makes no predictions about other animals that might have been around, but the tiger was seen on the road and nowhere else. In (114b), the tiger was the only animal that was seen on the road. Because of the above shown meaning differences, Krifka (2006: 27) calls them “semantic operators whose interpretative effects depend on focus.” He also differentiates two types of focus usages, semantic and pragmatic uses of focus. Information focus, corrective and confirmational focus, parallel contrastive focus, and frame setting expressions belong to the former category of pragmatic uses of focus. Focus particles, on the other hand, require semantic treatment as they may operate on a truth-conditional level of meaning. Büiring (2007: 12) lists other elements such as quantificational adverbs, negation, and modal verbs that also interact with focus and trigger truth conditional effects. This general distinction between pragmatic and semantic uses of focus is also called ‘bound’ (semantic) and ‘free’ (interaction with context and speaker intention) focus (see Jacobs 1984).

Adopting a model of common ground (see Stalnaker 1974), truth-conditional aspects of focus are subsumed under the notion of ‘common ground content’, whereas for non-truth conditional aspects, Krifka (2006: 17) suggests the term ‘common ground management’, which is “concerned with the way how the CG [common ground] content should develop.”\(^{78}\) Some researchers like Vallduví (1992), Vallduví & Engdahl (1996), and Fintel (1994)
have adopted another strategy and try to explain focus by context dependency alone and thus on purely pragmatic grounds. Even though many aspects of focus can be accounted for by pragmatic explanations, examples as in (114) are quite difficult to explain on a pragmatic account.

Hence, a definition of focus along the lines of Rooth (1992) and Büring (1997) and the theoretical framework of alternative semantics gives a semantic perspective on information structure relevant notions and suits this study best. Focus according to this approach “indicates the presence of alternatives that are relevant for the interpretation of linguistic expressions” (Krifka 2006: 18). The focus value is taken out of a contextually defined set of alternatives. Furthermore, focus triggers a presupposition that may more specifically be analyzed as an existential presupposition (cf. Geurts & van der Sandt 2004). This will be further explained and discussed in the subsequent sections.

Many researchers assume that information structural categories like focus and topic are represented within syntax (see Jackendoff 1972; Büring 2007, among others). Focus is seen as the property of a syntactic node that dominates the focus and contains the feature [F], which interacts with the respective interfaces. The feature must be visible for phonological realization (PF) on the one hand (cf. Féry 1993), and semantic and/or pragmatic interpretation on the other hand. This syntactic feature in many languages is assumed to be the trigger of overt movement. Whether the interpretation of focus should be defined from a semantic or pragmatic point of view is a controversial debate that shall not be of further concern to this book. For prosodic disambiguation of the associated domain in certain difficult cases see Nederstigt (2001).

As a starting point, I assume focus particles such as only and also to be syntactically represented within the language structure and I further take some of them to have a semantic truth conditional effect. However, we will see that with regard to scalar focus particles the issue is not trivial.

7.1.3. Summary

The syntactic and semantic properties of focus particles were listed to show that these particles behave in an idiosyncratic way that have led researchers to assign them to a separate subclass of adverbs. Their distributional properties challenge linguistic theories and were the center of much debate. The outlined overview of focus theories explaining focus and its relation to focus particles provide the basis for the following analysis. The definition of information
structural notions are taken to be along the lines of Krifka (2006) and many other researchers.

Taking focus particles as a semantic phenomenon, I present the meaning of only, also, and even according to the above mentioned alternative semantics account. I include recent debates about different levels of meaning and their status, as the original distinction between at issue content and presupposition with regard to focus particles has proven to be a difficult task.

7.2. The semantics of only, also, and even

Based on semantic criteria, focus particles can be divided into subgroups that display characteristics such as ‘additive’ versus ‘restrictive’ or ‘scalar’ versus ‘non scalar’. Thus, in this section, I define the differences between additive and restrictive particles and explain the notion of ‘scalar interpretation’. Examples will be given for clarification.

Following Altmann (1976)’s assumption that only, also, and even are the most common and prototypical representatives of the three main groups of focus particles, I restricted my investigations to these three items. Even though many researchers like Altmann (1976), Jacobs (1983), König (1991), and Bayer (1996) similarly concentrated on very few lexical items, they generally transfer the results to the rest of the focus particle class as well. I am not going to claim that the equivalents of the three investigated particles in sign languages and the respective analyses can be generally applicable to all other particles of the respective groups. I take the equivalents of only, also, and even as representative candidates and assume that they have the core properties of the respective groups, but I am not making any implicit hypotheses about further focus particles in sign languages.

Despite the context dependency in relation to the associated constituent and varying interpretation nuances, a focus particle always contributes to the meaning in a very unique way. In this book, I follow the theoretical assumption that a focus particle has a core meaning. The meaning of a focus particle sentence is derived by the interaction of this core meaning and the relation of the focus particle to the sentence and the assigned focus constituent. I attempt to paraphrase the meaning of the focus particles along with Jacobs (1983), König (1991), König (1993), Rooth (1992) and Dimroth (2004) in a classical way, even though the authors mention the problematic context dependency and vagueness of specific definitions themselves.
If a focus particle is extracted from a given sentence, the grammaticality of the utterance is maintained. Thus, focus particles are optional in a general sense. Nevertheless, as mentioned above, some focus particles may contribute to the truth conditions of an utterance. Restrictive particles, for example, do have truth conditional effects, whereas additive particles are neutral and trigger a level of meaning that is non-truth conditional. The interesting question however is in which way focus particles contribute to the meaning of a sentence.

Sketching their semantic characteristics below, I summarize the semantic representations of sentences including the three focus particles and give an attempt to define their general core meanings. Basic formalization will be given. Concerning a general compositional account of meaning, there is no clear consensus yet, what exactly the different levels of meanings are, how they are separated and named. Roberts (2006: 2) gives a summarizing collection of terms from the literature that discusses various arrays of meaning (see table 19).

### Table 19. Meaning taxonomy following Roberts (2006)

<table>
<thead>
<tr>
<th>At-issueness</th>
<th>Level of meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>at issue</td>
<td>entailment</td>
</tr>
<tr>
<td>non-at issue</td>
<td>conventional triggered presupposition</td>
</tr>
<tr>
<td></td>
<td>conversational triggered presupposition</td>
</tr>
<tr>
<td></td>
<td>conventional implicature</td>
</tr>
<tr>
<td></td>
<td>conversational implicature</td>
</tr>
<tr>
<td></td>
<td>assertorically inert, non-presupposed</td>
</tr>
<tr>
<td></td>
<td>conventional content</td>
</tr>
<tr>
<td></td>
<td>background implicature</td>
</tr>
<tr>
<td></td>
<td>supplemental implicature</td>
</tr>
<tr>
<td></td>
<td>expressive implicature</td>
</tr>
</tbody>
</table>

If we generally assume with Roberts (2006: 2) that these levels of meaning exist, we have a taxonomy at hand to analyze the meaning of focus particles. I restrict myself to a classical distinction and briefly define the notions ‘entailment’, ‘presupposition’, and ‘conversational implicature’ along the lines of Levinson (1997), Bach (1994, 1999), Trask (1997), Geurts (1999), Roberts (1999), Beaver (2001), Horn (2004), Potts (2005), and Meibauer (2006).

An entailment is a possible relation between two propositions. A entails B means that if A is true, then B must be true. For instance, the statement in example (115a) entails both ‘Somebody killed Lincoln’ and ‘Lincoln is dead’ (cf. Trask 1997).
The semantics of only, also, and even

(115)  a. ‘Booth assassinated Lincoln.’
b. ‘Booth did not assassinate Lincoln.’

An entailment does not survive under negation, as the negated sentence in (115b) does not entail either of the above mentioned sentences.

A presupposition is an implicit precondition of an utterance. The presupposition implicitly describes the informational content of a sentence. The truth of the presupposed proposition must be taken for granted. The utterance in (116a) only makes sense if Tim is married.

(116)  a. ‘Tim’s wife is beautiful.’
b. ‘Tim’s wife is not beautiful.’

The sentence ‘Tim is married’ is also a presupposition of the sentence in (116b). Presuppositions are constant under negation. Tim is still assumed to be married if the negated sentence is uttered. Presuppositions have been analyzed either semantically and/or pragmatically. “One sentence (semantically) presupposes another if the truth of the second is a condition for the semantic value of the first to be true or false” (cf. Beaver 2001: 8-9). A pragmatic account is given by Stalnaker (1974), who assumes presuppositions to be speaker presuppositions instead of presuppositions of a sentence. The presupposed information is taken for granted by a speaker on a given occasion. Thus, a presupposition is taken to be part of the common ground.

The pieces of information that are called presuppositions are usually associated with lexical items or specific syntactic constructions such as factives, aspectual verbs, it-clefts, wh-clefts, quantifiers, and definites (cf. Geurts 1999). Beaver (2001: 10-11) additionally lists wh-questions, iterative adverbs (such as too and again), and intonation. The fact that presuppositions still project under negation, modal operators, and in conditionals, for instance, distinguishes entailments from presuppositions. Thus, presuppositions are “inferences that are triggered by certain expressions, and that exhibit projection behavior” (cf. Geurts 1999: chapter 1,12). However, since Karttunen & Peters (1979), many presuppositions have been redefined as conventional implicatures.

It is difficult to clearly assign conventional implicatures to either semantics or pragmatics. They can be categorized as being somehow entailed by an utterance, but are independent of the truth conditional content. Horn (2004: 4) says that “detachable but non-cancelable aspects of meaning that are neither part of, nor calculable from what is said are conventional implicatures, akin to
Focus particles in spoken languages

pragmatic presuppositions.” What was formally classified as pragmatic presupposition, is nowadays more often called a conventional implicature. Researchers studying these issues have argued that conventional implicatures are not presupposed (see Francescotti 1995; Potts 2005, 2007b, 2012; Gutzmann 2008 for discussions). Very often, the additive aspect of *even* and *also* is analyzed as a conventional implicature, whereas Horn (1969) and Krifka (1992) call the particles *only* and *even* presupposition triggers (see section 7.2.2 below).

In sum, conventional implicatures are part of the semantics of words, even though they are independent of the truth-conditional aspects of what is asserted. They are detachable, but neither cancelable nor calculable. Thus, they are independent of the context.

The distinction made between presuppositions, conventional implicatures, and conversational implicatures is based on certain aspects regarding cancelability, calculability, and projection behavior. A conversational implicature is an inference which is not directly asserted by a speaker (cf. Trask 1997; Meibauer 2006). It is drawn by the addressee on the basis of Grice (1989)’s cooperation principle and the conversational maxims. The addressee expects the speaker to tell the truth and be informative, explicit, and relevant, for instance. Thus, conversational implicatures have to be calculated by the addressee. In general, conversational implicatures are highly context dependent. The same sentence may give rise to an implicature in one context and another implicature in a second context. Example (117) lists the meaning components for a sentence including *some*.

(117) ‘Emma painted some of the windows.’

Presupposition: ‘There are windows.’

Conversational Implicature:

‘It is not the case that Emma painted all the windows.’

The fact that the sentence ‘She did not paint all of the windows’ may be added to (117) without being redundant is another property of conversational implicatures. Neither conventional implicatures nor presuppositions are re-inforcable in that way. ‘Emma painted some of the windows and there are windows.’ is inappropriate. If *some* is replaced by a similar expression such as *a few*, the conversational implicature still arises. The implicature is therefore non-detachable, even though it strongly depends on the meaning of the replaceable items.
Presuppositions can be suppressed in specific situations, but they do not disappear and can never be canceled (see example (118)). Conversational implicatures, on the other hand, can always be blocked and canceled easily as can be seen in the examples in (119).

(118)  ?Tim’s wife is beautiful. But/In fact, Tim isn’t married.
(119)   Emma painted some of the windows, and perhaps even all.
        Emma painted some of the windows. In fact she painted all of them.
        Emma painted some of the windows, if not all.

Conversational implicatures are not necessarily triggered by lexical items or constructions, but are licensed by utterances in contexts (cf. Geurts 1999: chapter1,17). Conversational implicatures do not show projection behavior and, furthermore, cannot escape from embedded positions as presuppositions do. In sum, they are calculable, context dependent, reinforcable, non-detachable, and cancelable, which clearly set them apart from presuppositions and conventional implicatures (cf. e.g. Meibauer 2006).

Different analyses have been proposed for specific meaning levels of focus particles. Thus, it is interesting to define the semantics of focus particles and disentangle the meaning contribution of a focus particle to a proposition. A focus particle sentence may be analyzed investigating the interaction of three decisive aspects:

– the meaning of the focus particle
– the sentence function
– the focus value and its alternatives

König (1991: 187) mentions that the general distinction between exclusiveness and inclusiveness is universal. This bipartite categorization is assumed to be a universal property of language. All languages investigated so far seem to differentiate between the concepts of inclusion and exclusion, and exhibit focus particle-like expressions for each category.

In the next section, I separately introduce the semantics of the restrictive particle only and the additive particles also and even. I present the broad distinction between a presuppositional and an implicature based account of focus particle meaning. However, I briefly list other options discussed in the literature following Roberts (2006).
7.2.1. Restrictive focus particles - *only*

A variety of exclusive particles can be found in different languages. English examples are *only, just, solely, alone, and exclusively*. In German, we find *nur, lediglich, and erst*, for instance, and *alleen, maar, slechts, uitsluitend, and louter* are restrictive focus particles in Dutch. In this study, I investigate *only, nur, and alleen* as they are the most representative examples of this subclass. However, the different restrictive focus particles are not seen as being synonymous. Meaning differences between the particles and varying distributional properties may of course be apparent across languages.

The focus particle *only* is a restrictive (quantitative) focus particle that exclusively picks out one specific element of a set of alternatives. König et al. (1990: 187) describe the contribution of *only* as marking a part of an utterance as particularly (and exclusively) relevant and more important than other possible alternatives. Dimroth (2004: 14) generally approaches the meaning of *only* via the term ‘ausschließliche Gültigkeit’ (exclusive validity).

Discussing *only* from a classical perspective of alternative semantics, Rooth (1992) shows that *only* may be paraphrased as ‘excluding alternatives from a given set’ and he defines the prejacent as the sentence without the focus particle that is applied to all the other alternatives of the set. As *only* primarily excludes alternatives from a focus value set, it picks out the one value for which the sentence is true. The semantics of *only* can be described in simple terms as in (120). The basic formalizations in (121) follow Rooth (1985), König (1991), and Roberts (2008).

(120)  
\begin{align*}
a. \quad S & : \text{Only Tim has eaten a banana.} \\
b. \quad M1 & : \text{prejacent implication: Tim has eaten a banana.} \\
c. \quad M2 & : \text{exclusive implication: No one other than Tim has eaten a banana.}
\end{align*}

(121)  \[ \neg (\exists x) [(x \neq \text{Tim}) \& \text{has eaten a banana (x)}]^{80} \]

In terms of Jacobs (1983), Stechow (1991), Krifka (1992), and others, an operator formalization similarly indicates what a focus particle contributes to a proposition. Focus particles are focus sensitive operators binding their associated focus constituent (see (122)).

(122)  \[ \text{ONLY (} \lambda x (x \text{ has eaten a banana}), \text{ Tim)} \]

The operator receives a specific meaning definition similarly to what is paraphrased above for *only*, which is applied to the lambda function. **ONLY** ex-
The semantics of only, also, and even

<table>
<thead>
<tr>
<th>Status</th>
<th>Representatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entailment</td>
<td>entailed (Atlas 1993), entailed but assertorically inert (non-assertion) (Horn 2002)</td>
</tr>
<tr>
<td>Conventional presupposition</td>
<td>semantic/conventionally triggered (Horn 1969; Rooth 1985; König 1991: 98)</td>
</tr>
<tr>
<td>Weak presupposition</td>
<td>existential implication: Someone has eaten a banana. ((\exists x)): VP(x) (Karttunen &amp; Peters 1979; Horn 1996; Fintel 1997)</td>
</tr>
<tr>
<td>Conventional implicature</td>
<td>speaker oriented conventional implicature that is not presupposed (Bach 1999; Potts 2005)</td>
</tr>
</tbody>
</table>
| Conversational implicature            | derived from exclusive implication (McCawley 1981; Rooij & Schulz 2005; Ippolito 2008) 

includes all elements from a given set except for the one it associates with via focus. In a similar way, **also** is an operator that adds at least one other element of the set of alternatives to the constituent it associates with via focus. **EVEN** is an operator that adds at least one other element of the set to the associate constituent under the condition that the inclusion of the associated constituent is unlikely (see section 7.2.2 for **also** and **even**).

Most authors agree upon the fact that M2 in (120), the exclusive implication, is an entailment of S (see e.g. König 1991: 98; Roberts 2006). Thus, M2 can be paraphrased as ‘no one other than Tim has eaten a banana’. Entailments as defined in section 7.2 are propositions that are directly entailed in what is asserted and if the entailment is true it follows that the sentence is also true.

The so-called ‘prejacent implication’ generally is the remainder of the sentence without the focus particle (here: ‘Tim has eaten a banana’). The status of this prejacent M1, however, has been and still is the issue of many controversial debates. Traditionally called a presupposition, it has been defined and redefined many times. In an attempt to summarize the different approaches in the literature, Roberts (2006) extracts different suggestions and discusses their validity in applying different tests (see table 20 for an overview).

Roberts (2006) systematically opposes the results of the focus particle analyses and concludes that, while all of the suggestions are partly inade-
quate, the presuppositional account remains the best option. The reconsiderations about presupposition triggers have led to a tripartite distinction of different types; ‘entailed presuppositions’, ‘anaphoric presuppositions’, and ‘background implicatures’, but I will not go into further detail here.

This discussion is meant to give an impression on the ongoing debate about the meaning contribution of only and the status of the prejacent implication. Roberts (2006)’s conclusion about the status of the prejacent can be summarized in terms of a ‘background implicature’: a presupposition or a subgroup of Potts’ conventional implicature, except that the implicature is not just speaker oriented as in Potts’ account.

Leaving this discussion aside, another interesting aspect of only shall be included and discussed in this section. In certain contexts, the focus particle only may trigger a scale (see (123)). Even is inherently scalar in nature and always implies such a scale. Scalarity is a very interesting aspect of focus particles and has been discussed within the field of the semantics-pragmatics interface. This is why I pay attention to the debate about these two functions of only and sketch the two different interpretations called ‘non-scalar’ (purely restrictive) and ‘scalar’ (restrictive and scalar).

(123)  a. Only/Just Tim has eaten a banana. (No one else did)
     b. Tim’s father is only/just a postman. (Tim’s father has no other profession and the job is ranked low on a scale)

Even within the same sentence, both options are available for interpretation. Intonation is very often used to disambiguate between the two interpretations, but the different readings still arise in many cases.

(124)  a. Tim’s father is just/only a postman. (Tim’s father has no other profession)
     b. Tim’s father is just/only a postman. (Tim’s father has no other profession and the job is ranked low on a scale)

In English, both particles just and only can be used interchangeably in the given sentences. Both of them can be used for the non-scalar and the scalar interpretation respectively, but there seems to be a subtle intuitive tendency that just is preferred in the scalar contexts whereas only is less marked in the non-scalar sentences.

In sentence (123b), the postman is ranked negatively low on a scale of possible professions. The focused constituent is therefore ranked low in rela-
tion to the other alternatives. I briefly show the different levels of meaning of a scalar variant of *only* in the following example and formalize them in (126).

\[(125)\] a. S: Only the postman rang the bell.
b. M1: prejacent implication: The postman rang the bell.
c. M2: exclusive implication: No one other than the postman rang the bell.
d. M3: scalar meaning: The postman is ranked low in a scale of expected people.

\[(126)\] \(\neg (\exists x) [(x \neq \text{the postman}) \& \text{rang the bell (x)}] \)
M3: Min\(_c\) (\(\lambda x \text{ (rang the bell (x)), the postman}\))

For the two readings of *only*, three opposing views shape the debate: First, Horn (1969) and Altmann (1976) support the view that there are two lexical *onlys* which have two separate meanings. Such a maximalistic view, however, does not seem plausible due to context dependency and diachronic developments of the word itself. The context highly influences the selection of the quantificational domain of the focus particle, weakening the argument of two completely different lexical entries. On an alternative account, researchers assume that *only* invariably induces an evaluative scale without exception (cf. Foolen 1983; Auwera 1984; Lahiri 2009). Thus, even the purely restrictive *only* would somehow evoke a scale.

Third, König (1991: 100) argues against these views that the lexical specification of the associated constituent accounts for the different interpretations. He adopts the proposal by Jacobs (1983) who, amongst others, suggests that *only* triggers undefined ordering parameters and the scalar interpretation is then evoked by the context alone.

As shown for signed languages in chapter 8 sections 8.5.1.2 and 8.5.1.5, the two ways of expressing restrictive and scalar *only* are clearly distinguished by nonmanual features. However, the optional manual sign *ONLY* remains the same. The fact that the sign occurs in scalar contexts as well, definitely shows the connection of both variants. It is the same element *ONLY*, but enriched by additional nonmanual features. This will be further specified in the next chapter on sign languages.

For the moment, however, I turn to additive focus particles such as *also* and *even* and similarly discuss the semantics and the meaning contribution of these particles.
7.2.2. Additive focus particles - also and even

In contrast to the restrictive focus particle only, also is an additive particle similar to English too and as well, and German gleichfalls, ebenfalls, noch, and gerade. Some Dutch additive particles are ook, evenzo, desgelijks, tevens, and mede.

(127) a. S: Also Tim has eaten a banana.
    b. M1: prejacent implication: Tim has eaten a banana.
    c. M2: additive implication: Tim and at least one other person than Tim has eaten a banana.

A simple formalization is given in (128). Note that there can be more than one alternative element apart from x (see Dimroth 2004: 24-25; König 1991: 62-64). The alternative operator formalization can be seen in (128).

(128) M1: (has eaten a banana, Tim)
    M2: (∃x) [(x ≠ Tim) & has eaten a banana (x)]

(129) ALSO (λx (x has eaten a banana), Tim)

The sentence M1 is an entailment of the sentence S. Furthermore, the additive particles are traditionally interpreted as triggering the presupposition that the sentence is true for at least one other alternative of the focus value. In a neutral form without exceptional prosodic marking, also cannot be scalar. Whether the additive meaning component (M2) is analyzed as a presupposition or conventional implicature is not discussed in detail in this book.

The focus particle even is an additive particle similar to also. The specific inherent property of being scalar and inducing a scalar reading nevertheless gives it a different status. In German, sogar and selbst are representatives of this type of focus particles. Apart from the above mentioned sogar, this study investigates English even and Dutch zelfs.

Atlas (1991) and Reis & Rosengren (1997) define even as a positive polarity item that cannot be negated. The particle creates a relation to the alternative set with a specific order or scale. They order the alternatives and assign the focus constituent an extreme position on this scale. The focus value is usually ranked high on a scale in terms of improbability or unlikeliness (cf. Karttunen & Peters 1979).

(130) a. S: Even Tim has eaten a banana.
    b. M1: prejacent implication: Tim eats a banana.
c. M2: additive implication: Tim and at least one other person than Tim has eaten a banana.

d. M3: scalar meaning: Tim was ranked as unlikely/unexpected on a scale of alternatives eating a banana.

A rough formalization following König (1991) is adopted in (131):  

\[(\exists x) [(x \neq \text{Tim}) \& \text{has eaten a banana (x)}] \]

\[\text{M3: } \text{Max}_c (\lambda x (\text{has eaten a banana (x)}), \text{Tim})\]

Similar to also, even does not have a truth value, but evokes something that is either a presupposition or a conventional implicature (M2). The issue whether even triggers a presupposition or a conventional implicature is extensively being discussed by Francescotti (1995) and Potts (2012), for instance.

An important question is, however, whether the scalarity effect (M3) is an inherent property of the core meaning of even or whether the scalar interpretation is induced by the context (see Dimroth 2004). Jacobs (1983) notes that the property of a high ranking of the focus constituent is determined in the lexical entry of even, but the actual scale is context dependent.

7.3. Syntactic focus particle theories

Focus particles have traditionally been categorized as adverbs. However, due to specific characteristics, some researchers further subcategorize focus particles and call them a separate word class. As the shared properties within that particular class outweigh the differences among focus particles, many researchers postulate a focus particle class (König 1991: 10). This section discusses the syntactic behavior of focus particles and presents different approaches to the complex phenomenon from a syntactic perspective.

Focus particles show very complex distribution patterns for which any theory must account. As spoken languages differ with regard to focus particles, their distribution, and their scope behavior, different approaches have been proposed depending on the language. However, even the analyses suggested for German differ enormously. In the following section, I present two opposing theories for German and summarize the arguments of the respective representatives. Outlining these theories for spoken German provides the basic tools for a general focus particle analysis. I display the main theories and outline their core arguments. Generally, there are two opposing views:
1. Focus particles are XPs and are generated in adverbial positions, thus they adjoin to maximal projections (non-argument EVPs).

2. Focus particles are heads and form a constituent with their associated focus (any XP) and are generated adjacent to it in a Spec-head relation.

The adverbial-only related approach assuming (1.) is based on Jackendoff (1972)’s work and was written out in full in Jacobs (1983). A purely adjacent theory following (2.) is supported by Ross & Cooper (1979). Similarly, Bayer (1996) and Reis (2005) argue for a mixed analysis based on the co-constituent account. The theories that I discuss in the following sections adopt the basic assumptions of those opposing views and refine the analyses.

The first approach explained in 7.3.1 supports the adverbial-only analysis (see Büring & Hartmann 2001; Jacobs 1983, 1984), where the focus particles are analyzed as generated in adverbial positions only. The second group argues for a one-constituent analysis described in section 7.3.2. This approach suggests a mixed focus particle analysis allowing adverbial adjunction and a Spec-head relation between focus particles and all kinds of XPs (cf. Bayer 1996; Longobardi & Giorgi 1991; Reinhart 1991; Reis & Rosengren 1997; Reis 2005).

Cross-linguistically, focus particles either behave as co-constituents (e.g., morphological markers and clitics) in relation to their assigned part of the sentence or they occur in adverbial positions not necessarily adjacent to their assigned constituent. Even in one single language, focus particles may occur in both positional distributions (e.g. French and Finnish). Thus, arguments for both analyses are motivated by the different behavior of focus particles respectively. Furthermore, subcategories of focus particles like the additive and the restrictive group show inconsistent distributional patterns. “In a wide variety of languages ‘additive’ particles like also, and too follow their focus as a clitic or as a separate word, whereas ‘restrictive’ particles like only precede their focus and are less likely to require a position adjacent to it” (cf. König 1991: 20). Examples for languages that show this syntactic behavior of focus particles are, among others, Bengali, Hungarian, Turkish, and Finnish. This is an interesting asymmetry to keep in mind between additive and restrictive focus particles in general.

As can be seen from the short introductory remarks, the explanations and analyses of a diverse class such as focus particles is not trivial. The syntactic behavior of focus particles poses challenges to a unified analysis that incor-
porates the different characteristics. The following sections outline the contrasting approaches and their arguments and provide the tools for the analysis of focus particles in sign languages.

7.3.1. Adverbial-only analysis

For many languages, the analysis of focus particles requires either one or the other of the above mentioned approaches. Thus, it depends on the language whether an adverbial-only theory or a mixed theory may be appropriate. For English and German, however, the situation is more complex and the competing analyses are still under debate. Arguments for both views are given and seem equally plausible at first sight.

The groundbreaking work by Jacobs (1983) has shaped the debate about focus particle analysis, as he promoted an adverbial-only account. I briefly note some problems with his theory and subsequently discuss Büring & Hartmann (2001)’s follow-up work, a thorough analysis of German focus particles that suggests possible solutions to the apparent problems.

Jacobs (1983) distinguishes between three notions: ‘syntactic domain’, ‘scope’, and ‘focus’. Terminologically and theoretically, he emphasized the importance of the interaction between syntax and semantics and categorizes syntactic and semantic domains in relation to focus particles. Syntactically, Jacobs (1983, 1984, 1991) is the first to argue for an adverbial-only analysis. He suggests this analysis for German nur, auch, and sogar. Focus particles are said to be confined to V-projections and adjoin to V, V’, V”, or V’’ (V’’ = sentence). Focus particles are thus not assumed to form a single constituent with their assigned focus, even though Jacobs (1983) has to give up the rather strong syntactic V-2 constraint on German word order (see (132)).

\[ \text{CP Nur [CP Tim [C hat [eine Banane gegessen]]]]. } \]

‘Only Tim has eaten a banana.’

Jacobs (1983)’s analysis accounts for semantic scope interpretations that are usually difficult to explain within the one-constituent approach (see 7.3.2 and Ross & Cooper 1979). It solves problems with regard to extraposition, restrictions on focus particles within PPs and genitive DPs, and specific coordination patterns. These issues are further explained below. Nevertheless, apart from the V-2 constraint, a second problem for Jacobs’ analysis is the
false prediction that an IP attached focus particle must be able to bind any focus constituent in its c-command domain. However, as seen in (133), the focus particle only scopes over the subject of the sentence (see Bayer 1996: 22 referring to Jackendoff 1972).

(133) Even JOHN gave his daughter a new bicycle.
    *Even John GAVE his daughter a new bicycle.
    *Even John gave HIS daughter a new bicycle.
    *Even John gave his DAUGHTER a new bicycle.
    *Even John gave his daughter a NEW bicycle.
    *Even John gave his daughter a new BICYCLE.

The focus may wander deeper in the tree, but the focus particle cannot associate with any other constituent but the subject. This equally applies to German sentences. Thus, Jacobs (1983)’s theory makes wrong predictions by permitting too many associations with focus (cf. Bayer 1996: 24). As discussed below, Büring & Hartmann (2001) present a possible solution to this problem in their theory that is based on Jacob’s assumptions. I will return to the so-called ‘closeness principle’ that is suggested to solve this restriction.

A further problem for an adverbial-only approach are examples which are referred to as ad predicative and ad article focus particles (see (134)).

(134) a.  
P. gilt als nur MäßIG intelligent.
P. counts as only farely intelligent
    ‘P. counts as only farely intelligent.’

b.  
P. geht von nur EINEM Täter aus.
P. assume of only one verdict assume-prt
    ‘P. expects only one verdict.’

Here the focus particle must be adjacent to the focus constituent, which must be a quantificational expression. Like other quantifiers, particles should have scope over the proposition; this means that semantically, the focus particle should scope over the sentence whereas syntactically it seems to be a co-constituent and needs to relate to the assigned focus constituent.

Following Jacobs (1983)’ approach, Büring (1997) and Büring & Hartmann (2001) provide some interesting German data and follow the kind of reasoning explained in assumption (1.) above. The basic idea is that focus particles are generated in adverbial positions above extended maximal projections and not as internal adjuncts to constituents.
They present a comprehensive account for German focus particles based on the assumption of an adverbial-only analysis. They argue that focus particles in German only adjoin to non-arguments, hence VPs, IPs, APs, and root CPs. In contrast to English, where focus particles are often said to occur both in adverbial and adnominal position, they claim that focus particles in German are exclusively adverbal.

The problem of a focus particle analysis in German is based on the fact that the left edge of a VP is not always easy to detect because German VPs are strictly head-final. Therefore, it is not always clear whether a focus particle attaches adnominally or adverbially. As Büring & Hartmann (2001: 231) note, semantics provides identical truth conditions for the sentences in both analyses and therefore cannot clarify the matter. An analysis proposing an adnominal-only interpretation is definitely ruled out, because focus particles in German adjoin to verbal projections (see (135) from Büring & Hartmann 2001: 231).

(135)  
Peter kann sogar [KOCHEN]_F.
Peter can even cook
‘Peter can even cook.’

In addition, focus particles need to be in an adverbial position if the entire VP is the focused constituent. If only the object DP bears focus, sentences like in (136) are either structurally ambiguous or instances of adverbal attachment (see (136) from Büring & Hartmann 2001: 231 and also section 7.1.2).

(136)  
Ich habe nur [einen Roman]_F gelesen.
I have only a novel read
‘I have only read a novel.’

As mentioned above, the main arguments in favor of the adverbial-only account stems from distributional properties of focus particles in German. If [FP DP] sequences form DPs and were allowed, it should be no problem to find focus particles within a PP or a genitive DP. Unlike in English, where this prediction holds, focus particles in German are ungrammatical within a PP as seen in (137) or a genitive DP as seen in (138).

(137)  
*mit nur Hans ([P FP DP])
with only Hans
In addition, extraposition of an [FP CP] sequence leads to ungrammatical sentences. Thus, the CP attached focus particle does not form a constituent with the sentence it selects (see example (148) and the discussion in 7.3.2). Along with some unresolved issues concerning coordination, these are the problems that a one-constituent account cannot explain. According to Jacobs (1983), these difficulties do not occur if an adverbial-based account is assumed. Büring & Hartmann (2001: 266) develop this approach further and present the following redefined account:

The Particle Theory:

a. For any node $\alpha$ marked F in a phrase marker P, let the set of f-nodes of $\alpha$ consist of all nodes $\beta$ in P such that
   (i) $\beta$ is a non-argument
   (ii) $\beta$ is a maximal projection
   (iii) $\beta$ dominates $\alpha$ or is identical to $\alpha$
   (iv) there is no EP $\beta'$ of the same head that $\beta$ is an EP of such that $\beta$ dominates $\beta'$ and $\beta'$ meets (64b) and (64c) (closeness)

b. A FP must be left-adjointed to an f-node of its focus.

Informally, the consequences are summarized as follows (see Büring & Hartmann 2001: 266; Reis 2005: 463):

a. focus particles must be adjoined to a maximal projection
b. focus particles must be adjoined to an extended verbal projection, more precisely a non-argument
c. focus particles must c-command the focus
d. focus particles are as close to the focus as possible

The closeness principle or constraint in (d) accounts for close enough adjacency of the focus particle and its focused associate. The theory also rules out the impossible PP and DP internal attachment by (a) and (b). In addition, the theory categorically excludes postnominal focus particles, which might be problematic considering empirical German data. Furthermore, the authors assume focus particles to be maximal projections as they can occur in the German pre-field on their own, hence in SpecCP which requires to be filled by XPs. However, they cannot explain why the focus particle sogar is blocked.
Some researchers take *nur* and *auch* to be conjunction-like elements, which means that an XP categorical status must be stipulated. Nevertheless, assuming focus particles to be XPs correctly blocks some adjunctions to V, V’, C and C’ as in (141).

(141)  *Peter nur* [KÜSSTE]<sub>F</sub> Maria.
     Peter only kissed Mary
     ‘Peter only kissed Mary.’

The preverbal focus particles in verb-final subordinate clauses as seen in (142) are analyzed assuming object scrambling out of VP.

(142)  weil [IP Peter [VP Maria [VP nur [VP t<sub>Maria</sub> KÜSSTEF]]]]
       because Peter Mary only kissed
       ‘... because Peter only kissed Mary.’

Elements that disallow scrambling intervene and the theory rightly predicts that focus particles cannot occur adjacent to the verb if directional PPs (...in die Garage (*nur) FAHREN darf), AP arguments (...weil sie sich traurig (*nur) FÜHLT), or resultatives (...weil sie sich ungeschickt (*nur) ANSTELLT) precede the verb. For the same reasons, focus particles are not allowed within verb clusters (...wird kommen (*sogar) MÜSSEN) and cannot occur between infinitival complements of *scheinen* (seem) and the actual raising verb *scheinen* (weil Peter zu kommen (*nur) SCHIEN) (cf. Büring & Hartmann 2001: 242-243).

In order to prove their assumptions, Büring & Hartmann (2001) present four arguments against their suggestions and discuss these issues. They provide possible solutions based on empirical and theoretical counter-arguments that I discuss in the next section.

**The Four Arguments against the Adverbial-only Account**

The core counter-arguments developed by the opposing position representing a mixed analysis allowing both adverbal and adnominal adjunction (see section 7.3.2) can be summarized in four basic points.

1. Adjacency argument
2. Verb second argument
3. Semantic argument
4. QR argument
In the following, I briefly discuss these arguments and provide examples, which have challenged the adverbial-only account.

1. Adjacency argument
In many cases, the focus particle needs to be adjacent to its focused DP (see (143) from Büring & Hartmann 2001: 234). Usually, this cannot be predicted by an adverbial account which assumes an adjoined focus particle above extended verbal projections.

(143)  *Gestern*  hat (*sogar*)  *Rufus*  sogar  [dem  MÄDCHEN]  *Blumen*  geschenkt.
  yesterday  has  (*even*)  Rufus  even  the-DAT girl  flowers  given  ‘... because Peter only kissed Mary.’

Büring & Hartmann (2001: 235) call their solution the ‘closeness principle’ and postulate an adjacency requirement on the focus particle and its focus associate (see their theoretical assumption in (140d)).

2. Verb second argument
Within an adverbial-only account, focus particles in sentence initial positions like in (144) yield a verb-third structure for German, which is usually analyzed as a verb-second language. This is thought to be a fatal counter-argument for this analysis.

(144)  *Nur*  *Tim*  war  *zu*  *Hause*  geblieben.
  only  Tim  was  at  home  stay  ‘Only Tim stayed at home.’

Interestingly, Büring & Hartmann (2001) say that these cases are indeed verb-third structures and call them exceptions to the rule. The closeness principle explains why IP internal focus never triggers CP attachment of focus particles, so focus particles only occur adjoined to CP if the associated constituent is outside the IP (cf. Büring & Hartmann 2001: 245). This solves the wrong predictions for scope behavior in the theory of Jacobs (1983) as exemplified by the sentences in (133).

Examples as in (145) support the CP attachment analysis. The base position of the topicalized PP is a DP out of which it is extracted, but the focus particle cannot be analyzed as some kind of attached (pied piped) element, be-
cause the [FP PP] sequence in the base position is ungrammatical (cf. Bayer 1996: 145; Büring & Hartmann 2001: 246).87

(145)  a. Nur [PP vom GRAFEN]1 habe ich [DP jeden Sohn t1] only of-the count have I every son t1 bewundert. admired

I have every son only of-the count admired

Furthermore, Büring & Hartmann (2001: 270) try to convince the reader of the verb-third exception concerning focus particles by the following example in (146).

(146) Nur um welche Zeit wir GEGANGENF sind verraten wir nicht.
only at which time we left are tell we not ‘The only thing we don’t tell is at what time we left.’

They argue that even a mixed theory cannot account for such an instance of focus particle distribution, where the topicalized embedded wh-phrase undoubtedly occupies SpecCP, and the focus particle associates with a focused constituent in C°. The focus particle cannot attach to the wh-PP in the embedded SpecCP, because it would not c-command its focus associate. It somehow has to adjoin to the embedded question in SpecCP. This suggests that no matter which analysis is taken, adjunction to CP must be allowed, and thus the example is said to invalidate the V-2 argument (cf. Büring & Hartmann 2001: 270).

3. Semantic Argument

Opponents of the adverbial-only theory claim that a focus particle and its associated DP must form a constituent in order to achieve the appropriate semantic meaning of a focus particle and its associate. However, according to Rooth (1985) and Büring & Hartmann (2001), semantic association of a focus particle and its focused DP does not require them to be syntactically adjoined. They provide a semantic account that provides correct interpretations for adverbial focus particles. They show that their account indicates the same truth conditions for German (adverbial) and English (adnominal) (cf. Büring & Hartmann 2001: 250) and they rightly predict that ‘she only kissed KURT’ and ‘she kissed only KURT’ in a V-focus reading are synonymous (see Rooth 1985 for further explanations).
4. QR argument (Quantifier raising)
The argument could be paraphrased as follows: ‘If a focus particle is attached to a DP, it will undergo quantifier raising. This will have semantic consequences, given that the focus particle is now ambiguous in scope. Adverbs do not undergo quantifier raising, so no scope ambiguity is predicted.’ As the data clearly show scope ambiguities, this is a counter-argument and a problem for the adverbial-only account.

A solution proposed by the authors indicates that scope ambiguities concern surface structure, so no QR is needed to derive the correct interpretations. According to Büring & Hartmann (2001: 236), “the quantifier raising argument lacks an empirical basis.” The scope ambiguities arise depending on the adjunction sites of the adverbial focus particles and can be interpreted in situ. This seems to be a preferable alternative to LF raising.

Another argument supporting the adverbial-only interpretation is the fact that focus particles adjacent to DPs cannot undergo reconstruction, whereas DPs in German generally can (cf. Büring & Hartmann 2001: 260).

\[
\begin{align*}
\text{Nur } & \text{MARIA}_{i} \text{ liebt jeder } t_{i-object}, & \text{(unambiguous)} \\
\text{only Mary}_{acc} \text{ loves everyone}_{nom} t_{object} \\
\text{‘Only Maria is loved by everyone.’} \\
\text{NOT: ‘Everyone loves only Mary.’}
\end{align*}
\]

In (147), the reading is not: ‘everyone loves only Mary’ and therefore the focus particle nur (only) operates higher than the subject quantifier jeder (everyone). The focus particle is attached to the root CP and does not undergo reconstruction with the DP and thus maintains wide scope.

Büring & Hartmann (2001) present more empirical data from reconstruction facts in favor of the adverbial-only account. They suggest that the restriction that the focus particle cannot adjoin to arguments stems from examples that show that subordinate CPs (arguments) can undergo reconstruction but the focus particle preceding it cannot. The focus particle retains wide scope and therefore cannot be adjoined to argument CPs. This also explains why [FP CP] sequences in German are excluded in extraposed positions like in (148c) from Büring & Hartmann (2001: 268).

\[
\begin{align*}
\text{a. } & \text{ [nur dass sie kommt] habe ich gesagt} \text{ only that she comes have I said} \\
\text{b. } & \text{ ich habe [nur dass sie kommt] gesagt} \text{ I have only that she comes said}
\end{align*}
\]
For cases like (149), Büring (1997) assumes that the specific intonational contour, called ‘Hutkontur’ (hat-contour), is intonationally superimposed on such sentences and triggers focus inversion.\(^8\)

(149) \textit{Peter KÜSSTE Maria nur.}

\begin{itemize}
  \item Peter kissed Mary only
  \item ‘Peter only kissed Mary.’
\end{itemize}

In a nutshell, the presented account offers a very tempting unified option for analysis. Nevertheless, some problems remain unsolved and await further research. In the next section, I present the mixed analysis and similarly display the pros and cons of this approach.

7.3.2. Mixed analysis

The fact that focus particles occur as clitics to their associated constituents in many languages, may suggest that lexical items like focus particles in German and English, for instance, also attach to their focus associate in a Spec-head relation as heads (cf. König 1991: 17).

As has become obvious above, researchers have argued against the adverbial-only approach for German focus particles and presented an account termed ‘mixed analysis’. Bayer (1996) proposes such a mixed analysis, assuming both adverbial and adnominal adjunction of focus particles. Apart from Bayer (1996), this tradition shows up in Longobardi & Giorgi (1991), Reinhart (1991), Reis (2005), and others. They generally assume a level of LF (logical form), where transformations like move alpha are applied to derive LF structures and are said to follow regular syntactic constraints. Bayer (1996: 5) claims that directionality of government can also be applied to LF and not only to visible movement. He argues that abstract movement and visible movement respect the same constraints.

Bayer (1996)’s analysis is based in the principle and parameters theory, and incorporates LF movement operations such as quantifier raising. Working with Rooth’s semantic account and different X-bar theoretical assumptions, he derives various distributional and structural patterns of focus particles in German. I briefly present the main arguments to sketch this mixed account and provide examples.
Focus sensitive particles such as *only* and *even* trigger a bound focus, which has been called ‘semantic focus uses’ by Krifka (2006). Free focus (pragmatic uses of focus) is related to syntactic structure, context, speaker intention, etc., and is not regarded here any further. Following Bayer (1996: 16) and Reis (2005: 462), the central statements of the mixed analysis with regard to the relation of focus particles and their associated constituents are listed in (150).

(150) a. a focus particle must be adjoined to a clause internal maximal projection and may adjoin to any kind of XPs  
    b. a focus particle must c-command the focused constituent  
    c. the focused constituent may be unboundedly far away from the focusing particle

The verb-second argument postulated for German is the main evidence for the conclusion that the focus particles form a constituent with sentence initial XPs in V-2 sentences of German. Thus, Bayer (1996) assumes particles to be $X^\circ$ categories and follows Rothstein (1991) who notes that besides lexical and functional heads there are also minor functional heads. They “subcategorize, but do not have theta-grids, do not bind theta-positions, and do not project category features” (Rothstein 1991: 107-108). Unlike Büring & Hartmann (2001), Bayer (1996: 14) assumes particles to fit in those minor functional categories, thus being some $X^\circ$ that attaches to a [+max]-category which can bear stress.

A focus particle may attach to almost any major XP constituent, which is the syntactic domain of the focus particle. According to Bayer (1996), they may also adjoin to $X^\circ$ and $X'$ like $V^\circ$ and $V'$ as seen in (151) and (152). This goes against Büring & Hartmann (2001)’s minimalistic constraint of adverbial-only attachment.

(151) [*nur [geliehen]] hat er mir das Buch  
    only lend has he me the book

(152) [*nur [das Buch geliehen]] hat er mir  
    only the book lend has he me

The definition of the mixed analysis indicates that focus particles attach to [+max]-categories able to bear stress and to categories that are not headed by a virtually free morpheme (IP in English) (Bayer 1996: 13). Looking at the arguments against a mixed account, Bayer (1996: 17-20) addresses a few
problems for his analysis that were previously pointed out by Jacobs (1983) (see section 7.3.1 above).

1. FP within DP (*[die [sogar [Sicht auf die Berge]]])
2. CP extraposition (*dass H. gesagt hat [nur dass der Kanzler zu dick sei])
3. FP in PPs (*mit nur Hans)
4. FP in genitive DPs (*der Bruder nur des Grafen)
5. Coordination of DP and [FP DP] results in odd sentences (*... dass Peter und nur LUISE spazieren gehen.)

Arguing in favor of his account, Bayer (1996) tries to solve the above mentioned problems and explains the ungrammaticality of these examples as syntactic violations that occur during the derivation from S-structure to LF. To explain the above mentioned problems for a co-constituent analysis, he relies on different syntactic LF operations and movement constraints. Bayer (1996: 42) follows the general assumption that extraction is only possible out of domains that are governed and this process is further constrained by tree geometry properties. Using the mechanism of quantifier raising (QR) and a copy and deletion theory, Bayer (1996) explains some of the listed problems. I refrain from detailed explanations here and only briefly note the arguments that solve the first four problems mentioned above.

1. **FP within DP**

Even though focus particles in German can also attach to adjectives, they cannot attach to N or N’ within DPs as seen in (153). Bayer (1996) assumes that focus particles always attach to the focus XPs and that the other cases and specific linearizations stem from independent syntactic processes such as scrambling. VP and AP are exactly the categories from which scrambling is allowed.

(153) *[die [sogar [Sicht auf die Berge]]]

the even sight on the mountains

This ungrammatical [DP FP N] sequence requires independent evidence to be ruled out as the focus particle attaches to a full XP in this sequence. Bayer (1996) argues that the need for an uninterrupted agreement chain is a sufficient reason (see Bayer 1996: 12; Longobardi & Giorgi 1991 for explanations).
2. CP extraposition

Ungrammatical extraposition of a sequence of the form \([FP\ CP]\) are predicted to be grammatical by the mixed analysis (see example (154)).

(154) \(*dass\ Hans\ gesagt\ hat\ [nur\ dass\ der\ Kanzler\ zu\ dick\ sei]\\)
      that\ Hans\ say\ has\ [only\ that\ the\ chancellor\ to\ fat\ is]\

Bayer (1996) solves the problem by saying that extraction of a quantified CP is generally restricted due to the ECP-principle.\(^8^9\) Assuming a parallel syntax of overt and covert movement, extraposition of a quantified CP at LF is thus similarly constrained by the ECP-principle as overt extraction from a DP (see Bayer 1996: 123-125). The fact that QR is blocked at LF due to a violation of the ECP-principle thus rules out the examples of focus particles attached to extraposed CPs.

3. FP within PP

Concerning focus particles within prepositional phrases, Bayer (1996: 54) argues twofold; first that the co-constituent consisting of the particle and the DP “must raise to the nearest position where the particle can take scope over a phrase which can serve as a domain for quantification” (QR) and second that “German disallows movement of a DP from the complement position of a preposition.”

(155) \(*mit\ nur\ Hans\)
      with\ only\ Hans

Thus, extraction out of a PP in German is blocked at LF, which according to the mixed analysis explains the ungrammaticality of focus particles within a PP as in (155). The account of Koster (1987) and the postulated ‘Condition of Global Harmony’ (CGN) provide further details.

4. FP within genitive DP

According to Bayer (1996), the examples of focus particles within genitive DPs as seen in (156) are ruled out by similar effects based on QR and copy and deletion processes.

(156) \(*der\ Bruder\ nur\ des\ Grafen\)
      the\ brother\ only\ the\ count-GEN
Concerning the status of focus particles, the mixed theory argues in favor of an $X^\circ$ category. Despite semantically contributing to the sentence, focus particles do not change the syntactic phrasal category of their associated constituent, and hence act as modifiers. Along the lines with Bayer (1996), Cinque (1999) assumes that focusing adverbs are modifiers of the associated constituents. He takes fronting of adverbs with their constituents under focus movement or clefting as evidence for the idea that focusing adverbs “indeed form a constituent with the phrase following them” (Cinque 1999: 31). He excludes adjunction to a maximal projection and finds it plausible to assume a head-complement relation of adverbs and their modifiers for the cases in which they appear adjacent.

The focusing usage may also account for unexpected ordering of higher and lower adverbs and focus particles.

\begin{align*}
(157) & \quad \text{Even Mary was available.} \\
(158) & \quad \text{Mary too was available.}
\end{align*}

For examples as in (158), Cinque (1999: 31-32) suggests that the complement of focus particles such as only or also “raises to the Spec, across the head.” As mentioned above, Büring & Hartmann (2001) do not assume postnominal focus particles in German.

Thus, Bayer (1996) rejects the adverbial-only account and offers the above mixed analysis based on movement theory. Reis (2005) discusses Büring & Hartmann (2001)’s paper in order to provide further counter-examples against the adverbial-only analysis. She expresses doubts on the closeness principle due to examples with obligatory non-adjacent focus particles, and she elaborates on problematic cases for the non-argument adjunction sites postulated in (139b) (“a focus particle must be left-joined to an f-node of its focus”). However, both theories seem to equally have some core disadvantages and I have to leave the decision for one theory or the other to further studies. The development of a suitable theory for German definitely requires more investigation and a broader empirical basis.

Furthermore, both approaches, the adverbial-only and the co-constituent or mixed analysis, provide evidence against the other theory and in favor of their own account. Many languages, however, seem to have focus particles that equally require both accounts (cf. Finnish -kin, -kaan, and myös or French aussi as explained by König 1991: 19). It is thus a completely open matter of which analysis or which options can be applied to DGS, NGT, and ISL.
7.4. Conclusion

This chapter provided an overview of focus particle research in spoken languages and discussed the properties of focus particles as well as controversial analyses for these particular items in German and English. As some focus particles may have an impact on truth conditions, they are usually subsumed under the notion of semantic or bound uses of focus. Focus particles associate with the information structural focus of an utterance and have scope over this highlighted part of the sentence. Focus may be expressed prosodically, morphologically, and/or syntactically in different spoken languages. Focus particles denote a relation between the focus constituent and the set of alternatives and may be restrictive, additive, and scalar in nature. The semantics of restrictive only, additive also, and scalar even have been presented to explain the different levels of meaning to which focus particles contribute.

The debate of the nature of the different meaning components such as entailments, presuppositions, and implicatures was briefly discussed and various approaches to the different levels were contrasted. Importantly, however, is the fact that scalar particles are additive particles which add an extra level of meaning (M3).

Syntactically, focus particles have been analyzed either as adverbial elements adjoining to maximal projections (cf. Jacobs 1983; Büring & Hartmann 2001) or as head elements generated adjacent to the focus associate in one constituent (cf. Bayer 1996; Reis 2005). The two opposing views argue for different syntactic analyses of German focus particles. I discussed their arguments in favor and against the respective analysis and provided examples of the distributional properties of focus particles and how they interact with the focus of the sentence.

“The preceding discussion is not meant to suggest, however, that languages can be neatly divided into those that support an analysis of focus particles as co-constituent of a focused part and those that support an analysis as sentence adverbs. The typical situation in fact is that arguments for both analyses can be given for each individual language” (König 1991: 19).

Even though I sympathize with the adverbial-only account for German, the aim of this section was to provide syntactic tools for focus particle analysis in general. It depends on the language, the data, and the assumptions one might follow whether an analysis is favored over the other. Provided with this background information, I tested the sign language data against the discussed analyses.
The following chapter reviews the research on focus particles and focus in sign languages. Furthermore, I present and analyze my data set and test the discussed theories against the findings for DGS, NGT, and ISL. The next chapter also investigates syntactic properties of focus particles in sign languages and discusses the semantic-pragmatic interface and the realization of the different levels of meaning that focus particles contribute to in sign languages.
Chapter 8
Focus particles in sign languages

*Sogar nur* Mimik ist auch wichtig!
*Zelfs alleen gezichtsmimiek is ook belangrijk!*
*Even facial expressions only are important, too!*

The main aim of this chapter is to show how sign languages realize focus particles such as *only, also* and *even* and whether we find modality-specific and modality-independent patterns with regard to these linguistic items that systematically interact with a focused part of a sentence. The results provide an overview of focus particles and their use in the three sign languages of interest. From a syntactic point of view, the results are analyzed against the background of the theories for spoken languages presented in chapter 7, section 7.3. Section 8.1 presents theories related to focus in sign languages. Investigating the distribution of focus particles in the three sign languages, I present different approaches to this issue and discuss their validity for the focus particles elicited in this study. In the sign language data, interesting distributional patterns, certain doubling phenomena, and the sentence-final position of specific focus particles suggest a combinatory analysis of focus particles as adverbs and a positioning of focus particles in a functional head category on the right. This is supported by analyses of interrogative clauses and other focus related doubling constructions in many sign languages. However, the situation with focus particles is more complex and not identical to these doubling constructions. Even within one sign language, some focus particles behave differently to others. With regard to the semantic-pragmatic interface, the results support the spoken language analysis that focus particles contribute to the interpretation of an utterance on different levels of meaning: the truth conditional aspects of meaning on a basic level, the presuppositional level of meaning, and an extra level that encompasses both scalar interpretations (scalar presupposition or conventional implicature) and the speaker’s attitude towards the proposition (evaluation by positioning the focus value on a scale). I discuss the implications that sign language research has on the theoretical assumptions about focus particles and show how sign languages may differentiate the different levels through the use of separate articulatory channels.
Thus, this chapter describes the results of the data elicitation for focus particles and investigates what the data tell us about the structure of sign languages, about spoken language theories, about the variation hypothesis, and about language universals in general. Focus particles are a very interesting issue with effects on the syntactic and the semantic-pragmatic level of grammar. Sign languages are expected to have equivalents to focus particles and exhibit manual expressions for the elements of this word class. Thus, here is my hypothesis: Sign languages exhibit focus particles like all other natural languages and realize them by manual means such as signed lexical items.

The structure of this chapter is as follows. I discuss relevant research on focus in sign languages and present analyses that are of interest to this study (section 8.1). Furthermore, I present an overview of the scarce focus particle research for sign languages so far (section 8.2) and list the results of an initial corpus search for NGT and ISL (section 8.3). Section 8.4 provides a detailed description of the tasks and experiments that were developed to elicit the respective focus particles in DGS, NGT, and ISL, and explains how the data have been processed and annotated. The core part of this chapter, section 8.5, which shows the actual results of the study, is divided into blocks according to the sign languages investigated: the data of the DGS study (section 8.5.1), the data of the NGT study (section 8.5.2), and the data of the ISL study (section 8.5.3). In addition, preliminary and interesting outcomes from a spoken German control group (section 8.5.4) and other sign languages (section 8.5.5) complete the data set. Section 8.5.6 offers a thorough intra-modal summary of the findings. In section 8.6, I analyze the results and discuss their relevance and implications to language theory concerning syntactic and semantic-pragmatic aspects of focus particles. The emphasis is laid on a syntactic analysis of focus particles in DGS. Section 8.7 draws conclusions from the findings and the data analysis and provides a summary of the basic insights that can be gained from the results on focus particle research in sign languages.

8.1. Focus in sign languages

Up to now, information structural notions like ‘focus’ and ‘topic’ (see section 7.1.2 in chapter 7 for definitions) have been analyzed for some sign languages such as ASL (cf. Wilbur 1994b, 1997, 1999; Lillo-Martin & de Quadros 2004, 2008; Sandler & Lillo-Martin 2006), Brazilian Sign Language (LSB,
Focus in sign languages


The phonological realization of stress is not described in detail for sign languages, even though it is extremely relevant to investigate how exactly the focus constituents are marked in different contexts. Nonmanuals such as eyebrow movement, head nods or tilts, and in specific languages also wide eyes usually mark the focused constituent but it is not yet sufficiently clarified how similar the language-specific markers are. A detailed phonological description of focus markings or different types of focus markings are not available for many sign languages yet. Manual aspects such as tense signing, enlarging signs, and clear articulation also play a role in focus marking (see the descriptions below, Kooij et al. 2004; Crasborn & van der Kooij 2013; Waleschkowski 2009). Most research so far has been done on ASL and LSB wh-questions and the general issue of focus doubling, thereby concentrating on syntactic analyses of these focus related constructions.

As mentioned above, topics traditionally belong to the category of old or given information within an utterance. Topics are positioned sentence-initially in sign languages and are accompanied by specific non-manual markers (mostly eyebrow raise, but with small language-specific differences). In contrast, in many sign languages, focus as the prominent and new part of a sentence may occur sentence-finally (cf. Wilbur 1997). In ASL, so-called ‘pseudo-cleft constructions’ were argued to be motivated by a specific placement of the focus constituent (see Wilbur 1994a). Focus can also be marked by left dislocation. Nevertheless, nonmanuals are relevant for focus in ASL as well. Similarly, recent findings for LSB suggest that different types of focus may occupy different positions within an utterance. Further details on this view can be gained from Lillo-Martin & de Quadros (2008) and Nunes & de Quadros (2008).

Referring to a specific doubling phenomenon, many items such as modal verbs, adverbs, wh-elements, negative signs, temporal markers, quantifiers, and certain nouns in specific contexts may occur both sentence internally in situ and sentence-finally when they are emphatically marked. This has lead researchers to assume that the sentence-final position interacts with focus. I briefly present three interesting analyses for this possible doubling construction in ASL. First, Petronio (1993) and Petronio & Lillo-Martin (1997) suggest the doubled element to be base generated in a rightward C° of a left CP.
The C° position contains focus-features and wh-features that need to be in a Spec-head relation with the wh-element bearing the same features in SpecCP. This analysis is motivated by focus movement and the sentential spreading of nonmanualls. Data with nonmanualls on the wh-element alone, which is possible, are analyzed as bi-clausal expressions.

Principally on the same track, Wilbur (1997, 2009), and Quadros (1999) follow a Kaynian (1994) approach with right-branching categories only. In opposition to the Petronio analysis, a slightly different explanation is given for focused sentence-final elements and doubling structures in ASL and LSB. The authors assume leftward focus movement and an additional remnant movement operation to explain the doubling constructions.

Third, Nunes & de Quadros (2004, 2008) similarly analyze these constructions by assuming an additional projection named E-Focus Phrase that attracts the emphatically focused item. The IP/TP is then moved to a higher Topic Phrase by a remnant movement operation. The trace is analyzed as a copy that does not need to be deleted due to morphological fusion and may then be spelled out together with the sentence-final focused element (see Nunes 2004). The movement operations lead to the doubling structures that were found. At the same time, this analysis provides the option of a regular deletion of the first element in case of sentence-final spell-out only.

All of the presented analyses argue against a SpecCP on the right analysis, which was assumed by Neidle et al. (2000). Based on reasonable arguments and substantive evidence against this approach (see Petronio & Lillo-Martin 1997; Wilbur & Patschke 1999; Sandler & Lillo-Martin 2006; Wilbur 2009, among others), I follow the above mentioned line of thinking.

Kooij et al. (2004) present prosodic features of focus in NGT. The authors recorded 59 sentence pairs of 6 different signers and found that focus in NGT is expressed by manual means such as varying the size of articulation, raising the sign in space, and using repetitions. In addition, nonmanual markers such as facial expressions, head movements, and body leans are of relevance. The simultaneous marking may be punctual (head nods) or areal in nature (eye gaze, body leans), of which the latter may spread across syllables and constituents. Thus, various means of strengthening can be used to mark a constituent as highlighted in NGT. Interestingly, narrow focus marking depends on the focus constituent type, as the markings are said to vary with subject, object, and predicate focus (cf. Kooij et al. 2004).

Waleschkowski (2009) provides an experimental elicitation study of focus in DGS and thoroughly analyzes the different focus markings for information
focus, corrective focus, and contrastive focus constructions. As mentioned above, the phonological realization of focus has often been neglected. On the basis of minimal pairs, Waleschkowski (2009) investigates how information focus and contrastive focus are realized in DGS and how the different features of focus marking interact. DGS uses different means and different combinations of means depending on the set of alternatives in the context. However, head nods or tilts, or a reduced form of such a head movement, are the most essential features to mark focused and prominent parts of the sentence in DGS. Furthermore, the fact that the marking of information focus is not obligatory in DGS is an interesting finding. Contrastive focus, however, is nearly always distinguished by specific nonmanual and manual focus marking in the data.

In sum, it is important to investigate the different possible constructions for specific emphasized elements. Focus proved to be a relevant notion for the syntactic analysis of sign languages. I revisit the above mentioned approaches when syntactically analyzing focus constructions with focus particles in section 8.6. As focus particles relate to focus and seem to show a similarly complex distribution with two similar elements in different positions, these approaches will be reviewed for their validity in this study.

8.2. Only, also, and even in sign languages

Focus particles have not been studied extensively in sign languages up to now. For ASL, Wilbur (1994b) and Wilbur & Patschke (1998) have done preliminary research on focus particles such as only and even. In their article on body leans, Wilbur & Patschke (1998) refer to lexical focusing through the use of focus particles and show that ASL exhibits signs for some of these focus particles. Opposing restrictive only and additive even, they list at least three variants for ‘only’: ONLY, ONLY-ONE, THAT’S-ALL, but also mention the sign JUST. An example for even is glossed as SAME/ALSO, but no further comment on the relation between also and even is given. The restrictive focus particles are accompanied by a backward body lean and the additive even is accompanied by a forward body lean (cf. Wilbur & Patschke 1998: 283-285).

Looking at ONLY-ONE, which is related to the numeral ONE, the examples suggest that they can either precede or follow their focus constituent (see (159)). The focus constituent is either marked by a head nod or raised eyebrows. Note that there were no further prosodic information given in the text,
so that the examples do not contain any hints about pauses or other prosodic markings.

(159) ‘I just found out that only Kim got an A.’

(a) IX₁ RECENTLY FIND-OUT WHAT  r  bl-b  

(b) IX₁ RECENTLY FIND-OUT WHAT  bl-b  hn  

The focus particle attaches to its associated constituent, but may occur in pre- and post-focal position in the above examples. If the associate precedes the focus particle, the focus constituent receives brow raise, but the marking is missing when the constituent follows the particle (see Wilbur & Patschke 1999). Concluding from additional data, the sign ONLY may also occur preverbally associating with the verb in example (160) taken from Wilbur & Patschke (1998: 284).

(160) KING ONLY MEET

‘The Kings only meet ... ’

The signs JUST and THAT’S-ALL are accompanied by a shrug, which is analyzed as fulfilling similar functions as a backward body lean. In the examples, JUST appears before the respective focus constituent, whereas the sign THAT’S-ALL is a sentence-final adverb (Wilbur & Patschke 1998: 289). However, the authors do not present a systematic analysis.

With regard to SAME, interpreted as even, the following examples from Wilbur & Patschke (1998: 285) shed light on some distributional properties (PT is the abbreviation for a pointing sign).

(161) ‘(What an easy test!) Everyone knows that even Bill got an A.’

(a) (...) ALL KNOW-THAT  bl-f  hn  

(b) (...) KNOW-THAT ALL  bl-f  

Similarly to ONLY-ONE, the sign SAME may precede or follow the associated constituent. Interestingly, on one occasion as seen in (162), the sign was doubled.
Only, also, and even in sign languages

(162) (INDEX2) MEAN SAME PT HUSBAND SAME

‘What do you mean, even the dead husband?’

Even though the translation adds some meaning to the utterance that was not signed explicitly (cf. ‘dead’) or transcribed explicitly (the interrogative interpretation), the translation clearly indicates that the sign SAME was used to express even in this context. Apart from the body lean, no further description of either additional nonmanuals or prosodic cues are given. Usually, SAME is used to mean also or identical in ASL. It is doubtful whether the body lean alone conveys the described meaning difference to the citation form, but the lean obviously plays an important role and is taken to express the even-interpretation in this case. Wilbur & Patschke (1998: 294) note that a forward body lean is not used when the sign SAME is signed in its original meaning of same/identical.

Furthermore, the authors state that without an overt particle, body leans on nouns may be sufficient to express the focus particle meaning. See example (163) form Wilbur & Patschke (1998: 287).

(163) C’MON! REALLY! FOUR-YEAR-OLD CAN MORE FAST YOU-PL

‘C’mon! Really! Even a four year old could do faster than you.’

The sign FOUR-YEAR-OLD is accompanied by a forward body lean, which is the indicator for the even-interpretation. According to Wilbur & Patschke (1998), the morpho-semantic content of the body lean adds inclusive and exclusive meaning to a sentence and takes the associated focus constituent as its domain. In the contexts discussed above, the lean may either co-occur with a focus particle or convey the meaning solely in combination with a noun.

For DGS, body leans are similarly argued to be markers of inclusion and exclusion (cf. Happ & Vorköper 2006). In accordance with these analyses, I suggest that the body leans discussed in the above examples for ASL mark inclusion and exclusion with focus particles such as only (ONLY-ONE) and also (SAME). From my point of view, the specific contexts, where SAME is interpreted as even, however, are not directly linked to the body leans alone, but require additional nonmanuals such as head movements and facial expressions. It would be interesting to check the ASL data and find out how only, also, and even are related to each other and how far body leans convey more than the additive meaning of inclusion or whether this is done by other means.
For DGS, Happ & Vorköper (2006: 408-410) list the sign NUR₁ for the focus particle *only* and briefly explain the distributional patterns. They show that the sign appears sentence-finally and that nonmanual focus markings indicates the respective associated constituent. Furthermore, the authors show that the sign DAZU (also/add) conveys the function of an additive focus particle, but may also be used as an indicator of coordination. The focus indicating pronoun that is identical to the relative pronoun for animate beings, is also called a focus particle by Happ & Vorköper (2006: 410). As it is primarily a manual focus marker that may be used to mean *only* in certain contexts, they correctly call it a focus pronoun. The clear status, however, has not yet been investigated.

In sum, the research on focus particles in sign languages has not been systematic. To restrict the framework of the investigation within three sign languages, I confined myself to the analysis of the three prototypical focus particles *only*, *also*, and *even*. As mentioned above, they are usually taken as the canonical representatives of the focus particle class. The three particles are interesting for this project, because they cover different categorical variants and also some degree variants with respect to scalarity. The sample comprises ‘exclusive/restrictive’ (*only*) as well as ‘inclusive/additive’ (*also*, *even*) focus particles and shows the categorization continuum of scalar to non-scalar uses. *Also* is a ‘non-scalar’ particle, *only* can have purely ‘restrictive’ and ‘quantitative-scalar’ meanings, whereas *even* always triggers a scalar reading. The notion of ‘scalar interpretations’ and its realization in sign languages is of particular importance to this study.

### 8.3. Focus particles - Corpora data

As mentioned in section 4.2.1 of chapter 4, I used different corpora to search for focus particles in NGT and ISL. I found instances of *only* and *also* in both sign language corpora. A search for *even* showed scarce results. The word itself appeared in the translations occasionally, but only once in the ISL corpus was a sign glossed as *EVEN*.

For NGT, I used parts of the ‘Corpus NGT’ that are available online. I restricted the search to all publicly available annotated eaf-files of the data from Amsterdam. The following table lists the results for NGT searching 15820 annotations, which include all annotations and not just the lexical glosses. As the NGT corpus primarily annotates manual signs, however, no less than half
of the figure would be an appropriate approximation. So at least 7910 lexical items were searched, probably more.

Table 21. Results of the corpus search for focus particles in NGT

<table>
<thead>
<tr>
<th>Item</th>
<th>ALLEEN</th>
<th>OOK</th>
<th>SELFS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instances</td>
<td>10</td>
<td>53</td>
<td>0</td>
</tr>
<tr>
<td>Focus particles</td>
<td>8</td>
<td>53</td>
<td>0</td>
</tr>
</tbody>
</table>

Two instances of ALLEEN literally meant *alone* and were not counted as focus particles. Once, a signer fingerspelled O.O.K., which was nevertheless included in the second column of table 21, as it was used to mean *also* in a regular way. SELFS did not result in a hit, except for 2 instances of SELF-STANDIG. Within 53 hits, the sign OOK was used most frequently, whereas ALLEEN only occurred 8 times in the selected data set. The focus particles found in the ISL Corpus ‘Signs of Ireland’ are listed in table 22.

Table 22. Results of the corpus search for focus particles in ISL

<table>
<thead>
<tr>
<th>Item</th>
<th>ONLY</th>
<th>JUST</th>
<th>ALSO</th>
<th>EVEN</th>
<th>SAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instances</td>
<td>2</td>
<td>8</td>
<td>0</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Focus particles</td>
<td>2</td>
<td>5</td>
<td>0</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>

Of the 8 instances of JUST, three items were used as a temporal adverb. The single occurrence of EVEN was a fingerspelled sign, but used in the function of a focus particle. After the video sessions for my study, I ran the search tool again for SAME and found 10 instances. However, only three out of ten were used as an additive device and only one of them was used in the combination SAME-TIME as found in my data. Thus, out of 6822 lexical glosses, only 11 relevant items were found in the ISL corpus. These scarce results show that corpora data may not display enough results to systematically scrutinize distributional patterns of focus particles and respective sentence structures. Nevertheless, the results indicated that ONLY, JUST, and SAME are lexical signs for focus particles in ISL.

Such corpora data gave a first impression of how the respective signs for focus particles are expressed and how they may be syntactically distributed within individual sentences. However, the sentences did not give a systematic picture of the scope relation between a focus particle and the focus constituents. Obviously, the search yielded no sentential minimal pairs. Without specific research on possible scope variations and ambiguity relations, a hy-
hypothesis on focus particles in sign languages can hardly be tested. Thus, the
corpus results have no further evidentiary value for a systematic analysis.

Another important shortcoming of the corpora data is that a lexical search
could only correspond to glosses of manual signs or words within the transla-
tions. If a focus particle in the translations had no corresponding lexical gloss, it
was not always clear what exactly tipped the scales. The factors that have
led the annotators to use a focus particle in the translation cannot be detected
in most of the cases. A search for even did not show how this particle is real-
ized. If sign languages may use other means to express certain focus particles
such as even, for instance, they can hardly be found in a corpus, because an
appropriate keyword or annotation tag is missing. As we lack systematic in-
vestigations into focus particles so far, it was necessary to elicit sentences that
cover different variants of focus constituents and its association with the par-
ticle. These results systematically show the methods that are used to express
individual focus particles in DGS, NGT, and ISL. Thus, a corpora search did
not allow me to draw any comprehensive conclusions with respect to focus
particle usage and their distribution. Furthermore, scalar variants could not
be tested with corpora data, either.

8.4. Focus particle tasks

This section describes the tasks that were used to elicit focus particles in
this cross-linguistic study. Based on the methodology described in chapter
4, which is valid for all data sets, I specify the information about partici-
pants, the experimental design, and the target sentences in the following sec-
tions 8.4.1 and 8.4.2. Furthermore, section 8.4.3 explains and illustrates the
three different tasks that the informants were asked to perform. In addition,
an overview of the data is given in a last section 8.4.4, which is quite useful
for traceability reasons.

8.4.1. Informants

The informants listed in section 8.4.1 of the methodology chapter also partici-
pated in this task. However, due to time limitations in a few sessions, some
of the signers did not perform all of the focus particle target sentences. Thus,
8 informants for DGS, 3 for NGT, and 3 for ISL took part in the elicitation
tasks that are described below, but a few sentences are missing for the NGT and the ISL data. The signers OO and PP are not considered in the analysis as these data are based on a different session in 2003 and thus different examples. Nevertheless, this initial investigation provided the starting point for the systematic study described below and provides necessary background information that was extremely useful for this experiment. The list with the relevant metadata of the participating informants is shown in table 23. This is in most parts the same table as in chapter 6, repeated here for convenience.

Table 23. Metadata of the deaf participants: Focus particle study

<table>
<thead>
<tr>
<th>Signer</th>
<th>Age</th>
<th>Gender</th>
<th>Born deaf</th>
<th>Deaf at age</th>
<th>Signing at age</th>
<th>Deaf/Signing parents</th>
<th>Signing environment</th>
<th>First or preferred language</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA</td>
<td>35</td>
<td>m</td>
<td>/</td>
<td>2</td>
<td>4</td>
<td>/</td>
<td>60-70%</td>
<td>DGS</td>
</tr>
<tr>
<td>BB</td>
<td>33</td>
<td>m</td>
<td>yes</td>
<td>/</td>
<td>0</td>
<td>yes</td>
<td>70%</td>
<td>DGS</td>
</tr>
<tr>
<td>CC</td>
<td>39</td>
<td>m</td>
<td>yes</td>
<td>/</td>
<td>0</td>
<td>yes</td>
<td>90%</td>
<td>DGS</td>
</tr>
<tr>
<td>DD</td>
<td>39</td>
<td>m</td>
<td>yes</td>
<td>/</td>
<td>4</td>
<td>/</td>
<td>70%</td>
<td>DGS</td>
</tr>
<tr>
<td>EE</td>
<td>36</td>
<td>f</td>
<td>yes</td>
<td>/</td>
<td>0</td>
<td>yes</td>
<td>70%</td>
<td>DGS</td>
</tr>
<tr>
<td>FF</td>
<td>28</td>
<td>m</td>
<td>yes</td>
<td>/</td>
<td>0</td>
<td>yes</td>
<td>80%</td>
<td>DGS</td>
</tr>
<tr>
<td>GG</td>
<td>27</td>
<td>f</td>
<td>/</td>
<td>3</td>
<td>0</td>
<td>yes</td>
<td>90%</td>
<td>DGS</td>
</tr>
<tr>
<td>HH</td>
<td>43</td>
<td>f</td>
<td>/</td>
<td>5:10</td>
<td>6/28</td>
<td>/</td>
<td>60-70%</td>
<td>DGS</td>
</tr>
<tr>
<td>II</td>
<td>41</td>
<td>m</td>
<td>yes</td>
<td>/</td>
<td>5</td>
<td>/</td>
<td>70%</td>
<td>NGT</td>
</tr>
<tr>
<td>JJ</td>
<td>28</td>
<td>m</td>
<td>yes</td>
<td>/</td>
<td>0</td>
<td>yes</td>
<td>80%</td>
<td>NGT</td>
</tr>
<tr>
<td>KK</td>
<td>34</td>
<td>f</td>
<td>yes</td>
<td>/</td>
<td>14</td>
<td>/</td>
<td>95%</td>
<td>NGT &amp; NmG</td>
</tr>
<tr>
<td>LL</td>
<td>45</td>
<td>f</td>
<td>yes</td>
<td>/</td>
<td>0</td>
<td>yes</td>
<td>100%</td>
<td>ISL</td>
</tr>
<tr>
<td>MM</td>
<td>46</td>
<td>f</td>
<td>yes</td>
<td>/</td>
<td>9</td>
<td>/</td>
<td>90-100%</td>
<td>ISL</td>
</tr>
<tr>
<td>NN</td>
<td>41</td>
<td>m</td>
<td>yes</td>
<td>/</td>
<td>10</td>
<td>/</td>
<td>85-95%</td>
<td>ISL</td>
</tr>
</tbody>
</table>

8.4.2. Experimental design

The elicitation of focus particles and their distribution was divided into three parts: an introductory picture elicitation task (for only and also), a translation task (for only, also, and even), and a picture story task (for different uses of only). The picture task was performed first, because it was important that the
informants did not know the purpose of the study and what words or signs the interviewer was after. The spontaneous reactions and the natural responses gave a first impression on what kind of focus particles or which constructions were used in situations of natural signing. The subsequent translation task systematically elicited focus particles in declarative sentences with varying focus constituents (subject, verb, verb phrase, and object). The intermediate modal particle elicitation task is described in chapter 6. The picture stories to elicit scalar degrees of only were shown at the end of the session following the modal particle experiment, so that the informants were not aware whether it was a third independent task or related to one of the previous issues. Additional dialogs and sentences combining the three focus particles within one single context were elicited in an interview situation if time allowed.

Focus particles (at least only and also) in principle may be elicited by question answer pairs about pictures. This was useful for an initial investigation about lexical variants. Foreign pictures from different sources turned out to be unclear, as they often contained unnecessary items and colors. I selected only a few pictures that were more or less basic and appropriate for my purposes. Many signers nevertheless described the pictures in detail and used contrastive expressions instead of the expected sentences with the respective focus particles. Figure 23 gives an example of a picture from the task and example (164) shows various replies in DGS that were given to the question: ‘Are all of the children eating an orange?’ The picture shows six children eating fruits, five of them eating a banana and one eating an orange.

![Figure 23. Picture from the picture elicitation task 1](image)

(164) a. NO
   ‘No.’

b. NO : ONE BOY IX₃ ORANGE EAT g-pu
   ‘No, only one boy eats an orange.’

c. NO ONLY ONE PERSON EAT
   ‘No, only one persons eats it.’
d. IXₐ TOGETHER SIX CHILDREN IXₐ³ BANANA IXₐ³ ORANGE
   IXₐ³ BANANA : THREE IXₐ₃ₚl BANANA g-pu
   ‘There are six children, one on the left side eats a banana, the
   next eats an orange, and the third eats a banana. The three on
   the other side eat a banana.’

e. NO : ALL BANANA EAT : ONLY ONE BOY ORANGE EAT
   ‘No, they all eat bananas and only one boy eats an orange.’

f. NO ONE BOY ORANGE, OTHER CHILDREN ALL BANANA
   ‘No one of the boys eats an orange, all of the other children
   have a banana.’

g. NO : ALL BANANA EAT : ONLY₂ ONE BOY HOLD-cl-round OR-
   ANGE EAT ONLY₁
   ‘No, all of them eat a banana, only one boy holds an orange
   and eats it.’

h. g-no (hs) MANY BANANA EAT ONLY BOY EAT XXX WITH
   ORANGE EAT
   ‘No, many of them eat a banana and only one boy with an
   orange eats it.’

i. NO : ONLY ONE BOY IXₐ³ SIDE CENTER PERSON IXₐ³ ORANGE
   EAT : BUT NEG IXₐ₃ₚl BANANA
   ‘No, only one boy there on the left side in the middle eats an
   orange, but not all of them eat a banana.’

j. NO ONLY MAN g-pu
   ‘No, only the man.’

The hearing German control group frequently answered with an expected
focus particle sentence. Even though two informants used a contrastive con-
struction, the replies were quite consistent (see section 8.5.4). Thus, the pic-
tures were quite successful in the spoken language elicitation, but could not
provide clear information on focus particle usage in sign languages. Beyond
preliminary evidence of lexical signs and contrastive constructions, the pic-
tures could not elicit the required sentences and the respective minimal pairs
in a systematic fashion.⁹⁴

During the course of this study, researchers in Berlin and Frankfurt have
investigated focus particles in early language acquisition. They have devel-
oped picture elicitation tasks for nur (only) and auch (also) in German. In
Höhle et al. (2009), they looked at accented and unaccented auch (also) and
only included sequences of focus particles with an object-NP. A second ex-
Experiment was based on eye tracking while the child listened to the target sentences. This is not directly reproducible in an equivalent way for signers as instructions and stimulus material need to be presented visually. Thus, sign language elicitation experiments require adaptations. Nevertheless, the picture materials would be an interesting testing ground for the elicitation of focus particles in sign languages (see Berger et al. 2006, 2007; Müller et al. 2011; Höhle et al. 2009 for studies on nur (only) and auch (also) in German language acquisition).

I was interested in how the sentence changes depending on the varying scope of the focus particle and the relation to its focus constituent. At the time of the elicitation sessions, such opposing sentences with varying scope behavior could not be elicited using pictures alone. In addition to the complications with available pictures and doubts about the comparability of the results from picture tasks, experimental tasks using written sentences and the subsequent interview situation discussing intuitions guaranteed systematic data and were often preferred by the signers. All of the informants exhibited high reading competences and had acquired the surrounding written language in a bilingual way or as their second language. In chapter 4, I discuss the shortcomings of written examples and explain why it was nevertheless necessary to use such translation tasks.

Concerning the third task, an artist was commissioned to draw picture stories according to my instructions. The purpose of the stories was to elicit different variants (quantitative and scalar) of the focus particle only. The stories were composed of two to four pictures each and included an identical final picture for comparative reasons. The materials, instructions, and procedures of the three tasks mentioned above are illustrated in the following sections.

8.4.3. Tasks

This section is structured according to the chronological order of each task and the individual tasks are described in a parallel manner: First, the materials or target sentences are listed. Second, the instructions for the tasks are presented with a few remarks on comparability and reproducibility. Third, a brief description presents the procedure of the elicitation and explains how the interview was carried out.
8.4.3.1. Picture elicitation task

The first task was a picture elicitation task. It was used as an initial test to elicit the lexical signs for *only* and *also* and to check the method of a picture task as such. Some of the materials taken from the Questionnaire on Information Structure (QUIS)\(^{95}\) are presented in figure 24.

![Picture of people drinking from bottles](image1)

Are both of them drinking from a bottle?

![Picture of people wearing hats](image2)

Are all of the people wearing hats?

*Figure 24. Examples of materials in the picture elicitation task*

The pictures were shown to the signers with the following instructions:

> “First, look at the picture, then I will ask you a question and you should answer that question according to the picture. Please answer in a full sentence.”

The pictures were displayed one by one on the screen (laptop or beamer) and the procedure of the session was a clearly structured but relaxed interview incorporating the experimental sessions and including breaks. The informants could take their time to look at the pictures and the question was asked when they looked back at the interviewer. For a picture in which two people are sitting at a table, one man drinking coke from a bottle and a woman drinking wine from a glass, the interviewer formulated the following question:

> “Are both of them drinking from a bottle?”
Another item showed four people, two men and two women. The two women on the left wear hats, the men do not wear hats. The respective question is:

“Are all of the people wearing hats?”

At first, all of the pictures were elicited without any interruptions. Then the participants were asked to discuss their answers and give further options. This was important to test the variability of the answers triggered by a picture. A question answer task for also was not included in the original sessions. Nevertheless, it was tested with two different native signers for DGS and one or two native signers for NGT and ISL on the basis of personal communication.

“Only the man is sitting at the table, is that correct?”
“Only the women are wearing white trousers, is that correct?”

Even though different options were available, the replies included also consistently and resulted in correct sentences as predicted by the otherwise elicited data. Signs for also were used in the same way as in the data for the translation tasks. The results of the task are shown in section 8.5.1.1 and are summarized in table 28.

8.4.3.2. Translation task

Due to the fact that we do not know much about focus particles in sign languages, it was necessary to create specific sentences with varying focus constituents to find out about the realization and the distributional properties of only, also, and even. Thus, four sentences were created that exhibited different foci such as subject-focus (S), object-focus (O), verb-focus (V), and focus on the verb phrase (VP). The focused constituent was typed in bold letters and both the focus particle (FP) and it’s associated constituent were colored red. The sentences were the same for each focus particle and included some specifications of the context written in brackets, indicating the relevant focus constituents and incorporating the target sentence more naturally in a contextual framework. Sentences like ‘John only watered the flowers (he did not cut the trees)’ as opposed to ‘John only watered the flowers (not the trees)’ gave further insight into which part of the sentence was the relevant associate of a focus particle. The following examples show the bare test items for each language.
Focus particle tasks

(165) ‘English’
1. FP Tim eats a banana. (S)
2. Tim has FP bought the book. (V)
3. Tim has FP watered the flowers. (VP)
4. Tim has FP watered the flowers. (O)

Note that for the English example in (1654), I had to decide between the FP preceding the VP or being adjacent to the object, which is both possible in English. The decision was made in favor of the VP attached FP to clearly direct the informants’ attention to the bold typed constituents and thereby show the difference between 3 and 4 despite their identical word order.

(166) ‘German’
1. FP Tim isst eine Banane. (S)
2. Tim hat das Buch FP gekauft. (V)
3. Tim hat FP die Blumen gegossen. (VP)
4. Tim hat FP die Blumen gegossen. (O)

(167) ‘Dutch’
1. FP Tim eet een banaan. (S)
2. Tim heeft dat boek FP gekocht. (V)
3. Tim heeft FP de bloemen water gegeven. (VP)
4. Tim heeft FP de bloemen water gegeven. (O)

The target sentences were quite similar for the Dutch and the German sentences. Concerning the choice for past or present tense, I decided on the above illustrated versions. I kept the first sentence in present and the other three in past perfect. Being consistent for all of the signers, these issues were not relevant for the analysis. The signing interviewer or interpreter was leading through the task and gave the following instructions in sign language:

“This next part is a regular translation task. You will see sentences on the screen. Please read the sentences and keep the message in mind. You shall translate them into DGS/NGT/ISL. The red and bold type letters mark an important part of the sentence that some other words in red relate to. You can think about the sentences and ask for clarification if necessary. When I remove the sentences from the screen, you should sign the translation to the camera or the interviewer/interpreter.”

The target sentences separately appeared on the screen one after the other. Before a sentence was translated into a signed utterance, the written example was removed from the screen and the informants were instructed to sign their
translations towards the interviewer or the camera. This should avoid direct translations and minimize possible written language influence. The results revealed a very different word order and sentence structure in the sign language utterances, and so in only very few cases was this interference apparent. The sentences with obvious written language modifications were immediately removed from the data set.

At the end of a focus particle task before continuing the session with the next focus particle, all of the four sentences were shown again conjointly and the participants discussed their replies and further options of translation. The interviewer explicitly asked how exactly the (O)- and (VP)-sentences in 3. and 4. were distinguished and whether the focus particle could also occur in different positions. The signers had clear intuitions about how to answer such questions. All of the informants knew how to sign a sentence with a focus particle, but the additional information in the brackets was helpful for a clear distinction and it was up to the signer to include it in the translations or not. Usually, the informants signed both variants, so that the results contained a sentence without context and a sentence including the contrastive additions.

During the discussion period of the elicitation, the signers had time to think about how the respective sentences were signed best and to evaluate the different options that the respective sign language places at its disposal to express the meaning appropriately. The results of these discussions during the qualitative interview were also considered in the analysis.

Additional dialogs investigated how the three focus particle interact in one single dialog. See examples (168), (169), and (170) for such a dialog in German, English, and Dutch.

(168) **Mehr Sonne für England!**
A: Der Minister darf entscheiden.
B: Nein, nur die Queen darf entscheiden.
A: Ja, aber der Minister darf auch entscheiden.
B: Bist du sicher?
A: Ja, sogar Prinz Charles darf entscheiden

(169) **More Sun for England!**
A: The prime minister is allowed to decide.
B: No, only/just the Queen is allowed to decide.
A: The Queen can decide, but also the prime minister is allowed to decide.
B: Are you sure?
A: Even the vice prime minister is allowed to decide.
(170) **Meer zon voor Engeland!**
A: De minister mag beslissen.
B: Nee, alleen de koningin mag beslissen.
A: Maar de minister mag ook beslissen.
B: Weet je dat zeker?
A: Ja, zelf Prins Charles mag beslissen.

8.4.3.3. **Picture story task**

The picture stories were developed in order to elicit degree variants of *only*: the regular restrictive focus particle and the scalar variant. For the scalar variant, three different contexts were created that triggered different attitudes and different degrees of scalar interpretations. The materials are shown in the respective figures 25 to 28.  

**Figure 25.** First picture story eliciting degrees of *only*

Before the actual task, the interviewer shortly informed the participants how the stories were structured. The signed explanation could be paraphrased as follows:

“You will see a series of pictures and one happens after the other. A situation is created and I am interested in what the people think or expect. After something has happened, someone is talking at the end.”
Then the concrete instruction for the task was given. The signed instructions could be translated by the sentences below.

“Try to imagine the situation very carefully. Then, shortly describe the story and sign the utterance of the person in the last picture with the empty bubble. This should be appropriate to the situation and the person’s intentions.”

Figure 26. Second picture story eliciting degrees of only

The additional information that accompanied the last two picture stories were also given in sign language when the pictures came up on the screen. I briefly rephrase the additional information that was given before the third picture story had to be performed:

“The postman sometimes brings his daughter along, because his wife works a lot. The people in town are used to this.”

The fourth picture story also required some extra background information that was signed to the participants:

“Two boys talk about their fathers and what their jobs are. Then a selfish girl comes along and befriends the boy on the right. Why is it that the mean girl does not want to go out with the boy on the left? What do you think does she say to him?”
The story was usually told once or twice and the signers were free to embellish the narrative, as long as they used direct quotation within the description of the last picture. The results of the picture story elicitation tasks are given in section 8.5.1.5 for DGS, in section 8.5.2.5 for NGT, and in section 8.5.3.5 for ISL.

8.4.4. Data

Table 24 lists the number of the target sentences for the tasks and separately counts the actual results for each sign language, as multiple replies were allowed. Thus, the abbreviation TS stands for target sentence and the numbers below indicate the actual sentences that were elicited.
The dataset of the focus particle study comprises 405 separate files of 16 signers. This takes into account all of the grammatical replies, options, and trials for 280 regular target sentences. The respective sequences of the signing were taken from the over 22 hours raw video material that was elicited in the sessions including the above mentioned tasks. More than 250 lexical focus particle tokens were annotated. As can be seen from the results below, these items were mostly lexical signs for only and also that received regular glosses. The following list summarizes the basic facts of the dataset.

- over 22 hours of raw video material
- 405 files concerning focus particles
- more than 250 annotated focus particles

As already pointed out in the section on corpora research, it is not possible to find all of the the relevant focus particles and capture the replies and results by searching the corpus for only, also, and even. For comparative reasons, in table 25, I briefly list the numbers of the manual items as found in the data set of the translation task. The second table is structured similarly, but includes synonyms or further items that fall into the categories of either restrictive, additive or scalar focus particles used to express the target sentences. Also in DGS, for example, has two variants glossed auch and dazu. IsL like English exhibits the very often interchangeable signs only and just. Thus, the second table is the most representative for my study, as it includes various options with a broader view on focus particles in sign languages. Consequently, table 25 is included in table 26. However, more focus particles than noted here appear in my data, first because the table only

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**Table 24. Target sentences for the focus particle tasks**

<table>
<thead>
<tr>
<th>SL</th>
<th>Picture task</th>
<th>Translation task</th>
<th>Picture story task</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>DGS TS</td>
<td>32 (8x4)</td>
<td>96 (8x12)</td>
<td>32 (8x4)</td>
<td>160</td>
</tr>
<tr>
<td>DGS</td>
<td>47</td>
<td>169</td>
<td>46</td>
<td>262</td>
</tr>
<tr>
<td>NGT TS</td>
<td>12 (3x4)</td>
<td>36 (3x12)</td>
<td>12 (3x4)</td>
<td>60</td>
</tr>
<tr>
<td>NGT</td>
<td>19</td>
<td>34</td>
<td>16</td>
<td>69</td>
</tr>
<tr>
<td>ISL TS</td>
<td>12 (3x4)</td>
<td>36 (3x12)</td>
<td>12 (3x4)</td>
<td>60</td>
</tr>
<tr>
<td>ISL</td>
<td>16</td>
<td>37</td>
<td>21</td>
<td>74</td>
</tr>
<tr>
<td>Sum TS</td>
<td>56</td>
<td>168</td>
<td>56</td>
<td>280</td>
</tr>
<tr>
<td>Sum</td>
<td>82</td>
<td>251</td>
<td>83</td>
<td>405</td>
</tr>
</tbody>
</table>
Results: Only, also, even in DGS, NGT, and ISL

refers to the translation task and second because only one sentence per target sentence was thoroughly annotated.

Table 25. Instances of only, also, and even in the data set of the translation task

<table>
<thead>
<tr>
<th>Language</th>
<th>only</th>
<th>also</th>
<th>even</th>
</tr>
</thead>
<tbody>
<tr>
<td>DGS</td>
<td>44</td>
<td>45</td>
<td>0</td>
</tr>
<tr>
<td>NGT</td>
<td>9</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>ISL</td>
<td>4</td>
<td>1</td>
<td>1 (fss)</td>
</tr>
</tbody>
</table>

Table 26. Instances of focus particles in the data set of the translation task

<table>
<thead>
<tr>
<th>Language</th>
<th>Restrictive FP</th>
<th>Additive FP</th>
<th>Scalar FP</th>
</tr>
</thead>
<tbody>
<tr>
<td>DGS</td>
<td>44</td>
<td>56</td>
<td>1 (LBG)</td>
</tr>
<tr>
<td>NGT</td>
<td>10</td>
<td>11</td>
<td>0</td>
</tr>
<tr>
<td>ISL</td>
<td>14</td>
<td>13</td>
<td>3 (fss, MCE)</td>
</tr>
</tbody>
</table>

It can be seen that signs for only, also, and some equivalent expressions can be found as lexical items in the corpus. Generally, EVEN did not occur as a lexical item in any of the three sign languages. Even seems to have a finger-spelled equivalent in ISL that is rarely used in conversation. There was only one instance of EVEN in DGS which is clearly attributed to the system of Manually coded German called LBG (Lautsprachbegleitendes Gebärd) in Germany. Thus, it is not considered a genuine focus particle in DGS.

In the following sections, I provide detailed results, examples, and further data that show how even is expressed in the three sign languages. The data allow us to draw syntactic and semantic-pragmatic conclusions. This section is structured in analogy to chapter 7.

8.5. Results: Only, also, even in DGS, NGT, and ISL

The basic underlying questions of this chapter are:

1) How are focus particles realized in sign languages?
2) How can the results be implemented in a broader framework of linguistic theory?

This section answers the first question according to my data and thus provides the basis for a thorough analysis to discuss and answer the second
question in section 8.6. No systematic research has been done on focus particles in the field of sign language linguistics. Although preliminary investigations into focus particles in ASL and DGS have sporadically listed a few lexical items, we lack systematic syntactic and semantic-pragmatic analyses of focus particles for sign languages. This study concentrates on the three mentioned sign languages, but clearly focuses on DGS. As mentioned above, the project scrutinizes the three prototypical focus particles *only*, *also*, and *even*.

I present the results for each sign language in a separate section. The results for DGS are listed and explained in section 8.5.1, the NGT examples can be found in section 8.5.2, and the ISL responses are transcribed and explored in section 8.5.3. In addition, section 8.5.4 provides relevant results from a German control group and section 8.5.5 typologically lists an initial survey on focus particles in different sign languages.

The findings are summarized concisely in section 8.5.6. The individual sign language sections are systematically split up according to the different tasks. This descriptive part lists the actual results and describes the data in detail, thus, providing the relevant information and the empirical background for the subsequent analyses in section 8.6.

8.5.1. DGS data

The results of the elicitation procedure for DGS are presented according to the three tasks that were performed by the signers. The given examples provide a wide selection from the data and show the most canonical and frequent replies as they were signed during the sessions. The results are structured in the same way as explained in the task-sections above. Short descriptions of the respective examples complete the individual utterances and sentence productions. Beginning with the first task showing the responses to the questions about the pictures, I then list the translation data from the second task eliciting *only*, *also*, and *even* in a systematic way. The results from the picture stories in the third task are given in an additional section. The third task is illustrated by a list of all the relevant sentences that were signed in relation to the target picture of the picture stories.
Results: Only, also, even in DGS, NGT, and ISL

8.5.1.1. Picture elicitation task DGS

As described in section 8.4.3 above, the interviewer asked the signers a question while they were looking at a picture. The question usually referred to two people or groups of people and whether they do something or have something in common. Examples of respective answers are provided below.

(171) ‘Are they both drinking wine?’

<table>
<thead>
<tr>
<th>hs</th>
<th>ht-f</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>BEIDE</td>
</tr>
<tr>
<td></td>
<td>NUR₂</td>
</tr>
<tr>
<td></td>
<td>FRAU IX₃</td>
</tr>
<tr>
<td></td>
<td>both</td>
</tr>
<tr>
<td></td>
<td>only</td>
</tr>
<tr>
<td></td>
<td>woman IX₃</td>
</tr>
<tr>
<td>b.</td>
<td>r,w</td>
</tr>
<tr>
<td></td>
<td>WEIN : NUR₂</td>
</tr>
<tr>
<td></td>
<td>EIN : FRAU : IX₃</td>
</tr>
<tr>
<td></td>
<td>ANDER JUNGE : COLA</td>
</tr>
<tr>
<td></td>
<td>wine : only</td>
</tr>
<tr>
<td></td>
<td>one : woman IX₃</td>
</tr>
<tr>
<td></td>
<td>other : boy</td>
</tr>
<tr>
<td></td>
<td>coke</td>
</tr>
<tr>
<td>c.</td>
<td>hn</td>
</tr>
<tr>
<td></td>
<td>hn</td>
</tr>
<tr>
<td></td>
<td>hn</td>
</tr>
<tr>
<td></td>
<td>hn</td>
</tr>
</tbody>
</table>
| As seen in the examples in (171a-b) and (172a), most signers used the sign NUR₂ in their replies to the relevant question above. The focus particle often occurs in combination with contrastive sentences as in (171b). In (171c), the contrastive expression was exclusively used, a common strategy among signers as well. In example (172b), a third option that was used as a correct answer to the question is the use of demonstrative pronouns in combination with head nods.

The index sign is signed with tense articulation, which is indicated by bold type letters. In addition, a mouth pattern was used and is abbreviated as ‘mm’ in the transcriptions, which means that the lips are pressed together. Thus, it can be seen that the pictures and the question answer task did not directly and exclusively trigger the focus particles as expected.

(172) ‘Are they all eating oranges?’

<table>
<thead>
<tr>
<th>hs</th>
<th>hn</th>
<th>ht-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>NEIN : ALLE BANANE ESS : NUR₂ EIN JUNGE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>no : all banana eat : only one boy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>hn</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ORANGE ESS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>orange eat</td>
<td></td>
</tr>
</tbody>
</table>
Another example given in (173) confirms that the restrictive focus particle \textit{NUR}$_2$ and contrastive expressions both seem to be adequate in the task situation.

(173) ‘Are all of the people wearing hats?.’

\begin{align*}
a. & \quad \text{NUR}$_2$ FRAU HUT \\
& \quad \text{only woman hat} \\
& \quad hs ZWEI FRAU HUT : ZWEI MANN BFF HUT \\
& \quad \text{neg two woman hat : two man neg hat}
\end{align*}

The other variant of the focus particle \textit{only}, namely \textit{NUR}$_1$, occurred only once in such a spontaneous answer. This option was directly discussed when the interviewer asked for other possible options concerning the replies.

(174) ‘Are both of them eating an apple?.’

\begin{align*}
a. & \quad \text{hs MANN BANANE ESS NUR}$_1$ \\
& \quad \text{neg man banana eat only} \\
& \quad hs ht-f ht-l hn \\
& \quad \text{ht-b} \\
& \quad \text{b. NEIN NUR}$_2$ FRAU APFEL-ESS} \\
& \quad \text{no only woman apple-eat}
\end{align*}

The results are summarized in the following table 27. This chart includes all of the annotated replies from the data set. It can be seen that many informants replied by an answer including an expected focus particle \textit{only}. The two variants \textit{NUR}$_1$ and \textit{NUR}$_2$ discussed below in section 8.5.1.2 were both used and known by all signers. However, the sign \textit{NUR}$_1$ was rarely used in the spontaneous replies to the pictures and more often occurred in later discussions as a further option of an adequate answer. In addition, many signers also preferred to reply with a contrastive construction, explicitly opposing the two people at the table or the group of children with the single child eating an orange.

The entire picture was sometimes described in detail and the signers often replied in a bi-clausal construction, confirming the sentence for the man in
Results: Only, also, even in DGS, NGT, and ISL

Table 27. Results for picture elicitation task: ONLY

<table>
<thead>
<tr>
<th>Response</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>FP alone</td>
<td>12</td>
</tr>
<tr>
<td>contrast and FP</td>
<td>7</td>
</tr>
<tr>
<td>contrast</td>
<td>10</td>
</tr>
<tr>
<td>$\textsc{lX}_{dem}$</td>
<td>3</td>
</tr>
<tr>
<td>other</td>
<td>3</td>
</tr>
<tr>
<td>Sum FP/all</td>
<td>19/35</td>
</tr>
</tbody>
</table>

the first part and negating the sentence for the woman in the second part. Many signers answered with a single negation particle no and the interviewer explicitly asked them to answer in a full sentence. This tendency of short replies, however, seems to be typical of sign languages. In natural discourse, elliptic responses are used quite frequently and would probably be the default strategy for such picture elicitation tasks.

The same pictures were tested with two native signers of DGS for also. The instructions were given in a different manner to elicit the respective responses including an additive focus particle. The signers were asked questions of the sort: ‘Only girls eating fruits, is that correct?’, ‘Only the men are wearing white trousers, is that correct?’; ‘Only the woman is sitting at the table, is that correct?’ (cf. the pictures of figure 24). The results for AUCH and DAZU (the two versions for also in DGS) are summarized in the following table 28.

Table 28. Results for picture elicitation task: ALSO

<table>
<thead>
<tr>
<th>Response</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>FP alone</td>
<td>10</td>
</tr>
<tr>
<td>other</td>
<td>2</td>
</tr>
<tr>
<td>Sum FP/all</td>
<td>10/12</td>
</tr>
</tbody>
</table>

It is apparent that the elicitation of the focus particles only and also was not trivial. In general, it is possible to elicit focus particles with pictures. However, depending on the signer’s assumptions about how detailed the task should be performed, various options were available and actually chosen by the informants. After going through the pictures once, the interviewer inquired more specifically which other options were available for each picture and openly discussed various constructions of adequate answers.
8.5.1.2. Translation task: nur (only)

With respect to the lexical signs for *only* in DGS, two manual signs have been elicited that were judged by the signers to be frequently used in signed discourse. Figure 29 shows both variants in two sequenced double pictures.

The first NUR₁ in figure 29 is the canonical or ‘standard’ sign for *only* in DGS (Happ & Vorköper 2006). It is homonymous with the signs for ENDE (end) and FERTIG (finish), of which the latter functions as an aspectual perfect marker in DGS. The second form (NUR₂) historically originates from LBG, the system of manually coded speech in Germany, but seems to be established and grammaticalized in its contemporary form and function in DGS. Note that a phonological reduction can be seen in most cases, which is an independent indicator of such a grammaticalization process. In the elicited data, both forms were used frequently and all signers were aware of both signs, but the relation between these variants has not been previously studied. The different syntactic behavior explained below indicates two independent lexical items for *only* in DGS that have to be treated separately.
In this first example in (175), I listed some of the translations that were given for the first sentence of the second task eliciting *only* in relation to subject focus. As can be seen, both signed variants of *only* in DGS were used (175a and b) and in (175c), both variants were used in one and the same sentence. However, this example was more of an illustration than a direct translation, which explains the repetitive uses of the focus particle and the sign EIN (one). Nevertheless, the lexical signs were known by all signers and are used naturally. NUR1 occurred sentence-finally, whereas NUR2 usually adjoined to its associated constituent. The subject was marked by raised eyebrows and an additional forward head-tilt or head nod in certain cases. As mentioned above, demonstratives pronouns were used in a restrictive manner in this task (175e). If the verb bears focus in a sentence, the focus particles behave in a similar way as described for the subject condition.

(176) ‘Tim has only bought the book.’ (V)

a. TIM BUCH KAUF NUR1
    tim book buy only
In (176a) the verb is minimally marked as the head is slightly held up. This marker is not a specific focus marker, but sets the constituent apart from the rest of the sentence. The context was often useful to clearly distinguish the alternatives, as is the case in daily discourse. The second and the third sentence in (176b and c) again show how both focus particles may occur in one and the same sentence. The additional sign KONZENTRIER in (176b) further strengthens the reference to the associated constituent BUY. In (176c), the signer adds a contrastive context to the target sentence. (176d) shows a contrastive construction with the regular use of sentence-final NUR1. Importantly, the focus particle relates to the verb that bears the focus in the above cases. Either NUR1, NUR2 or both have scope over their associated constituent and unequivocally take the focus marked constituent as their domain.

Two additional constructions were used throughout the sessions that I list separately here. In (177a and b), a contrastive construction with appropriate nonmanuals were judged to be sufficient to translate the target sentence with verbal focus.
In (177c), the sign BUY is signed slower than usual. As mentioned above, focus marking is not restricted to nonmanual markings. Manual and nonmanual markings may conjointly contribute to the focus marking and highlight a specific constituent. In rare cases, the expressions seem to replace the focus particle, making it an optional item. This, however, is only possible in certain restricted contexts with explicit contrastive constructions.

The following examples are instances of VP-focus and show both variants of only in the target sentences. Some of the sentences were combined with contrastive additions.

(178) ‘Tim has only watered the flowers.’ (VP)

a. TIM IX₃  NUR₂  BLUME GIESS : BAUM SCHEID BFF
   tim ix₃  only  flower  water : tree  cut  neg
   hs  hn,w  ht-b,mm

b. TIM  BAUM SCHNEID : BLUME GIESS NUR₁
   tim  tree  cut : flower  water  only
   ht-f  ht-b  ht-f  hn

c. NUR₂  BLUME GIESS : KONZENTRIER NUR₁
   only  flower  water : concentrate  only
   ht-f  hn

d. TIM  NUR₂  BLUME GIESS NUR₁ ABER BAUM
   tim  only  flower  water  only  but  tree
   hs
   SCHNEID  BFF
   cut  neg
   ht-f

e. TIM  BLUME GIESS  DAS-WAR’S
   tim  flower  water  that’s-it

The informants often used contrasting constructions in combination with nonmanuals. The contrasts were due to the optional additions that were given in the stimulus material, but as seen with the picture task above, contrastive expressions are typical of DGS for these sentences. Signed without context, the
sentences are equally grammatical and constitute an appropriate translation of the target sentences in the task. The following sentences were set apart from the above results as the examples show contrastive constructions without focus particles.

(179) a. TIM TIM BLUME GIESS BAUM SCHNEID BFF
    hn tim tim flower water tree cut neg
    hs

b. TIM IX₃ BLUME GIESS : ABER IX₃ BAUM SCHNEID g-pu
    tim ix₃ flower water : but ix₃ tree cut g-pu

The fourth target sentence aimed at eliciting a focus particle that relates to object focus. The utterances in (180) were selected examples from the video recordings and further illustrate the use of NUR₁ and NUR₂ and their distributional behavior.

(180) ‘Tim has only watered the flowers.’ (O)
    hn
    a. TIM BLUME GIESS NUR₁
        tim flower water only
    hn
    (hn)
    b. TIM IX₃ NUR₂ BLUME IX₃ₚl GIESS
        tim ix₃ only flower ix₃ₚl water
    hₜ-f,₟ hₜ-f,hₜ hₜ hₜ-b hₜ
    c. TIM BAUM BLUME IX₃ₚl GIESS NUR₁ : IX₁ GLAUB
        tim tree flower ix₃ₚl water only : ix₁ think
        hₜ-f hₜ-f,hₜ hₜ hₜ-b hₜ
    d. NUR₂ KONZENTRIER BLUME GIESS g-pu : NUR₂ :
        only concentrate flower water g-pu : only :
        hₜ
        DAZU BAUM DAZU GIESS NICHT g-pu :
        also tree also water neg g-pu :
        hₜ hₜ hₜ-b hₜ
    e. TIM BLUME NUR₁ GIESS
        tim flower only water
In (180a), TIM receives a similar head nod as the focus constituent BLUME (flower). The head nod accompanying TIM can be interpreted as a regular nonmanual subject marker. Note that I do not necessarily transcribe subject marking in all of the other examples. Usually, the subject of a sentence receives a slight head nod in DGS. The equivalent minimal pair of the sentence in (180a) without object focus would look exactly the same but without the additional head nod on BLUME (flower) (see Waleschkowski 2009 for similar examples of focus markings and the respective minimal pairs). If the initial constituent is a topic where raised eyebrows or wide eyes are used, this is, of course, indicated separately in the transcriptions.

As already seen in the above discussed examples, the sign KONZENTRIER (concentrate) is used by some of the signers. In certain cases as in (181), it was judged to be sufficient to encode the restrictive meaning of only. The sign BLUME (flower) is signed tensely and with a head tilt and the sign KONZENTRIER (concentrate) is even more forcefully expressed. The additional sign glossed as BLEIB (stay) enhances this meaning. This is why I note the example separately as a further strategy, even though it was often used in combination with the DGS variants for only that were found in the data.

Another strategy used by linguistically skilled native signers was the use of a tense articulated demonstrative pronoun glossed as IX_{dem}. The indices ‘r’ and ‘l’ stand for right and left loci in the sign space.

To sum up the results from this task, table 29 lists the items and strategies that were used by the different signers. The table includes the complete list of responses by all of the signers. NUR\textsubscript{2} occurred more often in the data sample than NUR\textsubscript{1}. The demonstrative pronoun and the contrastive strategy were used quite frequently as well. The main target items of this task, however, were the two DGS variants for only and they were systematically used to realize the restrictive focus particle sentences.
Concerning these two signed variants, I may only speculate about the similarities with the English pair *only* and *just*. There are not enough occurrences and context examples in the data set to systematically look at the relation between both signs NUR₁ and NUR₂. It seems, however, that the sign NUR₁ tends to be used in restrictive contexts concerning subjects and objects, whereas NUR₂ occurred more freely within the data and may adjoin to all sorts of constituents. Furthermore, NUR₂ was preferred in scalar contexts with negative connotations, when the focus value was positioned low on an evoked scale. NUR₁ occurred in purely restrictive conditions more often. Nevertheless, both variants have been used in both contexts, so the distinction can only be mentioned as a tendency. In addition, the distinction in DGS is not as clear as the difference between *only* and *just* in ISL (see section 8.5.3.2 for ISL).

Summarizing the distribution of NUR₁, the data show that the sign usually occurs at the end of a sentence. In some cases, it appeared after the respective associated constituent within the sentence. Depending on the nonmanual marker, different constituents of a sentence may be interpreted as the associate of the focus particle. NUR₂, on the other hand, systematically attached to the focus, preceding the assigned constituent. A syntactic analysis of the focus particles will be discussed in section 8.6.

Table 29. Results for translation task: *only*

<table>
<thead>
<tr>
<th>Signer</th>
<th>S</th>
<th>V</th>
<th>VP</th>
<th>O</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>NUR₁, NUR₂, IX&lt;sub&gt;dem&lt;/sub&gt;</td>
<td>contrast, hn</td>
<td>NUR₂</td>
<td>NUR₂</td>
</tr>
<tr>
<td>B</td>
<td>IX&lt;sub&gt;dem&lt;/sub&gt;</td>
<td>NUR₁</td>
<td>NUR₂</td>
<td>NUR₁, NUR₂</td>
</tr>
<tr>
<td>C</td>
<td>NUR₂</td>
<td>contrast</td>
<td>contrast, hn</td>
<td>NUR₂, IX&lt;sub&gt;dem&lt;/sub&gt;, KONZEN- TRIER</td>
</tr>
<tr>
<td>D</td>
<td>NUR₂</td>
<td>NUR₂, NUR₁</td>
<td>NUR₂</td>
<td>NUR₂, KONZEN- TRIER</td>
</tr>
<tr>
<td>E</td>
<td>IX&lt;sub&gt;dem&lt;/sub&gt;</td>
<td>contrast</td>
<td>IX&lt;sub&gt;dem&lt;/sub&gt;, contrast</td>
<td>IX&lt;sub&gt;dem&lt;/sub&gt;</td>
</tr>
<tr>
<td>F</td>
<td>NUR₂</td>
<td>contrast</td>
<td>contrast</td>
<td>contrast</td>
</tr>
<tr>
<td>G</td>
<td>-</td>
<td>NUR₂, NUR₁</td>
<td>NUR₂, NUR₁</td>
<td>NUR₂</td>
</tr>
<tr>
<td>H</td>
<td>NUR₁</td>
<td>NUR₁, DAS- WAR’S</td>
<td>NUR₁, DAS- WAR’S</td>
<td>NUR₁, IX&lt;sub&gt;dem&lt;/sub&gt;</td>
</tr>
</tbody>
</table>
8.5.1.3. **Translation task: auch (also)**

This section presents the data for the translation task eliciting *also* in DGS. I systematically show the results according to the target sentences and briefly discuss the different constructions.

Along with the transcribed examples of the video data, figure 30 illustrates the two variants that were found for *also* in DGS. They are glossed as AUCH and DAZU throughout this book. Both variants frequently occurred during the sessions, but the sign AUCH dominates. The examples in (183) show the results for the subject condition. It can be seen that the focus particle AUCH (also) preceded the focus constituent in (183a-c). However, postfocal occurrences as in (183d) were also possible.

(183) ‘Also Tim eats a banana.’ (S)

<table>
<thead>
<tr>
<th></th>
<th>AUCH</th>
<th>TIM</th>
<th>BANANE</th>
<th>ESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>also</td>
<td>tim</td>
<td>banana</td>
<td>eat</td>
</tr>
<tr>
<td></td>
<td>hn</td>
<td>hn</td>
<td>hn</td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td>AUCH</td>
<td>TIM</td>
<td>PERSON</td>
<td>BANANE</td>
</tr>
<tr>
<td></td>
<td>also</td>
<td>tim</td>
<td>person</td>
<td>banana</td>
</tr>
</tbody>
</table>
In (183e), the signer used head nods on the subject and on the demonstrative pronoun to indicate the inclusive reading of the sentence. Raised eyebrows and the squint are used to further enhance the focus marking. The results for the second target sentence in the verb focus condition were quite interesting, so I split the responses into two examples and show most of the responses in (184) and (185) below.

(184) ‘Tim has also bought the book.’ (V)

The preceding focus particle occurred adjacent to the verb, which was focus marked by head nods. Interestingly, AUCH and DAZU frequently combined as can be seen in (185a and b). The focus particles always combined in the described order, so that the sequence [AUCH DAZU] seems to be subject to certain restrictions.
‘Tim has also bought the book.’ (V)

(185)  

\begin{tabular}{llllll}
\hline
   & r,\text{hn} & \text{hn} & \text{r,ht-f} & \hspace{0.5cm} \text{ht-f,\text{hn}} & \text{hn} \\
\hline
a. & TIM & IX_3 & BUCH & \text{AUCH} & \text{DAZU} & \text{LES} & g-pu : \text{NICHT} \\
   & tim & ix_3 & book & also & also & read & g-pu : not
\end{tabular}

\begin{tabular}{llllll}
\hline
   & KAUF & \text{NUR} & \text{NEIN} & \text{AUCH} & \text{DAZU} & \text{LES} & g-pu \\
\hline
b. & TIM & \text{BUCH} & \text{LES} \\
   & tim & book & read
\end{tabular}

If the entire verb phrase bears focus, the examples show similarly consistent results. The signers mostly relied on contrastive expressions, which suited DGS best. Nevertheless, the focus particle \textit{AUCH} was systematically used and preceded the verb phrase. The additive meaning was also expressed by an additional LBG sign for ‘and’ in (186c), but did not replace the focus particle. The verb phrase received focus marking such as forward or backward head tilts and head nods in most of the sentences.

‘Tim has also watered the flowers.’ (VP)

(186)  

\begin{tabular}{llllllll}
\hline
   & \text{hs} & \text{ht-f,\text{hn}} & \text{hn} & \text{hs} & \text{ht-f,\text{hn}} & \text{ht-b} \\
\hline
a. & TIM & TIER & FÜTTER & \text{NUR}_1 & : & \text{AUCH} & \text{BLUME} & \text{GIESS} \\
   & tim & animal & feed & only & neg & : & also & flower & water
\end{tabular}

\begin{tabular}{llllllll}
\hline
   & \text{hn} & \text{hn} & \text{hn} & \text{hs} & \text{ht-f,\text{hn}} & \text{ht-f,\text{hn}} \\
\hline
b. & TIM & TIER & FÜTTER & \text{NUR}_1 & : & \text{AUCH} & \text{BLUME} & \text{GIESS} \\
   & tim & animal & feed & only & neg & : & also & flower & water
\end{tabular}

\begin{tabular}{llllllll}
\hline
   & \text{ht-f} & \text{hs} & \text{ht-f,\text{hn}} & \text{hs} & \text{ht-f,\text{hn}} & \text{ht-f,\text{hn}} \\
\hline
c. & TIM & TIER & FÜTTER & \text{UND} & \text{AUCH} & \text{BLUME} & \text{GIESS} \\
   & tim & animal & feed & and & also & flower & water
\end{tabular}

\begin{tabular}{llllllll}
\hline
d. & TIM & \text{NUR}_2 & TIER & FÜTTER & : & \text{NEIN} & \text{AUCH} & \text{BLUME} & \text{GIESS} \\
   & tim & only & animal & feed & : & no & also & flower & water
\end{tabular}

e. & TIM & \text{BLUME} & \text{GIESS} \\
   & tim & flower & water

Very often, \textit{FLOWER} was repeated in the regular way to indicate plural forms in these examples, but sometimes, the singular form was used, which did not
Focus particles in sign languages

influence sentence structure. Note, that I generally left out plural marking in the transcriptions. The sign WATER as predicate can be inflected for plural marking in its path movement. This strategy was frequently used for the DGS sentences. I will not transcribe every detail here, but note that these options exist and were used in the correct manner in the examples.

The object focus results complete the data and confirmed a left attachment of the particle to the focused object. DAZU was used in combination with AUCH in the above mentioned order (187c) or in isolation as the only focus particle in the sentence (187d).

(187) ‘Tim has also watered the flowers.’ (O)

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>TIM</td>
<td>AUCH</td>
<td>BLUME</td>
</tr>
<tr>
<td></td>
<td>tim</td>
<td>also</td>
<td>flower</td>
</tr>
<tr>
<td>r</td>
<td>hn</td>
<td>hn</td>
<td>r.ht-f</td>
</tr>
<tr>
<td>b.</td>
<td>SELBST</td>
<td>BAUM</td>
<td>GIESS</td>
</tr>
<tr>
<td>self</td>
<td>tree</td>
<td>water</td>
<td>also</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td>TIM</td>
<td>BAUM</td>
<td>GIESS</td>
</tr>
<tr>
<td>tim</td>
<td>tree</td>
<td>water</td>
<td>: also</td>
</tr>
<tr>
<td>r.ht-f</td>
<td>hs</td>
<td>hn</td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td>TIM</td>
<td>BAUM</td>
<td>GIESS</td>
</tr>
<tr>
<td>tim</td>
<td>tree</td>
<td>water</td>
<td>only</td>
</tr>
<tr>
<td>r.ht-f</td>
<td>hs</td>
<td>hn</td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td>TIM</td>
<td>BAUM</td>
<td>NUR\textsubscript{1}</td>
</tr>
<tr>
<td>tim</td>
<td>tree</td>
<td>only</td>
<td>neg</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td>TIM</td>
<td>BLUME</td>
<td>GIESS</td>
</tr>
<tr>
<td>tim</td>
<td>flower</td>
<td>water</td>
<td></td>
</tr>
</tbody>
</table>

A rather exceptional case that may be interpreted differently than the purely object focus sentences above is shown in example (188). In this case, AUCH refers to BLUME and DAZU probably refers to GIESS.

(188) TIM | AUCH | BLUME | DAZU | GIESS |
| tim | also | flower | also | water |
Table 30. Results for translation task: *also*

<table>
<thead>
<tr>
<th>Signer</th>
<th>S</th>
<th>V</th>
<th>VP</th>
<th>O</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>AUCH</td>
<td>AUCH</td>
<td>AUCH</td>
<td>DAZU</td>
</tr>
<tr>
<td>B</td>
<td>AUCH</td>
<td>AUCH,</td>
<td>AUCH,</td>
<td>AUCH,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AUCH-DAZU</td>
<td>AUCH</td>
<td>AUCH-DAZU</td>
</tr>
<tr>
<td>C</td>
<td>AUCH</td>
<td>AUCH</td>
<td>AUCH</td>
<td>AUCH</td>
</tr>
<tr>
<td>D</td>
<td>AUCH, AUCH</td>
<td>AUCH-DAZU</td>
<td>AUCH-DAZU</td>
<td>AUCH, DAZU</td>
</tr>
<tr>
<td>E</td>
<td>AUCH</td>
<td>hn</td>
<td>AUCH</td>
<td>AUCH</td>
</tr>
<tr>
<td>F</td>
<td>AUCH</td>
<td>UND</td>
<td>AUCH</td>
<td>AUCH</td>
</tr>
<tr>
<td>G</td>
<td>ZUSAMMEN</td>
<td>AUCH</td>
<td>AUCH</td>
<td>UND</td>
</tr>
<tr>
<td>H</td>
<td>IX\textsubscript{dem}/hn</td>
<td>hn</td>
<td>DAZU/hn</td>
<td>DAZU/hn</td>
</tr>
</tbody>
</table>

As in the above section for *only*, table 30 summarizes the options expressed by the signers and lists the items for *AUCH* and *DAZU* that were used during the video sessions. Note again that the figures correspond to all of the elicited sentences and not to the selected examples shown above.

8.5.1.4. Translation task: *sogar* (*even*)

First of all, it was remarkable that no sign for *even* was used in any of the target sentences except one. All signers agreed that such a sign is not available in the DGS lexicon, but they had clear intuitions on how to perform the sentences. Example (189) is a summary of the replies for *even* referring to ‘Tim’ as the subject.

(189) ‘Even Tim eats a banana.’ (S)

\begin{align*}
a. \quad & \text{VIEL KIND BANANE ESS} : \text{PF TIM AUCH BANANE ESS} \\
& \text{many child banana eat} : \text{pf tim also banana eat} \\
& \text{r,bl-b ht-b} \\
b. \quad & \text{KIND DA}_{pl} \text{ BANANE ESS} : \text{PF TIM BANANE ESS} \\
& \text{child there banana eat} : \text{pf tim banana eat}
\end{align*}
The PF strategy in combination with specific nonmanuals expressing the typical scalar meaning contribution of \textit{even}, namely ‘unexpectedness’ and ‘unlikeliness’, was used most frequently during this task. Two more signers translated the first sentence similarly to the above selected examples using the PF-sign. Note that the PF-sign may change its meaning according to the facial expressions. It can be accompanied by negative and contemptuous facial expressions to mean something like ‘nothing of value’, ‘very strange’.

As in (189a and c), the sign \textsc{Auch} (also) and facial expressions combined in such a way that the meaning conveyed by the signers was exactly the translation of the target sentences. This strategy was consistently used throughout the task.

Furthermore, the signers used some other constructions to express the meaning of the first target sentence. As they deviated too much from the original, I have separately listed them in example (190) and excluded them from the focus particle analysis.

(190) a. \textsc{Viel} \textsc{Kind} \textsc{Banane} \textsc{Ess} : \emph{\textsc{R}} \textsc{Tim} \textsc{I}x \textsc{Vorher} \textsc{BFF} : many child banana eat : \textsc{Tim} \textsc{I}x \textsc{I}x \textsc{BfF} :  
\textsc{HT-f,Hn} \textsc{Jetzt} \textsc{Ess}  
\textsc{Now} \textsc{Eat}  

b. \textsc{Tim} \textsc{Hass} \textsc{Banane} \textsc{Trotzdem} \textsc{Banane} \textsc{Ess} \textsc{G-Pu} \textsc{Tim} hate banana nevertheless banana eat g-pu

Regarding verbal focus, contrastive expressions were highly preferred and the second part of the construction was clearly marked by specific nonmanual features glossed as \textit{even}. 

\begin{itemize}
  \item \textbf{c.}  
  \begin{tabular}{lll}
    \hline
    & \textsc{ht-f} & \textsc{ht-f,Hn} \\
    \hline
    \textsc{Ix} \textsc{3} & \textsc{Tim Auch Banane Ess Ix} \textsc{3} \\
    \textsc{I}x \textsc{3} & tim also banana eat \textsc{ix} \textsc{3} \\
  \end{tabular}

  \item \textbf{d.}  
  \begin{tabular}{llllll}
    \hline
    & \textsc{ht-f,r,w} & \textsc{ht-b,w} \\
    \hline
    \textsc{Kind Alle Banane Ess g-Pu Tim} & \textsc{Ix} \textsc{DEM} \\
    \textsc{Child all banana eat g-Pu Tim} & \textsc{Ix} \textsc{DEM} \\
    \textsc{Bl-b} & \\
    \textsc{Banane Ess : Pf} & \\
    \textsc{Banana eat : Pf} & \\
  \end{tabular}
\end{itemize}
‘Tim has even bought the book.’ (V)

(191)

\[ \text{hn,r} \]

\[ \text{even} \]

a. TIM IX3 BUCH AUCH PF LES g-pu
  tim ix3 book also pf read g-pu

\[ \text{r,ht-f} \]

\[ \text{hs} \]

\[ \text{even} \]

b. TIM BUCH KAUF NUR1 : AUCH LES
  tim book buy only : neg also read

\[ \text{ht-f} \]

\[ \text{hs} \]

\[ \text{even} \]

c. TIM BUCH KAUF NUR1 : LES
  tim book buy only : neg read

\[ \text{ht-f,r,w} \]

\[ \text{even} \]

d. TIM BUCH KAUF : IX3 BUCH-LES : PF

\[ \text{ht-f,r,w} \]

\[ \text{even} \]

e. TIM BUCH KAUF AUCH LES : PF
  tim book buy also read : pf

The only instance of SOGAR (even) in the data set was immediately judged to be an LBG sign by the signer him/herself. Thus, I show the one sentence including the LBG sign in (192).

(192) TIM BUCH SOGAR LES : NUR2 KAUF NEIN
  tim book even read : only buy no

This unusual example was excluded from the analysis. Nevertheless, it is most interesting that an LBG sign for even exists, but was completely unknown by most informants. For those DGS signers who were aware of LBG, it was still extremely counter-intuitive to use this sign. Thus, a manual focus particle for even is definitely not part of DGS.

In the following, the results for the target sentences including even in relation to VP- and object focus are listed. When investigating the results for VP-focus, it was found that the sentences very much resembled the sentences from the task eliciting the focus particle also. The remarkable difference lies in the use of nonmanuals (see examples (193a-d)).
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(193) ‘Tim has even watered the flowers.’ (VP)

a. TIM AUCH PF BLUME GIESS g-pu
   tim also pf flower water g-pu
   r,ht-f,hn

b. TIM RASEN-MÄH AUCH BLUME GIESS
   tim lawn-mow also flower water
   ht-f,f,sq hn hn
   even

c. PF TIM BLUME GIESS UND RASEN MÄH
   pf tim flower water and lawn mow g-face
   r hs ht-f,hn

(194) ‘Tim has even watered the flowers.’ (O)

a. TIM AUCH PF DAZU BLUME GIESS
   tim also pf also flower water
   r,ht-f,hn
   even
The data yield two major strategies for the realization of the target sentences for `even`. First of all, the additive focus particle `AUCH` (also) was used in combination with specific nonmanuals such as raised (in rare cases furrowed) eyebrows, wide eyes, a head-tilted forward and/or head nods. Thus, the facial expressions convey the evaluative meaning including unexpectedness, incredulity, and astonishment.

Furthermore, the DGS sign `PF` was used quite frequently in the translations and was similarly accompanied by the above described nonmanuals. In addition, this sign was typically combined with a backward head-tilt. In some cases, the specific nonmanuals were sufficient to express the meaning of `even`. In those cases, the nonmanuals spread across the respective parts of the sentence.

Similarly to scalar `only`, which can be expressed by a combination of `ONLY` and facial expressions or by nonmanuals alone, it is possible to distinguish an `even`-sentence from a regular sentence by merely looking at nonmanual features. However, in DGS, the sentences and contexts in which `even`
was triggered were often translated including a manual sign, either AUCH (also), DAZU (also) or PF, of which the latter seems to lexically include the appropriate meaning nuances such as surprise, astonished disbelief, and unexpectedness. In these cases, PF inherently includes the appropriate facial expressions for *even*.

Table 31 summarizes the results for the responses of the signers and provides an outline of the means that were used in the task. The coded plus ‘+’ in the chart means that the signs were used in combination with particular nonmanuals expressing the scalar *even*.

**Table 31. Results for translation task: *even***

<table>
<thead>
<tr>
<th>Signer</th>
<th>S</th>
<th>V</th>
<th>VP</th>
<th>O</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>PF+</td>
<td>AUCH+, PF+, NMFS</td>
<td>AUCH+</td>
<td>AUCH+</td>
</tr>
<tr>
<td>B</td>
<td>PF+</td>
<td>PF+</td>
<td>AUCH+</td>
<td>AUCH+</td>
</tr>
<tr>
<td>C</td>
<td>PF+, AUCH+</td>
<td>PF+, NMFS</td>
<td>AUCH+, NMFS</td>
<td>AUCH+</td>
</tr>
<tr>
<td>D</td>
<td>[PF AUCH]+</td>
<td>[AUCH PF]+</td>
<td>PF+, [AUCH PF]+</td>
<td>[AUCH DAZU]</td>
</tr>
<tr>
<td>E</td>
<td>JETZT+, NMFS</td>
<td>NMFS</td>
<td>NMFS</td>
<td>AUCH+, NMFS</td>
</tr>
<tr>
<td>F</td>
<td>PF+, AUCH+</td>
<td>excluded</td>
<td>PF+, UND+</td>
<td>AUCH+, PF+, [AUCH PF]+, [PF AUCH]+</td>
</tr>
<tr>
<td>G</td>
<td>TROTZDEM, PF+</td>
<td>SOGAR+ (LBG)</td>
<td>[AUCH DAZU]+</td>
<td>[AUCH DAZU]+</td>
</tr>
<tr>
<td>H</td>
<td>IX&lt;sub&gt;dem&lt;/sub&gt;+, PF</td>
<td>AUCH+</td>
<td>AUCH+, PF</td>
<td>NMFS, g-aha</td>
</tr>
</tbody>
</table>

The PF sign was often used in the subject focus condition and the sign could generally express a similar kind of unexpectedness as *even* evokes. However, the overall strategy to express the meaning of *even* involved a combination of nonmanual features and the sign AUCH (also). Nonmanuals were the most reliable indicator in all target sentences. Of course, combinations such as [AUCH DAZU], [AUCH PF], [PF AUCH] were possible and frequently used. In five instances, the nonmanual features were sufficient to express the required meaning triggered by *even* in the sentences and contexts. This emphasized the importance of the nonmanual expressions with respect to the realization methods of DGS for this task.
8.5.1.5. Picture story task DGS

In this section, I present the target sentences for the picture stories and sum up the various strategies adopted by the informants. As mentioned above, I provide a list of the responses to the last picture in the narratives. In (195), the results for the first picture story are displayed.

(195) a. FRAU g-abwink IX3 POST MANN IX3 PAKET BRING woman g-wave-aside ix3 post man ix3 package bring g-schulterzucken g-shrug
b. CA:schau : g-abwink IX3 POST IX3 KLINGEL CA:look : g-wave-aside ix3 post ix3 ring
c. g-abwink IX3 BRIEFTERÄGER TRAG KOMM g-g-abwink g-wave-aside ix3 postman carry come g-wave-aside
d. TOCHTER BESCHEID NEIN POST POST daughter tell no post post
e. STIMMT NICHT : BFF POSS2 MUTTER POSS2 IX3 POST DA true not : neg poss2 mother poss2 ix3 post there
f. FENSTER FRAU SCHAU IX3 POST MANN PERSON window woman look ix3 post man person
g. SCHAU : NEIN IX3 KLINGEL WER g-pu : IX3 POST EINWERF look : no ix3 ring who g-pu : ix3 post throw-in

It can be seen that no signer used a focus particle in the target sentence. The gesture g-abwink is very often used because the woman wants to calm her husband down. The man expects someone who is angry at him and the woman finds out that it is not the expected person (see (195a-c)). Thus, the woman’s reply is a reassurance by letting her husband know that the postman is in front of the door. The contrastive negation and the new information are enough to show that the situation is in contrast to the husbands expectations. A focus particle nur (only) is not a required lexical item in this context. In (195d-f), the signers used a clear and tense articulation and also marked the relevant information by nonmanuals such as eye closure (195d), head nods (195e), or a backward body lean and head tilt (195f). Another focusing strategy is a wh-cleft construction as seen in (195g). In general, however, cleft constructions are rarely used in DGS data. The results of the second picture story are listed in (196).
Except for one instance of the regular focus particle NUR\textsubscript{2}, the disappointed reaction of the woman expecting her husband to arrive with flowers was always expressed nonmanually. In all of the above examples in (196), the disappointed facial expression spreads across the entire target sentence. In certain cases, additional lexical means were used. Two of the signers explicitly used a sign for \textit{disappointed} (see (196a-b)) and two answers included a specific sign glossed as \textit{REINFALL} (flop) (see (196f-g)). Nonmanuals, however, are completely sufficient to express the respective restrictive scalar interpretation of the answer (see (196c-e)). Again, no focus particles were used in this context.

The third picture story explicitly elicited the restrictive quantitative \textit{only}. The examples in (197) show the difference between these results, and those of the first and the second picture story.
Six focus particles appeared in five of the replies, three NUR1 and three NUR2. Three times, the signers chose to sign a variant of ALLEIN (alone). In two instances, ALLEIN (alone) was the only indicator of the quantitative reading. In (197h) the lexical items NUR1, ALLEIN, and NUR2 were combined in the response.

Quite obviously, the purely restrictive context triggered focus particles or explicit expressions to realize the respective meaning. The results for the last picture story are shown in (198). The girl does not want to go out with the boy whose father is a postman.

(198)  
\begin{itemize}
  \item[a.] MAG NICHT POST WARUM LANGWEILIG  
  like not post why boring 
  \item[b.] ACH POST XXX POST SCHLECHT MAG NICHT LANGWEILIG  
  ah post xxx post bad like not boring 
  \item[c.] POSS2 VATER VERDIEN WENIG  
  poss2 father earn little 
  \item[d.] IX1 MAG NICHT PAM IX1 IX2 POST ARBEIT ÄTZEND  
  ix1 like not pam ix1 ix2 post work horrible 
  \item[e.] POST BÄH  
  post bad 
  \item[f.] POST g-pu g-abwink  
  post g-pu g-wave-aside 
  \item[g.] POSS2 VATER POST : IX1 MAG\_neg \_IX2  
  poss2 father post : ix1 like-neg ix2 
  \item[h.] IX3 POSS3 VATER POST SCHLECHT IX3 g-abwink  
  ix3 poss3 father post bad ix3 g-wave-aside
\end{itemize}
In a completely negative context that positions the focus value low on a scale of the alternative set, nonmanual features and other negative circumlocutions were preferred over the use of a focus particle in DGS. The dismissive connotations did not trigger the use of *only* in the last picture story, even though the discussions in the interview brought forward that it is possible to use both variants of *only* in such negative contexts. As can be seen in the data of the control group, the use of *nur* (only) in the last focus particle story seemed more natural for spoken German than for DGS.

In sum, the purely restrictive context clearly triggered the expected focus particle. Being used in a scalar interpretation with an added level of scalarity, however, the lexical item is not necessarily used. In these cases, nonmanual features and/or specific collocations were sufficient to express the relevant meaning nuances. As expected, the intensity of nonmanuals could be changed to show gradual differences according to the speaker’s attitude.

8.5.2. NGT data

The data elicitation in the Netherlands was conducted in 2008 in Amsterdam. As mentioned above, three signers were video recorded and the data were annotated systematically in the same way as the DGS and ISL data. In these sections, I present examples that were found in my data set and discuss the results. The sections are structured correspondingly to the DGS results above and follow the same transcription conventions.

8.5.2.1. Picture elicitation task NGT

Like the German informants, the NGT signers often answered the questions regarding the pictures by means of contrast. They described the pictures and opposed both persons, groups or items. Above all, the signers preferred to reply with an elliptic yes/no answer. If asked to perform a full sentence, however, contrastive constructions were performed very intuitively as a reaction to the question (see answers 1 and 2 in (199)). The following examples illustrate the replies a picture of the task where a woman drinks wine and a man drinks coke (cf. figure 24 in section 8.4.3.1). The respective question is ‘Are they both drinking wine?’.
Results: Only, also, even in DGS, NGT, and ISL

(199) a. **NEE**
   ‘No.’

b. **NEE VROUW PERSOON DRINK CL\textsubscript{glas} DRINK, [...] MAN JA FLES DRINK-CL\textsubscript{dun} RIEJTE**
   ‘No, the woman drinks from a glas, [...] , the man, yes, he drinks from a bottle with a straw.’

c. **NEE EEN IX\textsubscript{3} GLAS ANDER FLES**
   ‘No, one on the left has a glas, the other (person) has a bottle.’

d. **OH VERSCHILLENDE g-pu IX\textsubscript{1} C.O.L.A. AUTOMAAT/COLA CL\textsubscript{fles} DRINK : DAARNAAST IX\textsubscript{3} VROUW CL\textsubscript{vrouw-gedaante} IX\textsubscript{3} VROUW\textsubscript{2} IX\textsubscript{3} GLAS ROOD WIJN ROOD WIJN DRINK-CL\textsubscript{rond-3-vinger} DRINK-CL\textsubscript{rond} g-pu**
   ‘Oh they are different. One drinks coke from the machine and on the other side, the woman, she drinks red wine from a glas.’

Another example for a contrastive reply is given in (200). Note that body leans mark the contrast nonmanually.

(200) **bl-l**

<table>
<thead>
<tr>
<th>bl-l</th>
<th>bl-r</th>
</tr>
</thead>
<tbody>
<tr>
<td>**NEE : **</td>
<td><strong>VROUW APPEL MAN BANAAN</strong></td>
</tr>
<tr>
<td><strong>no :</strong></td>
<td>woman apple man banana</td>
</tr>
</tbody>
</table>
   ‘No the woman has an apple and the man has a banana.’

Nevertheless, some focus particles occurred in this task and the lexical items found for only were **ALLEEN, EEN,**\textsuperscript{99} and **MAAR.** See (201) for an example including the focus particle **ALLEEN:**

(201) **ALLEEN IX\textsubscript{3} MAN DRINK-CL\textsubscript{dun} IX\textsubscript{3} MAN DRINK IX\textsubscript{3}**
   ‘Only the man drinks with a straw, only the man drinks so.’

For the NGT informants, I did not elicit **also** by pictures, but presented the written word on the screen. The instructions were to translate the item and the translation was given neutrally without context. Two versions of **also**, namely **OOK\textsubscript{1}** and **OOK\textsubscript{2}**, were possible options and the signers could not argue for usage restrictions on these versions (see figure 32 in section 8.5.2.3.). They seem to be used quite interchangeably.
Focus particles in sign languages

8.5.2.2. Translation task: maar/alleen (only)

The results for the sentences including NGT signs for only will be listed in this section. I provide examples for each sentence and discuss further utterances that were expressed. This task was easily performed and the signers translated the sentences into NGT very confidently. Starting with the first of the four target sentences for only, example (202) gives an impression on how the restrictive focus particle is realized in NGT when the subject bears focus.

(202) ‘Only Tim eats a banana.’ (S)

\[
\begin{array}{cccc}
\text{w,r} & \text{sq} & \text{hn} \\
\text{TIM} & \text{IX}_3 & \text{BANAAN} & \text{EET} & \text{EEN} & \text{IX}_3 \\
\text{tim} & \text{ix}_3 & \text{banana} & \text{eat} & \text{one} & \text{ix}_3 \\
\end{array}
\]

\[
\begin{array}{c}
\text{r} \\
\text{ALLEEN} & \text{IX}_3 & : & \text{TIM} & : & \text{BANAAN} & \text{EET} & \text{g-pu} \\
\text{only} & \text{ix}_3 & : & \text{tim} & : & \text{banana} & \text{eat} & \text{g-pu} \\
\end{array}
\]

\[
\begin{array}{cccc}
\text{r} \\
\text{ALLEEN} & \text{PERSOON} & \text{IX}_3 & \text{TIM} & \text{EET} & \text{BANAAN} \\
\text{only} & \text{person} & \text{ix}_3 & \text{tim} & \text{eat} & \text{banana} \\
\end{array}
\]

All signers used a lexical sign to express only in the first sentence. The sign EEN (one) and the sign ALLEEN (only) are different options in NGT and are illustrated in figure 31. In (202c), the word order was not canonical. Here the object followed the verb. As NGT usually exhibits an SOV word order, this has to be kept in mind for a later analysis. The SVO order was due either to written language influence or to the signer adding forgotten information. The latter might be the case as the signer emphasized the first constituent to express the restrictiveness of Tim as the only person doing something, but prosody provides no clear evidence for this interpretation.

Even though ALLEEN and EEN seem to have a relation to the classifier item for human beings, ALLEEN was also used in other examples that did not refer to humans. Example (203) lists the signers responses to the second sentence with verbal focus.

(203) ‘Tim has only bought the book.’ (V)

\[
\begin{array}{cccc}
\text{hn} \\
\text{TIM} & \text{IX}_3 & \text{BOEK} & \text{ALLEEN} & \text{KOOP} & : & \text{LEES} & \text{NEG} \\
\text{tim} & \text{ix}_3 & \text{book} & \text{only} & \text{buy} & : & \text{read} & \text{neg} \\
\end{array}
\]
Results: Only, also, even in DGS, NGT, and ISL

Figure 31. Two lexical signs for only in NGT: EEN and ALLEEN

<table>
<thead>
<tr>
<th></th>
<th>r</th>
<th>hs</th>
</tr>
</thead>
<tbody>
<tr>
<td>b.</td>
<td>ALLEEN</td>
<td>BOEK IX\textsubscript{dem}</td>
</tr>
<tr>
<td></td>
<td>only book</td>
<td>ix\textsubscript{dem}</td>
</tr>
<tr>
<td>c.</td>
<td>TIM IX\textsubscript{3}</td>
<td>ALLEEN BOEK</td>
</tr>
<tr>
<td></td>
<td>only book</td>
<td>ix\textsubscript{dem}</td>
</tr>
</tbody>
</table>

Usually, ALLEEN preceded the focus constituent in the NGT sentences (see (203a)). In (203b), the focus particle occurred sentence-initially and adjacent to the topicalized object book. The constituent is accompanied by raised eyebrows, indicating the topic. The example is at least ambiguous to the sentences including object focus in (204), but is more or less clarified by the contrastive context that is given by the signer. In a later discussion with the informants, this sentence was interpreted as object focus, even though the contrastive addition refers to a verbal focus interpretation. The construction as seen in (203b) would therefore lead to a contradiction. As the sentence by itself was clearly judged an example of object focus relation, it was excluded from the analysis.

Regarding the target sentences with the focus on the verb phrase and the object, two different strategies were used. Purely contrastive sentences opposing the focus alternatives can be seen in (204a) and (205a). However, as contrastive constructions were also used when an explicit focus particle was present, it is unclear whether the contrastive expression conveys the same information as the focus particle. According to the informants, tense index-signs and clear oppositions may suffice to implicitly express the restrictive meaning that is induced by the focus particle.
(204) ‘Tim has only watered the flowers.’ (VP)
   a. TIM IX₃ BLOEM ix₃ flower ix₃ water : BOOM SNIJD-CLₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗₗ₇
Results: Only, also, even in DGS, NGT, and ISL  273

Whether (206) has a truly exclusive reading or not is doubtful but it was accepted as a translation for the only-sentence in the discussions.

8.5.2.3. Translation task: ook (also)

With regard to expressions that are equivalent to also in NGT, I found two variants that were used interchangeably. Signers unconsciously performed both variants within one session. Pictures of the two signs OOK₁ and OOK₂ are illustrated in figure 32.

(207) ‘Also Tim eats a banana.’ (S)
   a. OOK₁ PERSOON IX₃ BANAAN EET
   also person ix₃ banana eat
   b. EMMAₐ IX₃a IX₃b LENAₐ IX₃b IX₃c MARCOₐ IX₃p₂ BANAAN
   emma ix₃a ix₃b lena ix₃b ix₃c marco ix₃p₂ banana
   EET IXp₂ : TIMₐ IX₃d OOK₁ IX₃dm
   eat ix₃p₂ : tim ix₃d also ix₃dm
   c. TIM OOK₂ BANAAN EET
   tim also banana eat
   d. TIM IX₃ OOK₂ BANAAN EET IX₃
   tim ix₃ also banana eat ix₃

In (207a), the informant used the additive particle OOK₁ preceding the sign PERSON as a placeholder for TIM. Another signer explicitly clarifies the context as seen in (207b) and omits the explicit VP. Similar to the signs for only in section 8.5.2.2, the important facts gained from these examples are that the signers clearly used lexical signs for ook (also). With regard to the distributional patterns, the signs were often signed following the subject. As seen in (207b), the post-focus-constituent usage seems to be possible with the subject related additive focus particle OOK₁ in NGT. The same applies to the second version of also in NGT, glossed OOK₂ (see (207c and d)).

The focus particle OOK₂ precedes the verb in the sentences eliciting verbal focus as seen in example (208a). Example (208b) was excluded from the analysis as it does not express an additive meaning. An appropriate translation would be ‘Has Tim already read the book? No he only bought it.’ Thus, it was probably confused with the examples elicited before.
(208) ‘Tim also read the book.’ (V)

With respect to VP-focus, the focus particle OOK₁ was used in the examples of my data. Usually, it occurred preceding the object, but it once occurred following the object (see (209b)). In the discussion, the signer reanalyzed the sentence as referring to the verb only. Thus, this example would rather fit into the category of verbal focus above.

(209) ‘Tim also watered the flowers.’ (VP)

Figure 32. Two variants of also in NGT: OOK₁ and OOK₂
Results: Only, also, even in DGS, NGT, and ISL

b. TIM IX₃ BLOEM OOK₁ WATERGEEF
   tim ix₃ flower also water

The object focus was the most consistent example as all signers generally used OOK₁ adjacent to the object. The two additional constructions deviated from the target sentence and were excluded from the analysis. They nevertheless show the various strategies available in NGT. If the translation task allows such varying responses, it becomes obvious that a picture task would trigger differing replies even more and would not result in the required focus particle sentences for an adequate analysis.

(210) ‘Tim also watered the flowers.’ (O)
   a. TIM IX₃ BOOM WATERGEEF OOK₁ BLOEM WATERGEEF
      tim ix₃ tree water also flower water
   b. IX₃ TIM IX₃ BLOEM WATERGEEF PLUS OOK₁ BOOM
      ix₃ tim ix₃ flower water plus also tree
      WATERGEEF
      water
   c. TIM IX₃ BLOEM PLUS BOOM OOK₁ WATERGEEF
      tim ix₃ flower plus tree also water
   d. TIM IX₃ BOOM BLOEM IX₃ dual WATERGEEF(2h)
      tim ix₃ tree flower ix₃ dual water(2h)

The rather unusual sign PLUS was used in addition to the sign OOK₁, even though it would not have been necessary. This is a method to make the additive meaning more explicit, but it is clearly attributed to the manually coded speech system Nederlands met Gebaren (NmG). In (210c), we find PLUS referring to tree and OOK₁ referring to the verb WATERGEV, thus combining object and verbal focus. The rather tricky and clever solution in (210d) using a dual indexical avoids the use of a focus particle altogether. Even though it was excluded from the analysis, it is a nice example of the various options available.

8.5.2.4. Translation task: zelfs (even)

The examples below clearly indicate that there is no sign for the focus particle even in NGT. In Dutch, zelfs is used as a focus particle in this context, but in NGT, ZELF may only mean self. As seen for DGS, nonmanuals in combi-
nation with also, and further signs such as PF were used to translate the target sentences in this part of the data elicitation. Thus, it is particularly interesting to see how NGT deals with these issues.

(211) ‘Even Tim eats a banana.’ (S)

a. KIND IX<sub>pl</sub> BANAAN EET IX<sub>pl</sub> :
   child ix<sub>pl</sub> banana eat ix<sub>pl</sub> :
   hn,r,w even
   IX<sub>3</sub> TIM IX<sub>3</sub> BANAAN MOOG IX<sub>3</sub> OOK<sub>1</sub> BANAAN EET
   ix<sub>3</sub> tim ix<sub>3</sub> banana like-neg ix<sub>3</sub> also banana eat

b. VEEL KIND EET BANAAN IX<sub>3</sub> :
   many child eat banana ix<sub>3</sub> :
   hn,r,w hn
   even
   OOK<sub>2</sub> TIM EET PLOTS IX<sub>3</sub> LEKKER BANAAN IX<sub>3</sub>
   also tim eat suddenly ix<sub>3</sub> tasty banana ix<sub>3</sub>

Similar to the DGS examples, the additive particles OOK<sub>1</sub> in (211a) and OOK<sub>2</sub> in (211b), were used in combination with nonmanual features to express the target sentences. The focus marking of the constituent was indicated on a separate level in the transcriptions. The information structural nonmanuals and the scalar nonmanuals combined with the signed sentence in a compositional, multidimensional manner.

The specific even-features were glossed as even above the line which indicates the nonmanuals and their scope. In (211a), even stands for wide eyes and raised eyebrows as it expresses unexpectedness combined with the continuation marker. In (211b), the same features that occurred simultaneously to OOK<sub>2</sub>, were overridden by furrowed eyebrows and slight head shakes in the subsequent sentence, as these features indicate unexpectedness combined with lack of understanding. Both expressions clearly convey unexpectedness, but add a speaker attitude to it. Furthermore, the scope domain of the relevant nonmanuals is the clause.

Concerning verbal focus, the translation of the even-sentence in (212a) shows that OOK<sub>1</sub> may be used as in the additive examples above. The only difference from the regular additive particle are the nonmanual features.
‘Tim even read the book.’ (V)

a. TIM IX₃ BOEK KOOP : OOK₁ LEES IX₄
   tim ix₃ book buy : also read ix₄

b. TIM LEES BOEK PLOTS IX₃
   tim read book suddenly ix₃

c. TIM IX₃ PLOTS BOEK LEES
   tim ix₃ suddenly book read

Nonmanual features in combination with additive particles such as OOK or other lexical items such as PLOTS (suddenly) express the meaning that is conveyed by even. This can be seen in (212a-c) above. The facial expressions spread across the respective clausal parts of the utterance. In the regular case in (212a), the features scope over the contrastive verbal part of the utterance, in (212b and c), the nonmanuals have sentential scope. The spreading across the relevant focus domain also applies to the sentences in (213) as we find nonmanuals simultaneously to the VP. An optional PLUS is added in (213b).

‘Tim has watered even the flowers.’ (VP)

a. TIM IX₃ₐ : GRAS MAAI BLOEM IX₃₈ WATERGEEF
   tim ix₃ₐ : gras mow flower ix₃₈ water

b. TIM IX₃ₐ OOK₁ BLOEM WATERGEEF PLUS GRAS MAAI
   tim ix₃ₐ also flower water plus gras mow

Examples of the replies translating the last of the four target sentences are provided in (214). The first sentence in (214a) can be correctly interpreted as object focus because the pronominal index sign following the additive focus particle refers to the flowers. Prosodically, it is separated from BLOEM WATERGEEF, as the verb is performed with a final hold. The head nod indicates that the focus particle is associated with the index sign, a pronominal focus associate. Dealing with two intonational phrases, I assume a bi-clausal structure. Thus, the focus particle precedes its focus and receives a scalar interpretation through the use of nonmanual features such as raised eyebrows and wide eyes.
Example (214b) does not show the specific *even*-nonmanuals, but is accompanied by facial expressions associated with a sentential adverb expressing doubt (*komischerweise* (strangely)). This adds a specific speaker’s attitude to the scalar interpretation, which features override the *even*-nonmanuals. The sentential scope for this object focus structure supports this analysis.

In sum, *even* in NGT is realized by a combination of the additive focus particle *OOK* and specific facial nonmanuals or by facial features alone, such as wide eyes and raised eyebrows that are interpreted as indicating unexpect-edness or unlikeliness. The focus constituent is usually marked by a head nod and tense signing. Depending on the attitude of the signer towards the utterance, the attitudinal facial expressions may gradually change and sometimes override the typical facial expressions for *even* depending on the context interpretation. The distribution of the focus particle signs *OOK* and *OOK* follows the general syntactic patterns as described in section 8.5.2.3. Most importantly, the facial features for *even* may either have sentential or they scope over the additive focus particle and the rest of the sentence including the focus associate.

8.5.2.5. *Picture story task NGT*

The target sentences of the NGT signers for the picture story task are listed below. Beginning with the signs for *post* and *postman* in NGT, I illustrate them in three pictures to clarify the transcription below.

The results for the first and the second picture story did not include any focus particles. The information focus utterance in (215) to calm down the husband was realized by a regular sentence. In these cases, the signers used gestures such as *g-wave-aside* meaning ‘don’t worry’ and the entire sentence was accompanied by nonmanuals such as head shakes and pursed lips (e.g. (215b)).
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Figure 33. The signs for post and postman in NGT (©KEGG)

(215)  

a. g-wegwerp IX3 POST2 BRIEF IX3 BRIEF  
g-wave-aside ix3 post letter ix3 letter  
b. VROUW KIJK RAAM VROUW g-wegwerp POST1/BODE  
woman look window woman g-wave-aside postman  
POST2 KOM g-wegwerp  
post come g-wave-aside  
c. IX3 VROUW3 KIJK RAAM KIJK ZELF POST1/BODE  
ix3 woman look window look self postman  
PERSOON KOM g-pu  
person come g-pu  

The signers performing the second picture story as in (216) similarly expressed the disappointed attitude of the quoted person in the target sentence by adding a disappointed look, an appropriate body posture, and mouth gestures. The restrictive reference to the postman seems to be clear by the context and no signer added a focus particle or any other explicit means to express this meaning component. The nonmanuals had sentential scope.

(216)  

a. POST2 POST1/BODE IX3  
post postman ix3  
b. POST1/BODE POST2 g-pu  
postman post g-pu  
c. KIJK g-wegwerp POST3 POST1/BODE PERSOON g-pu  
look g-wave-aside post postman person g-pu  
g-wegwerp  
g-wave-aside
The third picture story, by contrast, was a clear case of triggering a quantitatively restrictive utterance and in all instances the signers used the particle ALLEEN. The sign occurs once as a single item in the answer and in the other two cases, the sign precedes the subject of the target sentence. Again, it is evident that the signers prefer short replies.

(217) a. CA:look (hs) ALLEEN
   look neg only
b. VROUW RAAM KIJK IX3 (hs) ALLEEN POST1/BODE POST2
   woman window look ix3 neg only postman post
c. VROUW KIJK ALLEEN PERSOON POST1/BODE
   woman look only person postman
   AL
   already/finish

The results of the fourth picture story are presented in (218). The dismissive facial expressions spread over the respective clause and no focus particle was used. Regardless whether the signers used a full sentence or just pronouns and gestures, the nonmanuals were always identical and had sentential scope.

(218) a. IX3 VADER IX3 POST2 PERSOON IX3
   ix3 father ix3 post person ix3
b. MEISJE KOM IX3 ARM g-wegwerp
   girl come ix3 poor g-wave-aside
c. IX3 g-sliep-uit GEMEEN g-wegwerp
   ix3 g-tongue-out mean g-wave-aside

In sum, the purely restrictive context triggered the focus particle ALLEEN consistently. If specific attitudes were elicited, no restrictive focus particle was used and the nonmanual features expressing the respective attitude spread across the entire clause. The restrictive meaning component in these cases is not explicitly marked, but may be inferred from the context.

8.5.3. ISL data

The data for ISL were elicited in both 2003 and 2008, whereas the latter sessions followed the scheme that was presented above for DGS and NGT. The
sessions in 2003 were systematically related to the investigated phenomena, but are only referred to as an initial investigation and benchmark for the actual tasks. In the following, I present the results of the sessions in 2008 recorded with three deaf signers from Dublin and complete the data with selected supplementary examples of the earlier sessions. Again, the structure of the text is complementary to the above sections on DGS and NGT. I display pictures of the relevant lexical items and provide transcriptions of the target sentences.

8.5.3.1. Picture elicitation task ISL

The initial picture elicitation task in ISL triggered very different responses. One signer replied by one-sentence answers such as in (219a), which was a response to ‘Are they both eating bananas?’ or by contrastive expressions such as in (219b), which was a response to the question ‘Are they both drinking from a bottle?’.

(219) a. NO MAN SELF EAT BANANA IX₃  
No, it’s the man himself/it is only the man that eats a banana.’

b. NO : MAN HAVE BOTTLE DRINK-CL-thin WOMAN HAVE GLAS HOLD-CL-round  
‘No the man drinks from a bottle and the woman has a glas.’

The contrastive responses were also given by the second signer and the constructions were accompanied by body shifts from left to right to express the contrast. Signer K used the sign JUST to reply to the questions and often combined it with the numeral ONE (220a,b). The sign ONLY was used on one occasion in the picture elicitation task (220c).

(220) a. MAN JUST MAN EAT BANANA g-pu  
‘Just the man eats a banana.’

b. JUST ONE MAN EAT BANANA  
‘Just one man eats a banana.’

c. ONLY MAN EAT BANANA  
‘Only the man eats a banana.’

Thus, the first task brought to light the two lexical focus particle items ONLY and JUST in ISL, but contrastive expressions were preferred.
8.5.3.2. Translation task: only/just

In ISL, there are four signs that were used to express sentences with *only*. Depending on the contexts, the signers preferred specific signs for specific situations and sometimes ruled out others. To find out the exact distribution and which context triggers which variant was not within the purview of this study. Like in English, there is a distinction between *only* and *just* and equivalent signs for both words exist in ISL (cf. the following examples and the pictures in figure 34).

![ONLY](image1.png)

**Figure 34.** The lexical signs **ONLY** and **JUST** in ISL

In addition, ISL uses the sign **ONE** and an aspectual marker glossed as **COMPLETION** that usually marks past tense and completive aspect, and may also be used with particular nonmanual features meaning *only* (cf. the pictures in figure 35). Matthews & ÓBaoill (2000: 162) call it an accomplishment marker indicating that an event has finally taken place or that something has been achieved or accomplished. In a specific example, they gloss the sign as **AT-LAST**. All of these signs illustrated in figures 34 and 35 occur in the answers that were given as appropriate translations (see (221)).

Example (221) shows three options, namely **ONLY**, **ONE**, and **JUST**. Similarly to the NGT sign **EEN**, the sign **ONE** is a specific sign that requires a
Results: Only, also, even in DGS, NGT, and ISL

Figure 35. The lexical signs ONE and COMPLETION in ISL

particular mouth gesture (‘th’) and can be paraphrased by ‘this one only’. As emphasized by the signers themselves, it is not a numeral one as in ‘one person’ or ‘one banana’. The utterances in (221a) and (221b) are clear cases of subject focus. In (221c), the sign JUST in combination with the sentence-final SELF indicate the subject relation. Even though JUST appears preceding the VP, the palm-up gesture as a prosodic constituent marker indicates that JUST refers to JOHN.

(221) ‘Only John eats a banana.’ (S)

\[
\begin{align*}
\text{a.} & \quad \text{bl-b} \\
& \quad \text{ONLY HIM EAT BANANA} \\
\text{b.} & \quad \text{th} \quad \text{AH ONE JOHN : EAT BANANA ONE} \\
& \quad \text{bl-b} \\
\text{c.} & \quad \text{JOHN JUST g-pu EAT BANANA SELF}
\end{align*}
\]

Example (222) shows that the translations of sentences with verbal focus are performed in a similar fashion to all other examples from DGS and NGT.
Being left-adjacent to the verb, the sign \textit{JUST} marks the verb as the focus constituent and the associated domain. Another construction that is available in ISL and was performed by one signer, can be seen in (222b). The \textit{COMPLETION}-sign in ISL was used to mean \textit{only} similarly like \textit{NUR} was used in DGS. This is an interesting parallel, because both in DGS and in ISL, the signs are aspectual markers derived from signs meaning \textit{finish} or \textit{completed}. Focus particles in spoken languages are said to etymologically evolve from numerals or quantifiers, for instance. I will discuss these issues further in section 8.6, when syntactically analyzing focus particles in sign languages.

(222) ‘John only bought the book.’ (V)

\begin{align*}
\text{(a)}: & & \underline{r} & \underline{w} & \underline{hs} \\
& & \text{JOHN} & \text{JUST} & \text{BUY} & \text{BOOK} & \text{NOT} & \text{WRITE} & \text{IX}_{\text{dem}} & \text{g-pu} \\
\text{(b)}: & & \underline{\text{bl-f,r}} & \underline{\text{mm}} \\
& & \text{IX}_3 & \text{BUY} & \text{IX}_{\text{dem}} & \text{BOOK} & \text{COMPLETION}
\end{align*}

For the category of VP focus, the translations were not very clear-cut. The informants sometimes signed sentences equivalent to the object focus target sentence and more directly marked the object as the focus constituent. Thus, the video data indicated no clear difference between the object-sentences and the VP-sentences, as the focus particle preceded the object in both categories. Follow-up discussions dealing with this situation showed that they are indeed signed similarly and that the difference can be made obvious by a contrastive construction such as ‘not cutting the trees’ (see (223a and b) for possible answers). In DGS and NGT, contrastive constructions were used for those purposes as well, but ISL used them most consistently. Nevertheless, the focus particle \textit{JUST} was used in all cases as can be seen in (223).

(223) ‘John only watered the flowers.’ (VP)

\begin{align*}
\text{(a)}: & & \text{JOHN} & \text{JUST} & \text{WATER} & \text{FLOWER} & \text{WATER-CL}_{\text{hsro}} & : & \text{TREE} & \text{CUT} & \text{NOT} \\
\text{(b)}: & & \text{JOHN} & \text{TREE} & \text{CUT} & \text{NO} & : & \text{JUST} & \text{FLOWERS} & \text{WATER} & \text{WATER-CL}_{\text{hsro}} \\
\text{(c)}: & & \text{IX}_3 & \text{JOHN} & \text{JUST} & \text{ONE} & : & \text{FLOWER} & \text{WATER-CL}_{\text{hsro}} & \text{WATER} & : & \text{ZERO} & \text{TREE} & \text{CUT}
\end{align*}

Object focus, on the other hand, was easily performed and comes more naturally with the focus preceding the associated material. The abbreviation ‘hsro’ means ‘hold small round object’ and is a paraphrase of a handle classifier.
Results: Only, also, even in DGS, NGT, and ISL

(224) ‘John watered only the flowers.’ (O)

| a.       | FLOWERIXA JOHNIX3 JUSTIXA WATER-CLhsro IXAFLOWER |
| b.       | IX3a JOHNIX3a (-h) : WATER-CLhsro FLOWER3b      |
| c.       | TREE3c IX3c NOIX3c : IX3b WATER-CLhsro IX3b      |
|          | JOHN JUST ONEFLOWERWATER-CLhsroBUTZEROWATER-CLhsroWATERTREE:ONLYFLOWER |

8.5.3.3. Translation task: also

The signs SAME and ALSO were used in the data session by all signers. AS-WELL occurred with one signer only, but all these variants were performed during the task. The sign ALSO, however, was not used in the elicited contexts. It was signed when discussing different variants and the lexical equivalents of English also, but did not appear in the target sentences, neither in the responses of the picture elicitation task, nor in the translation task. SAME or SAME-TIME were judged to be the most appropriate lexical items in most cases.

(225) ‘Also John eats a banana.’ (S)

| a.       | hn,w                                               |
| b.       | BANANAJOHNIX3 SAMEEATFINISHIX3                   |
| c.       | SAMEJOHN EAT IX3                                 |
|          | IX3JOHNAWAS-WELLEATBANANA AS-WELL                |

Verbal focus was translated with the sign AS-WELL preceding the verb in (226). However, this example can be excluded as the signers could not tell the difference between (226) and VP-focus.

(226) ‘John also bought the book.’ (V)

| a.       | FRIENDBUYBOOKIX3a JOHNIX3a AS-WELLBUYIXdem      |
|          | BOOKREADFINISH                                    |
|          | ‘Many friends bought a book. John also bought that book and then read it.’ |
In case of a focused VP associate, the sign SAME and SAME-TIME appeared in adverbial position. Both variants were often used synonymously in the examples (see (227)). In (227b), the two contrastive events were switched, which does not have an influence on the analysis of additive focus particles.

(227) ‘John also watered the flowers.’ (VP)

a. JOHN IX₃ FEED ANIMAL : SAME-TIME SH WATER-CLₕsro FLOWER
b. JOHN WATER WATER-CLₕsro FLOWER FINISH SAME FEED ANIMALS RECENTLY BEFORE

Object focus rather triggered contrastive expressions with SAME similar to the VP focus above. Further data is needed to distinguish the two focus constructions in more detail.

Like English also, too, and as well, ISL has different variants such as ALSO, SAME, and AS-WELL. The manual signs for these variants are illustrated in figure 36. Again, it is hard to define which variant is used in which context and how they are distributed respectively. The important finding for my study, however, is the fact that there are lexical items for additive focus particles that are usually translated by also, too, and as well in English. ALSO
occurred either before or after the related constituent. SAME is used preceding the VP and seems to be related to actions. AS-WELL was rarely used, but occurred both preceding the associate and sentence-finally. The latter could well be an instance of spoken language influence and it was accompanied by clear mouthings in this one example. As the target sentences did not include the words as well, it was not a written stimuli effect, so the use of AS-WELL remains an open issue that I will not address in the analysis.

8.5.3.4. Translation task: even

Similarly to DGS and NGT, the results for the realizations of even did not show a clear lexical item or patterning. Various constructions were proposed and the signers wished to add context to the sentences to sign them appropriately. Thus, the constructions deviated from the actual target sentence more that with the only- or also-sentences. Interestingly, however, all of them used the same facial expressions when signing the utterances. The facial expressions had clausal scope in all of the examples. The sentences in (228a) and (228b) are examples of this sort for the subject focus condition.

(228) ‘Even John eats a banana.’ (S)

a. JOHN HATE BANANA : COMPLETION EAT IX3
   ‘John hates bananas and now/finally even he eats one.’

b. IX3pl EAT BANANA FINISH IX3pl : E.V.E.N. JOHN IX3 AH
   ‘They ate bananas and even John did.’

Furthermore, backward head positions were additional strategies to emphasize the meaning contribution of even in theses sentences. Consulting the informants with regard to even, they said that ISL has no lexical sign available, but it was used as a fingerspelled version once. Example (228b) illustrates the sentence including a fingerspelled E.V.E.N.. More importantly, similar facial expressions were used along the fingerspelled variant to indicate the particular sentence meaning. In this example, the signer also used a sign glossed as AH, which has specific meanings depending on the nonmanual features that accompany the sign. In this case, it expresses ‘unexpectedness’ and ‘surprise’.

Example (229) shows the original target sentence that was used in the ISL sessions for the scalar focus particle even and verbal focus. The participants
improvised due to the slightly confusing information given in brackets. The informants made their own story out of it and emphasized the fact that it is quite strange to write a book and then also buy it. This is why the following examples slightly deviated from the intended version.

(229) ‘John has even bought the book (after having written it).’ (V)

a.  
\[
\text{JOHN WRITE BOOK CL piles SELL AH BUY SELF}
\]
‘John wrote the book, sold it, then he even bought it himself.’

b.  
\[
\text{FUNNY : JOHN BUY BOOK SAME-TIME WRITE : STRANGE}
\]

c.  
\[
\text{JOHN BUY BOOK SAME-TIME WRITE FUNNY STRANGE}
\]

Nevertheless, the facial expressions were comparable to even-nonmanuals. The meaning of (229a) was that of surprised unexpectedness, whereas in (229b and c), it was combined with a negative comment expressing a lack of understanding through facial expressions. After discussing this issue with the native ISL signers, the following sentences were judged to be the correct and most appropriate versions to translate the target sentence.

(230) ‘John has even bought the book.’ (V)

a.  
\[
\text{hn}
\]
\[
\text{JOHN IX SAME BUY BOOK}
\]

b.  
\[
\text{hn}
\]
\[
\text{JOHN WRITE BOOK SAME-TIME BUY BOOK}
\]

The fact that SAME and SAME-TIME were combined with nonmanuals illustrates the similarities to DGS and NGT. Focus on the verb was marked by a head nod and tense signing. SAME-TIME was used preceding the verb in (230). In the VP condition shown in (231), SAME-TIME precedes the VP.

(231) ‘John even watered the flowers.’ (VP)

\[
\text{hn}
\]
\[
\text{JOHN WATER TREE WATER-CL hsro SAME-TIME WATER FLOWER}
\]
‘John watered the trees and he even watered the flowers.’
There is a sign for even in the sense of ‘flat’ and it is symptomatic to the situation concerning the lack of a sign for even in ISL, that one signer accidentally signed EVEN with respect to the flower examples, describing the flowers to be distributed on the flat and even ground (see (232)). This misunderstanding was immediately clarified upon a second reading when the interviewer asked for a repetition.

(232)  FLOWER BE-LOCATED-CL_{ground}  FLOWER BE-LOCATED-CL_{ground}  
J.(O.H.N.) IX_{3} WATER WATER-CL_{hsro} EVEN WATER-CL_{hsro}  
‘W.r.t. the flowers on the ground, John watered the flat ground.’

The following sentence in (233) exemplifies the translation of the sentences containing a focus particle that relates to object focus. In this case, the signs AGAIN MORE were used.

(233)  ‘John even watered the flowers.’ (O)  
REMEMBER IX_{3} J.(O.H.N.) : TREE WATER-CL_{hsro} WATER VEGETABLE BE-LOCATED-CL_{ground} OH g-pu AGAIN MORE WATER-CL_{hsro} WATER FLOWER BE-LOCATED-CL_{ground} WATER-CL_{hsro} WATER  
‘Remember John? He watered the trees, he watered the vegetables and he even watered the flowers.’

The general picture was quite diverse and the results do not show a consistent use of specific signs or constructions. Only three informants gave a first impression on how focus particles are realized. It is important to note, however, that no sign for even exists in ISL and that various options were available to realize the meaning of that scalar focus particle. In correspondence with the results shown for DGS and NGT, the additive particles SAME and SAME-TIME can be used in combination with facial expressions to convey the meaning of even in ISL. The facial expressions for even are quite consistent with each signer. They follow scope restrictions and seem to be obligatory as a means of translation regarding the target sentences with even.

8.5.3.5. Picture story task ISL

In this section, I provide the target sentences taken from the picture stories that were told in the picture story task. The first picture story elicited a regul-
lar focus particle sentence, where the wife calms down the husband by telling him that it is the postman that rang the door and not the fearfully expected mother in law. Two of the signers used the sign just (234a,b). A third signer (234c) added some sentences and used a cleft construction, which was interpreted restrictively in this context.

(234)  

a. RELAX : JUST POSTMAN  
‘Relax, it is just the postman.’  
b. BUT WIFE : NO JUST POSTMAN  
‘But the wife says: No, it is just the postman.’  
c. RELAX : IX3 WHO IX3 : POSTMAN RELIEF IX2  
‘Relax, you know who is there? The postman, so be relieved.’

The following examples refer to the second picture story. As seen in (235a and b), the sentences were performed with and without the sign just. Despite minor meaning differences, the Ah-sign expressed the disappointment about the fact that there is not the expected person at the door, but only the postman. Disappointed facial expressions (dis) and body postures were used in all of the responses. Example (235b) proofs that nonmanuals were sufficient to express the sentence within the given context as they accompany the signs hurt and postman to express the respective scalar meaning.

(235)  

a. dis  
AH JUST POSTMAN  
‘Oh, it is just the postman.’  
b. dis  
AH POSTMAN  
‘Oh, it is the postman.’  
c. dis dis  
LOOK : HURT : POSTMAN  
‘She looks (out of the window): Oh damn, it is the postman.’  
d. dis  
IX3 POSTMAN ONLY : DISAPPOINTED  
‘It is only the postman. What a disappointment!’

Example (235d) includes the sign only, indicating that the sign is not restricted to a quantifying context. Nevertheless, the sign just plus nonmanuals were judged to be the most appropriate constructions in this second picture story. The third picture story clearly triggered a quantifying response and the
sentences included the focus particles ONLY and JUST. In addition, the sign SELF was used in a restrictive fashion as indicated in section 8.5.3.1 concerning the picture elicitation task.

\[(236)\]
\[\begin{align*}
\text{a. } & \text{NO JUST ONE POSTMAN} \\
& \text{‘No, there is only one (person, the) postman.’} \\
\text{b. } & \text{WIFE LOOK CA:look : WRONG IX}_2 \text{ g-pu POSTMAN SELF} \\
& \text{‘The wife looks (out of the window): You are wrong. It is the postman by himself/It is only the postman.’}
\end{align*}\]

Interestingly, the fourth picture story created a context where two of the signers used the expression ‘rubbish job’ to indicate the negative connotation. The focus particle sentence as shown in (237b), however, was judged to be equally correct.

\[(237)\]
\[\begin{align*}
\text{a. } & \text{IX}_2 \text{ FATHER WORK POSTMAN RIGHT : RUBBISH JOB} \\
& \text{‘Your father works as a postman, right? That’s a rubbish job.’} \\
\text{b. } & \text{WANT}_{\text{neg}} \text{ GO-OUT IX}_2 \text{ BECAUSE IX}_2 \text{ FATHER JUST POSTMAN} \\
& \text{‘I do not want to go out with you, because your father is just a postman.’}
\end{align*}\]

Listing some of the results of the picture story task for ISL, the above examples illustrate the basic findings. Both signs ONLY and JUST were used in the target sentences of the data set, but no systematic patterns could be detected. In the purely restrictive contexts, the meaning was explicitly expressed by the use of focus particles or other explicit means. When the degree of negative connotations increased, nonmanuals were added and were sufficient to express the scalar meaning. Specific constructions used in daily life were triggered in certain contexts and no focus particles were added.

8.5.4. German control group

To test the picture elicitation task in the spoken language modality, I ran the experiment with five native speakers of German. The results quite consistently indicated the use of either the focus particle nur (only), or contrastive constructions. Testing four pictures, two informants used the focus particle in all of the four replies. Example (238) shows the questions and the respective replies of one informant exemplarily.
Focus particles in sign languages

A third informant used nur (only) three out of four times and the other two informants split their responses 2:2 between nur (only) and contrastive negative constructions or negation alone (see (239a,b)).

Thus, 15 out of 20 responses employed the expected focus particle. This is definitely more than in the sign language group. Thus, it might be necessary to keep in mind the specific requirements that sign languages pose on picture elicitation tasks if such tasks are developed or adopted.

8.5.5. Focus particles in other sign languages

Taking other sign languages into account, a brief investigation of the grammars and lexicons of some well described sign languages and an informal personal inquiry in the sign language community reveal that sign languages around the world exhibit both exclusive/restrictive and inclusive/additive particles equivalent to English only and also.\textsuperscript{101}

- German Sign Language (DGS):
  NUR\textsubscript{1} (only), NUR\textsubscript{2} (only), AUCH (also), DAZU (also)

- Sign Language of the Netherlands (NGT):
  ALLEEN (only), EEN (only this), OOK\textsubscript{1} (also), and OOK\textsubscript{2} (also)

- Irish Sign Language (ISL): ONLY, ONE, JUST, ALSO, SAME, SAME-TIME, AS-WELL

- American Sign Language (ASL):
  ONLY, ONLY-ONE, THAT’S-ALL, JUST, SAME
– Israeli Sign Language (ISL\textsuperscript{2}): There are different signs for RAK (only) and a sign GAM (also).

– Catalan Sign Language (LSC): There is a sign NOMÉS (only) and a sign glossed UNIQUE (only/unique) as in ‘JOHN NOMÉS WANTS COFFEE’ or ‘JOHN UNIQUE WANTS COFFEE’. NOMÉS may also appear sentence-finally having narrow scope, but this is ungrammatical with UNIQUE. The regular sign for also might be glossed as TAMBE (also) and the index-finger is moved downward in the sign space, which is similar to the ISL\textsuperscript{2} sign GAM as seen in figure 37, but made with the index-finger.

– Italian Sign Language (LIS): The sign ANCHE (also) is made with a G-handshape and a forward wrist rotation. The palm has a downward orientation and is turned to an upward orientation. The sign SOLO (only/alone) may have a G- or S-handshape and the extended finger points upward moving in a small circle.

– Australian Sign Language (Auslan): ONLY (only), SAME (also) (see Auslan Sign Bank)

– Turkish Sign Language (T˙ID): The signs YALNIZ (alone) or SADECE (only) can be used for only, but YALNIZ is more about being alone and loneliness. Additive aspects are often realized nonmanually in T˙ID and there are no equivalent signs for Turkish da or de in T˙ID. Very often the sign SAME is used in additive contexts in T˙ID.

The hypothesis that additive and restrictive focus particles are a universal property of language seems to hold for sign languages as well, thus emphasizing the universal status of only and also. Even though many of the languages listed above have signs for only and also, not all sign languages have direct equivalents. Nevertheless, the restrictive and additive meaning is usually conveyed by lexical means.

When considering other sign languages, the most interesting question that arises at this point is whether other sign languages may have a sign for even or not, and how they express this scalar focus particle. Among the replies I received from various deaf and hearing sign language researchers, there was no indication of an individual sign for even in any of the sign languages that were mentioned above. The following list shows a brief summary of the various means and options that different sign languages use to express the meaning of scalar additive even.
German Sign Language (DGS):
The main strategy to express *even* is the use of *AUCH* (also) plus nonmanual features. Furthermore, the sign *PF* is used to express *even* in specific contexts. Nonmanuals such as raised eyebrows and wide eyes can sometimes be the only indicator to express scalar *even* in a sentence.

Sign Language of the Netherlands (NGT):
In Dutch, *zelfs* - among other meanings such as *self* - can be used to mean *even*. NGT has a sign *ZELF*, which is restricted to the *self* interpretation. The two options for *also* (*OOK*₁ and *OOK*₂) in combination with particular nonmanuals can express the relevant cases of *even* most appropriately.

Irish Sign Language (ISL):
ISL uses the additive particles *SAME*, *SAME-TIME* plus nonmanual features such as raised brows, wide eyes, and forward head and body movements. The *AH*-sign with particular facial expressions may also express an *even*-meaning in certain cases.

American Sign Language (ASL):
The sign *SAME* with forward body leans and specific facial expressions is used to express *even* in ASL. A fingerspelled *E.V.E.N* with similar nonmanuals occurs occasionally.

Israeli Sign Language (ISL²):
An exaggerated and expressively signed *GAM* (also) plus a forward body lean and specific nonmanual expressions are used to express *even*. If a mouthing accompanies the sign, it is “*afilu*” (even) (see figure 37).

Catalan Sign Language (LSC): Initial findings suggest that in LSC, *even* is signed by the sign for *also*, which is articulated tensely and is accompanied by additional facial expressions.

Italian Sign Language (LIS):
In some uses, the sign *ALSO* expresses the meaning of *even*. In certain other cases, the sign *EQUAL-FOR-OTHERS* is appropriate.

Greek Sign Language (GSL):
The lexical sign *IMPORTANT* seems to be used more and more often, in order to denote focus. The following example (i) can be translated by a sentence including *even* (ii).

(i)  *IMPORTANT SISTER, ME cINVITEₐ NEG!*
(ii) ‘He/she did not invite even me, his/her (very) sister!’

Australian Sign Language (Auslan):
In Auslan, the sign *SAME* is used in combination with nonmanual features to express the scalar particle *even*. 
– Turkish Sign Language (TİD):
A manual item for *even* does not seem to exist in TİD. Nonmanuals were said to play an important role to express the meaning of *even* in sentences of the sort that were investigated in this book. Whether the sign SAME plus nonmanuals might be used for *even*-sentences has to be investigated further.

A common method to express the meaning of *even* in many sign languages is the use of ALSO, SAME or other manual signs for *also* in combination with facial expressions and/or head and body posture. The following pictures in figure 37 show the strategy for ISL\(^2\) and the nonmanuals that accompany the sign GAM if it is used in the sense of *even*.

![Figure 37. The sign GAM in the meaning of also and even in ISL\(^{102}\)](image)

In Greek Sign Language, the sign IMPORTANT is used to refer to focused constituents and may mean *even* in appropriate contexts. It is noteworthy that there seems to be no sign language that exhibits a separate manual sign that would be suitably glossed as EVEN. At least the sign languages mentioned above behave similarly in this respect.
In manually coded language systems like Manually coded English (MCE) or Manually coded German (LBG), for example, artificial signs exist for every word of the spoken language including function words such as articles, conjunctions, complementizers, prepositions, and expletives. Focus particles are no exception and *sogar* (even) does exist in LBG for example. See figure 38 for the respective LBG sign *SOGAR* (even).

![Figure 38. The sign SOGAR (even) in LBG (Manually Coded German)](image)

As a side note, it is quite remarkable that the LBG sign for *SOGAR* (even) did not make its way into DGS grammar, whereas the sign *NUR₂* (only) is seen as a grammaticalized LBG sign that has become a frequently used lexical sign in DGS (see section 8.5.1.2). Written examples and the word *sogar* (even) on the elicitation screen did not trigger LBG translations and most of the signers did not even know the above shown LBG sign. Thus, the intuitions of the signers strongly point away from a manual equivalent for *even*. This also shows that the signers behave according to their true native status and that written examples did not influence them.

The next sections analyze the results and discuss the implications for focus particle research concentrating on the question whether these results indicate and point towards certain theories and hypotheses. The results will be analyzed from a syntactic point of view (see 8.6), including a semantic-pragmatic discussion of relevant aspects. As an interface phenomenon, focus particles have to be analyzed by taking different perspectives into account.

8.5.6. Summary of the results

Universally, every language worldwide does have equivalents for additive and restrictive particles. Not surprisingly, the sign languages under investigation
also exhibit manual signs for *only* and *also*. Table 32 lists the relevant items found in the three sign languages of this study.

**Table 32. Summary: Focus particles in DGS, NGT, and ISL**

<table>
<thead>
<tr>
<th></th>
<th>DGS</th>
<th>NGT</th>
<th>ISL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>only</strong></td>
<td>NUR₁, NUR₁</td>
<td>ALLEEN, EEN</td>
<td>ONLY, JUST, ONE, COMPLETION</td>
</tr>
<tr>
<td><strong>also</strong></td>
<td>AUCH, DAZU</td>
<td>OOK₁, OOK₂</td>
<td>ALSO, SAME, SAME-TIME, AS-WELL</td>
</tr>
<tr>
<td><strong>even</strong></td>
<td>EVEN (LBG)</td>
<td>-</td>
<td>E.V.E.N.</td>
</tr>
</tbody>
</table>

The overall syntactic behavior of focus particles in sign languages indicates that most focus particles precede their focus constituent and occur adjacent to it. However, I found post focus occurrences with additive particles such as SAME, OOK, and AUCH, and sentence-final occurrence of NUR₁ in DGS and COMPLETION in ISL.

Interestingly, however, I did not find a sign for *even* in my data except for one instance of a fingerspelled variant in ISL and one occurrence of the LBG sign for *even* in DGS. These items could be excluded from the analysis as exceptional cases. To express the scalar additive meaning of *even* in sign languages, various strategies were used by the native signers. Apart from specific signs expressing surprise, which in certain context could be understood as *even*, a sign for *also* combined with simultaneously layered nonmanual features such as brow raise, wide eyes, and head tilts to express *even* in all of the three sign languages investigated. Thus, the manual additive particle is accompanied by a separate articulatory layer of nonmanuals to derive the specific scalar meaning of *even*. In all of the examples, the nonmanual features either have clausal scope or are restricted to the particle and the rest of the sentence. The data show that, in rare cases, the nonmanual expressions were sufficient to express the scalar interpretation of an utterance.

### 8.6. Syntactic analysis

This section presents a syntactic analysis discussing options for syntactic structures incorporating different focus particles in sign languages. Focus particles may occupy different positions in a sentence, such as positions adja-
cent to their associated focus constituents. As seen in the results for the case of *only*, some variants may be sentence-final. The proposed syntactic analysis explains the distribution of focus particles and also accounts for interesting distributional and some combinatory phenomena found in the data. A semantic-pragmatic analysis is included within this section when appropriate and complements the analysis.

The sections are systematically structured according to the sign languages under investigation and the respective focus particle at issue. Thus, in section 8.6.1, I start with DGS and include the analysis of the signed equivalents of *only* in section 8.6.1.1, followed by the additive particle *also* in section 8.6.1.2, and the scalar focus particle *even* in section 8.6.1.3. The same applies to NGT in section 8.6.2 and ISL in section 8.6.3. I summarize the data and then analyze the status of the focus particles and the distributional patterns. I propose different syntactic analyses and argue for specific options. Based on spoken language theories, the data will be discussed using the analytic tools presented in chapter 7.

8.6.1. Syntactic analysis of focus particles in DGS

As the study primarily investigates DGS native signers, I place emphasis on the syntactic analysis of *only*, *also*, and the expressions for *even* in DGS. Concentrating on the syntax of DGS, I go into tree structural detail for DGS in this section. The results from this discussion will be applied to NGT and ISL in the following sections. As mentioned above, the analysis of *only* precedes the analysis of *also* and *even*.

8.6.1.1. Analysis of only in DGS

Syntactic analysis of Nur

The following sentences are abstractions from the data set. The sentences were most frequently used and judged to be correct DGS sentences by the informants. The discussions with the signers after the elicitation process confirmed the authenticity of the data and validated the sentences for linguistic analysis. Furthermore, the examples are based on additional grammaticality judgments of two professional native signers that are linguistically trained. I start with the variant glossed as Nur₁ and list its distributional properties. As seen with the results in section 8.5.1.2, it behaves quite differently
to NUR₂, which is discussed below. NUR₁ occurs sentence-finally and takes the prosodically focus marked constituent as its associated domain. Focus marking means that the signs are prosodically marked by means of head nods and tilts, tense signing, and often wide eyes, eyebrow raising, and a forward body position. These markers do not necessarily need to co-occur. Combinations of a few features from the set of focus markers may suffice to mark the focus as long as it contrasts with the rest of the sentence. Furthermore, the head movements turned out to be the most reliable indicator of focus in DGS. Studies have also shown that certain types of focus are not obligatorily marked (see Waleschkowski 2009). Context may then correctly select the focus constituent. See (240) for classical examples for the distribution of NUR₁.

(240) 

a. [TIM]₉ BLUME GIESS NUR₁ (S) 
   tim flower water only
b. TIM [BLUME]₉ GIESS NUR₁ (O) 
   tim flower water only
c. TIM BLUME [GIESS]₉ NUR₁ (V) 
   tim flower water only
d. TIM [BLUME GIESS]₉ NUR₁ (VP) 
   tim flower water only

NUR₁ occurs sentence-finally in DGS. This sign for only was quite frequently used both in the picture task as well as during the translations. It was described in sections 8.5.1 and had already been mentioned in Happ & Vorköper (2006: 409).

In rare cases, it is also possible to use NUR₁ directly following the associated constituent. This construction clearly expresses an emphatic enhancement and is accompanied by an intense focus marking.

(241) 

a. [TIM]₉ NUR₁ BLUME GIESS 
   tim only flower water
b. TIM [BLUME]₉ NUR₁ GIESS 
   tim flower only water

Interestingly, the same sentences may additionally contain a sentence-final double element in very emphatic cases.¹⁰³

(242) 

a. [TIM]₉ NUR₁ BLUME GIESS NUR₁ 
   tim only flower water only
b. \[\text{TIM} \ [\text{BLUME}]_F \ NUR_1 \ GIESS \ NUR_1\]
   \[\text{tim} \ \text{flower} \ \text{only} \ \text{water} \ \text{only}\]

This is an interesting and challenging case for the following analysis. I discuss these issues below. First, however, I present the data of another variant for \textit{only} in DGS. The subsequent examples show the distribution of the focus particle \textit{NUR}_2 in DGS. As seen in the results, this variant is argued to be a grammaticalized LBG sign. It usually occurs adjacent to its associated constituent and precedes it. As seen in (244), it is not possible for \textit{NUR}_2 to remain sentence-initial if the focus accent changes.

(243) a. \[\text{NUR}_2 \ [\text{TIM}]_F \ BLUME \ GIESS \ (S)\]
   \[\text{only} \ \text{tim} \ \text{flower} \ \text{water}\]
   b. \[\text{TIM} \ NUR_2 \ [\text{BLUME}]_F \ GIESS \ (O)\]
      \[\text{tim} \ \text{only} \ \text{flower} \ \text{water}\]
   c. \[\text{TIM} \ BLUME \ NUR_2 \ [\text{GIESS}]_F \ (V)\]
      \[\text{tim} \ \text{flower} \ \text{only} \ \text{water}\]
   d. \[\text{TIM} \ NUR_2 \ [\text{BLUME} \ GIESS]_F \ (VP)\]
      \[\text{tim} \ \text{only} \ \text{flower} \ \text{water}\]

(244) a. \[^*\text{NUR}_2 \ \text{TIM} \ [\text{BLUME}]_F \ GIESS \ (*O)\]
   \[^*\text{only} \ \text{tim} \ \text{flower} \ \text{water}\]
   b. \[^*\text{NUR}_2 \ \text{TIM} \ BLUME \ [\text{GIESS}]_F \ (*V)\]
      \[^*\text{only} \ \text{tim} \ \text{flower} \ \text{water}\]
   c. \[^*\text{NUR}_2 \ \text{TIM} \ [\text{BLUME} \ GIESS]_F \ (*VP)\]
      \[^*\text{only} \ \text{tim} \ \text{flower} \ \text{water}\]

This means that \textit{NUR}_2 wanders down the tree with the focus value in DGS. A VP attached \textit{NUR}_2 preceding the object, but referring to the verb alone, is ungrammatical (see example (245)). Furthermore, \textit{NUR}_2 never occurs subsequent to a focus associate and it cannot be sentence-final.

(245) a. \[^*\text{TIM} \ NUR_2 \ BLUME \ [\text{GIESS}]_F \ (*V)\]
   \[^*\text{tim} \ \text{only} \ \text{flower} \ \text{water}\]

The completely different distributional patterns of these two variants need to be accounted for in a theory of focus particles in DGS. The two signs require different approaches, but need to be analyzed within a consistent syntactic proposal.

It is also possible to find both of these two variants of \textit{only} within one sentence. See example (246) for various options that were detected in the data.
and/or were discussed with native signers of DGS. I call the occurrence of the two variants within one sentence a ‘combinatory use’ as it is not ‘doubling’ as such, because it is not the same element that is repeated like with NUR₁ in example (242).

(246)  a. NUR₂ [TIM]₉ BLUME GIESS NUR₁ : SONST     KEINER only tim flower water only : apart-from-that noone
       b. TIM BLUME NUR₂ [GIESS]₉ NUR₁ : NICHT SCHNEID
       tim flower only water only : not cut
       c. TIM NUR₂ [BLUME GIESS]₉ NUR₁ : NICHT BAUM SCHNEID
       tim only flower water only : not tree cut
       d. TIM NUR₂ [BLUME]₉ GIESS NUR₁ : BAUM BFF
       tim only flower water only : tree neg

To set up a comprehensive picture of the data, the following examples were discussed and judged to be correct, even though only (247a) actually occurred during the video recordings.

(247)  a. NUR₂ [TIM]₉ NUR₁ : BLUME GIESS : BAUM BFF
       only tim only : flower water : tree neg
       b. TIM NUR₂ [BLUME]₉ NUR₁ GIESS
       tim only flower only water

In the combinatory structure, NUR₂ needs to be adjacent to its focus constituent and NUR₁ occurs sentence-finally. How can the data be analyzed syntactically and how can available theories from spoken and signed languages be adopted for the present purposes?

The analysis of NUR₂ and NUR₁ in DGS

First, I discuss different analyses for cases like those listed above, where the focus particle NUR₂ occurs left-adjacent to its constituent. Then I turn to the analysis of sentence-final and post-focus NUR₁ and include the combinatory cases into the syntactic considerations. I discuss the status of the respective focus particles and give theoretical solutions to the distributional patterns. It will be seen that both analyses of NUR₁ and NUR₂ can easily be combined. As mentioned in chapter 4, I discuss the relevant structures within the theoretical framework of generative grammar and the classical X-bar account of the government and binding theory.
Focus particles are usually seen as adverbial-like elements. There is an ongoing debate, however, whether focus particles should be analyzed as adverbs or as heads. Even though they are generally analyzed as a subgroup of adverbs, there is some evidence for particular items in specific languages that indicates their head status. The different assumptions will be tested for the syntactic approaches presented here for NUR\textsubscript{1} and NUR\textsubscript{2}. Thus, I discuss the status of the respective focus particle and then implement the results in a syntactic theory based on the analyses presented in chapter 7 for spoken languages and in section 8.1 of this chapter on sign languages.

For NUR\textsubscript{2}, I adopt the idea that focus particles are XPs. The distributional behavior of NUR\textsubscript{2} is similar to that of adverbs, as it occurs in adverbial positions throughout the sentence. Assuming an XP status for which I will give more evidence later, two analyses are possible. An adverbial phrase may either be left-attached to the maximal projection of focus containing phrases (adjunction to VP and IP) or may project an individual adverbial projection above VP or IP. Thus, the options for a syntactic analysis of focus particles such as NUR\textsubscript{2} are the following.

(i) Adverbial adjunction to VP or IP
(ii) Adverbial phrase (AdvP) implemented in the tree structure

The tree in (248) shows the two positions for adverbial adjunction above VP and IP respectively. VP and IP are maximal projections and thus build the frames for classical adjunction. A focus particle adjoined to VP dominates the entire verbal phrase and may select an object, the verb, or the entire VP as its associated domain.

(248)

Thus, the distribution of NUR\textsubscript{2} can easily be derived by adverbial adjunction. For the adjacent pre-verbal NUR\textsubscript{2}, I assume that objects are scrambled out.
of the VP by an independent scrambling movement. Both the adverbial-only account (Büring & Hartmann 2001) and the mixed account (Bayer 1996) assume object scrambling out of the VP to account for the verb adjacent focus particle data. DGS has not yet been analyzed as a scrambling language, but as further tests for specific constituents that may or may not be scrambled in DGS are missing, I leave this issues open for further studies.105

A second option for adjacent left adjoined focus particles is a theory that accepts adverbial phrases within the syntactic tree (249). Depending on the theoretical framework, one could decide for either one or the other option. For the presented data, the second analysis would actually make no other predictions than simple adjunction. However, even though scrambling across adjunctions is less restricted than across adverbial projections, evidence from nonmanual spreading seems to force a decision in favor of adverbial projections. In the subsequent analysis, I show that the nonmanuals used to express the scalar focus particle even point to the assumption of adverbial phrases in the tree structure.

Consequently, in the following, I adopt the view that NUR₂ is generated above VP or IP as an adverbial projection and I am not going into any further detail regarding the second option of adverbial adjunction. In sum, NUR₂ is analyzed as an XP and adverbially adjoins to VP and IP in an adverbial projection. The theory makes the right predictions for the existing data and is
accepted as a classical approach. For the limitations of an adverbial account, I refer the reader to the discussion in chapter 7.

Before I discuss the syntactic analysis of the more problematic sentence-final distribution of the element glossed as \text{nur}_1, it is necessary to discuss the categorical status of this focus particle in DGS, as it behaves very differently to \text{nur}_2. As noted above, in spoken languages, focus particles are either analyzed as adverbs, which are usually seen as phrasal categories (XPs) or as heads (X°). For \text{nur}_2, I adopted the view of an XP status as it occurs in adverbial positions and neatly fits in an adverbial analysis as described above. For \text{nur}_1, the situation is more complex. DGS is usually analyzed to be a head-final language, so that it might be worth checking whether the sentence-final particle \text{nur}_1 could have head status in DGS.

As briefly mentioned above, some independent evidence for \text{nur}_1 being a head comes from historical developments. The sign glossed as \text{nur}_1 is homonymous to a temporal aspect marker called \text{fertig} (finish) in DGS. This aspect marker has emerged from the sign \text{ende} (end) and is used to indicate completion and past tense. The similar phonological form on the one hand, and the semantic relation between \text{ende}, \text{fertig}, and \text{nur}_1 on the other, are quite noteworthy. Assuming different stages of grammaticalization or transformation towards a focus particle, one might speculate about the relation between \text{fertig} and \text{nur}_1.

Table 33. Grammaticalization stages and status of \text{fertig} and \text{nur}_1

<table>
<thead>
<tr>
<th>Stages</th>
<th>Description</th>
<th>Illustration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>there is only one sign \text{fertig} (finish)</td>
<td>(O)</td>
</tr>
<tr>
<td>2.</td>
<td>the sign \text{fertig} can be used as aspectual marker and focus particle (functional homonymy)</td>
<td>(\Delta \leftarrow O \rightarrow \Delta)</td>
</tr>
<tr>
<td>3.</td>
<td>there are two separate signs, \text{fertig} and \text{nur}_1, that have developed out of the same original sign \text{ende}</td>
<td>(O \leftarrow O \rightarrow O)</td>
</tr>
<tr>
<td>4.</td>
<td>two independent signs \text{fertig} and \text{nur}_1 (aspect marker and focus particle) that do not have anything in common except coincidental homonymy</td>
<td>(O ; O)</td>
</tr>
</tbody>
</table>

Both the picture elicitation task and the translation of the given sentences have shown that \text{nur}_1 was used naturally and frequently to express the meaning of the focus particle \textit{only}. This indicates a clear grammaticalization process towards a focus particle like element. Signers intuitively translated \textit{nur}
by signing NUR₁. This means that there should be a distinction between NUR₁ and the aspect marker FERTIG.

The sign for *finish* conveys the meaning of completion in a restrictive sense. It may simply indicate past tense as a perfect marker or it may be paraphrased as ‘that’s it’ ‘nothing else’ in certain contexts including an additional *nothing*-gesture that can be attached or cliticized to FERTIG. The relation between a quantitative restrictive element like a focus particle and a restrictive completive element like FERTIG in DGS is not surprising. The sign FERTIG and the nonmanuals accompanying the focus constituent may interact in such a way that a restrictive interpretation is derived due to the combination of both elements. This may have resulted in a grammaticalization of FERTIG to NUR₁.

Looking at table 33, I argue for an analysis along the lines of stages (2) or (3). I suggest that - within a diachronic process - DGS is heading towards a stage where the discussed elements, originating from the same base, can be separated as in (3). It seems that they may syntactically take different positions, as the focus particle requires to scope over its associated constituent.

Roberts & Roussou (2003) argue that grammaticalization tends to climb up the tree, so that the grammaticalized NUR₁ may well occur higher in the tree than the aspectual marker in an aspectual phrase within IP. A focus particle that c-commands its associated constituent being a subject would be above IP. The grammaticalized focus particle thus climbed up the tree as predicted. Where exactly the focus particle is situated within a hierarchical structure is discussed below. The diachronic relation to the aspectual marker, however, clearly indicates the status of NUR₁ as a functional element and thus an X° head category.

Keeping in mind that it seems plausible to assume that NUR₁ is a head, I repeat a few issues of the presented syntactic theories discussing the sentence structure of ASL, LSB, and DGS and argue for and against an adaptation for my focus particle analysis. As NUR₁ needs to have scope over its associated constituent, we have to find an analysis that accounts for the problem of semantic and syntactic scope of sentence-final elements. As for the syntactic structure of a sentence-final focus particle, the framework adopted in this book provides a few options following other studies on sign language syntax. To guarantee that the sentence-final particle c-commands its associated focus constituent, it is possible to make different theoretical assumptions. The most plausible ideas are listed below.

A proposal that assumes a right-branching head-final syntactic structure in DGS (cf. Hänel 2004; Bergmann 2008) suits my data best. The focus particle
may take a direct final position and is base generated in a right C°. This proposal is parallel to the analysis of Petronio (1993) and Petronio & Lillo-Martin (1997) for ASL wh- and other sentence-final elements that may be doubled sentence-finally or directly occur at the end of a sentence.

Another proposal analyzes doubled sentence-final elements in a right-branching Kaynian system as emphatic focus elements in an E-FocPhrase. They assume remnant movement of the IP chain to a topic phrase and optional spell out of the copy depending on morphological fusion (see Wilbur 1997, 2009; Nunes & de Quadros 2004; Nunes & de Quadros 2008).

With this selection of approaches, I exclude another option, namely a right CP, which is adopted by Neidle et al. (2000). It generally contradicts basic linguistic assumptions and is similarly unwarranted for sign languages as for spoken languages. SpecCP on the left is necessary for DGS and other sign languages as wh-elements, sentence adverbs, etc. occur sentence-initially and are positioned in SpecCP (see Wilbur & Patschke 1999; Wilbur 2009, among others).

Thus, I concentrate on the listed options and present the different approaches discussing their pro and cons for my purposes. The Kaynian approach pursued by Nunes & de Quadros (2004, 2008) makes particular assumptions regarding different focus types and additional projections that are not necessary for the analysis of my data. As mentioned above, the proposal assuming C° on the right best describes and explains the distribution of focus particles in DGS. The suggestions are based on the theories of Petronio (1993) and Petronio & Lillo-Martin (1997) described in section 8.1. Following the syntactic analysis of these researchers for wh-interrogatives in ASL, Bergmann (2008) adapts the analysis to DGS and assumes a similar CP-structure with a right C° as a copy position for the second wh-element. The focus particle data for DGS seem to support this structural analysis. The debate about wh-questions in ASL and DGS resulted in the widely accepted syntactic CP structure assuming a right-branching C°. In this study, I present the arguments against and in favor of such an analysis for focus particle sentences.

When discussing the status of the signed versions of only in DGS, the phrasal status of NUR₂ as an adverbal phrase was opposed to the head status of NUR₁. NUR₁ is best analyzed as a grammaticalized aspect marker with function of a focus particle expressing only. Therefore, the sentence-final focus particle is analyzed as base generated in C° (see (250)).
In sum, my proposal assumes the following:

- left-branching CP with $C^\circ$ on the right
- head status of focus particle NUR$_1$
- clause-final focus particles in $C^\circ$ c-commanding the focused constituent

Based on the wh-analyses of Petronio (1993), Petronio & Lillo-Martin (1997), Wilbur (1997), and Quadros (1999) (see section 8.1), I apply the structures to the data for focus particles and specifically the only-sentences in DGS. Generally, $C^\circ$ is always occupied by heads ($X^\circ$ categories). In ASL, for example, the sentence-final wh-elements can only be heads as seen in (251) and (252) from Wilbur (1996: 216). Petronio & Lillo-Martin (1997: 33-34) provide further examples of this sort.

(251) WHICH COMPUTER PAUL BUY WHICH
(252) *WHICH COMPUTER PAUL BUY WHICH COMPUTER

Petronio (1993) and Petronio & Lillo-Martin (1997) suggest a copied element in a rightward $C^\circ$. If we assume that the sentence-final focus particle occurs in $C^\circ$, we should not find examples where $C^\circ$ is already occupied. Thus, I tested examples including only and doubled wh-elements or doubled modal verbs. The examples in (253) were judged to be ungrammatical by two signers.

(253) a. *WER THEMA MODALITÄT LERN MUSS WER
    who topic modality study must who
    ‘Who has to study the topic of modality?’
b. \*IX₁ MUSS GEBÄRDENSPRACHE LERN MUSS NUR₁
   I must sign-language study must only
   ‘I only have to study sign languages.’

c. \*WER THEMA MODALITÄT LERN WER NUR₁
   who topic modality study who only
   ‘Who only studies the topic of modality?’

The only way for these sentences to be interpretable is a prosodic break before WER (who) in (253a) or the NUR₁-elements in (253b and c). The latter would be signed as SONST-NICHTS (nothing-else) in the sense of that’s-it and would not function as a focus particle referring to an associate. This results in bi-clausal constructions and indicates that it is not possible to have two X° elements following each other sentence-finally. Thus, it is only possible to have one element in post-verbal sentence-final position in DGS.

If this initial test is correct, it is not necessary to assume a split CP with different projections for a modal verb or wh-element and a focus particle. An alternative option would be to assume a separate focus projection ‘FocP’ in the left periphery (cf. Rizzi 1997), which would only be a modification of my above proposal. Due to linearization processes and distributional arguments, Foc° would be on the right and the focus particle NUR₁ would occur in Foc°. As the data from various studies on other sign languages provide additional motivation to posit a split CP, it is worth investigating the difference to the above mentioned analysis.¹⁰⁶

(254)

However, assuming a focus projection does not make a difference with respect to the analysis of focus particles in DGS, even though it is conceptually different. A focus phrase with Foc° on the right would only split the CP, but
makes the same hierarchical assumptions in a parallel structure. The focus particle would still be a head in a functional $X^o$ category on the right. If we look at the above mentioned relation to an aspectual marker, this functional origin further supports the idea that $\text{NUR}_1$ is a head occupying a functional head category. Thus, the focus particle may govern its constituent no matter what the focus of the sentence may be and no matter whether it is positioned in $C^o$ or $\text{Foc}^o$. Nevertheless, splitting the CP would suggest that more head-final elements are allowed. If the ungrammaticality of the sentences in (253) is correct, only one final head position is allowed.

\begin{equation}
(255)
\end{equation}

If we assume a focus phrase, the question remains how the focus constituent itself would be analyzed. The data show that the focus constituent usually remains in situ. The constituent in DGS bearing the focus is prosodically marked by nonmanual features such as head tilts and facial expressions. These nonmanual features are restricted to the focus constituent and do not spread across a larger domain. The nonmanual features thus block the overt movement of the focus constituent to a higher position and keep the focus element in situ. To account for Spec-head agreement necessary for interpretation, it would be possible to assume LF movement of the associated con-
focus particles in sign languages

As seen above, however, these conceptual specifications of a split CP are not necessary to account for the data discussed for the focus particle \( \text{NUR}_1 \) in DGS. I therefore conclude that a classical CP analysis as described above is sufficient and most effective and explanatory. As both variants for \textit{only} can occur in one and the same sentence, I present the analysis of both variants within a single derivation. The sentence in (256) would have the syntactic structure in (255).

\[(256) \quad \text{NUR}_2 [\text{TIM}]_F \text{ BLUME GIESS NUR}_1 (S) \]
\[\text{only tim flower water only (S)}\]

Object and verbal focus would alternatively have the adverbial phrase above the VP as in (257) and (258). If narrow focus is on the verb, object scrambling is assumed.

\[(257) \quad \text{TIM NUR}_2 [\text{BLUME}]_F \text{ GIESS NUR}_1 (O) \]
\[\text{tim only flower water only (O)}\]

\[(258)\]
If, contrary to the above sketched analysis, conceptional arguments favor a strictly right-branching structure of the left periphery, one could try to derive the linearization by an operation like remnant movement. It is unclear, however, what kind of motivation would trigger the extraction of the focus particle and the remnant movement of the entire clause in order to derive the word order with a sentence-final particle. DGS is an attested head-final language and it would cost many undesirable stipulations to assume a Kaynian approach along the lines with Nunes & de Quadros (2004, 2008). Avoiding remnant movement and specific emphatic focus projections, I prefer the above described syntactic analysis with C° on the right.

Under the condition that the head status argument for NUR₁ is not accepted, one could possibly take another approach, namely right adjunction of an adverbial phrase to IP (see Frey & Pittner 1999 for right adjunction of adverbs). DGS is seen to have such an option because subordinate clauses are right adjoined to IP (see Happ & Vorköper 2006). As I analyzed NUR₁ to be a X° category, I find this option less attractive. In addition, general problems of right adjunction of adverbs discussed in Frey & Pittner (1999), might equally be problematic for DGS. Adverbs in English can also be sentence-final and have been analyzed by right adjunction. Frey & Pittner (1999: 23-24) express some empirical and conceptual objections such as problematic binding and scope phenomena. Apart from general linguistic assumptions and right-branching frameworks, these data contradict a right adjunction hypothesis. Therefore, right adjunction concerning adverbial like elements is not trivial and poses further questions that are still unresolved.

To conclude this discussion, the proposal assuming an adverbial phrase implementation for NUR₂ and an X° status for NUR₁ positioned in C° on the right is the favored analysis that suits the data best. It makes the right predictions about combinatory patterns and distributional properties of both elements and explains problems of scope and the X° status of the grammaticalized focus particle NUR₁. In the following section, I discuss a few exceptional cases that occurred during the elicitation sessions and require some further explanations.

Discussion of exceptional data for NUR₁ and NUR₂

In this section, I pay attention to some highly marked cases from the data set. If they are taken seriously, which in some cases is doubtful due to various...
reasons described below, the sentences pose some further challenges to the above proposed syntactic analysis. Nevertheless, it is possible to offer solutions to these cases and incorporate them in the suggested account.

I start with the following observation of a single example that was found once in the data set. Conjoined with NUR₂ the focus particle NUR₁ occurred before the focus constituent in a VP target sentence. Both particles formed a unit. This was used on one rare occasion. Some other sentences had been excluded from the analysis as the signer used LBG oriented constructions. This sentence, however, is not related to written language influence. Instead of excluding this exceptional utterance, I discuss possible explanations.

If both variants of only may combine in DGS, it might give rise to the idea that they generally form a constituent and may be analyzed as phrasal elements. The two different signs used to express only in DGS were used in the following combination as seen in (259).

\[(259) \quad ?\text{TIM NUR}_2 \text{NUR}_1 [\text{BLUME GIESS}]_F\]

\quad tim only only flower water

The important fact is that only the sequence NUR₂ NUR₁ was used. According to the informants, the construction is very unusual. However, it would be completely ruled out in the reversed order. If we assume that the first combination forms a single constituent, this might indicate a phrasal status of the focus particle NUR₂ in general and the head status of NUR₁ in particular. This sentence is a very marked and exceptional case and requires some specific syntactic assumptions for DGS. However, within the theory discussed above, the constituent could be structured as follows.

\[(260)\]

\[
\begin{array}{c}
C' \\
\text{AdvP} \\
\text{SpecAdvP} \\
NUR₂ \\
\text{Adv'} \\
NUR₁ \\
\text{IP} \\
\text{C₀} \\
\text{Adv₀} \\
\text{...}
\end{array}
\]

In this structure, NUR₁ as the head of the adverbial phrase is specified by NUR₂ (see (260)). As with the discussion about adjunction and adverbial projection, it makes no difference for the data presented here whether an ad-
verbial adjunction or an adverbial projection holds. Thus, (260) would mean that NUR₁ in this case is the head of the adverbial phrase. I leave this an open issue, as these cases are not seen as grammatical sentences of DGS yet.

A second issue to be discussed in this section was already mentioned above. Taking into account the rare data of examples (241) and (242), repeated here for convenience in (261), this particular focus particle distribution seems to be a sort of doubling mechanism that puts a focus particle in C₀ as the right head of a CP projection, but also generates a second item right after the focused constituent.

(261)  

\begin{align*}
\text{a.} & \quad [\text{TIM}]_F \ \text{NUR}_1 \ \text{BLUME GIESS} \ (\text{NUR}_1) \\
\text{b.} & \quad \text{TIM} \ [\text{BLUME}]_F \ \text{NUR}_1 \ \text{GIESS} \ (\text{NUR}_1)
\end{align*}

These constructions in (261a and b) deserve further attention. The focus particle may be directly doubled in rare emphatic cases. It may then appear in the position adjacent to and following its focus constituent, sentence-finally, and doubled. All of the three options, though highly marked, seem possible. The most frequent usage of the sentence-final variant is due to the importance of syntactic scope. In the extremely marked cases where the focus particle is only spelled out adjacent to the focus associate, a covert double in C₀ needs to govern the focus constituent.

The emphatic meaning and nature of these examples may explain the post-associate focus particle occurrence. Without going into detail, different syntactic assumptions may account for the particle following the associate constituent in the marked sentence-internal cases. DP internal movement due to the emphatic nature of the particle was analyzed as focus movement. Wilbur & Patschke (1999: 30) note that the focus constituent is marked by brow raise if it precedes the focus particle but lacks this nonmanual marking in post-position. They argue that the brow raise feature in SpecDP attracts the focus constituent N, so that it moves to a position preceding the focus particle. Furthermore, the authors mention a semantic difference between the two constructions (cf. Wilbur & Patschke 1999: 30).

Bayer & Obenauer (2008: 13) assume similar movement processes of the respective NP within a particle phrase to derive the instances of focus particles following their associates. The focus particle attracts the focus-NP to its left under the condition that the focus-NP has a strong emphatic focus.
Emphasis is used as the respective trigger for such movement processes. In all these cases, not only the focus-XP, but very often the focus particle itself receives emphatic marking and an interpretation of emphasis. A focus particle that receives a pitch accent when apparently following the focus constituent might actually be analyzed as bearing the focus itself. This would thereby evoke a different meaning than preceding and unstressed equivalents (see Féry 2012 and the section 8.6.1.2 below for the analysis of stressed _auch_ (also) in such cases).

Therefore, the particular cases in (261) might not be so exceptional after all and do not provide counter-evidence to the theory and the analysis presented above.

*Further constructions expressing nur*

In addition to the above discussed syntactic analyses, I briefly mention some alternative constructions that were used. First, a general strategy is used to express the restrictive meaning that a focus particle may convey. The use of a demonstrative pronoun that is lexically accompanied by a mouth pattern of pressed lips (‘mm’), but in this case also by small head nods and squinted eyes, seems to be an additional way of expressing the restrictive uniqueness of the constituent. The sign glossed as _ixdem_ follows the focus constituent that also shows these specific nonmanuals. Examples (262) and (263) illustrate sentences from the data set.

(262)  
   a.  \[TIM][F] _ixdem_ BANANE ESS \\
       tim   _ixdem_ banana eat \\
   b.  NUR₂ [TIM][F] _ixdem_ BLUME GIESS \\
       only tim   _ixdem_ flower water

(263)  
   a.  TIM BAUM [BLUME][F] _ixdem_ GIESS \\
       tim   tree flower   _ixdem_ water \\
   b.  TIM (NUR₂) [BLUME GIESS][F] _ixdem_ \\
       tim (only) flower water   _ixdem_

Nonmanuals in combination with demonstrative pronouns are sufficient in certain contexts to translate the target sentences. Strengthened by the nonmanuals, the demonstrative particularly picks out a unique referent and sim-
ilarly to *only* excludes possible alternatives. The fact that DGS may use non-manuals in such a specifically layered way to intensify the indexical shows how forceful nonmanuals can be and that they may completely replace focus particles in specific cases.

Contrastive constructions were also used instead of focus particles. As already discussed with regard to the picture tasks above, I will not further present these cases in this section. I mention one example in (264), where the contrastive construction combines with a head nod on *KAUF* (buy). As this means something like ‘definitely buy’, it may be interpreted as ‘only buy’ in the contrastive utterance.

(264) TIM *ix₃* BUCH [KAUF] *F* : LES

`hn` `hs`

`tim` `ix₃` book buy : read

‘Tim just bought the book, but he did not read it.’

Some of the constructions were very different to focus particle sentences and also show some creative circumscriptions as well as some extra options that DGS has available to express certain utterances. The examples in (265) incorporate a sign glossed as *KONZENTRIER* (concentrate/focus). As the translation suggests, an intensified signing of the expressions means ‘concentrate and focus on something alone’ or ‘only (do) this’ in a restrictive sense.

(265) a. TIM *ix₃* [BLUME GIESS] *F* KONZENTRIER (VP)

`tim` `ix₃` flower water concentrate

b. TIM BUCH NUR₂ KONZENTRIER [KAUF] *F* (V)

`tim` book only concentrate buy

Example (265a) may be interpreted as either VP or object focus. Both versions occurred in the data set, the distinction depends on the context and other contrastive expressions. Even though these constructions were signed during the sessions, it is not verified yet whether they are perfectly grammatical. Further tests are necessary to find out how exactly the sign *KONZENTRIER* distributes across the sentence. In combination with both focus particles the sign occurred once as seen in (266).

(266) NUR₂ BLUME GIESS KONZENTRIER NUR₁

only flower water concentrate only
Excursus: Jespersen’s cycle

Looking at the results above, one might be reminded of the Jespersen’s cycle for grammaticalization. I found two focus particles that can be used in isolation and in combination: Nur\(_1\) and Nur\(_2\). The sentence-final Nur\(_1\) and the focus adjacent Nur\(_2\) are the most frequently used lexical items to express restrictive only in DGS. However, their interrelation and their interaction have not yet been studied. The combinatory patterns resemble the development that has been stated for split negation in many languages. Jespersen (1917) found out that neg-particles cross-linguistically undergo a similar diachronic process of change. The so-called Jespersen’s Cycle describes how an additional negative element may grammaticalize, if a first element that already exists, is cliticized to the verb. Under this condition, a bipartite negative construction may develop. At a later stage, the cliticized particle is lost and the grammaticalized particle is sufficient for negation and thus has become the actual marker of negation. “Eventually it may turn into a verbal clitic that will over time be strengthened again by a further element so that the cycle starts again” (cf. Jäger 2008: 15).

However, we neither deal with negation nor do we find true cliticized elements in the focus particle cases. In addition, all options (both single forms, the combinatory occurrences, and doubled nur\(_1\)) synchronically appear in DGS today. Nevertheless, this also applied to Middle High German (MHG), for example. Jäger (2008: 139) notes that “in MHG, both negation particles can co-occur as a bipartite neg-particle, but they also appear individually as the only negative marker in the respective clause, [...] so that all three stages of Jespersen’s Cycle are attested in MHG.” The bipartite construction occurred more often than single en/ne, but niht was used most frequently: en/ne <bipartite en/ne niht <niht. This stage was already approaching Modern German.

At the moment, it seems that the particle in sentence-final position is stressed and used more frequently. The other focus particle may be omitted. However, as both elements may or may not be spelled out, it is hard to say in which direction the process may lead. If the sentence-final element becomes more important, the adverbial focus particle cases may vanish completely. If the final element loses its meaning and power, instances of combinatory cases may occur more often and the weak focus particle - a head that can cliticize in rare cases - may regain its strength and lead to a restart of the process.
The data from this study, however, may not be sufficient to make any satisfactory predictions concerning this issue. Diachronic research is very much needed for sign languages and will provide further insights into grammaticalization processes and language change in the future.

8.6.1.2. Analysis of also in DGS

Syntactic analysis of AUCH

First of all, the DGS sign auch (also) behaves quite similar to the restrictive focus particle nur$_2$ (only). As can be seen in (267), it occurs adjacent to its focus constituent and precedes it. The second sign for also found in the data glossed as dazu (also) shows nearly identical distribution patterns. It is, however, rarely used sentence-initially if there is no context available. Dazu is closely related to the verb hinzufügen (add).

(267) a. auch/?da zu [tim]$_F$ blume gieß (s)
   auch tim flower water
b. tim blume auch/da zu [gieß]$_F$ (v)
   tim flower anche water
c. tim auch/da zu [blume gieß]$_F$ (vp)
   tom auch flower water
d. tim auch/da zu [blume]$_F$ gieß (o)
   tim auch flower water

As illustrated in (268) and (269), the additive particles are usually restricted to these positions and can neither occur sentence-finally (see (268)) nor remain sentence-initially when the focus wanders down the sentence (see (269)).

(268) a. *[tim]$_F$ blume gieß auch/da zu (*s)
   tim flower water anche
b. *tim blume [gieß]$_F$ auch/da zu (*v)
   tim flower water anche
c. *tim [blume gieß]$_F$ auch/da zu (*vp)
   tim flower water anche
d. *tim [blume]$_F$ gieß auch/da zu (*o)
   tim flower water anche
Focus particles in sign languages

Furthermore, AUCH cannot precede the VP if the verb alone bears focus. It needs to be adjacent to its associated constituent.

There was no additional sign in the data for also that could occur sentence-finally, so the sort of doubling that was discussed with NUR₁ is not possible with AUCH or DAZU. Generally, AUCH does not appear after the focus constituent. In case of subject focus, however, the situation is more complex. I discuss the postfocal AUCH (also) in a separate paragraph for exceptional data below.

The example in (272) is analyzed as a bi-clausal structure, the two sentences are separated by a prosodic break indicated by a colon (‘:’). The VP-ellipsis of the first clause is licensed by the context, the second sentence includes a third person pronoun IX₃ as the subject. Even though the elliptic bi-clausal analysis explains the post-focal linearization pattern in the first part of (272), AUCH may occasionally follow the subject in regular DGS sentences with subject focus. This construction is explained in a separate paragraph.

The focus particle AUCH occurs adjacent to its associated focus constituent (like NUR₂). In most cases, AUCH can be replaced by DAZU without changing
the meaning of the utterance. The semantics of these two variants slightly differ, even though they were used as focus particles interchangeably. For the subject focus, however, DAZU seems to be restricted due to some semantic-pragmatic constraints. As mentioned above, DAZU is more closely related to the verb *add* and requires some sort of antecedent. Agentive subjects cannot be handled without a context showing the alternatives. DAZU is more likely used concerning the VP because it abstractly shows transfer of objects or actions from non-present to present (additive). In repeated form, the sign is usually glossed as DABEI, meaning ‘to join’, ‘to participate’, ‘to be part of’, ‘on top’ or ‘to be included’. The two additive focus particles found in my data set were combined in certain cases. See (273) for a combination of AUCH and DAZU in DGS.

(273) TIM AUCH DAZU BLUME GIESS
     tim also also/add flower water

AUCH and DAZU may combine, with AUCH usually preceding DAZU. This combination can be inserted in either position that AUCH or DAZU take on their own. The reversed order DAZU AUCH is only possible in certain contexts, if DAZU is used as a conjunction in its original sense of ‘adding something’ or ‘in addition’.

(274) GESTERN IX₁ EIS KAUF : DAZU AUCH SAHNE
     yesterday ix₁ ice-cream buy : add also cream
     ‘Yesterday I bought an ice-cream and also cream on top.’

(275)
Thus, in opposition to the above mentioned constituent analysis of both variants of *only*, the results of the data concerning *also* point towards an analysis for *AUCH* and *DAZU* that successively posits the two focus particles in two adverbial phrases of the tree (275a). It it safe to say that the distribution of *AUCH* and *DAZU* supports an adverbial analysis that posits that they can only be analyzed adverbially and not adnominally, and that they do not have the status of heads.

**Discussion of exceptional data for AUCH**

In some cases, signers translated the subject focus sentence by using the focus particle *AUCH* (also) following the subject.

(276) \[ r_{\text{TIM}} \quad r_{\text{hn}} \quad \text{AUCH} \quad \text{BLUME} \quad \text{GIESS} \]

tim also flower water

‘Tim watered the flowers, too.’

In these cases, *auch* receives a head nod and is emphatically marked. Tense signing and raised eyebrows accompany the focus particle. Féry (2012) analyzes the instances of post associate focus particles as free focus. The German particle *auch* (also) bears focus itself and elicits alternatives that concern the entire clause. In this case, the associate is a contrastive topic following Krifka (1998). If elements such as *selbst* (self), *wieder* (again), and *auch* (also) get accented, they do not associate with another constituent and are non-functional elements. See (277) from Féry (2012: 3) where ‘/’ illustrates a rising and ‘\’ illustrates a falling intonation contour.

(277) \[ [\text{MARIA/}]_{\text{TOP}} \quad \text{hat} \quad [\text{AUCH/}]_{\text{FOC}} \quad \text{Kuchen gegessen}. \]

Maria has also cake eaten

‘Maria ate cake, too.’

Thus, the difference in information structure accounts for the different meaning aspects of the preceding unstressed *auch* and the postponed stressed *auch*, for instance. The different information structural roles that the particle takes are called ‘association-with-focus’ if the particle associates with a clear focus constituent, and ‘free focus’ if the particle is focused itself.

Syntactically, topicalization of the subject derives the linearization found in (277) and (276). Whether contrast accounts for this structure and whether
‘contrastive topic’ is a correct notion or not, will not be discussed in this book. However, the topicalization of the subject is clearly due to information structural reasons. The distributional pattern in these examples always correlates with information structural differences and the emphatic marking of the focus particle itself accounts for the different interpretation. Because of the adverbial status of additive particles, a DP (or particle phrase) internal emphatic focus movement of the subject NP as described for certain cases of only in section 8.6.1.1 on page 311 is not an option.

Another construction used in the data concerns a combination of only and also in a fixed construction such as ‘not only A, but also B’. Probably borrowed from written language, this was judged to be a LBG construction, even though it is frequently used by DGS signers.

\[
\begin{array}{c|c}
\text{hs} & \text{hn} \\
\hline
\text{NOT NUR KAUF} & \text{AUCH [BUCH-LES]}_F \\
\text{not only buy} & \text{also book-read} \\
\hline
\text{not only shop} & \text{also walk-around} \\
\end{array}
\]

\[
\begin{array}{c|c}
\text{hs} & \text{hn} \\
\hline
\text{NOT NUR EINKAUF} & \text{AUCH [BUMMEL]}_F \\
\end{array}
\]

\[
(278) \ a. \ \text{hs} \ \text{hn} \\
(279) \ \text{t} \\
(280) \ a. \ \text{t} \\
(281) \ \\
\]

Further constructions expressing auch

Examples of topicalization behave in a parallel fashion to the above discussed variants of only in DGS. Verbs and VPs cannot be topicalized in DGS.

\[
\begin{array}{c|c}
\text{t} & \\
\hline
\text{AUCH [BLUME]}_F & \text{TIM GIESS (S)} \\
\text{also flower} & \text{tim water} \\
\hline
\text{t} \\
\text{AUCH [GIESS]}_F & \text{TIM BLUME (*V)} \\
\text{also water} & \text{tim flower} \\
\hline
\text{t} \\
\text{AUCH [BLUME GIESS]}_F & \text{TIM (*VP)} \\
\text{also flower water} & \text{tim} \\
\end{array}
\]

On two single occasions, signers used the LBG sign UND (and) to express the additive meaning of also. See example (281) for such cases from the data set.
As coordination in DGS is usually expressed without conjunctions like \textit{and}, this is a clear case of LBG influence. Nevertheless, the translation is seen as a semantically adequate utterance for the signers.

(281) a. \textsc{TIM BUCH KAUF UND LES} \\
    tim book buy and read \\
    ‘Tim bought the book and read it.’

b. \textsc{TIM BAUM UND BLUME GIESS} \\
    tim tree and flower water \\
    ‘Tim watered the trees and the flowers.’

A different approach of circumscribing a subject-focus target sentence can be found in (282).

(282) \textsc{JUTTA RALF MARKUS ZUSAMMEN MIT TIM BANANE ESS} \\
    jutta ralf markus together with tim banana eat \\
    ‘Jutta, Ralf, and Markus ate a banana together with Tim.’

This again is a rare case that was excluded from the analysis, as it does not include \textit{also} and clearly shows some LBG influence. However, this was not due to the written stimuli, as \textit{zusammen} (together) or \textit{mit} (with) did not appear in the target sentences. In one elaborate case, the signer used a contrastive construction and nonmanual features to express the additive meaning.

(283) \textsc{r hs hn} \\
    \textsc{TIM BUCH [KAUF]$_F$ NUR$_1$ [LES]$_F$} \\
    tim book buy only neg read \\
    ‘Tim not only bought the book, he (also) read it.’

Within this specific construction, which is a negated rhetorical question, a head nod was used to express the additive meaning of the particle \textit{also}. This is an exceptional case because in DGS, head shake is usually not used without a manual base within a sentence (see Pfau 2008 and references therein for information on negation in DGS). The head shake in (283) is seen as an answer to the rhetorical question and the head nod on \textit{read} cannot be seen as an instantiation of \textit{also}. Thus, the sentence was excluded from the analysis.
8.6.1.3. Analysis of even in DGS

Syntactic analysis of sogar

Interestingly, the results show that in DGS, a sign for the scalar focus particle sogar (even) does not exist. Various strategies were used to express the scalar additive meaning of even in DGS and other sign languages as well. Apart from specific signs indicating surprise, which in certain contexts can be understood as even, the signs AUCH and DAZU with simultaneously layered nonmanual features such as facial expressions and head tilts were frequently used to express even in DGS. The manual additive particles are thus accompanied by a separate articulatory layer of nonmanuals to derive the specific scalar meaning of even.

First of all, the described nonmanuals are not analyzed as part of the lexical entry, insofar as they spread over constituents, are not restricted to the focus particle alone, and always accompany the focused items, even if no overt additive particle is present. Depending on the focused constituent and the position of the additive particle, the spreading domains of the nonmanuals vary. Subject focus usually triggers a sentential scope of the nonmanuals. If the VP bears focus as in example (284), the nonmanuals start with the VP attached focus particle and spread along the rest of the sentence.

\[
\text{hn} \quad \text{even} \\
\text{TIM} \quad \text{AUCH} \quad [\text{BLUME} \quad \text{GIESS}]_F \\
tim \quad \text{also} \quad \text{flower} \quad \text{water}
\]

'Tim even watered the flowers.'

In case of object focus, the spreading shows a similar distribution to the above example, but the object is more tensely marked for focus. In some rare cases, the object alone is accompanied by the nonmanual features, but usually the nonmanuals spread onto the verb as in the VP condition. Narrow focus on the verb clearly triggers a narrow scope of the nonmanuals. They show a clear onset on the focus particle and accompany the entire verb (see (285)).

\[
\text{r,ht-f,hn} \quad \text{even} \\
\text{TIM} \quad \text{BLUME} \quad \text{AUCH} \quad [\text{GIESS}]_F \\
tim \quad \text{flower} \quad \text{also} \quad \text{water}
\]

'Tim even watered the flowers.'
As explained above, the verbal adjacency of the focus particle is achieved by object scrambling out of the VP. Thus, nonmanuals spread across the remaining material, the verb. In combination with the focus particle that precedes the focus constituent, the spreading indicates that the focus particle and the scalar nonmanuals are linked. The clear spreading of the nonmanuals and the systematic interaction with the particle provide support for a syntactic analysis in accordance with the above described analysis of the additive focus particle AUCH (also). The particles AUCH and DAZU in the meaning of also and even are subject to the same constraints. Thus, an adverbial position of the additive particle is assumed (see (286)).

(286)

\[
\begin{array}{c}
C' \\
\text{AdvP} \\
\text{SpecAdvP} \\
\text{AUCH} \\
\text{Adv} \quad \text{IP} \\
\text{Adv}^0 \\
\text{C}^0 \\
\end{array}
\]

The separation of the additive and the scalar functions of certain focus particles in sign languages are an interesting finding. It is usually said that even contributes to the meaning of the sentence on two different levels. As mentioned in chapter 7, researchers have attributed the additive meaning and the ranking of the focus constituent to the lexical item sogar (even) (or nur (only) in restrictive scalar contexts), while they attribute the actual scale to the context.

Even though the distinction is slightly different in DGS, the findings seem to support that the additive meaning and the scalar meaning are two separate components of the utterance meaning. Furthermore, the context is highly important to the analysis of scalar focus particles, as the nonmanuals may gradually change depending on the signers’ interpretation of the context. DGS seems to make the distinction between the different levels of meaning explicit in the usage of different articulatory channels for the different levels of meaning.

If the scalar nonmanuals are associated with the focus particle sign, c-command does not work in an adjunction account. Thus, the data point towards an account assuming adverbial phrases implemented in the tree struc-
ture. As briefly indicated above, this is independent evidence against the adjunction analysis. The nonmanuals expressing the scalar level of meaning spread along the c-command domain of the focus particle and accompany the rest of the clause. The spreading may thus be defined by c-command, but more data is needed to clearly decide upon a syntactic or prosodic spreading domain.

As the target sentences were sometimes translated by the use of nonmanuals alone, this indicates that the additive particle is optional. However, the data show that the additive particle was only omitted in cases, where the alternatives of the focus associate were explicitly mentioned (see (287) for an example of this sort, repeated here from the results for convenience).

\[(287)\] 
\[
\text{TIM BUCH KAUF NUR}_{1}: \underline{\text{LES}}
\]
\[
\text{tim book buy only} : \text{neg read}
\]

‘Tim not only bought the book, no, he even read it.’

The additive meaning component was explicitly expressed in a contrastive construction and thus present in the translation. In addition, head nods are said to mark inclusion in certain cases and emphasize the additive scalar interpretation of the sentence (cf. similar examples in section 8.5.1.3 above, in which signers sometimes expressed the additive meaning by head nods and forward head tilts without an explicit additive particle). Syntactically, the feature triggering the nonmanuals for unexpectedness and the scalar interpretation is situated in Adv° as in the tree, accounting for the spreading along the c-command domain.

\[(288)\] 
\[
\begin{array}{c}
\text{C'} \\
\text{AdvP} \\
\text{SpecAdvP} \\
\text{Adv'} \\
\text{Adv°} \\
\text{IP} \\
\text{[+scalar]} \\
\end{array}
\]

To derive the optimal translation of the target sentences portraying the additive and scalar meaning of \textit{even}, however, the default strategy includes the manual sign and the respective nonmanuals as described in the data section.
Further constructions expressing sogar

The contexts sometimes triggered sentences that deviated too much from the target sentence and thus were excluded from the analysis. In the examples in (289), repeated here from the data sections for convenience, the signers simply paraphrase the fact that even implies unexpectedness and previous contradictory events, actions, or thoughts. The translations also illustrate that signers clearly understood the written language sentence.

(289) a. \text{r} \hspace{1em} \text{hs} \\
VIEL KIND BANANE ESS : TIM IX₃ VORHER BFF : \hspace{1em} \text{ht-f,h} \\
many child banana eat : tim ix₃ before neg : \hspace{1em} \text{JETZT ESS} \\
\hspace{1em} \text{now eat} \hspace{1em} \text{`Many children eat a banana. Tim did not eat bananas before, but now he eats one.'} \\

b. \text{TIM HASS BANANE TROTZDEM BANANE ESS g-pu : \hspace{1em} \text{tim hate banana nevertheless banana eat g-pu} \\
`Tim hates bananas, but he nevertheless eats a banana.'}

Interestingly, the nonmanuals are quite similar to the other even-sentences, but cannot be tested for scope as the sentence constructions vary. As a side note, the PF-sign is an interesting sign language-specific expression that occurred in different distributional positions.

In a sentence-final position, it is prosodically separated from the rest of the sentence. Thus, it could be analyzed as a separate prosodic and syntactic unit. Sometimes called an idiom or DGS specific sign, it is an element that may form an individual clausal element.

(290) \text{even} \hspace{1em} \text{hn,r,w} \\
TIM BUCH KAUF : AUCH LES : PF \\
tim book buy : also read : pf \hspace{1em} \text{`Tim has bought the book and even read it. Strange!/Surprise!'}

(291) a. \text{even} \hspace{1em} \text{hn} \\
PF TIM AUCH BANANE ESS \\
pf tim also banana eat \hspace{1em} \text{`Even Tim eats a banana.'}
Nevertheless, the facial expressions accompanying the sign in sentence-initial or VP attached positions as in the examples in (291) may be held during the subsequent phrases and spread over the entire clause. The PF-sign might combine with the focus particle or occupy a separate adverbial position. For the purpose of this book, I leave this interesting side product an open question.

8.6.2. Syntactic analysis of focus particles in NGT

In this section, I analyze the results for NGT. I mainly compare the findings to the DGS data and test whether the proposed analyses may be applied to NGT as well. The sentence structure of NGT is SOV as in DGS and focus particles were used in a similar way. Manual equivalents to only and also were found and the signs ALLEEN, EEN, OOK₁, and OOK₂ were used as restrictive and additive particles in NGT. The Dutch scalar particle zelfs (even) did not manifest in a manual sign and the additive particles in combination with non-manual features play an important role in the expression of this particle. The section is structured in the same fashion as above starting with the syntactic analysis of ALLEEN and EEN, followed by the analyses of both variants of OOK, and the expressions for even.

8.6.2.1. Analysis of only in NGT

Syntactic analysis of ALLEEN

As an SOV language, NGT is assumed to have a similar syntactic tree structure as discussed above for DGS. The basic sentences can be analyzed with the same tools. Focus marking is clearly indicated by raised eyebrows, wide
eyes, tense and sometimes large articulation, and head tilts in various combinations (cf. Crasborn & van der Kooij 2013) and can be compared to the findings in DGS. The focus particles always preceded the focus constituents.

The data indicate that NGT has no sentence-final particles such as NUR₁ in DGS, so the syntactic analysis is restricted to the interpretation of adverbial phrases as maximal projections above VP and IP. Nevertheless, the sign EEN (one) was used sentence-finally and has to be mentioned separately. With the background information of the former sections in mind, the analysis of ALLEEN is presented in (292). In analogy to the DGS particle NUR₂, ALLEEN is analyzed as an adverbial-like element.

Thus, the basic assumptions provided in the above sections can also be applied to the NGT focus particle ALLEEN. Aside from ALLEEN, NGT exhibits a focus particle glossed as EEN. Being different to the numeral, the sign EEN was used by one signer to express the restrictive focus particle sentence in the elicitation task. The mouth pattern accompanying the sign was explained as an obligatory element of the lexical sign meaning ‘only this one’. It was used in the subject condition, where the particle refers to a human entity. The subject Tim is marked for focus by raised eyebrows, wide eyes, and a demonstrative pronoun intensified by a squint. EEN was explicitly judged to refer to TIM and not to BANAAN (banana).

```
TIM IX³ BANAAN EET EEN IX³
tim ix³ banana eat one ix³
‘Tim was the only one, who eats a banana.’
```
Sentence-finally, the sign receives a head nod and is prosodically marked. The data are insufficient to present an analysis, but it might be interesting to test this sign further to see whether it might show linearization patterns favoring a right $C^o$ in NGT. As focus particles often grammaticalize from numerals, it is worth comparing the distributional behavior of numerals and the specific sign found in my data.

8.6.2.2. Analysis of also in NGT

Syntactic analysis of OOK

The two NGT variants used for ook (also), glossed as OOK$_1$ and OOK$_2$, were used synonymously. The signers were aware of both options and used them interchangeably. These additive focus particles were used adjacent to their focus constituent and usually preceded the focus. This was the case with verbal, object and VP focus. Thus, the adverbial analysis presented above can also be applied to the additive particles in NGT.

In case of subject focus, OOK (also) often followed the subject. As discussed for postfocal German auch (also) and DGS AUCH (also) in the paragraph concerning exceptional data, topicalization of the subject is assumed resulting in
Focus particles in sign languages

a different information structural interpretation. Thus, emphatic movement due to contrast can also be assumed for NGT. The nonmanuals on the subject and the particle in the NGT cases support this analysis. The difference between the subject related particle and the particle preceding the VP are in the prosodic structuring of the sentence. The use of rhythmic and nonmanual cues clearly indicate which constituent is the focus and thus to which constituent the particle refers.

8.6.2.3. Analysis of even in NGT

Syntactic analysis of zelfs

The results from the translation task for *even* in NGT were quite scarce. At first, the word *zelfs* (even/self) in the translations seemed to confuse the signers as the word did not fit the contexts in sign language terms. In NGT, the sign ZELF is only used in the sense of *self*, never as *even*. The clear intuitions against such a word in the sentences support the finding that a sign for *even* does not exist in NGT.

The data indicate that the additive particles OOK₁ and OOK₂ in combination with nonmanual facial expression are at least one common method to express the target sentences that were investigated. Cases of narrow scope show a clear alignment of the nonmanuals with the focus particle and its focus associate. In example (295), the focus particle is marked by a head nod and the facial expressions accompanying the focus particle and the associated verb are raised eyebrows and wide eyes. In addition, the verb is signed fast and with tense articulation.

(295) TIM IX₃ BOEK KOOP : OOK₁ LEES IXₐ
    tim ix₃ book buy : even read ixₐ
    ‘Tim bought the book and even read it.’

As in DGS, nonmanual features were sufficient to express the even-sentences in NGT. A case of VP focus is repeated here from the results in (296).

(296) TIM IX₃ₐ : GRAS MAAI BLOEM IX₃ₖ WATERGEEF
    tim ix₃ₐ : gras mow flower ix₃ₖ water
    ‘Tim mowed the lawn and even watered the flowers.’
Usually, an additive particle preceded the VP, but nonmanuals were sufficient if the additive meaning component was expressed by explicit alternatives in contrastive constructions. These results support the adverbial analysis proposed in the above sections for ALLEEN (only) and OOK (also) in NGT. In case of nonmanuals alone, I assume an adverbial phrase containing the feature [+scalar] for scalar interpretation and no overt particle. See section 8.6.1.3 for a description of this analysis.

Subject focus was often hard to distinguish from all new focus in NGT. With a sentential scope of the nonmanuals, the facial expressions can also be interpreted as referring to the entire clause. Depending on the focus marking, however, these interpretations can principally be distinguished.

Concluding this section, it is safe to say that NGT behaves very similar to DGS with respect to focus particles in general and the expression of even in particular.

**Discussion of exceptional data for zelfs**

Whether the following example (298) is a special case of postfocal OOK in NGT, has not been clarified. It was performed during the focus particle translation task eliciting subject focus related to zelfs (even). The pronominal index pointing to the subject is clearly marked, but the focus particle groups with the VP prosodically.

Even though it is possible to assume a focus related movement as described with postfocal AUCH (also) in DGS to derive the inverse structure, I take the above above example as a clear case of VP focus. Demonstrative pronouns have a marking that is similar to focus marking and OOK (also) is
Focus particles in sign languages
not stressed in any way as expected by the above account. The additive particle rather forms a prosodic unit with the VP. As subject focus and VP focus are semantically very similar, I analyze the signers response as a VP focus sentence and exclude it from the subject condition.

8.6.3. Syntactic analysis of focus particles in ISL

In ISL, restrictive and additive manual focus particles have been found as expected by the former hypotheses. Sentences including only, were performed using signs such as ONLY, JUST, ONE, and COMPLETION. In the following section, I analyze those signs and point out the interesting similarities to items found in DGS and NGT. The additive particle also has an equivalent sign glossed as ALSO, but the most frequently used signs in the data set were SAME and SAME-TIME. Furthermore, an expression glossed as AS-WELL was also used occasionally in the ISL sentences. A sign for even does not exist in ISL, but it was fingerspelled once in the data. The meaning triggered by even was mainly expressed by a combination of SAME and nonmanual features.

8.6.3.1. Analysis of only in ISL

Syntactic analysis of ONLY

For ISL, the data yield different manual signs such as ONLY, JUST, ONE, and COMPLETION that were used as restrictive focus particles. The former signs ONLY and JUST were used most frequently and their distributions resembles those of regular NUR₂ in DGS or ALLEEN in NGT.

300 a. \[\text{r} \quad \text{bl-b}\]
\[\underline{\text{ONLy}} \quad \text{HIM} \quad \underline{\text{EAT}} \quad \text{BANANA}\]
\[\text{‘Only he eats a banana.’}\]

299 a. \[\text{r} \quad \text{hn}\]
\[\underline{\text{ONLy}} \quad \underline{\text{MAN}} \quad \underline{\text{EAT}} \quad \text{BANANA}\]
\[\text{‘Only the man eats a banana.’}\]

b. \[\text{r,frown} \quad \text{sq,hs} \quad \underline{\text{MAN}} \quad \underline{\text{JUST}} \quad \underline{\text{MAN}} \quad \underline{\text{EAT}} \quad \text{BANANA} \quad \text{g-pu}\]
\[\text{‘Just the man eats a banana.’}\]
b. \( r \quad w \quad hs \)  
\((\text{JOHN}) \quad \text{JUST} \quad \text{BUY} \quad \text{BOOK} \quad \text{NOT} \quad \text{WRITE} \quad \text{IX}_{\text{dem}} \quad \text{g-pu}\)  
‘John just bought the book, he did not write it.’

Repeated here for convenience, example (299) illustrates two sentences from the picture elicitation task including \textit{ONLY} and \textit{JUST}. (300) illustrates both focus particles as elicited in the translation task.

(301)

\[ \text{IP} \]
\[ \text{SpecIP} \]
\[ \begin{array}{c}
\ldots \\
I^0 \\
\ldots \\
\text{SpecAdvP} \\
\ldots \\
\text{Adv}^0 \\
\ldots \\
\text{AdvP} \\
\ldots \\
\text{Adv} \\
\ldots \\
\text{VP} \\
\ldots \\
\end{array} \]

Thus, \textit{ONLY} and \textit{JUST} occur adjacent to its focus constituent and precede it. An adverbial analysis as suggested for DGS and NGT above is assumed to be equally valid for these ISL focus particles (see (301)). The focused constituent in ISL is usually stressed by raised eyebrows, wide eyes, head tilts and clear articulation. However, focus is not always marked in cases of contextually undefined sentences which were interpreted as all new focus.

As mentioned in chapter 2, Leeson (2001) and Matthews & ÓBaoill (2000) generally assume ISL to be an SVO language. My data did not always display a clear picture concerning word order. In (302), word order varied within contrastive sentence constructions of VP focus. NGT classifier verbs in particular were not always used in strict verb-second order.

(302) ‘John just watered the flowers, he did not cut the trees.’

a. \textit{JOHN JUST WATER FLOWER WATER-CL_{hsro} : TREE CUT NOT}  
b. \textit{JOHN TREE CUT NO : JUST FLOWERS WATER WATER-CL_{hsro}}

In addition to the above mentioned adverbial analysis, the sign glossed as \textit{ONE} is a variant that has developed out of a numeral and resembles the NGT sign \textit{EEN} in many respects. Lexically, a nonmanual small tongue protrusion glossed as ‘th’ accompanies the sign. It was only used with subject focus and refers to the human subject indicating the restrictive interpretation.
Most interesting, however, was the use of the accomplishment marker COMPLETION. Its regular functions are quite diverse and some examples of my data in (303) illustrate different occurrences. As mentioned above, Matthews & ÓBaoill (2000) explain this particular ISL sign in terms of accomplishment and achievement, translating it by finally and at-last. The examples in (303) illustrate clear cases where the sign is used as a temporal aspect marker. It can be used in interrogatives (303a and b) and declaratives (303c and d).

(303)  

a. \[ \text{ht-f,r,w} \]  
\[ \text{COMPLETION SELL CAR IX}_3 \]  
‘Has he sold his car?’

b. \[ \text{ht-f,r,w} \]  
\[ \text{IX}_3 \text{ P.E.T.E.R. HOME COMPLETION} \]  
‘Is Peter already at home?’

c. \[ \text{r} \]  
\[ \text{ht-u} \]  
\[ \text{S.U.S.A.N. IX}_{3a} \text{ CAR IX}_{3b} \text{ COMPLETION SELL} \]  
‘Susan has sold her car.’

d. \[ \text{hn} \]  
\[ \text{IX}_1 \text{ KNOW HOME IX}_3 \text{ COMPLETION} \]  
‘I know that he is already at home.’

The distributional patterns are not clear-cut, but when the sign was used in focus particle sentences such as in (304), the marker occurred sentence-finally.

(304) \[ \text{bl-f,r} \]  
\[ \text{IX}_3 \text{ BUY IX}_{dem} \text{ BOOK} \text{ mm} \text{ COMPLETION} \]  
‘He only bought that book.’

As the COMPLETION-accomplishment marker was only used twice in the data on focus particles, suggestions on its use and status clearly remain speculative. In opposition to evidence for the grammaticalization of NUR₁ in DGS and its systematic sentence-final position, the data on this particular sign in ISL are too scarce to support a similar analysis. The sign is different from the completion marker FINISH in ISL and may convey various meanings. In combination with focus marking and facial expressions (mm) as in (304), it might be an appropriate alternative to only indicating a restrictive interpretation. Nevertheless, I do not call it a focus particle, even though the parallel patterning to NUR₁ in DGS might suggest a grammaticalization process towards a more functional element, at least in its early stages.
8.6.3.2. Analysis of also in ISL

Syntactic analysis of ALSO

The signs that were found in ISL to express the additive focus particle sentences were ALSO, SAME, SAME-TIME, and AS-WELL. As mentioned above, ALSO was only used in additional discussions about variants and was not used in the original target sentences.

Starting with SAME and SAME-TIME, which were the most frequent signs used in the data set, a classical adverbial account seems appropriate, because they exclusively appeared before their focus associates. The sign SAME can be expanded to SAME-TIME, which indicates the XP status of the additive particle.

Only in the subject focus condition, both pre- and post-focal positions for SAME were possible. This clearly resembles the analysis of AUCH (also) in DGS (cf. section 8.6.1.2). Interestingly, the facial expressions on JOHN are more intense in case of the post-focal particle (cf. the stress behavior described in Féry 2012). In both cases, BANANA is topicalized and receives an upward head tilt and slightly raised eyebrows.

(305) a. \[ \text{ht-u,r}_\text{BANANA} \quad \text{ht-f}_\text{SAME JOHN EAT IX}_3 \]
   ‘Concerning the banana, also John eats it.’

   \[ \text{hn}_\text{SAME EAT FINISH IX}_3 \]

b. \[ \text{ht-u,r}_\text{BANANA} \quad \text{hn}_\text{JOHN IX}_3 \quad \text{ht-f}_\text{SAME EAT FINISH IX}_3 \]
   ‘Concerning the banana, also John has eaten it.’

Furthermore, the sign AS-WELL occurred in the data set. (306a) repeats an example for subject focus and (306b) illustrates AS-WELL as used in a target sentence for which the focus assignment is not directly clear.

(306) a. \[ \text{IX}_3 \text{JOHN IX}_3 \text{AS-WELL EAT BANANA AS-WELL} \]
   ‘John eats a banana, as well.’

b. \[ \text{FRIEND BUY BOOK IX}_3 \text{a JOHN IX}_3 \text{a AS-WELL BUY IX-THAT BOOK READ FINISH} \]
   ‘A friend bought a book. John bought that book as well and has also read it.’
The additive particle precedes the constituent in both cases and is doubled sentence-finally in (306a). Even though the second sign is not clearly separated from the rest of the sentence prosodically, this double is some kind of a repetitive addition to emphasize the additive meaning. Whether this is a spoken language influence or requires a doubling analysis, it not clear. It is safe to say, however, that the adverbial account can also be applied to AS-WELL. Further tests will allow a more detailed analysis.

8.6.3.3. Analysis of even in ISL

Syntactic analysis of even

Excluding the fingerspelled variant of even in ISL, the data that were confirmed to be most reliable by all signers showed that the combination of SAME and nonmanual expressions such as raised eyebrows, wide eyes, and head tilts were used to convey the different levels of meaning in the even-sentences.

(307) a. 
\[\text{hn} \quad \text{even} \]
\[\text{JOHN} \quad \text{IX} \quad \text{SAME} \quad \text{BUY} \quad \text{BOOK} \]
‘John even bought the book.’ (V)

b. 
\[\text{hn} \quad \text{even} \]
\[\text{JOHN} \quad \text{WRITE} \quad \text{BOOK} \quad \text{SAME-TIME} \quad \text{BUY} \quad \text{BOOK} \]
‘John wrote the book and he even bought the book.’ (V)

c. 
\[\text{even} \]
\[\text{JOHN} \quad \text{WATER} \quad \text{TREEWATER-CL-\text{hsro}} \quad \text{SAME-TIME} \quad \text{WATER} \quad \text{FLOWER} \]
‘John watered the trees and he even watered the flowers.’ (VP)

In case of V-focus and VP-focus, the nonmanus started on the focus particle SAME, SAME-TIME or on expressions such as AGAIN-MORE and spread across the focused constituents and the rest of the clause. The nonmanus behave as described in the sections on DGS and NGT above and are analyzed accordingly.
8.7. Conclusion

Summarizing the basic findings and the analysis regarding focus particles in sign languages, the similarities and differences give insights into the way sign languages realize and use these particular items as natural languages. With respect to the variation hypothesis, it is interesting to see that the three investigated sign languages DGS, NGT, and ISL are alike in many respects. All of the three investigated sign languages and many other sign languages that have been included in a surface inquiry have one or more additive and restrictive focus particle signs. Furthermore, none of them have an equivalent sign for the scalar particle *even* and these sign languages express this focus particle by a combination of an additive variant and nonmanual features. The facial expressions such as raised eyebrows, wide eyes, head tilts (usually forward), and head nods may also be used without the manual sign for *also* in certain cases. As mentioned before, however, the means of expressing certain linguistic concepts and the syntactic behavior of specific signs is often language specific. Concerning focus particles, the differences lay in the phonological form of the lexical signs and in the amount of variants each language has available. Interestingly, the restrictive particles resemble each other more than the additive variants. The resources for restrictive particles are similar even across spoken languages and diachronic developments of numerals or...
words and signs for *alone* play an important role in the grammaticalization of restrictive focus particles.

Most of the particles found in my data displayed distributional patterns that allowed an adverbal account assuming either adverbal adjunction at VP or IP, or separate adverbal phrases in the tree structure above VP and IP. Due to independent evidence from syntactic spreading of nonmanuals across c-command domains, I argued for the latter version. In addition to the general arguments against an adnominal analysis discussed in chapter 7, the focus particles found in the data set sometimes combined with other focus particles and were analyzed as having XP status. Utterances with focus particles adjacent to the verb were analyzed as derived by object scrambling out of the VP in accordance with both previously discussed theories that were presented for spoken languages (cf. Bayer 1996; Büring & Hartmann 2001).

In sum, a diversity of focus particles were found in the data set. Concerning restrictive focus particles, sign languages have different means available. For DGS, the target sentences included signs such as \textsc{nur}$_1$ and \textsc{nur}$_2$. In NGT, the signers usually used \textsc{alleen} and a specific sign glossed \textsc{een} in the elicited contexts. ISL exhibited signs such as \textsc{only}, \textsc{just}, \textsc{one}, and \textsc{completion}. Even though an adverbal account held for most of the focus particles in the three sign languages, DGS in particular showed interesting behavior with respect to the sentence-final restrictive particle \textsc{nur}$_1$. For this particle, I presented a syntactic analysis assuming a CP structure with a right-branching \( C^\circ \) position. The focus particle is assumed to have grammaticalized out of a temporal aspect marker glossed \textsc{fertig} (finish) in DGS. \textsc{nur}$_1$ usually occurs sentence-finally, but can follow its associate adjacently in certain emphatic cases. In most of these cases, the sentence-final particle is doubled. This required an analysis that assumes a DP or PrtP internal base generation of emphatic \textsc{nur}$_1$ in a head position. This triggers an inverse movement of the focused NP that moves to a position preceding the focus particle. The interpretative consequences can be described in terms of an emphatic and contrastive accentuation of the associate (cf. Wilbur & Patschke 1999; Bayer & Obenauer 2008). The proposed syntactic analysis explains the distribution of focus particles and also accounts for interesting combinations of focus particles found in the data. The results from ISL have then shown that the sentence-final focus particle might not be a phenomenon particular to DGS. A specific accomplishment marker glossed as \textsc{completion} in ISL can be paraphrased by *completed, at-last, finally, and done* and was used in restrictive target sentences eliciting *only*. It always occurred sentence-finally
and was judged to express the target sentence appropriately implying the restrictive interpretation with respect to the focus constituent. Being some kind of aspectual marker such as FERTIG (finish) in DGS, it seems likely that a similar process occurs in ISL. Nevertheless, the data do not suffice to argue for a grammaticalization pattern along the lines of NUR₁.

Regular additive focus particles such as DGS AUCH and DAZU, NGT, OOK₁ and OOK₁, and ISL SAME, SAME-TIME, ALSO, and AS-WELL were quite consistently used preceding their associate constituents and thus analyzable by the proposed adverbial account. In the subject-focus condition, however, the results showed instances of an inverse order in DGS, NGT, and in ISL. The emphatic marking of the focus particle itself and the prosodic structuring of the sentence indicate a slightly different interpretation than regular subject focus due to information structural variation. Krifka (1998) and Féry (2012) analyze the subject that precedes a stressed additive particle as a contrastive topic and the focus particle as bearing focus itself (free focus). Thus, the linearization of cases where additive focus particles follow the subject in sign languages can be accounted for by regular adverbial phrases containing the particle and topicalization of the respective subject NP.

The finding that sign languages have no manual signs for the scalar focus particle even can be explained by the modality-specific use of different articulatory levels. Simultaneous patterning allows different semantic-pragmatic features to be realized by different articulatory channels. These channels can be separately represented in the syntactic analysis. The data show that the nonmanual features are sufficient to express the scalar interpretation of an even-sentence, if the additive interpretation is present through explicit contrastive constructions. The same holds for scalar variants of only. If only receives a scalar interpretation in certain contexts, it is possible to omit the manual sign and express the scalar meaning by means of nonmanual features alone. Only and even are considered opposing focus particles in German and English, for example, as they relate to opposite ends of a scale. Sign languages seem to realize this scalar component of meaning nonmanually.

From a semantic-pragmatic point of view, the results support the spoken language analysis that focus particles contribute to the interpretation of an utterance on different levels of meaning: (1.) on the truth conditional level, (2.) on the level of presupposition, and (3.) on a level that encompasses scalar interpretations and the evaluation of the focus value (conventional implicatures). The third level of meaning is expressed by a separate articulatory channel in sign languages. The implicature of scalability is not triggered by a manual sign or the semantics of a focus particle, but is expressed through
the use of nonmanuals. Even though the nonmanuals are related to the manual sign, they are not lexical in nature. A syntactic feature in the respective adverbial phrase triggers the nonmanuals. The spreading domain is analyzed as defined by c-command. However, more data is needed to clearly decide upon a syntactic or prosodic spreading. Some spoken language researchers have proposed a maximalistic view concerning purely restrictive and scalar variants of only. The results from signed languages show that the basic restrictive focus particles such as NUR, ALLEEN, and ONLY/JUST are the same for both regular and scalar uses of the focus particle. The sign remains the same, but the additional meaning component expressed through nonmanual features is simultaneously added and superimposed on the same manual base. This is further evidence for a minimalistic account, but splits the meaning contributions to additive and scalar components.

In a nutshell, sign languages have manual means of expressing the universal concept of additive and restrictive focus particles, but show modality-specific and language-specific characteristics. Two examples are the nonmanual realization of the scalar level of meaning concerning scalar focus particles and particular grammaticalization processes for sentence-final focus particles. Syntactically, the findings can be implemented in a theoretical framework of the X-bar model in generative grammar and support an adverbial account as well as the idea that at least DGS and probably ISL have a right-branching C° position. Furthermore, in all sign languages investigated, the two features [+additive] and [+scalar] have two distinct syntactic representations that are realized by different articulatory instantiations.
Chapter 9
Conclusion

9.1. SIGN LANGUAGE STUDY RESULTS WHAT?

In this book, I investigated modal particles and focus particles in signed languages. Inspired by results of a former study on modal meaning in DGS and ISL, I included NGT in the set of sign languages and created an elicitation battery to systematically scrutinize the languages with respect to modal and focus particles.

The three sign languages are used by deaf and hearing signers in Germany, the Netherlands, and Ireland. Basic information about the social and historical backgrounds of the languages and their users was provided in chapter 2. Apart from overall quite parallel historical developments, the three countries deal with the Deaf communities and their needs in slightly different ways. The organization of schooling institutions and the conditions for sign language acquisition, social commitment, and language policy are described for each country. From a linguistic perspective, the three sign languages have many common properties shared by most sign languages worldwide, but they also show language-specific idiosyncrasies. Summarizing the structural properties of the languages, I presented phonological characteristics, different verb signs of the three verb classes, morphological processes such as compounding, some examples of classifiers, aspeetual markings, morpho-syntactic agreement patterns, different functions of nonmanual features, suggestions of basic word order properties, and further syntactic constructions. DGS and NGT are more closely related and similar to each other than DGS and ISL or NGT and ISL. Thus, a cross-linguistic comparison was expected to yield interesting results concerning the variation hypothesis.

The relevance of nonmanual features for this study required a detailed summary of the various functions that nonmanual features may have in sign languages. Chapter 3 summarized these functions explaining why nonmanuals are such an essential part of the language system. On all levels of grammar, nonmanuals play an important role and convey various meanings. Clearly distinguishable from affective facial expressions by scope, timing, and the systematicity in alignment patterns, the grammatical nonmanual features are used to express information on a lexical, morphological, syntactic,
and semantic-pragmatic level. Nonmanuals are analyzed either syntactically or prosodically in the literature. Depending on the framework, different authors argue for one or the other account. Recounting this debate about the correct analysis of nonmanual expressions as instantiations of syntactic features or as intonational tunes spreading along prosodic constituents, I set the stage for the discussions in later chapters. In addition, the idea that some nonmanual features behave similar to tones in so-called ‘tone languages’ was discussed from a typological perspective. Further research is needed to test the productivity of such distinctive nonmanuals that were found in various sign languages.

In chapter 4, I argued for methodological transparency, the collection and the analytic integration of meta data, and thorough processing and annotation of the video material. A comparative study requires comparable data from reproducible settings. The informants were native or near native signers and filled out a questionnaire to control the meta data and the language competences of the participants. An empirical approach does not deal with spontaneous speech, but elicits specific sentences, stories, and contexts by interviewing the signers according to a specific experimental design. Four different tasks including a picture elicitation task, a context creation task, a translation task, and a picture story task were the basis of a large amount of elicited data which were transformed into annotated videos. The annotated ELAN-files of the data set allowed a systematic search and evaluation and the thorough descriptions of the videos were used to analyze the results.

9.2. Modality and modal particles in sign languages

In chapter 5, I provided the relevant background information that was necessary to understand, elicit, and analyze modal meaning in signed languages. Taking a broad perspective, I discussed the universal concept of modality as it is outlined in spoken language linguistics and presented the various aspects that are subsumed under this notion. Defining modality as a semantic-pragmatic concept following Portner (2009), modality is a linguistic phenomenon expressed by various means - such as modal verbs, verbal inflection, sentential adverbs, specific syntactic constructions, and intonation - that allow someone to talk about things that are perhaps unreal. I explained the difference between deontic and epistemic modality and further subcategories as defined by different authors. I then narrowed down the issue to the specific
aspect of modality that I am interested in and defined modal meaning as a level of meaning that is induced by means such as modal particles, intonation, and sentential adverbs. Modal meaning is thus very context dependent and conveys degrees of probability, speaker’s attitude, and implicit updates to the common ground.

Concentrating on modal particles, I discussed the properties of particles in general and adopted a weak minimalistic view in defining particles as a word class and modal particles as an independent subgroup of particles. To distinguish modal particles from other particle classes, I discussed the lexical-morphological, syntactic, and semantic-pragmatic properties of modal particles.

As German and Dutch are both languages that exhibit various modal particles, I listed the different modal particles detected in each language and discussed the relevant items for this study. Lacking modal particles after all, English uses various means to express the meaning nuances that are triggered by modal particles in German and Dutch. As the data elicitation for the sign languages relied on a context creating task and not on a translation task of sentences including modal particles, the lexical items only played an implicit role. Nevertheless, the German control group showed that the context creation task elicited target sentences that included modal particles quite consistently, so that a comparison of the different means in both modalities was justified.

The actual results and the analysis of the elicited data for DGS, NGT, and ISL were presented in chapter 6. Even though research on modality in signed languages is quite scarce, some authors have investigated modality and modal verbs for ASL, BCSL, DGS, and LSE (cf. Ferreira-Brito 1990; Wilcox 1996; Schaffer 2002, 2004; Happ & Vorköper 2006; Wilcox & Schaffer 2006; Salazar 2008). Most work concentrates on modal verbs, their diachronic development, and the difference between deontic and epistemic modality. Except for Herrmann (2004, 2007), no systematic research on modal particles and modal meaning has been done in sign language linguistics. Initial findings suggested that modal particles have no lexical equivalents in DGS and ISL and that nonmanual features play an important role in the expression of these levels of modal meaning.

Searching sign language copora for modal particles did not provide fruitful results. The NGT corpus yielded various hits in the annotations, but it was difficult to define which item was a modal particle or a homonym. Furthermore, it was not possible to search the ISL corpus, as English does not have modal particles as such and the annotations did not include tagging for
modality related issues let alone modal particle equivalents. Therefore, an empirical elicitation task was required to gain the relevant data. A detailed description of the task, examples of the experimental design, transparent data about the informants, and the setting were each provided in a separate section. The contexts, the instructions, and the slides of the video session were explained and the categories of modal meaning, which were the essence of the task, were defined. The data set comprised 770 separate ELAN-files each containing one or more sentences that were annotated according to the transcription conventions presented in the appendix.

An extensive part of chapter 6 was dedicated to the data which formed the basis on which this research and the presented analysis was built. The target sentences consisted of minimal pairs in which regular sentences were opposed to identical but modally modified sentences. The latter were elicited with the use of specific contexts. The results of the task were illustrated for the three sign languages DGS, NGT, and ISL in a parallel fashion and detailed transcriptions systematically displayed the performances of the different participants. The replies were listed according to the five categories of modal meaning and included the relevant nonmanual features that were used.

First of all, the results yielded a nonmanual realization of modal meaning in all target sentences. Modal particles do not exist as lexical items in any of the sign languages of this study and the nonmanuals that were found to express the same meaning as the modal particles in German and Dutch spread across the entire sentence and were consistent with all signers. Clear on- and offsets and the systematic occurrence of specific facial expressions indicated a grammatical use of these features. Cross-linguistically, very similar nonmanual expressions were used for specific modal meanings in all of the three sign languages.

Taking into account recent literature, two options are generally available when analyzing nonmanuals. The findings were thus analyzed against two different theoretical accounts, a syntactic account and a prosodic account. This book therefore provides an innovative application of newly elicited data to linguistically relevant discussions and situates the findings in a contemporary debate discussing the syntax-phonology interface.

The syntactic account assumes a feature in a projection for mood in the left periphery. The spreading of the nonmanuals is usually taken to be determined by c-command or spec-head relation. The former would be applicable in the case of modal meaning. A prosodic account assumes spreading behavior along prosodic phrases such as phonological words, phonological phrases,
and intonational phrases. On a clausal level, however, syntactic and prosodic domains usually coincide, impeding a decision in favor of either of the theories. The signers had clear intuitions on the use of certain facial expressions for specific meaning nuances. Closely linked to a prosodic account, spoken language research generated a compositional theory of intonation along the lines of Pierrehumbert (1980) and Pierrehumbert & Hirschberg (1990). Adopted for signed languages and more specifically ISL\(^2\), researchers have detected individual nonmanuals that are analyzed as having inherent meanings. The respective nonmanual features are systematically combined to create complex meanings (cf. Dachkovsky & Sandler 2009; Sandler 2012). The results for DGS, NGT, and ISL in this book support these findings for intonational features such as squints and raised eyebrows. Furthermore, I found additional expressions in the data that combined systematically and contributed to the meaning of a sentence in a specific way. The meaning contributions for features such as frowns, wide eyes, and head nods (slow and fast) were paraphrased in a section on intonational semantics and the facial expressions of the target sentences were decomposed into their parts. Nevertheless, the lack of non-isomorphic examples could not unequivocally exclude a syntactic account. Syntactically triggered spreading is a widespread option for the analysis of nonmanuals and makes the same predictions with respect to the spreading behavior of my data. Still, the systematic use of the individual features to derive the intended meaning and some rare cases of interruptions of sentential spreading point towards a prosodic and compositional analysis.

9.3. Focus particles in spoken and signed languages

Like the two chapters on modality and modal particles above, I provided an overview of spoken language research concerning focus particles to present the tools that were tested, adopted, and adapted with regard to the sign language research in this study. The beginning of chapter 7 included terminological definitions, a thorough list of focus particle properties, and the relation between focus particles and its focus associate. Taking focus as an information structural and discourse relevant notion, I defined focus in classical terms as the highlighted part of a sentence that is generally taken to involve new information and is separated from the so-called ‘background’ of a sentence that is usually given (cf. Krifka 2006). The language-specific means to mark focus in spoken languages range from intonational means, morphological mark-
ers, to syntactic constructions. German, Dutch, and English primarily stress the focus constituent by pitch variation and are thus called intonational languages.

Focus particles are lexical items that relate to the focus of a sentence in a specific way. Depending on the focus constituent, focus particles may refer to the subject, the object, the verb, or the entire verb phrase. The respective focus constituent determines the alternative set in which the alternatives need to be of the same type. The focus particle denotes the relation between the focus constituent and its alternatives. Focus particles constitute three classes: restrictive, additive, and scalar. Except for restrictive focus particles such as only and just, focus particles have no effect on truth conditions. Due to the truth conditional effects of certain focus particles, however, focus particles represent a semantic type of focus usage rather than a pragmatic focus usage, such as, for example, information focus, contrastive focus, and corrective focus.

The three investigated items of this study were only, also, and even as they are the prototypical examples of focus particles. They represent each class because only is a restrictive focus particle excluding all other alternatives from the alternative set whereas also is additive in nature. The particle even is an inherently scalar focus particle that adds at least one alternative to the focus constituent like additive particles and furthermore posits the focused item on a scale. The semantics of these words show the different levels of meaning such as entailment, presupposition, and conventional implicature. The disagreement on the various notions in the vast amount of literature is briefly summarized in this chapter, but it was sufficient for the purpose of this research to clearly separate the different levels of meaning and follow the traditional definitions.

From a syntactic point of view, two opposing theories were discussed to provide the tools for a detailed syntactic analysis of focus particles in sign languages. The adverbial-only account proposed by Büring & Hartmann (2001) suggests a phrasal status of focus particles and provides a theory of adverbiaal attachment for all focus particles in German. A mixed account principally valid for English, on the other hand, was adopted for German by Bayer (1996) and was further specified by Bayer & Obenauer (2008). Based on a one-constituent assumption, the representatives of the latter theory assume adnominal attachment of the focus particle to its focus constituent. The discussion of the pros and cons of the theories indicated that both positions claim to have knock-out arguments against the other camp. Thus, despite the effort
and high amount of work that was done to analyze focus particles, spoken language accounts did not yet fully solve the problem for German and English.

Focus particles have not yet been extensively studied for many sign languages. Chapter 8 includes a core part of the study and investigates focus particles in DGS, NGT, and ISL. Introducing some of the work on focus and focus particles in ASL, LSB, DSL, NGT, and DGS, it becomes obvious that focus in sign languages is expressed by intonational means, manual modifications, and sometimes also syntactic constructions. Different studies have investigated the prosodic correlates of focus in sign languages and across sign languages. They emphasize the different means that may vary according to the focus constituent. A combination of manual and nonmanual means were described for most of the investigated sign languages showing that the markers may be punctual and spreading in nature.

Focus particles in sign languages relate to the focused part of the sentence and initial findings have suggested that lexical items such as ONLY (only) and SAME (also) in ASL are used as focus particle items. In ASL, even was said to be expressed by a combination of the manual additive sign SAME and a forward body lean. Happ & Vorköper (2006) listed focus particles for DGS such as NUR1 (only) and DAZU (also) and mentioned the sentence-final occurrence of the former and the preceding and adjacent position of the latter. Furthermore, a focus pronoun indicating restrictiveness and usually glossed as SELBST (self) is discussed as an alternative option to express only. A corpus search for focus particles in the NGT corpus yielded 8 instances of ALLEEN (only) and 53 instance of OOK (also), but no sign for zelfs (even). Less frequent results were found for ISL (two ONLY, five JUST, three SAME, and one E.V.E.N.). These results only give a first impression on how focus particles are expressed in sign languages. The empirical research presented in this book was the first systematic investigation into focus particles and their distribution that consistently tested different focus constituents and their interaction with the three particles only, also, and even.

The elicitation procedure for these focus particles included three different tasks: a picture elicitation task, a translation task, and a picture story task. Additional questions combined all focus particles in one dialog. Metadata about the informants, the experimental design, the respective materials, and the interviewer’s instructions were explained in detail to guarantee transparent data elicitation. The data comprised 405 annotated ELAN-files including focus particle sentences.
The transcriptions of the relevant results for DGS, NGT, and ISL were systematically displayed for all of the three tasks. The responses from the German control group were explained in a parallel fashion. To summarize the basic findings for focus particles in the three sign languages, table 34 provides a simplified overview (in this chart, ‘+’ means additional nonmanual features). For a description of the individual features, see the respective sections in chapter 8. In addition, contrastive constructions were sometimes used to express restrictive or additive meanings. This, however, was excluded from the focus particle analysis.

Table 34. Summary of the focus particle results

<table>
<thead>
<tr>
<th>SL/FP</th>
<th>Restrictive</th>
<th>Additive</th>
<th>Scalar</th>
</tr>
</thead>
<tbody>
<tr>
<td>DGS</td>
<td>NUR₁, NUR₂, IXₐₘ</td>
<td>AUCH, DAZU</td>
<td>AUCH+, AUCH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DAZU+, NMFs, PF</td>
</tr>
<tr>
<td>NGT</td>
<td>ALLEEN, EEN</td>
<td>OOK₁, OOK₂</td>
<td>OOK+, NMFS</td>
</tr>
<tr>
<td>ISL</td>
<td>ONLY, JUST, ONE,</td>
<td>ALSO, SAME,</td>
<td>SAME+, SAME-</td>
</tr>
<tr>
<td></td>
<td>COMPLETION</td>
<td>SAME-TIME,</td>
<td>TIME+, AH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AS-WELL</td>
<td>E.V.E.N.</td>
</tr>
</tbody>
</table>

The analysis of focus particles in DGS, NGT, and ISL centered on the syntactic analysis of various distributional properties of the different items that were found. Equipped with the analytic tools presented in chapter 7, I argued for an adverbial analysis of most of the particles such as DGS NUR₂, AUCH, and DAZU, NGT OOK₁ and OOK₂, and ISL ONLY, JUST, SAME, and SAME-TIME. The spreading behavior of nonmanuals concerning even-sentences provided evidence for the assumption of adverbial projections within the tree structure above VP and IP. The assumed XP status was explained by various combinatory patterns that seem to extend the dominating focus particle.

For focus particles such as NUR₁ in DGS and most probably COMPLETION in ISL, however, it was argued that these markers grammaticalized from temporal aspect markers, which again evolved from nouns. The sentence-final focus particles were analyzed as occupying a right functional category C° of CP. Their status was analyzed in terms of an X° category as these sentence-final focus particles are related to functional aspect markers and cannot combine. If such a focus particle appears at the end of a sentence, other sentence-final wh-elements or modal verbs are blocked. This shows that the C° position is already occupied by the focus particle. These findings are in accordance with independent syntactic analyses of ASL, DGS, and LSB, for instance, and sup-
port this syntactic account. Furthermore, the data show that the C° position is related to focus, as noted by other sign language linguists (cf. Sandler & Lillo-Martin 2006).

Further combinatory constructions where $\text{NUR}_1$ and $\text{NUR}_2$ appear in the same sentence were thus analyzed by combining the two above mentioned approaches. In rare cases related to clear emphasis, $\text{NUR}_1$ sometimes occurred adjacent to and following its focus constituent. Syntactically, this was explained by DP or PrtP internal movement of the focus NP across the focus particle in X° position (see Wilbur & Patschke 1999 for sign languages and Bayer & Obenauer 2008 for spoken languages). The examples in the data set show such clear emphatic markings resulting in a special emphatic interpretation of the utterances.

In the subject-focus condition of the tasks, additive particles sometimes followed their focus associate. These post-focal additive particles such as DGS AUCH were accounted for by information structural arguments and a syntactic topicalization of the subject NP. The additive particles in these cases bear focus themselves and receive focus marking. This construction is semantically different to the sentence where the particle precedes the subject. In accordance with Krifka (1998) and Féry (2012), I assumed a regular adverbial position for the additive particle and a topicalization of the subject as a contrastive topic. It is noteworthy that the various focus particle items and their different distributional options may be accounted for syntactically, if information structural and prosodic aspects are taken into account.

Concerning the third investigated focus particle, the three sign languages expressed scalar *even* through means of manual additive particles in combination with specific nonmanual means such as raised eyebrows, wide eyes, and head tilts (usually forward or upward). These nonmanuals start with the focus particle and spread along the rest of the sentence, which contains or is itself the respective focus associate. An interesting aspect of the manual and nonmanual combination to express *even* is the fact that sign languages use different articulatory channels to convey the meaning of two different semantic features.

Sign languages use their three dimensional modality to represent the different levels of meaning by different syntactic features that find their instantiations in different phonological articulations, whereas spoken languages usually have a single lexical item to express both meaning levels of scalar focus particles. If we assume that sign and spoken languages are not completely different typologically, it would be interesting to see whether some spoken
languages similarly distinguish the additive and scalar meanings and use morphologically or prosodically different expressions. It can be concluded that it is not just about manual ONLY and ALSO, as it is not only the hands that count in sign languages.

9.4. Outlook for further research

The results summarized above clearly contribute to recent research on sign language linguistics and show how the three dimensional languages use their various articulators to convey meaning that spoken languages usually express through lexical and morphological markers. The findings for modal particles clearly show that in spoken languages, the interaction of modal particles and intonational means have to be taken into account in more detail. Modal particles constitute a subpart of the actual meaning that is conveyed. Similar to the various nonmanual features that can be combined, modal particles interact with different linguistic means and different levels of meanings. Spoken language research may benefit from the detailed investigation into sign languages and the different articulatory channels.

Concerning the debate on the syntax-prosody interface, it would help to scrutinize sentences that show non-isomorphism between syntactic and prosodic phrasing in relation to the spreading behavior of nonmanuals. It would be interesting to see how relative clauses and modal meaning interact. Furthermore, embedding in relation to modal meaning is a promising topic, as the spreading of nonmanuals across matrix and embedded clauses would give further insights into syntactic features and interpretation differences.

The modal meaning task only elicited a subset of all possible realizations of modal meaning and aimed at investigating the specific meanings triggered by particular modal particles and their equivalents in the languages of this study: DGS, NGT, and ISL. Additional contexts need to be incorporated in elicitation materials to more systematically define modal meaning contributions and situational variation. Thus, this study is a first thorough investigation into modal meaning and modal particles in sign languages and follow up research is most welcome.

For focus particles, it would be interesting to typologically compare the findings to a broad variety of spoken languages to see whether tone languages express a scalar meaning by tonal variation, for instance, or how intonation is used linguistically to encode meaning that has not yet been investigated in de-
Outlook for further research

If spoken languages similarly decompose the meaning components with lexical and intonational means, the simultaneous use of nonmanuals in sign language might after all not be as modality-specific as it seems. In general, we do not want to assume a typologically different behavior between spoken and signed language. On the other hand, it would be quite compelling to search for further examples from spoken languages that syntactically combine semantic features in a single word whereas sign languages divide these levels of meaning into various syntactic features and articulatory instantiations.

Some open questions that arose as side topics of the analysis deserve further research. A fascinating issue is related to a lexical item in DGS that was used as an alternative construction for the even-sentences and was often used in combination with the additive particle and the nonmanuals. This PF-sign was prosodically separated from the sentence when occurring sentence-finally, but could also be used sentence-initially or sentence-internally. In the latter cases, the sign was prosodically linked to the sentence or the focus constituents. An analysis of this item that is often called a specific sign of DGS or an idiom is still missing and would be a quite challenging issue.

As a general outlook, some aspects with regard to data and methodology could be improved. I mentioned a picture elicitation task for German nur (only) that elicits language acquisition data with children. It is important to test these picture elicitation tasks from acquisition studies and see if they can also be used for sign language studies. Thus, an improved elicitation battery could explain unresolved issues such as certain combinatory patterns of focus particles and the rather vague semantic definitions of individual nonmanual features for modal meaning. A more systematic categorization of further aspects of modal meaning could bring to light a more sophisticated picture of these meaning components.

This study has explicitly tested native and near-native signers to investigate native language structure. Further projects might now oppose the results from native signers to those of non-native signers, hearing late learners, and bilinguals, for instance. As late signers are said to have difficulties using grammatical nonmanuals, it may be expected that late learners do not use the features correctly or at least inconsistently in some of the cases. This would further support the findings that native status and an early exposure to sign language is important to test the systematic and grammatical use of certain nonmanual features.

In sum, the results discussed in this book provide an important contribution to the linguistic description of the grammars of DGS, NGT, and ISL.
With respect to modal particles, modal meaning, and focus particles, the sign languages showed greater similarities than the respective spoken languages. Thus, the findings support the variation hypothesis in this respect. The similar results concerning focus particles are due to the simultaneous structure of sign languages in general. This modality effect is a surface phenomenon resulting in a similar combinatorial use of different articulators, but the individual signs and phonological instantiations are language-specific. Concerning modal meaning, most of the meaning attributions of individual features apply to all of the three sign languages. Thus, due to the gestural origin of nonmanuals, the grammaticalized facial expressions have the same or similar meanings in these languages and a few other languages for which some of these definitions have already been stated. In other sign languages with different cultural or historical backgrounds, however, this might be different. More typological studies would clarify the matter.

This book further contributes to recent discussions about the syntax-phonology interface as well as the syntactic tree structural issue of a left Spec-CP and a right C° in many sign languages. The implementation of adverbial phrases in the sign language structures have not been analyzed in detail before and the spreading of nonmanuals for other adverbials may further explain the interaction of manual and nonmanual means. Apart from the new findings of this investigation, the project points towards an area of research that integrates all levels of meaning and the interfaces between syntax, semantics, and pragmatics. Information structural and prosodic aspects have an impact on interpretation and theoretical analysis and need to be considered equally. Thus, this book promotes the analysis of transparent data and takes into account all sign language articulators and their interaction on various levels of the grammar.
Appendix

List of Annotation Conventions

This appendix provides a list of the conventions that were used for the data annotation procedure thus building the basis for the transcription of the examples in this book. As described in chapter 4, the data were annotated with the ELAN Annotation Software provided by the MPI in Nijmegen. Two videos of the signer’s torso and the face were synchronized and 14 different tiers were used to annotate the signing with regard to manual glosses (English Gloss, Right Hand, Left Hand), translations (English and German or Dutch), body movements (Body), head movements (Head), and facial expressions (Eyebrows, Eye Aperture, Eye Gaze, Mouth, Cheeks, Facial Expressions), and additional remarks or notes for later analysis (Comments). I defined abbreviations for different features within these categories and linked them to the respective dictionaries for the different articulatory channels. This avoided unnecessary typos and guaranteed that the annotations were always identical. Systematic annotations are the basis for reliable results from a corpus search and allow an adequate transcription of the data. The following grids provide comprehensive lists of the tiers, the abbreviations for different features, and the explanations for each abbreviation.
<table>
<thead>
<tr>
<th>Tier</th>
<th>Abbreviation</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gloss</td>
<td>SIGN</td>
<td>sign</td>
</tr>
<tr>
<td>Gloss</td>
<td>SIGN (1h)</td>
<td>1handed sign, that is usually 2handed</td>
</tr>
<tr>
<td>Gloss</td>
<td>SIGN (2h)</td>
<td>2handed sign, that is usually 1handed</td>
</tr>
<tr>
<td>Gloss</td>
<td>SIGN (-h)</td>
<td>sign hold, sign is held longer, frozen</td>
</tr>
<tr>
<td>Gloss</td>
<td>SIGN#SIGN</td>
<td>(loan) compound</td>
</tr>
<tr>
<td>Gloss</td>
<td>SIGN-SIGN-SIGN</td>
<td>one sign expressed by more words (e.g. ONE-YEAR-AGO)</td>
</tr>
<tr>
<td>Gloss</td>
<td>SIGN (rep, 2,3,4)</td>
<td>repetition of sign</td>
</tr>
<tr>
<td>Gloss</td>
<td>SIGN (rep,a )</td>
<td>repetition of sign (alternating)</td>
</tr>
<tr>
<td>Gloss</td>
<td>SIGN (rep, u)</td>
<td>repetition of sign (uncountable)</td>
</tr>
<tr>
<td>Gloss</td>
<td>g-text</td>
<td>gesture (ex: g-pu, g-wave-aside)</td>
</tr>
<tr>
<td>Gloss</td>
<td>N.A.M.E</td>
<td>fingerspelled name</td>
</tr>
<tr>
<td>Gloss</td>
<td>N.(A.M.E.)</td>
<td>only one letter used for a name</td>
</tr>
<tr>
<td>Gloss</td>
<td>(fs-) PARK</td>
<td>fingerspelled sign</td>
</tr>
<tr>
<td>Gloss</td>
<td>IX-1</td>
<td>index (signer)</td>
</tr>
<tr>
<td>Gloss</td>
<td>IX-2</td>
<td>index (addressee)</td>
</tr>
<tr>
<td>Gloss</td>
<td>IX-3</td>
<td>index (third person)</td>
</tr>
<tr>
<td>Gloss</td>
<td>IX-1,2,3 (thumb)</td>
<td>index, but with extended thumb instead of index finger</td>
</tr>
<tr>
<td>Gloss</td>
<td>IX-dual</td>
<td>index (dual inclusive)</td>
</tr>
<tr>
<td>Gloss</td>
<td>IX-dual (excl)</td>
<td>index (dual exclusive)</td>
</tr>
<tr>
<td>Gloss</td>
<td>IX-pl</td>
<td>index (plural inclusive)</td>
</tr>
<tr>
<td>Gloss</td>
<td>IX-pl (excl)</td>
<td>index (plural exclusive)</td>
</tr>
<tr>
<td>Gloss</td>
<td>IX-A</td>
<td>index (area location)</td>
</tr>
<tr>
<td>Gloss</td>
<td>POSS-1,2,3</td>
<td>index possessive (towards person)</td>
</tr>
<tr>
<td>Gloss</td>
<td>POSS-pl</td>
<td>index possessive (towards person)</td>
</tr>
<tr>
<td>Gloss</td>
<td>POSS-pl (excl)</td>
<td>index possessive (towards person)</td>
</tr>
<tr>
<td>Gloss</td>
<td>VERB-cl:text</td>
<td>classifier (e.g. GIVE -cl:small thin object,...)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tier</th>
<th>Abbreviation</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brows</td>
<td>r</td>
<td>raised eyebrows</td>
</tr>
<tr>
<td>Brows</td>
<td>f</td>
<td>furrowed eyebrows</td>
</tr>
<tr>
<td>Tier</td>
<td>Abbreviation</td>
<td>Explanation</td>
</tr>
<tr>
<td>--------------</td>
<td>--------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>Eye Aperture</td>
<td>w</td>
<td>wide</td>
</tr>
<tr>
<td>Eye Aperture</td>
<td>b</td>
<td>blink</td>
</tr>
<tr>
<td>Eye Aperture</td>
<td>sq</td>
<td>squinted</td>
</tr>
<tr>
<td>Eye Aperture</td>
<td>c</td>
<td>closed</td>
</tr>
<tr>
<td>Eye Aperture</td>
<td>b-2</td>
<td>blinks 2x</td>
</tr>
<tr>
<td>Eye Aperture</td>
<td>b-3</td>
<td>blinks 3x</td>
</tr>
<tr>
<td>Eye Aperture</td>
<td>b-4</td>
<td>blinks 4x</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tier</th>
<th>Abbreviation</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye Gaze</td>
<td>straight</td>
<td>straight</td>
</tr>
<tr>
<td>Eye Gaze</td>
<td>l, straight</td>
<td>straight, but a bit to the left</td>
</tr>
<tr>
<td>Eye Gaze</td>
<td>r, straight</td>
<td>straight, but a bit to the right</td>
</tr>
<tr>
<td>Eye Gaze</td>
<td>r (interviewer)</td>
<td>right, at interviewer</td>
</tr>
<tr>
<td>Eye Gaze</td>
<td>up</td>
<td>up</td>
</tr>
<tr>
<td>Eye Gaze</td>
<td>l, up</td>
<td>left, up</td>
</tr>
<tr>
<td>Eye Gaze</td>
<td>r, up</td>
<td>right, up</td>
</tr>
<tr>
<td>Eye Gaze</td>
<td>down</td>
<td>down</td>
</tr>
<tr>
<td>Eye Gaze</td>
<td>l, down</td>
<td>left, down</td>
</tr>
<tr>
<td>Eye Gaze</td>
<td>r, down</td>
<td>right, down</td>
</tr>
<tr>
<td>Eye Gaze</td>
<td>...(at hands)</td>
<td>...look at hands</td>
</tr>
<tr>
<td>Eye Gaze</td>
<td>...(at...)</td>
<td>specification, e.g. at LH at RH, at index point, picture</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tier</th>
<th>Abbreviation</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mouth</td>
<td>/.../</td>
<td>specific mouthings</td>
</tr>
<tr>
<td>Mouth</td>
<td>t-out (...%)</td>
<td>tongue out (specification in %)</td>
</tr>
<tr>
<td>Mouth</td>
<td>th</td>
<td>tongue between teeth</td>
</tr>
<tr>
<td>Mouth</td>
<td>open</td>
<td>lips are open</td>
</tr>
<tr>
<td>Mouth</td>
<td>mm</td>
<td>closed lips are presses together</td>
</tr>
<tr>
<td>Mouth</td>
<td>pursed</td>
<td>pursed lips</td>
</tr>
<tr>
<td>Mouth</td>
<td>ul-up</td>
<td>upper lip up</td>
</tr>
<tr>
<td>Mouth</td>
<td>c-up</td>
<td>corners up</td>
</tr>
<tr>
<td>Mouth</td>
<td>c-down</td>
<td>corners down</td>
</tr>
<tr>
<td>Mouth</td>
<td>rc-up/down</td>
<td>right corner up/down</td>
</tr>
<tr>
<td>Mouth</td>
<td>lc-up/down</td>
<td>left corner up/down</td>
</tr>
<tr>
<td>Mouth</td>
<td>ai</td>
<td>air sucked in</td>
</tr>
<tr>
<td>Mouth</td>
<td>ao</td>
<td>air coming out</td>
</tr>
<tr>
<td>Tier</td>
<td>Abbreviation</td>
<td>Explanation</td>
</tr>
<tr>
<td>----------</td>
<td>--------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>Cheeks</td>
<td>p</td>
<td>puffed</td>
</tr>
<tr>
<td>Cheeks</td>
<td>i</td>
<td>sucked in</td>
</tr>
<tr>
<td>Cheeks</td>
<td>tl</td>
<td>tongue left in the cheek</td>
</tr>
<tr>
<td>Cheeks</td>
<td>tr</td>
<td>tongue right in the cheek</td>
</tr>
<tr>
<td>Head</td>
<td>hn</td>
<td>head nod</td>
</tr>
<tr>
<td>Head</td>
<td>hn (2x, 3x, 4x)</td>
<td>head bod (multiple)</td>
</tr>
<tr>
<td>Head</td>
<td>hs</td>
<td>head shake</td>
</tr>
<tr>
<td>Head</td>
<td>ht-l</td>
<td>head tilt left</td>
</tr>
<tr>
<td>Head</td>
<td>ht-r</td>
<td>head tilt right</td>
</tr>
<tr>
<td>Head</td>
<td>ht-f</td>
<td>head tilt forward</td>
</tr>
<tr>
<td>Head</td>
<td>ht-b</td>
<td>head tilt backward</td>
</tr>
<tr>
<td>Head</td>
<td>ht-u</td>
<td>head tilt up</td>
</tr>
<tr>
<td>Head</td>
<td>cb</td>
<td>chin back</td>
</tr>
<tr>
<td>Head</td>
<td>h-r</td>
<td>head moves right</td>
</tr>
<tr>
<td>Head</td>
<td>h-l</td>
<td>head moves left</td>
</tr>
<tr>
<td>Body</td>
<td>bl-l</td>
<td>body lean left</td>
</tr>
<tr>
<td>Body</td>
<td>bl-r</td>
<td>body lean right</td>
</tr>
<tr>
<td>Body</td>
<td>bl-f</td>
<td>body lean forward</td>
</tr>
<tr>
<td>Body</td>
<td>bl-b</td>
<td>body lean backward</td>
</tr>
<tr>
<td>Body</td>
<td>f-bl-l</td>
<td>forward body lean left</td>
</tr>
<tr>
<td>Body</td>
<td>f-bl-r</td>
<td>forward body lean right</td>
</tr>
<tr>
<td>Body</td>
<td>b-bl-l</td>
<td>backward body lean left</td>
</tr>
<tr>
<td>Body</td>
<td>b-bl-r</td>
<td>backward body lean right</td>
</tr>
<tr>
<td>Body</td>
<td>shr</td>
<td>shrug</td>
</tr>
<tr>
<td>Facial expr.</td>
<td>words</td>
<td>facial expressions</td>
</tr>
<tr>
<td>Facial expr.</td>
<td>frown</td>
<td>frowned forehead</td>
</tr>
<tr>
<td>Facial expr.</td>
<td>nw</td>
<td>to wrinkle one’s nose</td>
</tr>
<tr>
<td>Tier</td>
<td>Abbreviation</td>
<td>Explanation</td>
</tr>
<tr>
<td>--------------</td>
<td>--------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>Comments</td>
<td>rs-x</td>
<td>scope of role shift of person x</td>
</tr>
<tr>
<td>Comments</td>
<td>XXX</td>
<td>tip of the hands</td>
</tr>
<tr>
<td>Comments</td>
<td>Q (-wh)</td>
<td>question without wh-element</td>
</tr>
<tr>
<td>Comments</td>
<td>Q (wh-initial <em>or</em> wh-final)</td>
<td>questions with sentence initial or final wh-element</td>
</tr>
<tr>
<td>Comments</td>
<td>Q (doubling)</td>
<td>questions with doubled wh-element</td>
</tr>
<tr>
<td>Comments</td>
<td>CA</td>
<td>constructed action</td>
</tr>
<tr>
<td>Comments</td>
<td>contrast</td>
<td>contrasted elements</td>
</tr>
<tr>
<td>Comments</td>
<td>editing</td>
<td>editing expression</td>
</tr>
<tr>
<td>Comments</td>
<td>cond</td>
<td>conditional clause</td>
</tr>
<tr>
<td>Comments</td>
<td>...</td>
<td></td>
</tr>
<tr>
<td>Bold Letters</td>
<td>SIGN</td>
<td>manual modifications (e.g. tense, large, fast)</td>
</tr>
</tbody>
</table>
Notes

1. The ISL picture is taken from Matthews & ÓBaoill (2000) with the friendly permission of the authors. For the NGT sign, see the online dictionary at www.kegg.nl (©KEGG). The DGS sign is drawn by Pedro Stoichita on my instructions. All rights reserved.


3. Note the difference in terminology between deaf (physical deafness) and Deaf (social and cultural identity).


5. Neither HamNoSys nor Sign Writing are established as an accepted written form of sign languages within the Deaf communities. However, HamNoSys is used for phonological transcription within dictionaries, for instance, and Sign Writing is applied in many schools for young deaf children learning their sign languages around the world.

6. Despite some small interpretative discrepancies, German DGS grammar books broadly agree on the description of the structural realization of DGS.

7. Analogous to the term ‘phonemes’, Stokoe (1960) called these simultaneous phonological features ‘cheremes’ as for chere = Greek: hand. Being established notions for spoken languages and signed languages so far, I use the terms ‘phoneme’, ‘phonology’, ‘intonation’, etc. for both modalities throughout this book.

8. PAM (person agreement marker) (see Rathmann 2001) is an auxiliary used to mark subject-object-agreement with plain verbs, which usually cannot agree as they have lexically specified start and endpoints.

9. There are however more factors such as agentivity that may determine word order and override the figure-ground principle.


11. Based on the 1991 Census, Matthews (1996) notes that there are 3525 deaf people in the Republic of Ireland and 1578 in Northern Ireland. More recent numbers are not available yet.

12. The ISL pictures are taken from Matthews & ÓBaoill (2000) with the friendly permission of the authors.
13. The ISL pictures are taken from Matthews & ÓBaoill (2000) with the friendly permission of the authors.
14. As the acronym ISL is commonly used for both Irish Sign Language and Israeli Sign Language in the deaf communities and in the literature, I marked the acronym for Israeli Sign Language by a superscript as in ISL\textsuperscript{2} to avoid confusion.
15. The ISL pictures are taken from Matthews & ÓBaoill (2000) with the friendly permission of the authors.
16. If a language uses two negative elements for negation, this is called ‘split negation’.
17. See Pendzich (2012) for a discussion on the status of lexical nonmanus in DGS.
18. See section 3.5 for a brief discussion of such instances of distinctive nonmanual expressions and the resulting minimal pairs in sign languages. Examples from DGS are STAY and IGNORE and also MAYBE and SKEPTICAL.
19. For acquisition studies of eye gaze as an agreement marker, see Thompson et al. (2009).
20. Repeated here for convenience, I provide a few notes on the transcription conventions that are used in this book. Small capitals are used for the German, Dutch, and English glosses that represent signs from the respective sign languages. As listed in the transcription conventions, IX means ‘index’ and the indices show the referential location in the sign space. The colon stands for a prosodic pause in the signing stream. The nonmanuals are indicated by the line above the glosses that also illustrates the scope of the nonmanual features.
21. Split negation in spoken languages can be found in French, for instance. Two negation elements ‘ne’ and ‘pas’ are used to mark negation and frame the verb or the modal verb. The first element ‘ne’ may be omitted in certain cases in spoken French and can be analyzed as more or less optional. This is similar to the optional manual negation element in many sign languages using split negation.
22. I translate quotational role shift as direct quotation in all examples. Note, however, that role shift is not equivalent to direct quotation or direct speech in spoken languages. Role shift is rather a sign language-specific means of quotation that combines aspects of both direct and indirect speech (cf. Quer 2005, 2011; Lillo-Martin 1995, 2012; Herrmann & Steinbach 2007, 2010, 2012).
23. The prosodic hierarchy as described in Nespor & Vogel (1986): mora > syllable > foot > prosodic word > clitic group > phonological phrase > intonational phrase > phonological utterance.
24. See Sandler (1999) and Dachkovsky & Sandler (2009) for examples, such as the analysis of squint that indicates ‘shared information’, which is also found in my data to express reference to the common ground.
25. Apart from the phonological notation system HamNoSys (cf. Prillwitz 1990) and the illustrative writing system SignWriting (cf. www.signwriting.org), there is no systematic written system for any sign language available worldwide. Furthermore, most sign languages do not have a standard form that signers, teachers, and interpreters could refer to.

26. I refer the reader to various publications discussing this issue, such as Non-hebel et al. (2004), Leeson et al. (2006), Johnston & Schembri (2006), Crasborn (2008), Crasborn et al. (2008), Crasborn & Zwitserlood (2008), and Konrad (2011).

27. For more on the ECHO (European Cultural Heritage Online) Project: Case Study 4, Sign Languages see Crasborn et al. (2004) and the website: http://sign-lang.ruhosting.nl/echo/


29. Thanks a million to Lorraine Leeson and Cormac Leonard for sending me the data and granting me permission to access the video and annotation files and use the results for this study.

30. For further technical and medical details, see Valk et al. (2004).

31. Functional Magnetic Resonance Imaging (fMRI) is described and explained in Buxton (2002) and Huettel et al. (2004), for instance. For an fMRI study testing the processing of gestures and signs along the continuum from co-speech gesticulations to language signs, see Husain et al. (2009).

32. For further information about QUIS (Questionnaire on Information Structure), see Skopeteas et al. (2006) or visit http://www.sfb632.uni-potsdam.de/en/.


34. Pedro Stoichita is an artist from Berlin and I am particularly grateful for his assistance and proficiency with regard to the picture stories that were drawn on my instructions. All rights reserved.

35. As I am not discussing this issue any further, I only refer the reader to very few selected articles that show the linguistic perspective towards language acquisition with a cochlear implant such as Szagun (2007) and Szagun (2008). Any research on these issues should always include a multi-faceted perspective, as information is very often spread via biased reports.

36. Many initial bilingual school projects have confirmed these findings (see Günther et al. (2004), Bohl (2006), Krausneker (2005), and others for examples of individual school projects in Germany and Austria).

37. For more information about systematic and comprehensive metadata, see Crasborn & Hanke (2004).

38. Different models of language acquisition assume slightly varying turning points with regard to the critical age of native language acquisition. Following Morgan
& Woll (2002), sign language performance and perceptual competences are best in situations of early acquisition. Effects in production and on perception can be seen if the sign language is acquired after the age of seven. Emmorey et al. (1995) distinguish between native signers, early signers (acquisition before 2-7) and late signers (acquisition from 10 on) (also see Keyser & Larson-Hall 2005; Morford 2004). In an attempt to clearly define early learners, I assume a critical age limit to be set at approximately five years of age or earlier and call them near-native signers.

39. The data processing was done with the video software MAGIX (version 6, 2007).
40. ELAN is an annotation program developed at the Max Planck Institute for Psycholinguistics in Nijmegen. The program can be downloaded from www.lat-mpi.eu.
41. See Johnston (1991) on the difference between annotation and transcription.
42. Grammaticalization is the process of language change, during which function words develop from content words. This transformation from lexemes to grammatical affixes over time follows similar rules and grammaticalization paths in spoken and in signed languages. The results of these processes are sometimes subsumed under the term ‘grammaticization’. Note that I use the term ‘grammaticalization’ as I point to the process itself, but refer the reader to Campbell & Janda (2001), Hopper & Traugott (2003), Roberts & Roussou (2003), and Newmeyer (2003) for further information and the differentiation of the terminology.
43. Note that in this case, I do not refer to the two language modalities spoken (oral-auditory) and signed (visual-manual), but the semantic-pragmatic based notion relating to mood, epistemic and deontic meaning, and speaker’s attitude. Even though the use of identical notions for two fundamental different things might be confusing at first sight, changing one of the established terms would probably lead to even more definitional inaccuracy. I explicitly specify which kind of modality I refer to and use the same term for both phenomena throughout this book.
44. For an overview of further semantic classification systems of modality see the comparative chart in Portner (2009: 140).
46. As modal subordination is a controversial issue related to discourse, see Portner (2009) and Roberts (1989) for details.
47. See Kaufmann (2004) for a presentation on this issue.
48. Common ground is a discourse functional term (see Stalnaker 2002) and expresses the common knowledge that speakers and addressees share. Common ground is equivalent to mutual beliefs of the discourse participants and accept-
ing or accommodating those belief states of the members. The common ground is constantly updated by adding to the set of propositions that constitute mutual knowledge other propositions that have been judged true by the discourse participants (see chapter 7, section 7.1.2 for more information).

49. Meibauer (1994: 5-6) notes that the term ‘homonymy’ is not correctly applicable to the described phenomenon in particle research, as it usually refers to non-related lexical items of the same category. ‘Polysemy’, on the other hand, is equally unfeasible as we find the same word in different word classes and categories. Thus, they are not just functional meaning variants of the same lexeme. Following Lichtenberk (1991), Meibauer (1994) introduces the term ‘heterosemy’ to account for the situation of different morpho-syntactic items with different meanings or functions that have the same diachronic origin.


51. William of Ockham’s principle generally states that ‘entities must not be multiplied beyond necessity’ or in other words that ‘plurality should not be posited without necessity’ (Pluralitas non est ponenda sine necessitate). With regard to theories, this means that simplicity should be preferred above unnecessary complexity (cf. Thorburn 1915, among others).

52. I only refer to modal particles and their functions and leave possible common bases for particle homonyms or heterosems in other word classes. Whether we may assume core meanings for words functioning as focus particles, modal particles, adverbs, and conjunctions and how they might be defined semantically is beyond the remit of this book.

53. Please note that in Karagjosova (2004: 18), discourse particles comprise German items such as also, ne, oh, ach and English oh, ah, uh, um, okay, which are often called interjections. I distinguish between particles that function as an answer (answering particles) and those which arrange and structure the discourse (discourse particles).

54. See chapter 7 section 7.1.1 for a discussion of this characteristic property of focus particles within the particle class.

55. See Gutzmann (2008: 14), who discusses this problem in terms of modal particles being non expandable.

56. For further reading on the distributional properties of modal particles, see Meibauer (1994: 28-29,53-55).

57. Very often, sentence mood is used synonymously either for clause type or sentential force. See Lohnstein (2000) for a detailed book on sentence mood (Satzmodus). Reis (1999) mentions that the term is more often used for sentential force than for clause types. For the purpose of this study, sentential force and sentence mood are taken to be synonymous.

58. In terms of Bierwisch (1980)’s levels of meaning, modal particles act on the level of the communicative sense of a proposition.

59. See Gornik-Gerhardt (1981: 28), who strongly supports a minimalistic approach, for an explanation of context dependency.

61. The term ‘modal verbs’ includes verbs and auxiliaries here.

62. Wilcox & Schaffer (2006: 227) name these signs inferential evidentials as they somehow overlap with both categories of evidentiality and epistemic modality.

63. If the sign FUTURE in ASL is combined with specific facial expressions, it indicates a firm belief about a future event.

64. More examples of sentential adverbs from Happ & Vorköper (2006: 371) are, for instance, GLÜCKLICHERWEISE (fortunately/luckily), INTERESSANTERWEISE (interestingly), FREUNDLICHERWEISE (kindly) (mostly accompanied by a forward body lean), DUMMERWEISE (stupidly), UNGLÜCKLICHERWEISE (unfortunately), UNVERSCHÄMTERWEISE (insolently) (mostly accompanied by a backward body lean).

65. For general aspects of metadata, sign language status, the problems of language acquisition in the respective countries, and further methodological issues, see chapter 4 section 4.3.1.

66. See www.goethe.de/z/50/commeuro/i3.htm, the homepage of the Goethe Institute, for more information on the CEFR categories.

67. See http://www.gebaerdensprache.de/ and Fehrmann et al. (1997) for more information.

68. The notion of ‘sentential force’ is used as defined in Chierchia & McConnell-Ginet (2000).

69. The first picture shows the sign used in example (31c) and the second picture is taken from Herrmann (2007: 257).

70. For extensive studies of slips of the hands in sign languages, see Leuninger et al. (2004) and Hohenberger et al. (2002).

71. There has been a study on the difference between brow furrowing and brow lowering in ASL suggesting that ‘brow lowering’ would be the most appropriate notion to use for interrogative marking in ASL (cf. Weast 2008). However, I do not differentiate between the two and use ‘f’ for furrowed eyebrows as indicated in the transcription conventions.

72. See Nespor & Vogel (1986) and Selkirk (1986) regarding the derivation and evidence for the prosodic hierarchy: mora > syllable > foot > prosodic word > clitic group > phonological phrase > intonational phrase > phonological utterance. Sign languages have syllables, clitics, and all corresponding units found for spoken languages. The prosodic hierarchy can be applied to all older sign languages that were investigated so far.

74. This distinction is, of course, does not sufficiently capture the state of the art and thus a simplification. Focus does not necessarily need to be new information as is the case with verum focus and specific contrastive focus types, for example. Throughout this book, I nevertheless use the notions ‘focus’ and ‘background’ in terms of new and old information. See Krifka (2006) and references for more elaborate discussions.

75. See also Chen (2012) for phonetic and phonological approaches to the investigation of information structure.

76. Further languages that mark focus morphologically are, for example, Japanese (cf. Kuno 1972), Kikuyu, and Quechua (cf. König 1991).

77. Actually this might not be quite correct and recent literature remains undecided about truth conditional effects with respect to focus. As focus particles may indeed have some truth conditional effects (at least some of them), I discuss these issues with regard to focus particles and neglect the uncertainty about semantic effects with regard to focus as such, leaving this for further research.

78. Common ground is equivalent to mutual beliefs of the discourse participants and accepting or accommodating those belief states of the members. The common ground is constantly updated by adding to the set of propositions that constitute mutual knowledge other propositions that have been judged true by the discourse participants (cf. Stalnaker 1998, 2002).

79. Note that conventional implicatures may be categorized under the notion ‘entailments’ on the semantic side of the meaning taxonomy (cf. Gutzmann 2008: 45).

80. Alternatively: \( (\forall x) [\text{has eaten a banana (x)} \rightarrow (x = \text{Tim})] \)

81. Ippolito (2008) raises problems for the presupposition analysis and suggests that the prejacent implication of positive only-sentences is a scalar implicature. In the negative counterparts, the prejacent implication is said to be an entailment (Not only Tim has eaten a banana).

82. A scale may also be reversed in certain contexts that express sufficient conditions (see König 1991: 101-103; Holla 2008 for further explanations and a variety of examples).

83. Again, a simple alternative formalization combines the two aspects of meaning M2 and M3: \( (\forall x [\text{rang the bell, (x)} \rightarrow (x = \text{Tim})] \) and x is ranked low on a scale.\]

84. Min\(_c\) and Max\(_c\) capture the evaluative aspect of the focus particle meanings. The particle posits its focus value as maximal or minimal on the scale of the ordered set. The index ‘c’ stands for the high context dependency of the selection of the relevant alternatives and the evaluation. Furthermore, it indicates the speaker perspective of the evaluation. For the definition of Min\(_c\) and Max\(_c\), see König (1991: 44-45).

85. A combinatory formalization of M2 and M3 may be paraphrased as follows: \( (\forall x [(x \neq \text{Tim}) \& \text{has eaten a banana (x)} \rightarrow \text{likelihood (has eaten a banana (x))} > \text{likelihood (has eaten a banana), Tim}] \)
86. Min$_c$ and Max$_c$ capture the evaluative aspect of the focus particle meanings. The particle posits its focus value as maximal or minimal on the scale of the ordered set. The index ‘c’ stands for the high context dependency of the selection of the relevant alternatives and the evaluation. Furthermore, it indicates the speaker perspective of the evaluation. For the definition of Min$_c$ and Max$_c$, see König (1991: 44-45).

87. Researchers from both approaches take this example and provide solutions in different ways. I explain the opposing proposal given in Bayer (1996) in chapter 7, section 7.3.2.

88. One remaining problem, which concerns relative clauses as they cannot adjoin to focus particles, is discussed further in Reis (2005).

89. The empty category principle (ECP) states that traces have to be properly governed (cf. Haegeman 1996).

90. Note that I use the term ‘combinatory’ instead of ‘mixed’ as the analysis does not correspond to the mixed analysis discussed in chapter 7.

91. See the IMDI metadata browser of the Corpus NGT. The files can be found following the steps ‘Sign Language’ - ‘Corpus NGT’ - ‘Regions’ - ‘Amsterdam’.

92. For this signer, the sign language acquisition started at the age of six, but the correct DGS use only began at the age of 28. See chapter 6, section 6.2.1.1 for further explanations.

93. See section 8.4.3.1 for more information about the materials and the sources.

94. By minimal pairs, I mean (a) the same target sentences with different focus particles and (b) the same target sentences with different focus projections and different stress patterns.

95. QUIS (Questionnaire on Information Structure, see Skopeteas et al. 2006). First of all, I would like to thank Stavros Skopeteas for the permission to use the pictures from the QUIS questionnaire. These pictures were originally used to elicit information structure relevant notions such as implicit topics. Thus, the materials were taken out of their original context. Furthermore, the layout of the pictures turned out to be problematic in some cases and did not suffice for my purposes of eliciting clear target sentences with focus particles. I only used a few pictures in an initial task to elicit the basic focus particle items in sign languages.

96. The picture stories were drawn by Pedro Stoichita on my instructions. All rights reserved.

97. DGS is not standardized yet and no standard lexicon of the language exists up to date that would be comparable to the Duden, for instance. Many digitized lexicons like the Hamburg sign collections for special topics (Fachgebärdenslexika 1994f) and the DGS Wörterbuch (Kestner 2009), for example, among many others list a great amount of signs and constitute substantial sign collections for DGS. However, a true standardization process takes a long time and - in a best case scenario - requires independent committees and native representatives.
of each region and dialect in the country. In combination with a large corpus such as the currently established Hamburg DGS Corpus, a standardization may continuously evolve and so-called ‘standard’ signs may be selected by various authorities and a clear set of criteria such as frequency, a level of awareness, and the degree of popularity among the people from the deaf communities.

98. The gesture *g-abwink* was used quite frequently in the signed utterances and is generally used a lot in signed discourse. Nevertheless, it was clearly judged a gesture by most of the signers.

99. This is a specific sign and not the number sign for *een*, even though they are semantically related and the specific sign probably derived from the numeral. Wilbur & Patschke (1998) found a similar item in ASL glossed as *ONLY-ONE*, which is related to the numeral, but has different functions (cf. section 8.2).


101. Special thanks to Els van der Kooij, Ronnie Wilbur, Irit Meir, Svetlana Dachkovsky, Gemma Barberà, Carlo Geraci, Galini Sapountzaki, Okan Kubus, and Adam Schembri for their helpful responses to an inquiry at the sign language linguist list.

102. By courtesy of the ‘Sign Language Research Lab, University of Haifa’.


104. In spoken German, there might be examples as in (i), where a focus particle is attached to the VP but actually refers to the verb lower in the tree. This would be problematic for a co-constituent analysis in German.

(i) Ich wollte nur [im Garten etwas [spaZIERen]]$_F$ gehen.

105. Alternatively one could follow Pittner (1999, 2002) and Frey & Pittner (1998: 501-502) and assume the base position of certain adverbs to be close to the verb (attached to V’), but this would unnecessarily weaken the syntactic structure and soften the distinction between objects and adjuncts in general. Adjunction to non-maximal projections would contradict basic assumptions about general syntactic operations. Furthermore, the problem of scope and c-command needs to be solved at LF and by movement operations that are not desirable. For sign languages, it is not yet possible to similarly scrutinize the positioning of different types of adverbs, let alone discuss a scrambling hypothesis for adverbs themselves.


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