INTRODUCTION

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This book stems from a workshop on the use of the mouth in European sign languages held at the University of Leiden, in The Netherlands, in December 1998. Presentations and discussion there covered a wide range of issues at the heart of research on mouth patterns. At the end of the meeting, participants agreed that the papers should be collected and published in order to reach a wider audience. This is the book. Most of the participants at that workshop have been able to contribute to this collection[1]. We are also fortunate to have contributions here from two groups of researchers who were not able to attend the workshop: Roberto Ajello, Laura Mazzoni, and Florida Nicolai with data from Italian Sign Language and Ulrike Zeshan whose research on Indo-Pakistani Sign Language gives important insights into mouth patterns used in a non-European sign language.

There is a broad agreement among the contributors that there are at least two clearly identifiable types of mouth patterns in sign languages. Mouth patterns used in a sign language may be derived from a spoken language or they may have formed from within the sign languages and bear no relation at all to the mouth movement of a spoken language. Issues of terminology in this area are still not resolved (see below). For the purposes of this collection, however, most authors refer to patterns related to spoken languages as "mouthings" and patterns from within sign languages as "mouth gestures".

Some of the Issues Involved

The papers in this collection reflect several areas of particular interest with respect to mouth patterns in sign languages. The meaning of terms such as "loan", "borrowing" and even "word" is not always immediately obvious in this respect. Notation systems for mouth patterns used by different researchers need to be described and their relative uses considered. Another major area of interest centres on the consistency of mouthings and mouth gestures, especially in relation to the methodology used as well as situational, regional and social variation and the linguistic biography of the informants. Not all the papers here discuss all of these issues but they crop up repeatedly throughout descriptions of research in mouth patterns in the different countries' sign languages.

For one important area, the status of the mouth patterns that come from spoken languages, there is no clear consensus. Some researchers claim that mouthings are coincidental to sign languages, rather than a part of them. This question is debated in several of

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1 Participants who gave presentations at the workshop but were not able to contribute to this book were the following:
Jane Coerts (University of Amsterdam) What is the linguistic status of non-manual features accompanying single signs?;
Susanne Kaiser (University of Geneva) Facial Action Coding System (FACS);
Christopher Miller (University of Quebec) Mouthings, Syntax & Discourse in Quebec Sign Language (LSQ).

the papers, for example Happ & Hohenberger and Ebbinghaus & Hessmann. In connection to this issue, it is necessary to consider the effect of cultural suppression of sign languages especially by an oral education system that has been–and in many countries still is–widespread throughout Europe.

On the matter of mouth gestures, research from several countries more clearly supports the suggestion that the movements of the hand and body drive the movements of the mouth (see especially Woll and Bergman & Wallin).

Contributors and Languages

The twelve researchers/research teams contributing to this volume involve studies of eight European sign languages and one non-European sign language:

British Sign Language (BSL):	Rachel Sutton-Spence & Linda Day
	Bencie Woll
Finnish Sign Language (FinSL):	Päivi Rainò
German Sign Language (DGS):	Horst Ebbinghaus & Jens Hessmann
	Daniela Happ & Annette Hohenberger
	Jörg Keller
Indo-Pakistani Sign Language (IPSL):	Ulrike Zeshan
Italian Sign Language (LIS):	Roberto Ajello, Laura Mazzoni, Florida Nicolai
Sign Language of the Netherlands (SLN):	Trude Schermer
Norwegian Sign Language (NSL):	Marit Vogt-Svendsen
Swedish Sign Language (SSL):	Brita Bergman & Lars Wallin
Swiss German Sign Language (DSGS):	Penny Boyes Braem

Terminology

One of the primary aims of the workshop was to standardise the terms used when sign linguists describe and discuss mouth configurations and movements. This is reflected in the content of many of the contributions here. In particular, the participants wished to reach a consensus on what to call different types of mouth patterns. In the workshop presentations, a wide range of terms was used. Some had been used in the past and others are currently in use. There was a broad agreement that there are at least two (and probably more) clearly identifiable types of mouth patterns. Those mouth patterns derived from the spoken language have been termed *spoken components*, *word pictures*, and *mouthings*.

The mouth patterns not derived from spoken languages have been termed *mouth gestures*, *oral adverbials, mouth arrangements*, and *oral components*. (Jane Coerts reminded us at the workshop that mouth patterns linked to emotion should be regarded as a separate group.)

Lengthy discussion at the workshop failed to produce a consensus for a single terminology. Some of the proposed terms were already being used outside of the field of sign language research; some did not translate well in different languages; some were felt to be too widely encompassing and some were misleading. It was further argued that predetermined labels tend to predispose what is looked for, and ultimately what is seen in data. In a true spirit of European compromise, the members of the workshop agreed to continue working without a consensus. For ease of reading in this collection, however, we have chosen to use the terms *mouthings* and *mouth gestures* except where the author has explicitly chosen another term.

Overview of the Nature of the Data

Most data described here come from signing corpora, although some work is based on introspection by fluent signers. Data have been collected from deaf signers over a period of several years ranging from the late 1970s to very recent collection. Much of the analysis has been carried out on data from sign narratives and several corpora have been elicited using the story of "The Snowman" by Raymond Briggs (a healthy example of possible cross-border standardisation of materials). Other data come from citation forms in sign language dictionaries or from elicited single signs.

Notation

The question of notation of mouth patterns is explored in some depth in several of the contributions.

Mouthings. Several ways of representing mouth gestures are detailed here, each method tackling the same problem from a slightly different angle. In general, most researchers have used the orthography of whole words from the spoken language to represent mouthings. Some, however, make a deliberate decision to use orthography for only the parts of words that were clearly visible. (See, for example, Päivi Rainò.)

Keller also follows this method of only recording what is visible. He argues that the supposed origin of the mouth pattern should not determine the notation and recommends using a kinematic description of both mouthings and mouth gestures.

Bergman and Wallin have also chosen to notate only what is visible, using a restricted set of visible distinctive features (e.g. bilabials), which avoids altogether using spoken language orthography.

All the contributors who were present at the workshop have acknowledged that relying on standard orthography has theoretical and practical shortcomings. However, most contributors here have used it to describe mouthings, recognising the limitations of doing so, because the ease of transcription outweighs the disadvantages for the short-term.

Mouth Gestures. Vogt-Svendsen describes the pictographic symbols she used in her early work on mouth gestures. As a pioneer in this area of research she used pictures of

the jaw, lips, cheeks and tongue, with marking for air movements. Sutton-Spence and Day devised a "tree diagram" in which mouth patterns are described according to the position of cheeks and tongue and the visibility of the teeth. The mouth patterns at the ends of branches of the diagram are allocated numbers and these numbers are used to describe mouth gestures. Ajello et al. use a notation for mouth gestures which is somewhat similar to that used by Bergman & Wallin for mouthings, noting the degree of lip opening and protrusion. Keller argues for the usefulness of a kinetic notation of lip and mouth movement.

Many Similarities in the Data

It is very interesting to see that the data presented from these different sign languages are essentially similar. Very few of the features described in one sign language are not recognised by people who knew other sign languages. In most of the languages described, the same phenomena are reported, although with variations according to the specific language, culture, history and deaf community of the country and method of collection.

Mouthings. Researchers investigating mouthings consistently report that some mouthings appear to be more "complete" than others are. Happ & Hohenberger refer to these as "full" and "restricted" mouthings. Vogt-Svendsen also specifically notes reductions.

Repeatedly, contributors describe more mouthings with nouns and uninflected forms of verbs, while mouth gestures are seen more with verbs. Mouthings are described as occurring with manual homonyms in several languages. Several researchers also make the distinction of mouthings being used for open class elements but not for closed class elements (cf. for example Happ & Hohenberger and Boyes Braem). Sutton-Spence & Day further observe that mouthings occur with morphologically simpler signs (whereas mouth gestures occur with signs that are morphologically more complex).

Ebbinghaus & Hessmann present arguments to support their view that mouthings and mouth gestures are very separate entities (and different again from manual components). On the other hand, Vogt-Svendsen compares the functions and uses of mouthings and mouth gestures in an attempt to find what they have in common, rather than in what way they differ. She finds that in many cases the two types of mouth pattern function in very similar ways.

Sociolinguistic variations in mouth pattern use were also reported in different languages (see especially Sutton-Spence & Day, Happ & Hohenberger) as does the factor of age of acquisition of the language (cf. Keller and Boyes Braem).

The "stretching" or "spreading" of mouthings over more than one manual sign has been observed by several of the contributors (Happ & Hohenberger, Sutton-Spence & Day, Vogt-Svendsen and Boyes Braem). There appears to be general agreement that these "stretched" components serve to bind the manual components, perhaps at the prosodic level (Boyes Braem).

The phenomenon of mouthings being used in the absence of a manual component has also been reported in several languages. Several contributors have also reported on the occurrence of "mismatches" in which the meaning of the manual sign is not the same as the meaning of the spoken word from which the mouthing is apparently derived.

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Mouth Gestures. Mouth gestures similarly formed and driven were reported in most languages. At the Leiden workshop, Marit Vogt-Svendsen neatly summed up the extent of the similarities between these kinds of mouth patterns in European sign languages by recalling how she had watched signers tell the story of "The Snowman" in twelve different sign languages and seen Norwegian Sign Language mouth gestures in all of them.

The Question of Consistency of Occurrence

Mouthings. For those who consider mouthings to be essentially a part of sign language phonology, the obligatory nature of the mouthings is an important issue. Bergman and Wallin argue that it is more important to notate first what we see and worry about obligatoriness later, while Ebbinghaus & Hessmann consider obligatoriness to be simply an extreme end of a scale of frequency of occurrence of collocation. Despite this view, Boyes Braem and Sutton-Spence & Day present evidence of apparently obligatory mouthings.

It soon becomes clear from several contributions that the phonological question of what mouthings might be considered obligatory is complicated by sociolinguistic variables. Sutton-Spence & Day's studies of different registers showed important differences in mouthings. Ebbinghaus and Hessmann make similar conclusions. An effect of family linguistic background on mouthings use (whether the signer had deaf or hearing parents and hence was an early or late learner of the language) was especially emphasised by Sutton-Spence & Day, Boyes Braem and Keller. The proportion of mouthings used is similar, but the form and functions of these mouthings differ. Both Happ and Hohenberger and Ajello et. al. report on the effect of individual variation amongst signers, with the effect of mouthings being fundamentally unpredictable. Ebbinghaus & Hessmann and Keller found mouthing differences in the regional dialects of northern and southern Germany.

Mouth Gestures. The consistency of mouth gestures that function as separate morphemes (for example as "nonmanual adjectives" or "adverbs") is outside the remit of the contributions here. At the Leiden workshop, there was a general acceptance that these mouth gestures are important, but the non-morphological mouth gestures that are part of the lexical unit were of greater interest to the group. An example of this kind of mouth gesture, reported by Bergman & Wallin and Rainò at the Leiden Workshop, is the one produced in both Swedish and Finnish Sign Language with their respective manual signs glossed as PIG. Overall, the consensus was that mouth gestures seemed to be more firmly bound into the unit than mouthings. This becomes apparent in several of the papers here. Woll's description of "echo phonology" argues that we should expect mouth gestures to behave similarly across sign languages because they are driven by the manual components in the same way across all sign languages. The precise signs will differ, but the motivation behind the mouth gesture will be the same.

Questions still to be researched

As so often happens, the papers in this collection raise more questions than they can answer. It is worth highlighting these areas for future work.

Why do mouthings occur? It is clear that mouthings arise in a situation of language mixing in bilingual, strong language contact situations. Vogt-Svendsen and Boyes Braem both argue for many instances of mouthings to be treated as established loan elements from the spoken language into the sign language but also note that other mouthings are not established loan words, but rather "nonce borrowings". Other occurrences of mouthings should be seen as switching or even interference from the spoken language. While Boyes Braem suggests that German–related mouthings may help disambiguate manual homonyms in Swiss German Sign Language, Zeshan points out that if there are several spoken languages used in the community (such as in India), mouthings are not necessarily of much help.

Ebbinghaus & Hessmann also discuss the possible status of mouthings as outcomes of language contact. In general, Ebbinghaus & Hessmann claim that mouthings and signs provide the contexts for better understanding of each other and therefore neither mouthings nor mouth gestures should be regarded as components of manual signs. Rather, the three basic sign types–manual signs, mouthings and mouth gestures–are seen to be related by a contextualising function that allows each in turn to contribute meaning to sign language utterances.

Happ & Hohenberger argue that the cultural suppression of sign language in Germany has caused an increase in the amount of mouthing, identifying the primarily oral educational system as a major factor. Mouthings are best seen as exemplifying language performance whereas mouth gestures satisfy theories of language competence. According to this theory, as German Sign Language gains in acceptance and prestige, the use of mouthings in the language should decrease.

These conflicting interpretations of the data demonstrate the exciting opportunity for debate and discussion that study of mouth patterns can generate. As Schermer points out in her contribution, what stance the researcher takes on the status of mouthings has considerable consequences in the making of a lexicon. The exact status and function of mouthings are still to be resolved and need considerable further research. Much of this will probably need to be sociolinguistic research.

Why do mouth gestures occur? Woll describes the synchrony of opening and closing mouth and hand movements in BSL, and Bergman & Wallin report that timing of opening and closing of the mouth is co-ordinated with body contact and hand closure. Ajello et al. speculate on associations made between objects of a certain size and the wideness of the oral cavity. It becomes apparent from these studies and from many other findings in this collection (cf. for example Vogt-Svendsen) that, to a certain extent, the mouth is obliged to move when some signs are articulated. Ebbinghaus & Hessmann argue that most mouth gestures have their origin in an expressive gesture. The different functions and meanings of a range of mouth gestures are reviewed in both Ebbinghaus & Hessmann and in Sutton-Spence & Day.

Harry van der Hulst (then at Leiden University and present at the workshop, but not a contributor to this volume) suggested a scheme in which the primacy of hands and mouth varies according to the central modality of the language. In spoken languages, the mouth

performs the primary, grammatical functions and the hands are secondary and dependent on the mouth. In signed languages, however, the hands perform the primary, grammatical functions and the mouth and face are secondary. He suggested that many of the mouth elements observed in sign languages might be seen as being in a transitional state between having a secondary function and achieving primacy. Woll goes one step further and suggests that the syllabic properties of "echo phonology" could be used to explain the origin of speech elements.

Two theoretical areas that emerge from this collection need further thought and discussion:

- The proposal that "The hands drive the head" appears to have strong support from the data presented here but time and further work are needed to develop the idea further.
- Concerning the general question of the status of mouthings, the opposing views of contributors to this collection indicate that a clear and differentiated view will require more research with comparable methodologies and notation systems – as well as more discussion. The idea that mouthings are not a part of sign languages but merely coincidental to them would need considerably more discussion, according to the views expressed in several of the contributions.

The contributors to this volume have made similar findings in various sign languages. The theoretical interpretation of the data makes fascinating reading and the different views expressed here by the contributors are as important and thought provoking as the concurring views. Many of the contributors here accept that "the hands are the head of the mouth" and even those who do not subscribe to this view will accept that manual signs may indeed be seen to lend a hand to both the head and the mouth.

Acknowledgements