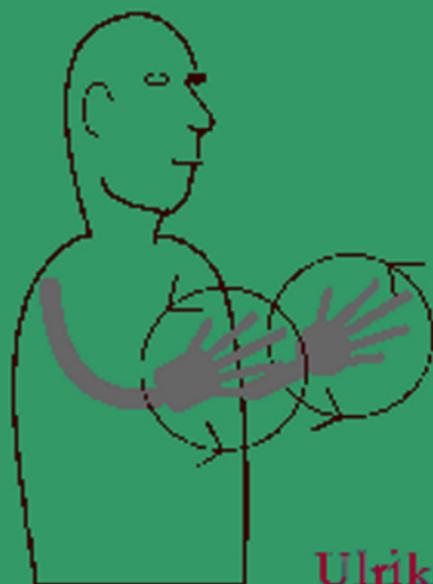


Sign Language in Indo-Pakistan

A Description of
a Signed Language



Ulrike Zeshan

SIGN LANGUAGE IN INDO-PAKISTAN

SIGN LANGUAGE IN INDO-PAKISTAN

A DESCRIPTION
OF A SIGNED LANGUAGE

ULRIKE ZESHAN
La Trobe University

JOHN BENJAMINS PUBLISHING COMPANY
PHILADELPHIA/AMSTERDAM



The paper used in this publication meets the minimum requirements of American National Standard for Information Sciences — Permanence of Paper for Printed Library Materials, ANSI Z39.48-1984.

Library of Congress Cataloging-in-Publication Data

Zeshan, Ulrike.

Sign language in Indo-Pakistan : a description of a signed language / Ulrike Zeshan.
p. cm.

Includes bibliographical references and index.

1. Indopakistani Sign Language. 2. Deaf--India. 3. Deaf--Pakistan. I. Title.

HV2469.I53 Z47 2000

419--dc21

00-029783

ISBN 90 272 2563 X (Eur.) / 1 55619 857 4 (US) (Hb; alk. paper)

CIP

© 2000 – John Benjamins B.V.

No part of this book may be reproduced in any form, by print, photoprint, microfilm, or any other means, without written permission from the publisher.

John Benjamins Publishing Co. • P.O.Box 75577 • 1070 AN Amsterdam • The Netherlands
John Benjamins North America • P.O.Box 27519 • Philadelphia PA 19118-0519 • USA

*To the deaf communities
in India and Pakistan*

Table of Contents

Preface	xi
CHAPTER 1	
Introduction	1
1.1 Indopakistan Sign Language (IPSL)	1
1.2 Data	8
1.3 Transcription Conventions	12
CHAPTER 2	
The Signs	17
2.1 Handshapes	17
2.1.1 Basic Handshapes	18
2.1.2 Central Handshapes	21
2.1.3 Marginal Handshapes	23
2.1.4 Problematic Cases	24
2.1.5 Meaningful Handshapes	26
2.2 Sign Families	28
2.2.1 Opposites	28
2.2.2 Signs Related by Common Handshape	29
2.2.3 Signs Related by Common Place of Articulation	30
2.2.4 Componential Signs	33
2.3 Extraneous Influences on IPSL	35
2.3.1 IPSL and Hindi/Urdu	35
2.3.2 IPSL and English	36
2.3.3 IPSL and Gestures	38
2.3.4 IPSL and Other Sign Languages	40
2.4 Nonmanual Components of Signs	42
2.4.1 Mouth Pattern, Mouth Gesture and Facial Expression	42
2.4.2 Body Posture, Head Position and Eye Gaze	44
2.4.3 A Nonmanual Parameter?	45

2.5	Iconicity	50
2.5.1	The Role of Iconicity in Sign Languages	50
2.5.2	Iconic signs	51
2.5.3	Pantomimic Modification	53
CHAPTER 3		
	Morphology	55
3.1	Word Classes	55
3.2	Directionality	57
3.3	Aspects	62
3.3.1	Completive Aspect	62
3.3.2	Aspectual Modulation	65
3.4	Complex Signs	72
3.4.1	Numeral Incorporation	73
3.4.2	LENA: 'take' and DENA: 'give'	75
3.4.3	Fusion	79
3.4.4	Compounds	82
CHAPTER 4		
	Syntax	87
4.1	Word Order	88
4.1.1	Predicates and Participants	88
4.1.2	Temporal Expressions	91
4.1.3	Function Signs	92
4.1.4	Modifying Constructions	97
4.2	Localization	99
4.2.1	Loci	99
4.2.2	Directionality	102
4.2.3	Positioning	103
4.2.4	Index	105
4.2.5	Eye Gaze	107
4.2.6	Role Play	108
4.2.7	Inconsistencies	109
4.3	Nonmanual Syntax	110
4.3.1	Affirmation and Negation	111
4.3.2	Interrogatives	115
4.3.3	Conditional Clauses	117

CHAPTER 5

Discourse Strategies	121
5.1 Contrasts	121
5.2 Use of the Left Hand	123
5.3 Perspective	126
Bibliography	131
Appendix A	137
Appendix B	147
Index	175

Preface

This book could not have been completed without the help of many dedicated persons to whom I wish to express my gratitude here. My thanks go to the teachers of the ABSA-School, the members of the Karachi Deaf Welfare Association and their president Mansoor Ahmed Bilal, and all the others who have voluntarily served as informants. Their frank and helpful attitude has made it possible for me to gather a rich corpus of data that shows many facets of the language. Considering that the conditions of research work in Karachi have been difficult at times, their cooperation is especially appreciated. The same applies to my deaf informants in New Delhi and the various institutions for the deaf that cooperated with me: the All India Federation of the Deaf, the Delhi Association of the Deaf, the Delhi Federation of Deaf Women, the Delhi Deaf Friendship Club and, above all, the Multipurpose Training Centre for the Deaf.

Most of all I would like to thank my bilingual informant Ms. Tayyabah Mansoor, who put a lot of time and effort into helping me to produce the first transcriptions of the sign language texts. These later became the basis for further analysis. Her unexpectedly deep understanding of linguistic matters greatly facilitated the initial stages of work on the text corpus.

Further thanks are due to the director of the ABSA-School in Karachi Mrs. Rukhsana Ahsan for providing me with the publications of the ABSA research group, to Ms. Qamar-un-Nisa Khan of the National Institute of Special Education (NISE) in Islamabad for a copy of the NISE's 1991 dictionary and for information about the NISE's activities, and to the director of the Department of Special Education at the University of Karachi Dr. Ismail Saad for the help and encouragement that the University provided during my research. Among those who have supported my research in India I would like to mention especially Dr. Onkar Sharma, Mr. Arun Rao and Mr. Arun Kanchan from Delhi, Mr. Samir Ray from Calcutta and Dr. Dilip Deshmukh from Ichalkaranji.

Finally I would like to thank all those who led a helping hand to the practical realization of this research project such as video recordings, photographs etc. I am especially grateful to my husband Hamid Mahmood Zeshan, who has been an able organizer and coordinator throughout the entire research

project both in Karachi and in New Delhi, and who has always supported me in every possible way.

I hope that the results of my research will soon serve the interests of the deaf community all over Pakistan and India, and will become a step towards elevating the status of sign language in this region, so that government officials, schools for the deaf and the hearing population will recognize the real linguistic and social importance of the language. Many thanks in advance to all those who will help me with the realization of this project.

This thesis was presented to the University of Cologne in 1996 and has been revised in the light of my latest research results, with a few errors corrected and a few additions made. More specifically, recent research that I have conducted in New Delhi indicates that what used to be called 'Indian Sign Language' is in fact the same language as 'Pakistan Sign Language', at least in the Delhi area and parts of Northern India. Therefore, the original title of the thesis has been changed from 'Pakistan Sign Language' to 'Sign Language in Indopakistan'. Where applicable, I have noted differences between the data from Karachi and the data from Delhi. However, evaluation of the new data from Delhi is not complete yet, so that most of the examples of signed utterances are based on data from Karachi.

Parts of this book have been published in its original German version (Zeshan 1997) and in an earlier English translation (Zeshan 1996). Presently, my research continues with a Ph.D. dissertation titled 'Sign Languages of the Indian Subcontinent' which is supervised by Prof. Hans-Jürgen Sasse from the Department of Linguistics of the University of Cologne, to whom I am indebted for his guidance and support. I also gratefully acknowledge research fellowships from the provincial government of Bavaria for completion of this thesis and the provincial government of Northrhine-Westphalia for the Ph.D. project.

CHAPTER 1

Introduction

1.1 Indopakistan Sign Language (IPSL)

Since the initial breakthrough achieved when American Sign Language (ASL) first became a matter of interest to linguists, sign language research has come a long way as far as both topics and geographical areas of research are concerned. Several European sign languages, such as the French, German, British, Italian and Swedish Sign Languages, are now being studied from a linguistic, sociological and practical point of view. However, the bulk of research is still being done on ASL.

On the other hand, little is usually known about sign languages in other parts of the world. In India and Pakistan the study of IPSL has so far mainly been a matter of associations of the deaf or private and public institutions working in the field of special education. Linguistics as practised in Western countries is practically unknown in these circles. There are, however, a few publications on 'Indian Sign Language' (ISL). Woodward (1993:21) establishes the relatedness of sign languages in India, Pakistan and Nepal using word lists. The rate of corresponding signs taken from Karachi and several Indian cities is between 63% (Karachi and Bangalore) and 76% (Karachi and Delhi). Woodward concludes from the data,

that sign language varieties in India, Pakistan, and Nepal are distinct but closely related language varieties that belong to the same language family. (...) Further research is needed to determine if this subfamily includes sign language varieties from other countries and if this sub-family can be grouped with other related subfamilies.

However, my own research conducted in Karachi and in New Delhi clearly indicates that sign language varieties in both cities in fact constitute the same language and have identical grammars, to the extent that practically all observations that were originally based on the initial data from Karachi apply to the Delhi variety as well. Differences between the two are mainly due to the

vocabulary and do not concern any of the grammatical observations presented in this book. Dialectal variation concerning individual signs will be noted throughout the text where applicable. So far it is not clear from my own data whether sign language varieties in other parts of India are also similar to the same extent. What is clear, however, is that if there are any dialectal or language boundaries for sign language varieties in the Indian Subcontinent, these boundaries do certainly not coincide with the political border between India and Pakistan, so that there is no basis for speaking of 'Pakistan Sign Language' or 'Indian Sign Language' respectively.

Apart from investigations that have a more or less sociological approach (Jepson 1991a, 1991b), research results about the linguistic structure of sign language in India are very scarce. A few structural characteristics can be found in Vasishtha, Woodward and Wilson (1978) and in the regional sign language dictionaries of the All India Federation of the Deaf, e.g. with 'Focus on Delhi' (Vasishtha, Woodward & deSantis 1980).

In Pakistan there have not been any investigations into the linguistic structure of the local sign language varieties. The only material available consists of a number of dictionaries. In 1989, 'Pakistan Sign Language' was published, apparently with the cooperation of deaf associations from all over Pakistan. However, the authors do not indicate whether the signs given in the book are regionally limited or used in the whole country. In Karachi, the ABSA (Anjuman Behbood-e Samaat-e Aftal) research group has completed two editions of their dictionary of local signs (ABSA Research Group 1987 and 1995) and a number of smaller handbooks covering special topics of interest. The National Institute of Special Education (NISE) in the capital Islamabad has recently published two dictionaries (National Institute of Special Education 1991 and 1994). One of these was compiled during a national congress on sign language in Islamabad which was attended by deaf people from different regions of Pakistan. There were representatives from Beluchistan, the Punjab, Sindh and the North West Frontier Province. If we take the rate of correspondence between signs from the different regions as indicative of variation within Pakistan, a remarkably uniform picture emerges. Only 50 out of the total number of 860 signs, i.e. 5.8%, are recorded with regional differences.¹ Moreover, these signs often differ only partly, so that, for example, place of articulation, direction of movement or handshape of the signs might be identical.

1. This result is distorted by the fact that only one sign per region was accepted as translation for a given word, i.e. all representatives from the same region had to agree on just one sign even if several variants were in use there (pers. comm.). Variation is particularly frequent with terms of kinship.

Some regionally different signs are iconic to some extent, i.e. part of their form bears an obvious relation to the meaning of the sign. I am providing some examples here for clarification:

BAIT^oHNA: 'sit' (figs. 1–3):²

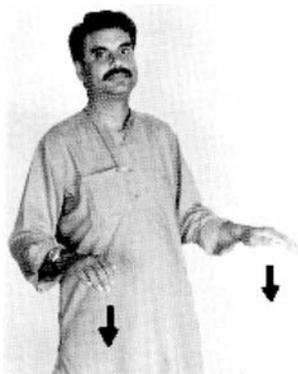


Fig. 1. 'Sit' (Beluchistan)

Fig. 2. 'Sit' (NWFP)

Fig. 3. 'Sit' (Punjab/Sindh)

Movement is downwards in each case, which can be taken as an iconic aspect of the sign. All signs are made with two hands. The handshapes of the signs from Beluchistan and North West Frontier Province are identical. The signs from Beluchistan and Punjab/Sindh are both articulated with the hands placed right and left of the body. It can often be observed that the signers slightly bend their knees during articulation, which again enhances the iconic relationship between form and meaning.

2. Illustrations taken from: National Institute of Special Education (1991:27).

JHU:T° ‘tell a lie’ (figs. 4–7)³

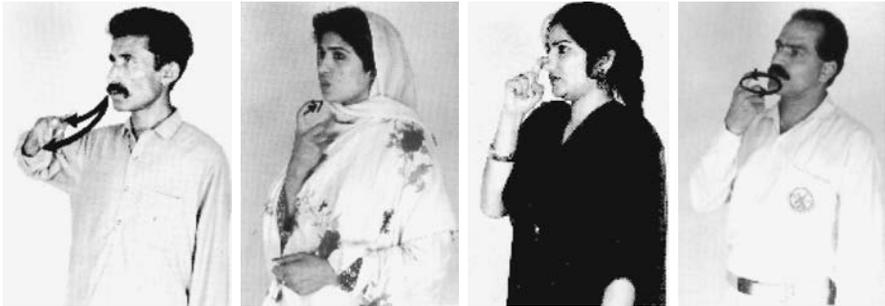


Fig. 4. ‘Lie’ (Beluchis- tan) Fig. 5. ‘Lie’ (NWFP) Fig. 6. ‘Lie’ (Sindh) Fig. 7. ‘Lie’ (Punjab)

The handshapes are identical in all signs except the Beluchistan variety. All places of articulation are situated in the facial area between chin and nose but each sign has a movement pattern of its own. In addition to the manual sign, a mouth pattern may facilitate recognition of the sign.⁴

Given the size of the country, more internal variation is expected within India, which is indeed confirmed by the figures given by Vasishta, Woodward and Wilson (between 72% and 86% of cognates out of 100 signs compared to 94% out of 860 signs across Pakistan according to NISE 1991). However, the authors also conclude that in spite of some formational variation there is only one sign language in India.

As far as I know, nothing has been published about the history of sign language in India and Pakistan or about the history of deaf education, which is usually closely connected to the development of the language itself. The number of speakers cannot be assessed with any degree of certainty either because the majority of the deaf population — especially those from the poor social classes — cannot be assumed to attend schools for the deaf or similar institutions. Vasishta, Woodward and Wilson (1978: 66) estimated ‘that Indian Sign Language is used by over 1,000,000 deaf adults and by approximately 500,000 deaf children, less than 5% of whom attend special schools for deaf.’ For Pakistan comparable figures are not available.

Most schools for the deaf in Karachi so far show little or no interest in IPSL and usually employ hearing teachers. Only the ABSA School for the Deaf has been engaged in a research project for some years, employs deaf teachers

3. Illustrations taken from: National Institute of Special Education (1991: 19).

4. For details on mouth patterns see 2.4.1.

and trains hearing teachers in sign language. However, it may reasonably be hoped that such activities will spread to other schools as well because government officials in charge of special education have officially been advocating a Total Communication strategy since 1990, which includes sign language along with other methods of communication. For instance, a seminar for teachers at schools for the deaf was conducted in Karachi in February 1994 in order to familiarize the teachers with the basics of sign language. The national congress on sign language in Islamabad in 1991 has already been mentioned. At present I do not have any detailed information about the status of sign language in other cities of Pakistan.

In the context of growing interest in sign language there have recently been efforts towards developing an Urdu-based variety of IPSL which is eventually supposed to function like similar systems in other countries such as Signing Exact English or the German ‘Lautbegleitende Gebärden’ (LBG). This variety is known as Sign Urdu and is intended as a means of facilitating the acquisition of Urdu by deaf children. The creation of Sign Urdu is by no means complete yet. However, the few examples I know of permit to guess at several possibilities which might be exploited for the further development of Sign Urdu.

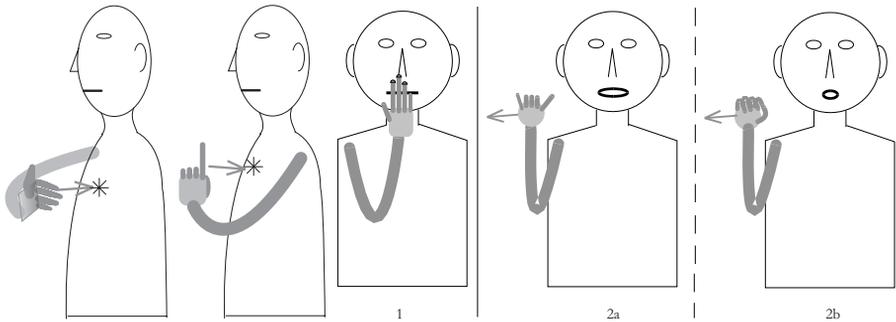


Fig. 8. MAIN' Fig. 9. MUJH Fig. 10. HAI (1+2a) and HO (1+2b)

The most straightforward way is to create new signs in order to express categories that do not exist in IPSL. For instance, the sign MAIN' 'I' is supplemented with a new sign MUJH 'me' which differs from MAIN' only in handshape (see figs. 8 and 9). IPSL does not differentiate pronouns by case. In Sign Urdu there is a sign for the copula — nonexistent in IPSL — which can additionally take various endings through the use of Urdu fingerspelling (for details on fingerspelling see 2.3.2). Fig. 10 shows two possible forms differentiating Urdu HAI 'is' from HO 'are'.

Another strategy is the modification of existing signs of Pakistan Sign Language in order to represent the endings of corresponding Urdu words. This

may be done, for instance, to make a difference between word classes which IPSL does not make. Thus the sign ZARU:R with its general meaning ‘important, necessary, importance, necessity’ can be adapted to the structure of Urdu in the following way: In combination with a fingerspelled ‘T’ a noun meaning ‘importance, necessity’ (Urdu ZARU:RAT) is derived from ZARU:R. For the adjective ‘important, necessary’ (Urdu ZARU:RI) a fingerspelled ‘I’ is added (see fig. 11).

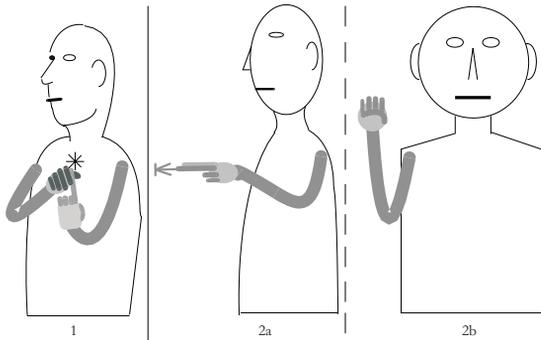


Fig. 11. ZARU:R (1), ZARU:R+T (1+2a), ZARU:R+I (1+2b)

In the NISE (1994) dictionary there is a chapter on ‘Urdu grammar’ which lists some example sentences in Sign Urdu with photos for each sign or letter. I will use multi-line transcriptions adapted from the photos in the examples below.

Basically, the idea in NISE (1994) is to use Urdu fingerspelling for inflectional endings and Urdu function words such as postpositions. However, this strategy is not used consistently in all the examples. In addition, IPSL signs expressing time are used in combination with fingerspelled endings for Urdu tense morphemes. For example, the Urdu sentence

- (1) dekh-o g -e
 see -2MSG FUT-2MSG
 ‘You will see.’

is rendered in Sign Urdu as

- (2) DEKHNA: O A:GE E
 see O next E
 ‘You will see.’

where ‘O’ and ‘E’ are fingerspelled letters.

For the Urdu sentence

- (3) tum ne faqi:r ko rot^oi: d -i:
 you ERG beggar OBL bread:ABS give-fsg
 ‘You gave bread to the beggar.’

the Sign Urdu equivalent is

- (4) TUM N-E FAQI:R K-O ROT^oI: DENA:
 you N-E beggar K-O bread give
 ‘You gave bread to the beggar.’

Again N-E and K-O are fingerspelled. Note that the last sign DENA: ‘give’ is neither modified according to the Urdu inflectional ending nor is there any indication of past tense. This is somewhat inconsistent with some of the other examples.

NISE (1994) also lists a number of Sign Urdu postpositions which are partly identical to IPSL signs and partly newly invented. However, there is no example showing the use of these postpositional signs.

It is more difficult to say anything definite about the status of sign language in India, given the size and variety of the country. As extensive information is not available at the moment, I will limit the discussion to a few preliminary points here. I am not aware of any efforts in India to create a signed representation of any spoken language, nor does the Indian government seem to take any initiative at present as far as sign language is concerned. Apart from a weekly TV news broadcast from New Delhi, activities to promote the use of sign language in India largely depend on private initiative. Deshmukh (1996: 58), based on a survey among 62% of deaf schools in the state of Maharashtra and 24% in the rest of the country, gives the following picture of deaf education in India:

58% of all schools in Maharashtra and 30% of those in India (overall 44%) are supporting the philosophy of ‘oralism’. Total Communication (TC) was listed by 23%, 12% combined oral and TC; and 9% combined oral and sign language methods of education. A point to be noted is that not a single school is using pure sign language.

However, there seems to be considerable discrepancy between official policy and practical application of teaching methods, as ‘an astonishing 93% of the teachers and 97% of the students are in fact using signs’ (ibid.: 59). A notable exception to the common trend is the Rotary Deaf School in Ichalkaranji, which is in favour of implementing the use of sign language at all stages of the curriculum.

Private initiative has led to the organization of a number of seminars and lectures about sign language in various parts of India since the early 1990’s. A dictionary with signs from New Delhi (Vasishta, Woodward & deSantis 1980) is available in India. The Vocational Rehabilitation Centre for Handicapped has

compiled a book with technical signs for professional use (Narasimham 1995). An English magazine titled 'The Deaf Way' is printed in New Delhi and deals with aspects of deaf education and deaf culture. However, these efforts have so far not been translated into any official policy as far the status of sign language and special education for the deaf is concerned. Sign language is not an officially recognized language in either Pakistan or India.

1.2 Data

This book is mainly based on material which I collected during field work in Karachi between January and March 1994. In addition, more recent as well as more extensive material has been collected during a second field trip to Karachi between November 1996 and January 1997 and during a field trip to New Delhi between November 1997 and January 1998. As the latter data has not been transcribed and analyzed in detail yet, most of the IPSL examples in the text are taken from the 1994 Karachi data. Therefore, I will first describe this data in detail and then provide some additional information about the more recent data.

The two dictionaries I have used as part of the 1994 data from Karachi are NISE (1991) with 860 signs and ABSA (1987) with 365 signs, both mentioned above. In addition, the ABSA-School has produced several smaller handbooks on specific topics whose 50 to 100 signs partly overlap with the larger dictionaries.

Moreover, I recorded three of the 15-minute weekly television programs for deaf people broadcast from Islamabad. Yet for various reasons (comprehensibility for the informants in Karachi, appearance of hearing people with limited proficiency in IPSL) the IPSL texts in these programs are not so suitable for analysis and are therefore not included in the transcribed corpus of data. They have however been useful for additional supporting evidence in some cases. Of course my private experience with deaf informants as well as additional information and facts that have not been formally recorded also contribute to the picture.

The most important source for the grammatical analysis of IPSL consists of video-taped spontaneous speech data which I have collected myself in interviews with informants. The interviews were taken partly by myself, partly with the help of a bilingual interpreter. I have transcribed⁵ and analyzed the greatest part of these spontaneous speech data in detail on the basis of

5. Guide to transcriptions see 1.3.

preliminary Urdu transcriptions from Karachi. For computer based analysis I have used the CHILDES program which was originally designed for analyzing child language.⁶

The entire corpus of transcribed data consists of about 6,000 words. Topics include subjects of general interest such as the status of deaf people and sign language in society, or questions of a more personal nature which had emerged from previous conversation with informants, such as family or hobbies. The longest text, the IPSL rendition of a theatre play, is seven minutes long whereas the shortest texts only consist of a few signs. Besides the passages reproduced in the main part of this book there is a longer coherent text transcription from the data in Appendix A.

During the interviews I tried on the one hand to touch upon as many different topics as possible. On the other hand, however, I also asked several informants identical or similar questions in order to achieve a good type-token-relation for as many signs as possible from word fields that would predictably appear in the answers. For example, questions about the family would yield various kinship terms. The table below gives information about which topics were mentioned how often and by how many of the informants within the transcribed text corpus.⁷

topic	frequency	informants
work, profession, job hunting	24	13
family	17	9
school, education	16	10
special education for the deaf	11	5
deaf people in society, deaf clubs	28	8
politics, government	8	3
sports, spare time activities	13	4
television, programs for deaf people	11	3
sign language: research, sl in the family, sl in other countries...	23	9
traffic	6	2
travelling, other countries	11	5

Table 1. Topics in the text corpus

The form of the interviews and the choice of topics have consequences for the type of data both from a formal and from a thematic point of view. For

6. For details on the program see MacWhinney (1991).

7. In the interviews the answer to a single question often involved reference to several topics or aspects of a topic.

instance, there will not be many second person forms directly addressing a conversational partner because the answers are mainly monologous. On the other hand, the sign MAIN' 'I' is among the most frequent of all signs. Another example is the scarcity of interrogative forms in the data.

The greatest advantage of this kind of data elicitation surely lies in the authenticity of the data. The informants have not been guided in any way to speak particularly correct, slow or clear, and the interviews were taken in a familiar setting and in a relaxed atmosphere. This is especially important considering that many deaf people feel complexed about the status of their language as compared to the language of the hearing world.

Moreover, discourse oriented data provides a possibility of studying intersentential phenomena which could not be adequately described and understood on the basis of isolated sentences, such as the spatial organization of syntax (see chapter 4). For instance, Edge & Herrmann (1977: 143) discuss pronominal reference in ASL and emphasize:

This system is an integral part of ASL discourse. It is not found, however, in elicitations of isolated sentences. When examining the nature of pronominal reference in ASL it is necessary to use discourse as a corpus of data.

Friedman (1976: 128) notes that ASL speakers tend to imitate the English language in structure when producing isolated sentences, which is not the case in connected discourse. She concludes: 'it is imperative, when analyzing the grammar of the language, to rely solely on continuous textual material.'

Although I have concluded above that Sign Urdu does not represent a fully developed standardized system yet, it still is probable that IPSL speakers will also modify their speech habits in conversation with hearing people. In discourse oriented data such distortions can be eliminated to the greatest possible extent.

Disadvantages arise from the fact that it is much more difficult to identify and transcribe the signs in a stretch of fluent speech, particularly if the tempo of signing is fast, which is often the case. In addition, the data are not suitable for studying complete paradigms of numbers, temporal expressions and similar items. Therefore, many questions which would require goal-directed linguistic elicitations, tasks and experiments cannot be answered in detail.

Table 2 below lists the speaker profiles of all informants whose video recordings have been transcribed (nine other persons are not part of the corpus of data). As far as possible, the social and regional background of the informants was taken into account in order to achieve maximum variety of backgrounds. But even though there are persons from various age groups and regions among the informants, the data does not point to considerable dialectal

differentiation. The informants almost always use the same sign for any given meaning. In cases where different synonymous signs do exist (e.g. three signs meaning ‘friend’), their use does usually not coincide with sociolinguistic factors in a straightforward way. IPSL may really be a relatively homogeneous language in the urban centres. On the other hand, almost all of the informants are either teachers at the ABSA-School or members of the Karachi Deaf Welfare Association (KDWA). Within these groups there naturally is regular contact, so that the homogeneity of the largest part of the vocabulary might partly be motivated by this fact.

The status of analysis of the more recent data reflects the process of ongoing research. The data from the second field trip to Karachi consists of

name	sex	age	profession	places of residence	hearing status	handedness
ali	m	~45–50	teacher	Lahore (school time), Karachi	deaf	right
cas	m	~30	accountant	Karachi	deaf	right
cou	m	~20–25	businessman	Lahore	deaf	right
cri	m	~25–30	tax department	Karachi	deaf	right
gla	m	~20	computer shop	Karachi	deaf	left
man	m	~35	airline (PIA)	Rawalpindi (up to ’85), Karachi	deaf	right
mot	f	~40	teacher	Karachi	deaf	left
muh	m	~55	retired	India (place of birth), England (study), Rawalpindi, Karachi	deaf	left
mur	m	~20–25	no info.	Karachi	deaf	right
rob	f	~30	teacher	Karachi	deaf	right
shi	f	~40	teacher	Karachi	hard of hearing	right
soh	m	~20	businessman	Karachi	deaf	right
sul	m	~25	student	Karachi, USA (~last 5 years)	deaf	right
tay	f	~20	student	Karachi	hearing	right
wsq	m	~25	graphic artist	Karachi	deaf	right

Table 2. Speaker profiles

extensive recordings of signed texts (total length about eight hours), a vocabulary list of about 1,500 signs and two more dictionaries (Sir Syed Deaf Association 1989 and NISE 1994). Part of the signed texts (a total of 19,000 words) has been added to the CHILDES corpus but has not been transcribed in all detail. In general, this data confirms the results of the 1994 research project. In some sections of the book I have added additional evidence and taken appropriate examples from the new data.

The data from New Delhi consists of about six hours of spontaneous speech data, a 15-minute signed news program recorded from television, a vocabulary list of about 800 signs from New Delhi, and a smaller vocabulary list of about 300 signs collected from signers from various regions of India. Printed material from New Delhi has been mentioned in the previous section. For the purpose of this book only data from the New Delhi variety of IPSL is considered. This data has been reviewed with the help of a bilingual informant but not transcribed for computer based analysis yet. The result of reviewing the signed texts from New Delhi is that all aspects of IPSL grammar discussed in this book, such as directionality, aspects, incorporation, function signs, non-manual syntax etc., are validated by the New Delhi data. A few particularities of the Delhi variety of IPSL are mentioned throughout the book where applicable. Further more detailed analysis of this data, and in particular the data from signers of other regions of India, is still in progress.

1.3 Transcription Conventions

The signs and sign language texts are represented at two levels. On the one hand there is a multi-line text transcription of signed passages from the data, on the other hand graphic representations of all signs occurring in this book are provided in Appendix B and included in the main text, if necessary.

The text transcription consists of the following lines:

SIGN:

In this line Hindi/Urdu words, or English words in some cases, whose meanings come closest to the meaning of the corresponding sign are printed in capital letters. This is the usual kind of representation in publications on sign language. The words are not intended to be translations or glosses but stand for the signs as a whole. In this case I have opted not to translate the *SIGN* line into another language because the Hindi/Urdu equivalents given by IPSL speakers directly mirror the informants' semantic intuitions. Modifications of

underlying signs, i.e. any deviations from the ‘basic form’,⁸ do not appear on the SIGN line, so that all forms of a sign have the same representation on this line. Parts of complex signs, for example in compounds, are linked by ‘+’. The transcription of Hindi/Urdu in Latin letters can be derived from Table 1 in Appendix A.

mor:

This is the line for the morphological analysis of the signs in English. All deviations of the signs from the ‘basic form’ are glossed here, e.g. directionality or aspectual modifications. The meanings of all abbreviations used in the glosses can be found in Table 2 of Appendix A. The actual form of the signs is then to be derived from the ‘basic forms’ as given in Appendix B together with the rules applied in the various morphological processes. It is often impossible to assign the meaning of the signs to any single word class of English. As a rule, for words of English that may either be a verb or a noun in English, such as ‘to work, the work’, ‘to talk, the talk’, ‘to love, the love’ etc., it is understood that the IPSL sign comprises both meanings. In addition, words used in the glosses are often to be understood in terms of their several derivations which together come close to the overall meaning of the sign, e.g.:

SIGN	mor	meanings
ISA:RAH	sign	the sign(s), to sign, sign language(s)
SA:DI:	marry	marry, marriage, married, spouse
FAUT	die	die, dead, death

Some signs with functional meaning are glossed in capital letters on the basis of their function, e.g.:

SIGN	mor	literal meaning of Urdu SIGN line
VAH	IND (‘index’)	‘he/she/it, that’
NAHI:N’	NEG (‘negation’)	‘no, not’
HO_GAYA:	COMPL (‘completive’)	‘has become’

8. By this I mean the isolated item which informants produce in response to the question ‘What is the sign for X?’ and which appears as such in the dictionaries as well. For a few signs this definition may be problematic but as a rule it is a useful one.

nmn:

In the line reserved for nonmanual phenomena body posture, head posture, direction of eye gaze, facial expression and pantomimic behaviour are noted. The abbreviations used are listed in Table 3 of Appendix A. The nmn-line may consist of several sub-lines because several nonmanual activities can occur at the same time, for example lowered head and body directed to the right. The scope of the nonmanual markers is represented by the length of a line '—' under the other lines, e.g.:

SIGN:	LAR ^o A:I: NAHI:N' _KARO
nmn:	G:down —————
	NEG —————

i.e. during the whole sentence eye gaze is downwards but only the second sign is accompanied by a headshake (NEG).

mtb:

Sometimes mouth patterns, i.e. movements of the mouth imitating the articulation of Hindi/Urdu or English words, are also noted where they are of special relevance. If the voice is used additionally and the words are actually spoken, the line is called 'voc'.

tra:

This line provides an English translation of the signed sentences. Words in brackets are additions which are not expressed explicitly in the signed text but have been included in order to make the translation more readable.

A computer graphic program (CorelDraw) was used for the graphic representations of the signs. Carmel (1992: 234), who compiled a bibliography of sign language dictionaries from all over the world, favours drawings of signs rather than photographs 'because of the improved clarity and depth they give face, fingers, hands and arms'. In the pictures of IPSL signs the palm is represented by a circle, the back of the hand by a rectangular shape. If several consecutive positions of the hands or arms are included in a single picture, the darker colour represents the initial, the lighter colour the end position. There are four different perspectives in the drawings: frontal view, diagonal side view, profile and bird's-eye view. Body posture and facial expressions have been included in the pictures when they are integral parts of the sign. The symbols representing the various movement patterns are listed in fig. 12.

	single movement in direction of the arrow
	repeated movement
	abrupt end of movement
	circular movement
	to and fro movement
	twist of the wrist
	gradual stepwise movement
	movement into/out of page level
	stationary hand opens
	stationary hand closes
	stationary hand oscillates
	thumb and finger(s) rubbing together
	finger wiggling
	contact of the hand(s) with each other or with the body

Fig. 12. Symbols for movement patterns

CHAPTER 2

The Signs

2.1 Handshapes

Recently there have been numerous attempts, especially by ASL researchers, at developing a more sophisticated phonology of sign languages. The first studies by William Stokoe recognized several sign *parameters* which simultaneously combined make up a sign. The three most important ones are the *handshape*, i.e. the shape and position of the thumb and fingers, the *place of articulation*, i.e. the place in space or on the body where the sign is articulated, and the *movement* of the hands, arms or fingers.¹ Meanwhile, the *orientation* of the palm upwards, downwards or sideways has also been recognized as a parameter, and a difference is made between *path movement* of the whole hand in space and *internal movement* of the fingers. In addition, some authors also include *nonmanual parameters*.

The more recent phonological models (Movement Hold Model, e.g. Liddell 1990, Hand Tier Model, e.g. Sandler 1990, Structured-Tiers Model, Ahn 1990) are based on the theory of autosegmental phonology. In the light of this theory it is attempted to arrive at a new evaluation of simultaneity and sequentiality in sign language so that, for example, the concept of the syllable would be applicable to ASL (Wilbur 1990).

Handshapes often play an especially prominent role in phonological models or argumentations. Topics include phenomena such as handshape assimilation (e.g. Corina 1990) or signs with changing handshapes (e.g. Brentani 1990). A number of phonological rules that have been formulated for ASL involve the behaviour of handshapes (e.g. Dominance Constraint, Klima & Bellugi 1979, Handshape Sequence Constraint, Sandler 1990).

At present, a detailed phonological analysis of IPSL is not a possible and maybe not even a sensible undertaking. However, some preliminary statements

1. Cf. Stokoe, Casterline & Croneberg 1976.

about the handshape parameter will be summarized in the following section. I discuss inventory, frequency and status of handshapes and propose a preliminary inventory of IPSL handshapes in table 3 at the end of this section.

2.1.1 *Basic Handshapes*²

In various studies on sign languages some handshapes have been claimed to be especially prominent and have been called ‘unmarked’, ‘neutral’, or ‘basic’ handshapes. The set of basic handshapes commonly proposed for ASL comprises the A, B, C, G, O and 5 handshapes (e.g. Klima & Bellugi 1979), or the A, B, C, G, O, S and 5 handshapes (e.g. Battison 1978). Boyes-Braem (1990) lists A, B, G, O, bO and 5 as basic handshapes (‘Grundhandformen’).³

The criteria for the special status of these handshapes are detailed as follows:

- They are the most frequent of all handshapes (Friedman 1978, Battison 1978).
- They are among the first acquired by children (Boyes-Braem 1990, Friedman 1978, Battison 1978).
- They can be found in all sign languages described so far (Boyes-Braem 1990, Friedman 1978, Battison 1978).
- When one of the hands is the place of articulation of a sign, the handshape of this passive hand must either be the same as the articulating hand or one of the basic handshapes (‘Dominance Constraint’, Klima & Bellugi 1979, Battison 1978).
- Single morpheme signs with changing handshape must either begin with or end in a basic handshape (Friedman 1978).

In IPSL there also exists such a set of particularly prominent handshapes (see fig. 13).⁴

2. Handshape notations are mostly taken from one-handed English fingerspelling, with the following modifications:

[¹] = thumb extended, [²] = crooked fingers, [³] = finger bent at the first knuckle, [⁴] = not exactly corresponding to fingerspelling.

3. Boyes-Braem 1990: 22.

4. Frequency counts in this section are based on the initial 6000-word corpus from Karachi.

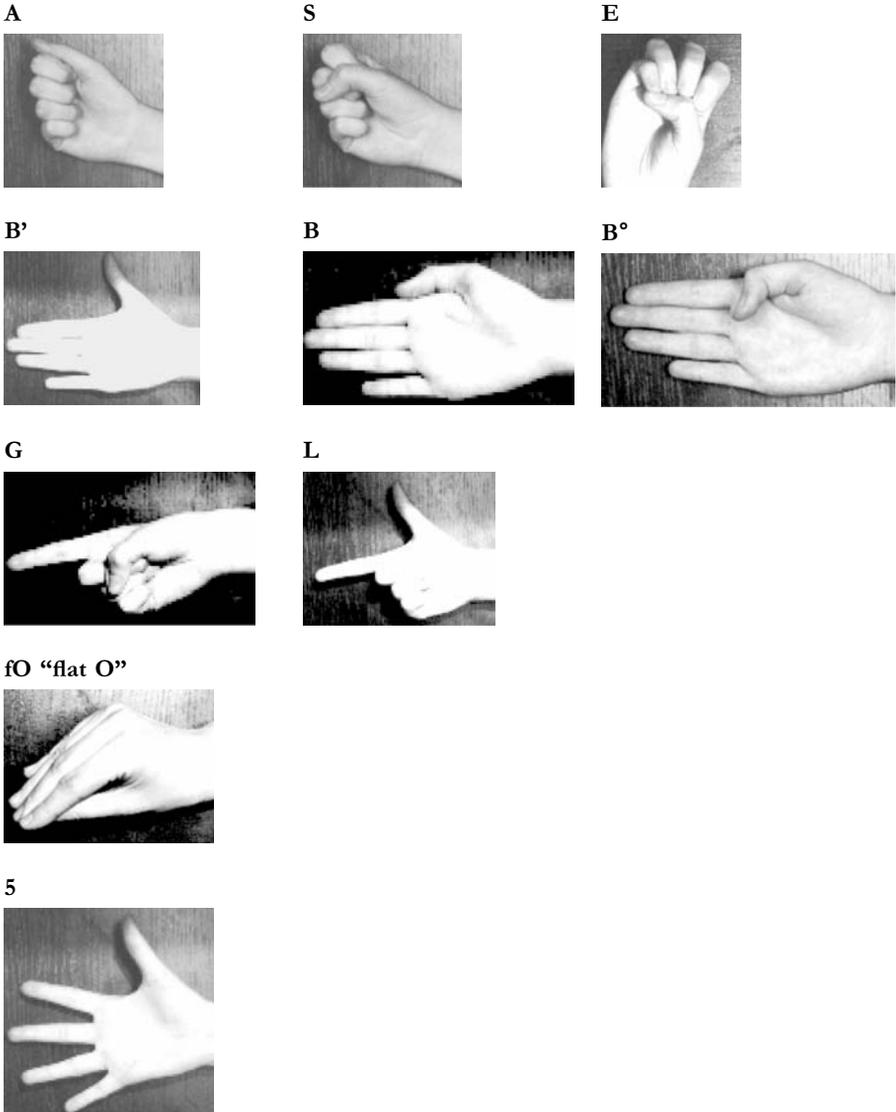


Fig. 13. Basic handshapes

A~S

It is difficult to differentiate between A and S in the texts. However, even if we take possible transcription errors into account, A and S should probably be regarded as variants rather than unrelated handshapes. An analysis of those signs with A~S handshape that occur more than five times in the data shows

that in 70% of all cases the same sign can be found with A as well as with S handshape. In addition, although there are signs that are exclusively articulated with A handshape, the reverse case does not happen. Therefore, S seems to be a secondary variant of A. A purely 'phonetically' motivated variant is the E handshape in the sign *TI:N+MAHI:NA*: 'three months', which results from the thumb holding the little finger while the other three fingers are being released. The related signs *MAHI:NA*: 'month' and *DO+MAHI:NA*: 'two months' are articulated with S handshape.

B'~B

An analogous counting of high frequency signs with B' and B handshapes shows a 60% rate of correspondence. It is noticeable in this case as well that whereas many signs are made with a B' handshape exclusively, in every case where B appears B' is also a possible handshape. Similarly to the A~S case, B seems to be a possible, but non-distinctive variant of B'. In spite of the high frequency of B and B' (B' is the most frequent of all handshapes) there is no minimal pair in which B and B' would contrast.

The B° handshape (with the thumb bent towards the palm) is probably an articulatorily motivated variant like E for signs where contact needs to be made with the side of the hand along the index finger so that the thumb would be in the way (cf. *BAND* 'close', *ISLA:M* 'Islam', *SIBLING* 'sibling').

G~L

Some of the most frequent signs are made with a G handshape, and these same signs regularly have L handshape variants (*AURAT* 'woman' 134×G, 10×L; *SAMAJH* 'understand' 109×G, 11×L; *DEAF* 'deaf' 57×G, 46×L, besides 36×H).

The overall rate of overlap of the two handshapes in signs that appear at least five times is only 43%. However, the pattern is similar to the above cases: many signs with G handshape exclusively, almost none with L handshape only. Therefore, L is treated here as a secondary variant of G. However, the status of L is complicated by the fact that L also exists independently as a handshape (see d).

fO 'flat O'

This handshape is among the most frequent in IPSL as well, especially among signs with changing handshape, e.g. *XU\$* 'happy' with opening hand or *AFSOS* 'unhappy' with closing hand. Regular variants cannot be observed.

5

The 5 handshape is about equally distributed among one-handed and two-handed signs and signs with changing handshape. It may sometimes be difficult to differentiate 5 from B', especially in the case of a passive hand serving as the place of articulation for another hand, or if the hand opens as in *\$URU*: 'begin'.

The five handshapes described here can clearly be identified as the ‘unmarked, basic’ ones in IPSL on the basis of the criteria mentioned above. First of all, frequency is decisive. 57% out of the 744 signs in the corpus contain one or more of the five unmarked handshapes. For particularly frequent signs that appear at least 20 times the percentage is even higher (65%). No information on the acquisition of IPSL is available yet, and the criteria of occurrence of the handshapes in other sign languages should be treated with care as well, considering that few sign languages have been studied in detail so far. On the other hand, the last two criteria can be meaningfully applied to IPSL as well: When one of the hands is used as the place of articulation of the other hand, i.e. does not move while the active hand articulates on or near it, then this passive hand has a basic handshape in 79% of all cases. In this situation the most frequent handshape is B’, followed by G, A and 5; only fO is rare and rates behind A’. Signs with changing handshape have basic handshapes in 60% of all cases; fO is most frequent here, B’, 5 and A are next in line; G is less frequent than B^, C and 5°.

Although the results for IPSL cannot be formulated in the no-exception fashion that the criteria given above suggest, the tendency is unambiguous. The results clearly show that sign languages may have different phonological structures as far as handshapes are concerned. The C and O handshapes that are frequent in ASL hardly appear in the IPSL corpus, whereas fO does not belong to the basic handshapes in ASL. Moreover, there are some handshapes in IPSL which do not exist in ASL, such as 6, 3° and T° (see hereunder). Of course absolute statements on the basis of a limited text corpus can only be made with reserve. In particular, rare handshapes may not be included in the corpus. However, for frequent handshapes such as those described here preliminary results can be asserted with some degree of certainty.

2.1.2 *Central Handshapes*

Central handshapes include those that certainly play a vital role within the system of IPSL handshapes because a sufficiently great number of signs must be articulated with this and only this handshape. Since there is considerable variation in this domain, it is important that at least some signs can unambiguously be assigned a certain handshape, be it that no other handshape occurs in the text corpus for a given sign, that the sign appears in a dictionary with the handshape in question, and/or that informants regularly respond to the question ‘What is the sign for X?’ using this handshape. Therefore, the handshapes listed below — with examples given — make up the set of central handshapes (see fig. 14):

- A'** ACHA:I 'good', PA:S 'pass (an exam), win, succeed', PA:NI: 'water'
- B^** MAIN' 'I', HO_GAYA: (completive), CIT°T°HI: 'letter, send a letter'. B^ is especially common in signs with changing handshape, usually in combination with B'.
- cB 'curved B'**
MAHFU:Z_RAKHNA: 'keep, store', JUMARA:T 'Thursday', PYA:R 'love, caress'. Some signs have B, B' or B^ as well as cB.
- C** A:M 'mango', BEMA:R 'sick'.
- bC 'baby C'**
POLI:S 'police', CA:LA:K 'clever', PHOTOGRAPHY 'photo, take a photo'.
- F** MUKAMMIL 'complete, totally', ACHA:2 'good'. For some signs there is a variant F'' with crooked fingers.
- H** NORWAY 'Norway, Norwegian', DOST; 'friend'.
- I** TALA:S 'search', XARA:B 'bad', TOILET 'bathroom, toilet'. Relatively rare handshape.
- bO 'baby O'**
LIKHNA: 'write', MA:NNA: 'obey, accept'. Quite frequent. bO° is a variant for signs in which the thumb is held by the index finger before being released (PAISAH 'money', AMI:R 'rich').
- Q** KAM 'little', JUMLA: 'sentence, subtitle, label, line of writing', NAZAR 'look, glance'. In some rare cases the middle finger is added parallel with the index finger (Q+ variant). On Q+ see also d).
- Q°** THOR°I:_DER 'a little while', D°AR 'fear, be frightened'. Mostly occurs with changing handshape in combination with fO.
- T°** KA:M 'work', CHATRI: 'umbrella'. Quite frequent. Also occurs in signs whose meanings involve holding rope-like or cord-like objects such as the sign for 'horse-riding' (holding the reins).
- V** DO 'two', BA:T 'talk, conversation', DEKHNA: 'see'. Especially DEKHNA: varies between V and 3 (the 3 handshape has extended thumb, index and middle finger); again the thumb is irrelevant.
- Y** QARI:B 'near', SA:YAD 'maybe', FLY 'airplane, fly'. Relatively rare handshape.
- fbO 'flat baby O'**
AMRI:KAH 'America', A:DMI: 'man', PARINDA: 'bird'.
- 5''** TYPE 'type, typewriter, computer', SUNNE_VA:LA 'hearing'.
- 5°** XU\$ 'happy', SUBAH 'morning', PHU:L 'flower'. Mostly in signs with changing handshape in combination with fO.

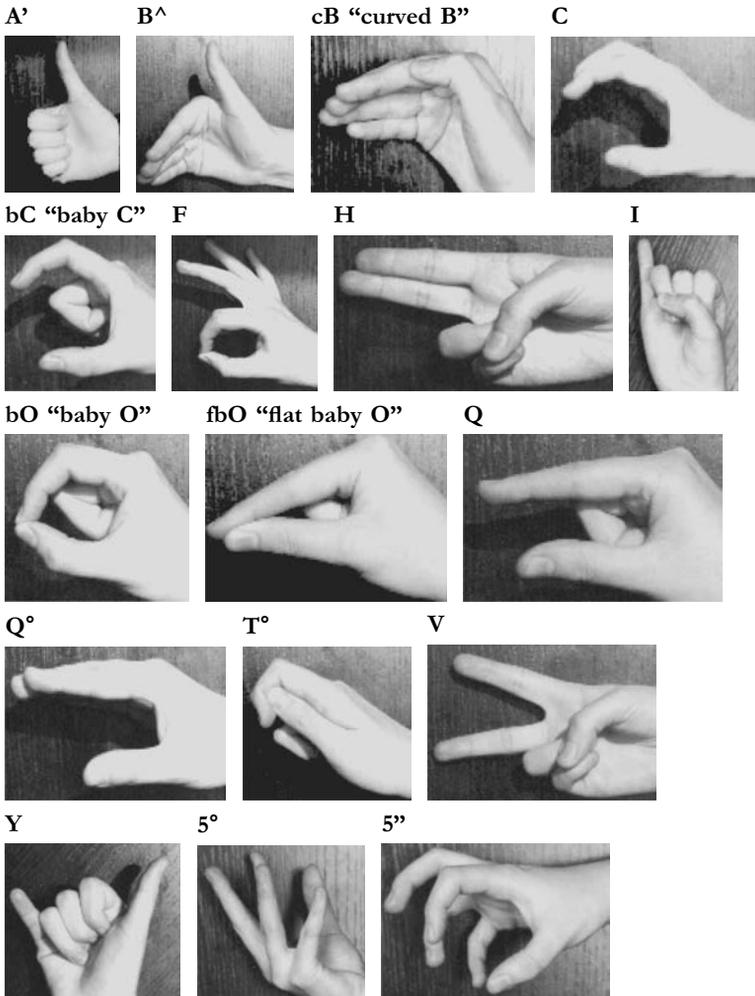


Fig. 14. Central handshapes

2.1.3 *Marginal Handshapes*

One set of handshapes that are treated as 'marginal' here includes those whose appearance is always iconically motivated. They only occur in a very limited number of signs which have a common iconic basis. These signs can often be understood by hearing people who do not use sign language. Handshapes that are part of subsystems like fingerspelling and are only found there represent another category of marginal handshapes (see fig. 15).

- Go** only appears in the sign JALDI: ‘quick’ which is made by fingersnapping.
- W** in signs associated with the number ‘three’ (the 3 handshape is not used for numbers). Examples include TI:N ‘three’ and HAZA:R ‘thousand’, where the fingers stand for the three zeros.
- 4** for the number CA:R ‘four’.
- 6** for the numbers CAH ‘six’ and — with reverse orientation — NO ‘nine’. The hand copies the shape of the written numbers.
- 8** for the number A:T^oH ‘eight’. Again the hand copies the shape of the written number.
- M** only appears in the letter ‘M’ in two-handed fingerspelling.

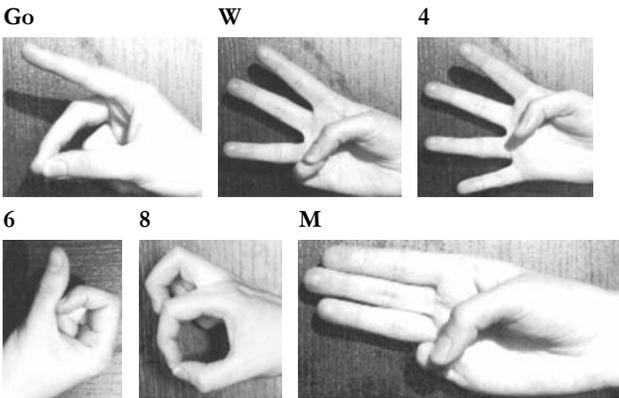


Fig. 15. Marginal handshapes

A larger number of handshapes only appear in Urdu and Hindi fingerspelling, which, however, are not currently in use in IPSL according to the data and are therefore not considered here.

2.1.4 *Problematic Cases*

Under this headline I have mentioned handshapes which are not easily attributable to either the central or the marginal set, or whose occurrence is so rare and unclear that their existence in IPSL is questionable. In addition, some handshapes are mentioned here which can be found in a few signs in dictionaries but not in my own corpus of data (see fig. 16).

- 3^o** This ‘question hand’ is in use as a gesture among the hearing population of the region as well and is reserved for question signs and a few closely related signs in IPSL. So far it is not clear whether there is only one interrogative sign covering the meaning of all Hindi/Urdu question words, or whether the question signs form a paradigm of related, but distinctive

signs with the same handshape and different movement patterns. Anyway, the question sign(s) play an important role in the grammar of IPSL and the 3° handshape is very frequent. Therefore, it is arguable in spite of its narrow iconically motivated domain whether 3° should be attributed to the marginal set of handshapes.

- L** The L-hand frequently appears in signs with various iconic bases, e.g.:
- the letters ‘L’ in one-handed and ‘Y’ in two-handed fingerspelling;
 - the number ‘SA:T ‘seven’ and the related concept HAFTA: ‘week’ (seven days);
 - angular contours, for example in the sign for ‘triangle’.

Apart from these iconically based signs, however, there are a few others in which the L handshape does not seem to be motivated, e.g. DESIGN ‘design’. Therefore, it is not clear whether L belongs to the central or the marginal set.

O mainly occurs in fingerspelling (‘O’ of one-handed, ‘B’ of two-handed fingerspelling). However, in all these cases bO is also possible besides the O handshape, so that O may be a variant of bO. Otherwise, O only occurs in SUNNE_VA:LA: ‘hearing’ and AMBULANCE ‘ambulance’.

V” There is little evidence for this handshape. A clear case is the iconic sign for ‘kneel’ (two fingers of the one hand ‘kneel’ on the palm of the other hand). Possibly A:DAT ‘habit’ is formed with V” but there are variants with V and with H. V” seems to occur in a few signs in the dictionaries.

G° G° seems to imitate the shape and size of a grain of rice in CA:VAL ‘rice’: the thumb delimitates the shape of the grain on the index finger. Because of its similarity with fbO it is difficult to ascertain the occurrence of G°.

Q+ Q+ appears in both dictionaries in the sign BATTAX ‘duck’. The additionally extended middle finger probably represents the larger beak of a duck as compared to a bird (PARINDA:).

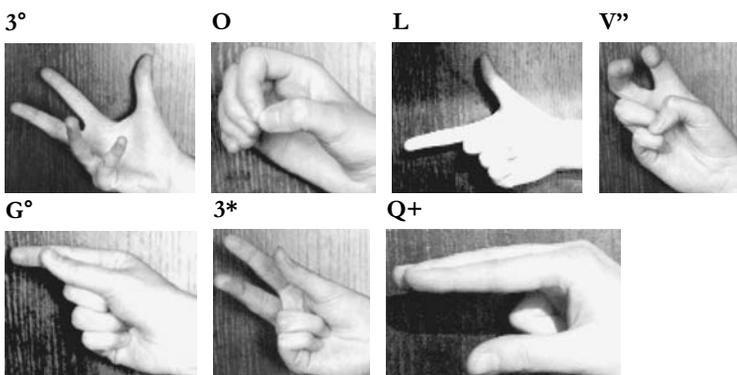


Fig. 16. Handshapes: problematic cases

- 3* Some signs in the dictionaries have a handshape with thumb, index and middle finger as active fingers. There is variation insofar as the fingers might be fully extended or crooked and index and middle fingers might be touching each other or be spread. There may even be several distinct handshapes. Examples are SITA:RAH 'star' and LI:MU:N 'lemon'.

2.1.5 *Meaningful Handshapes*

In general handshapes in sign languages are considered to be comparable to phonemes in spoken languages. Klima & Bellugi (1979) have proposed the idea that ASL handshapes are composed of distinctive features, such as 'full' (all four fingers extended), 'cross' (crossed fingers), 'touch' (contact between thumb and finger tips) etc.

Considering handshapes as phonemes has sometimes been viewed as problematic because besides their assumed phonemic value handshapes may carry meaning as well in certain signs. This is especially the case with the so-called 'classifier handshapes' which occur in ASL and several European sign languages (see for instance Wilbur 1987 for ASL, Corazza 1990 for Italian Sign Language, Prillwitz 1985 for DGS). Certain handshapes stand for typical characteristics such as 'human', 'animal', 'one-dimensional' (e.g. a needle), 'two-dimensional' (e.g. a piece of paper), 'small and round', 'large and round' etc. These handshapes may then form predicates in such a way that spatial placement or movement patterns stand for the situation or action and handshapes stand for the participants. Take, for example, locative constructions in ASL:

[A] noun used as a reference point is signed first, followed by the placement of a classifier for that object. The thing to be located is signed next. The relationship between the two is then shown in a spatial way by the location, movement, and orientation of the combination of classifiers.⁵

In such constructions the handshapes have a meaningful, morphemic function, whereas the same handshapes in other signs are meaningless parts like phonemes in spoken languages. Items that can be both phonemes and morphemes might present a problem for an analysis based on traditional linguistic concepts such as double articulation.

Much attention has been given to classifier handshapes in sign language research, so that Boyes-Braem (1990: 78) concludes: "The principle of using the handshape component to refer to noun classes seems to hold for all sign languages investigated so far."⁶

5. Liddell 1980: 100.

6. Quotation translated from German.

IPSL is likely to disprove this claim to some extent. Although there are some signs with handshapes reminding of classifier handshapes in other sign languages, there seems to be no systematically arranged paradigm of classificatory *handshapes*. Instead, IPSL uses *signs* with classificatory meanings such as ‘box-like object’, ‘round three-dimensional object’, ‘circular two-dimensional shape’, ‘square shape’ etc. Examples of classifier handshapes used productively in predicates in the way outlined above for ASL are very uncommon in IPSL. Vasishtha, Woodward & Wilson (1978: 71) make a similar point: ‘In contrast to American Sign Language, no specific handshapes (classifiers) were observed as pronoun forms in Indian Sign Language’. It is of some importance to pursue this question further because the result will probably be that there is typological variation across sign languages comparable to spoken language typology in the domain of classification.

On the other hand, there is another type of meaningful handshapes in IPSL which exists in other sign languages as well. Friedman (1978: 26ff) speaks of ‘semantic content’ of some ASL handshapes which preferably appear in certain domains of meaning, such as 4 for plurality, V for eyes or legs, bent-V (V” in my transcription) for hardship, difficulty. In IPSL we find such signs and groups of signs as well in which the handshape has some — mostly iconically motivated — ‘meaningful content’ (see also 2.2. ‘Sign Families’ and 2.5. ‘Iconicity’). One example is the V-hand in DEKHNA: ‘see’, where the fingers symbolize the eyes and are moved forward from the eyes, and in CALNA: ‘walk’, where the two active fingers of the V-hand stand for the legs.⁷

It may be an exaggeration to speak of ‘semantic content’ of the V-hand here because DEKHNA: and CALNA: do not specifically mean ‘to see with the eyes’ or ‘to walk on the legs’ in contrast to other hypothetical forms of seeing and walking which might be articulated with other handshapes. Thus, strictly speaking, the V-hand does not add any meaning. However, it may safely be assumed that the V-hand is not used by chance here but is based on an iconic form-meaning relationship. The term ‘meaningful’ is to be understood in this sense.

7. It is often a matter of subjective interpretation whether to assign a meaning to a handshape and which one. Therefore, similar cases are treated in the next section on ‘Sign Families’ under a general formative perspective.

basic handshapes

handshapes	A	B'	G	fO	5
free variants	S	B	L		
conditional variants	E	B°			

central handshapes

handshapes	A'	B^	cB	C	bC	H	I	(L)	bO	(O)	fbO	Q
free variants						H'			(O)			(Q+)
conditional variants									bO°			
handshapes	Q°	T°	V	(V'')	X	Y	(3°)	(3*)	5''	5°		
free variants			3									

marginal handshapes

handshapes	(G°)	Go	(L)	M	Q+	W	(3°)	4	6	8
------------	------	----	-----	---	----	---	------	---	---	---

Table 3. Preliminary inventory of handshapes in IPSL⁸**2.2 Sign Families**

The term 'sign families' is taken from Klima & Bellugi (1979: 81) who state that 'Sign families related in both formational elements and meaning are not uncommon in ASL.' By 'formational elements' they mean the sign parameters of handshape, place of articulation and movement, as well as orientation. Several signs are members of the same family if they share one or more of these parameters and one or more aspects of meaning.

2.2.1 *Opposites*

Some pairs of signs with opposite meanings only differ in that they move in opposite directions. In PA:S 'win, success' the thumb of the A'-hand is moved upwards by turning the wrist, whereas in FAIL 'lose, fail' the movement is towards the opposite direction (see figs. 17 and 18). If the handshape changes during articulation, beginning and ending handshape are reversed: in XUŞ 'happy' the hand opens from fO to 5° and moves up the body at the same time; on the contrary, in AFSOS 'sad, sorry' the hand closes from 5° to fO (see figs. 19 and 20). Further examples in this category include TARAQQI: 'progress, develop' and TANAZZUL 'decline, deteriorate', as well as PHAILNA: 'spread' and KAM_HONA: 'diminish'.

8. Handshapes that appear in two positions in brackets cannot be assigned to any single category with certainty. Handshapes for whose existence there is no conclusive evidence appear once in brackets.

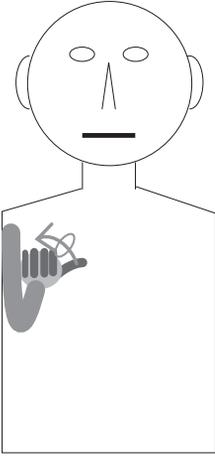


Fig. 17. PA:S

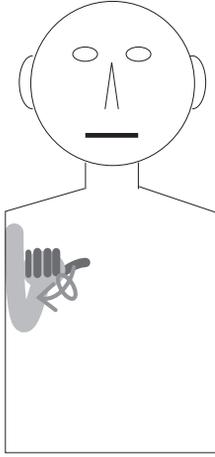


Fig. 18. FAIL

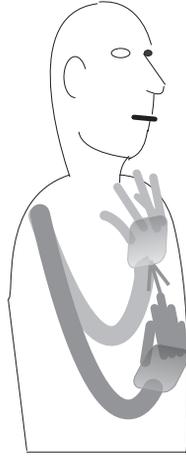


Fig. 19. XUŞ

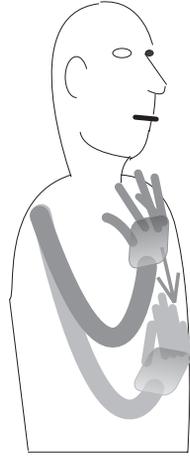


Fig. 20. AFSOS

2.2.2 *Signs Related by Common Handshape*

In many cases a group of signs have the same handshape but different places of articulation and movement patterns. A good example are the signs FAUJ ‘army’, SHOOT ‘shoot’, DUŞMAN ‘enemy’, REVOLVER ‘revolver’ and JANG ‘war’ (see figs. 21–25), which all have something to do with violent conflict and are formed with X handshapes. Movement patterns (straight, circular), number of hands used (one-handed, two-handed) etc. are different in every case and cannot be derived by any morphological rules. Further examples of sign families with common handshape are:

3°: BAS ‘that’s all’, KOI: ‘any’, and the question sign(s)

A’: PA:NI: ‘water’, SARA:B ‘alcohol’, POUR_DRINK ‘pour into a glass’

A’: ACHA:I ‘good’, AVERAGE ‘average’, PA:S ‘success’, FAIL ‘fail’

bO°: PAISAH ‘money’, AMI:R ‘rich’

G: USTA:D ‘teacher’, SIKHA:NA: ‘teach’

bO: LIKHNA: ‘write’, URDU: ‘Urdu, write Urdu’, ENGLISH ‘English, write English’

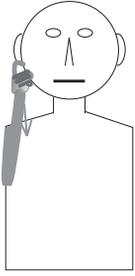


Fig. 21. FAUJ

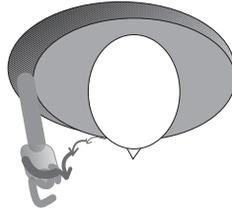


Fig. 22. SHOOT

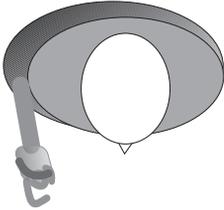


Fig. 24. REVOLVER

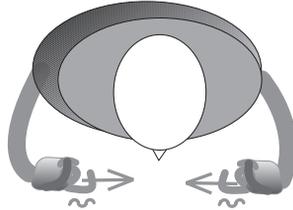


Fig. 25. JANG

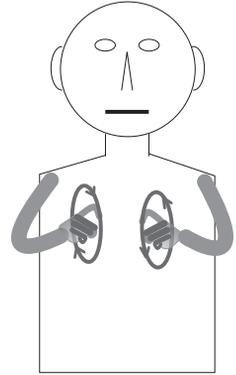


Fig. 23. DUSMAN

2.2.3 *Signs Related by Common Place of Articulation*

Another parameter, place of articulation, may also link signs in a sign family. The head (more accurately the temple on the dominant side of the speaker), in its function as the 'seat' of cognition, is the place of articulation of a number of signs from this domain of meaning, such as SAMAJH 'understand', SOC 'think', MA:LU:M 'know' (see fig. 26), and BE_VAQU:F 'stupid' (see fig. 27). All these signs are based on the same idea of the head as the location where cognitive processes take place.

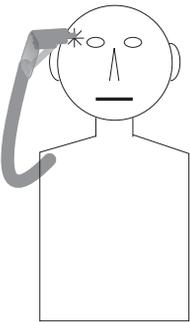


Fig. 26. MA:LU:M

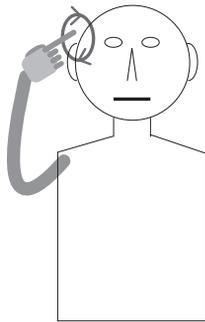


Fig. 27. BE_VAQU:F

The common iconic basis is also evident in a group of signs that have to do with time and whose place of articulation is the wrist on the back side of the hand, the place for a wrist watch. The sign GHAR^o: ‘wrist watch’ (see fig. 28) represents the shape of the watch with a bO handshape. In addition, VAQT ‘time’ (see fig. 29), DER ‘late’, MINIT^o ‘minute’, GHANT^oA: ‘hour’ (see fig. 30) and OVERTIME ‘(work) overtime’ have the same place of articulation.

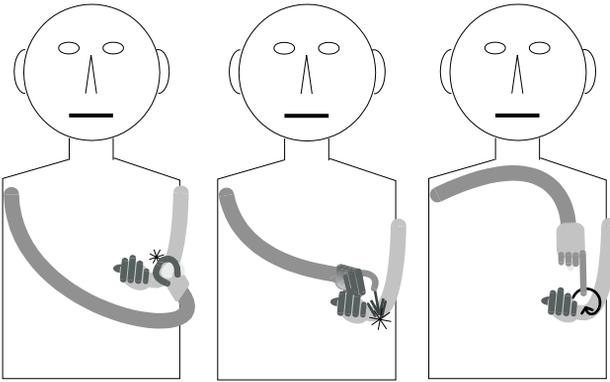
Fig. 28. GHAR^o:

Fig. 29. VAQT

Fig. 30. GHANT^oA

For several sign languages the existence of a so-called ‘time line’ has been claimed (Boyes-Braem 1990, Wilbur 1987, Klima & Bellugi 1979). Signs related to time such as ‘before’, ‘tomorrow’, ‘in future’ etc. are placed along this time line, which extends forward through the body at about head level. The past is ‘situated’ at the back, the future in front, and the present close to the front side of the body. Fig. 31 (adapted from Klima & Bellugi 1979) is a representation of the time line in ASL.

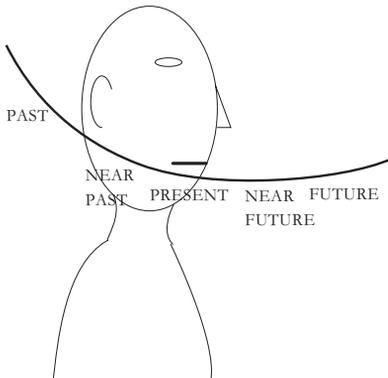


Fig. 31. Time line in ASL

In IPSL some signs are arranged along such a time line as well. However, the course of the line is different from ASL, the signs in the ‘future’ section being articulated somewhat lower at abdominal level. In addition, there does not seem to be any formational difference between distant and near past or future in IPSL. Fig. 32 shows the placement of PAHLE ‘before’, KAL ‘yesterday’, PURA:NA: ‘old, previous’, ABHI: ‘now’, AGLA: ‘next’ and A:GE ‘further, later’ on the time line.

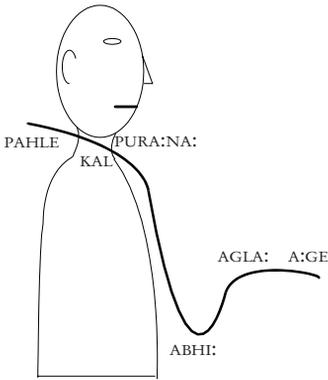


Fig. 32. Signs on the time line

In PAHLE the hand may reach more or less far behind. However, there is no evidence from the data that this entails a change in meaning. A:GE may also be glossed MUSTAQBAL ‘future’, as in the ABSA handbook on ‘time and seasons’. A sign meaning ‘interval of time from any point X in the past until the present’ consists of a movement along the time line from the point of PAHLE up to the point of ABHI: with a G handshape, which also occurs in the basic form of SE_TAK ‘from X to Y’.

Apart from the time line as shown in fig. 32 a second time-related location exists at lower chest level in the horizontal plane. Among others, BA:D ‘then’ and KAL(FUT) ‘tomorrow’ are executed here, each with a turn of the wrist which leads the hand inwards. These signs are also related to the future section of time but — for whatever reason — they are not situated in the appropriate segment of the time line.

In contrast to ASL,⁹ expressions of time such as ‘year’, ‘week’ etc. cannot be represented on the time line, but have to be combined with PAHLE or BA:D (see figs. 33 and 34):

9. Cf. Wilbur (1987: 129).

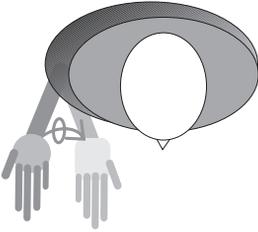


Fig. 33. BA:D

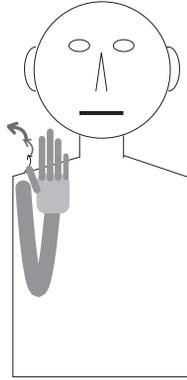


Fig. 34. PAHLE

TI:N+SA:L BA:D 'in three years, three years later'¹⁰
 MAHI:NA: PAHLE 'one month ago/before'

2.2.4 Componential Signs

Some signs are made up of two parts, one of which may be identical across several signs. This is especially the case for terms of kinship, which usually consist of the sign for 'man' (see fig. 35) or 'woman' (see fig. 36) respectively and a term specifying the kinship relation which is not marked for gender, e.g.:

- 'brother' = A:DMI: 'man' + SIBLING 'sibling'
- 'sister' = AURAT 'woman' + SIBLING 'sibling'
- 'husband' = A:DMI: 'man' + \$A:DI: 'marry'
- 'wife' = AURAT 'woman' + \$A:DI: 'marry'
- 'son' = A:DMI: 'man' + PAIDA:IS 'birth'
- 'daughter' = AURAT 'woman' + PAIDA:IS 'birth'

The terms of kinship given here are subject to considerable regional variation. However, the principle of composition is the same in every variety although it is not applied throughout all terms of kinship. For example, the second part of MA:N' 'mother' (see fig. 37) cannot be assigned any meaning, whereas BA:P 'father' is a single morpheme sign. There is no sign meaning 'parent' in IPSL. Whether the kinship terms in the list above should be considered compounds rather than componential signs will be discussed in section 3.4.4.

10. See 3.4.1. on numeral incorporation.

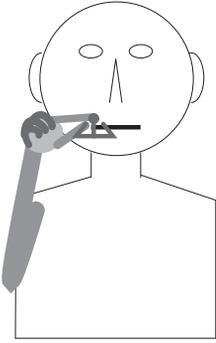


Fig. 35. A:DMI:

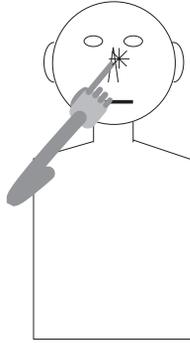


Fig. 36. AURAT

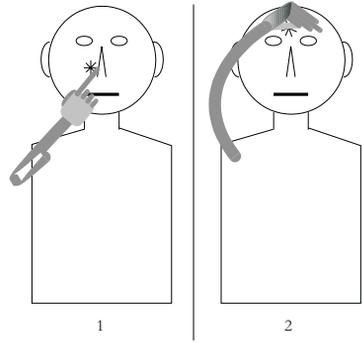


Fig. 37. MA:N' = AURAT(1) + ??? (2)

Another type of composition is used to create generic expressions. The principle is to mention a typical item first and then add the sign MUXTALIF 'various' (see fig.38). For example, 'fruit' is expressed as SEB 'apple' + MUXTALIF, the apple being the prototypical fruit, so to speak: 'fruit' = 'apples and the like'. The same principle of formation can be found in:

- 'vegetable'
A:LU: 'potato' + MUXTALIF
- 'dry fruit'
BA:DA:M 'almond' + MUXTALIF
- 'colour'
LA:L 'red' + MUXTALIF¹¹

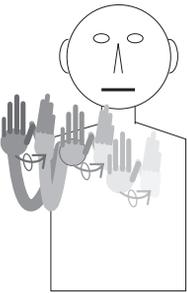


Fig. 38. MUXTALIF

Bellugi & Newkirk (1981:14f) describe a similar strategy in ASL: several representatives of a group are enumerated and the sign ETC. is added, e.g. CHAIR^TABLE^LAMP^ETC. for 'furniture'.

11. There is also a single morpheme sign for 'colour' besides the compositional one.

2.3 Extraneous Influences on IPSL

2.3.1 *IPSL and Hindi/Urdu*¹²

Through continuous contact with hearing people and through formal instruction of part of the deaf community speakers of IPSL in the Karachi and New Delhi regions are bilingual to some degree, so that influence of Hindi/Urdu on IPSL can be assumed. However, to prove this in every single case is difficult, especially as far as structural aspects are concerned. Therefore I only discuss a few signs here for which the connection with Hindi/Urdu is evident.

Normally fingerspelling is used for the names of the months, sometimes in combination with another sign. The only exception is JUNE 'June'. This sign imitates the action of crushing a louse between the nails of the thumbs and is based on the similarity between *JU:N* 'June' and *JU:N* 'louse' in Hindi/Urdu. In Urdu script the two only differ in a diacritic point. So the sign JUNE is based on a sort of mistaken analogy with Hindi/Urdu.

The following examples are taken from the Karachi data. Signers from New Delhi do not use these signs because they refer to place names in Pakistan. Another Karachi sign of the 'mistaken analogy' type is JHANG (name of a city in Pakistan). It consists of a fingerspelled 'J' and the sign JANG 'war'. The connection with the Hindi/Urdu word *JANG* 'war' is evident because the only difference from the name *JHANG* is aspiration and a single letter 'h' in Urdu writing. Another type, a loan translation, is represented by the sign for the city Islamabad. *A:BA:D* in Urdu means 'dwelling, settlement'. IPSL exactly imitates this combination and translates 'Islamabad' as *ISLA:M* 'Islam' + *JAGAH* 'place' (see fig. 39).

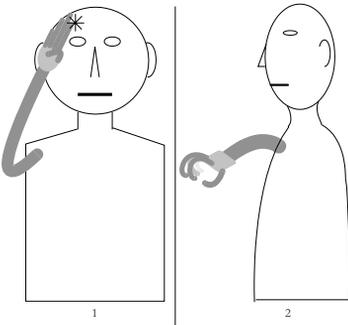


Fig. 39. *ISLA:MA:BA:D=ISLA:M+JAGAH*

12. Urdu and Hindi only differ in the use of two different scripts and in part of the vocabulary, in particular the more elevated literal vocabulary.

Combinations of a either a fingerspelled letter or JAGAH with other signs or with each other occur with several names of places in Pakistan. However, not all places that end in *-A:BA:D* in Urdu are formed with JAGAH in IPSL. In any case, place names, as well as proper names, are particularly susceptible to influence from Urdu. Moreover, it is likely that any decision in favour of making extensive use of Sign Urdu in special education for the deaf would considerably intensify the influence of Urdu on IPSL.

2.3.2 *IPSL and English*

In India and Pakistan English is an official language, and my deaf informants are more or less fluent in English as well as in Hindi/Urdu. In Karachi, for one of the older persons (muh) and the deaf father of one informant English is even the only medium of written communication because they have no knowledge of literal Urdu. The same is true for most of the signers from southern India, who are competent in their respective regional languages and in English but not in Hindi. In general, my Indian informants are much more fluent in English than the signers from Pakistan. This has various consequences, for example for the use of mouth patterns (movements of the mouth imitating the articulation of a word from the spoken language). Whereas signers from Karachi use Urdu mouth patterns almost exclusively, English mouth patterns are very common among signers from New Delhi.

The influence of English also manifests itself in the use of fingerspelling whose letters stand for English words. A two-handed system is used for almost all letters whereas single-handed Urdu fingerspelling with 38 letters is not in use except in Sign Urdu, and one-handed Hindi fingerspelling with 47 letters is not in use at all as far as I have observed. There is some variation across signers and across regions as far as the exact shape of the letters of English fingerspelling is concerned. I reproduce two tables from NISE (1991: 158) and from Deshmukh (1996: 148) in figs. 1 and 2 of Appendix A. There are minor differences between the two tables, as well as between the tables and some other variants I have encountered during my research in New Delhi but overall the alphabets are similar enough to be understood across India and Pakistan.

In ASL a typical use of fingerspelling is to adopt a new concept from English by modifying the handshape of a sign with similar meaning according to the initial letter of the English word. These new signs are known as 'initialized signs':¹³

13. See, for instance, Klima & Bellugi (1979:199).

The initial letter of the English word, rendered in the manual alphabet, becomes the handshape of the loan. This hand configuration is then usually combined with the same movement, place and orientation of an existing, semantically related sign.¹⁴

IPSL does not have initialized signs. Instead, it is usually only the first letter of the intended word that is produced, e.g.:

Y for 'Year'

C for 'Club'

M for 'Member'

To represent expressions made up of several words several initial letters are fingerspelled:

J*S for 'Joint Secretary'

S*P for 'Superintendent of Police'

In some cases, speakers choose several letters from one and the same word. We also find this strategy in English loanwords in New Zealand Sign Language,¹⁵ where the middle letters are usually dropped, e.g. JB = 'job', JL = 'July', AL = 'all' etc. These are some examples from the IPSL corpus:

A*G for 'AuGust' (A alone means April)

S*P for 'SingaPore'

T*V for 'TeleVision'

B*Y for 'BoY' (only one speaker)

Fingerspelling is especially common in certain domains, i.e. with names of the months (except JUNE), some days of the week ('Monday', 'Tuesday', 'Wednesday', 'Saturday') and names of places and countries, e.g. K for 'Karachi', R for 'Rawalpindi', P for Pakistan, D for 'Delhi'.

Of course it is unavoidable that some letters may potentially refer to more than one English word. For example, L can stand for Licence, London or Leader, C for Club, Computer or College. Several strategies are available to avoid ambiguity:

- Understand from the context which word is intended.
- Accompany the letter with an appropriate mouth pattern or articulate the English word.
- Spell the whole word after the initial letter.
- Add another sign which explains the intended word. Thus, C followed by the sign TYPE means 'the C you type on', i.e. a computer. The combination may be optional (as in C+TYPE) or form a fixed two-part expression,

14. Friedman (1978: 23).

15. Cf. Collins-Ahlgren (1990: 303).

which often happens in the case of place names and countries (cf. JHANG above). This strategy is similar to ASL initialization (a fingerspelled letter combined with an ASL sign) but the combination is sequential rather than simultaneous.

If necessary, several of the strategies can be combined. The examples below illustrate the range of possibilities.

Fingerspelled letter and mouth pattern:

- (5) SIGN: PA:KISTA:N YAHA:N' COLLEGE NAHI:N'
 mor: P here C NEG
 mth: college
 nmn: NEG—————
 tra: 'Here in Pakistan there is no college (for the deaf).'

Fingerspelled letter, articulated and fingerspelled word

- (6) SIGN: BA:P MAIN' DIRECTOR DIRECTOR(FS) FINANCE
 mor: father I D D*I*R*I*C*T*O*R¹⁶ F
 voc: director finance
 nmn: AFF
 tra: 'My father is a finance director.'

Combination with an explaining sign:

- (7) SIGN: BA:D(G) ISA:RA: LEADER SADR.
 mor: then sign L president
 voc: i\$a:ra: sadr
 tra: 'Then (I became) the leader of the sign language (research group).'

2.3.3 *IPSL and Gestures*

Of course deaf and hearing people in India and Pakistan share a great part of their cultural environment. One of these culture-specific phenomena is the range of conventionalized gestures used by hearing people. As IPSL is a visual-gestural language, the question might be of importance whether there is any relationship between gestures in general use and IPSL signs, and of what kind this relationship might be.

Two cases can be distinguished. On the one hand there are some signs in IPSL which are used as gestures by hearing people in some situations with

16. Spelling mistakes such as this one are quite common among deaf people.

identical form and meaning. Among others, the examples PAISA: ‘money’ and SUKRIYA: ‘thanks’ occur in the data. One difference between the signs and the gestures is that the IPSL signs mean ‘money’, ‘thanks’ etc. independently of context, whereas hearing people express the corresponding meanings through words of the spoken language and only use the gestures in certain situations. For instance, it is not always appropriate to use the ‘thank you’-gesture when thanking somebody; the gesture is typically used by beggars. In IPSL, on the contrary, the signs are generalized over all contexts. Secondly, the signs in IPSL are part of a linguistic code and are therefore subject to rule-governed processes. For example, PAISA: can be inflected to mean PAISA:+DENA: ‘give money’ by adding movement away from the speaker, and the sign is related to AMI:R ‘rich’ by common handshape. The corresponding gesture used by hearing people is isolated and unchangeable.

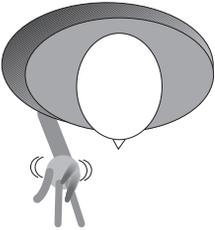


Fig. 40. KYA:

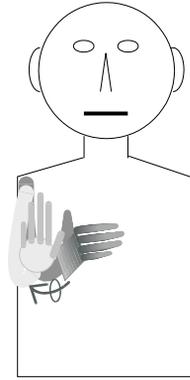


Fig. 41. HO_GAYA:

A second interesting kind of relationship between signs and gestures involves a specific structural broadening of function of the signs in contrast with the gestures. In the section on handshapes I have already mentioned the ‘question handshape’ 3°. The same handshape is also known among hearing people as a general questioning gesture, which is identical to the sign KYA: ‘what (interrogative)’ (see fig. 40). As I have pointed out before, it is not clear from the data whether this interrogative sign is the only one in IPSL covering the meaning of all question words in Hindi/Urdu, or whether there are several related signs with this handshape forming a paradigm of interrogative signs. What is clear, however, is that the interrogative sign or signs entail a number of grammatical rules such as position of the interrogative sign in the sentence and scope of the nonmanual interrogative marker (for details see 4.3.2.). Therefore, the interrogative sign or signs are embedded in the grammatical

structure of IPSL in several ways, whereas the questioning gesture used by hearing people has no relationship with the grammar of Hindi/Urdu.

The sign *HO_GAYA*: (literally ‘has become’), whose identical counterpart among the gestures means something like ‘go away’ or ‘leave it’ (see fig. 41), is another case in this category. The corresponding sign in IPSL has a functional meaning (completive): it expresses completion of an action. Again there are grammatical rules as to the applicability of the completive sign, its position in the sentence, its compatibility with other signs etc. (for details see 3.3.1). Discussing iconic signs of transparent meaning, Karlsson (1984:153) observes: ‘many signs are homonymous to (or the same as) the corresponding nonverbal gestures used by hearing people.’ However, such transparent signs are not just copies of the corresponding nonverbal gestures. On the contrary, what is remarkable about *HO_GAYA*: is that, of all signs, it is a sign with a corresponding gesture that appears among the few signs in IPSL which have a purely functional meaning. The difference between linguistic structure of a sign language on the one hand and nonverbal communication of hearing people on the other hand could hardly be illustrated more clearly.

2.3.4 *IPSL and Other Sign Languages*

It can often be observed that signs from different sign languages are formationally similar. This is mostly the case with signs that have a common iconic basis. Typically, these signs can also be easily understood by hearing non-signers, i.e. they are transparent:

transparent deictic and iconic signs such as those for I, YOU, BALL, WALK, SWIM, FLAT, TALL (...) tend to be identical or very similar in form across sign languages of various countries.¹⁷

For such signs (cf., for instance, ‘bird’ and ‘duck’, which are identical in IPSL and ASL) it cannot easily be decided whether their similar or identical form is due to a genetic relationship, to lexical borrowing, or just to a common iconic basis. Therefore, I will exclude these signs from discussion and only make a few comments about the possible relationship between some IPSL signs and signs from other sign languages.

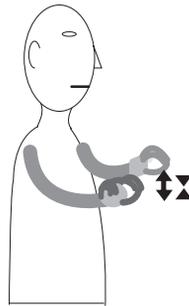
Some of my informants have travelled to other countries and use foreign signs sometimes because they have been in contact with deaf people abroad. However, these signs always need to be explained, either by adding an IPSL sign or by fingerspelling if no sign exists in IPSL. For instance, the informant

17. Karlsson (1984:153).

who currently lives in the USA (sul) sometimes code-switches between IPSL and ASL. Apart from such sporadic examples some signs that are identical in IPSL and other sign languages cannot easily be attributed to shared iconicity and do not have transparent meaning in the sense discussed above. These may be loanwords. One example is the sign *HELP* ‘help, support’ (see fig. 42), which is identical to the corresponding ASL and BSL (British Sign Language) sign and is used by many of the informants. It is especially remarkable that an English mouth pattern *HELP* is regularly produced by signers in Karachi instead of the corresponding Urdu *MADAD*. Otherwise, they only use English-based mouth patterns in connection with fingerspelling.¹⁸ Moreover, there is another sign *MADAD* with the same meaning ‘help’, so that the concept is expressed twice in the language.

GHAR ‘house, home’ (see fig. 43) may be a candidate for a loanword, too. The shape represented by the two B-hands, which is readily recognizable as the roof of a house in western culture, cannot be interpreted in the same way in India and Pakistan because all roofs are flat there. It is possible that an originally iconic sign was borrowed in this case and has now lost most of its iconicity because of the different cultural setting.

The sign *NO_NO* (see fig. 44) is certainly a loanword from ASL because it has evidently evolved from the fingerspelled letters ‘N-O’ of the American one-handed fingerspelling system which is not in use in India and Pakistan. Also note that the beginning handshake of *NO_NO* is not a regular IPSL handshake. It is quite likely that some users of this sign have no knowledge of its origin, which

Fig. 42. *HELP*Fig. 43. *GHAR*Fig. 44. *NO_NO*

18. The only other exception is *DEAF*, which is often combined with an English mouth pattern *DEAF*. *BAHRA*: (Urdu for ‘deaf’) does not occur. For whatever reason, it is customary among hearing people as well to refer to deaf people as ‘deaf’ rather than ‘bahra:’, so that the English mouth pattern is not surprising here. Deaf persons are also erroneously called ‘gu:nga:’ (‘dumb’) sometimes.

does of course not prevent its use in any way. One of my elderly deaf informants told me that this sign has been in use in Karachi for about eight years.

Some influence from BSL is evident in the use of the British two-handed fingerspelling system. Even though there is no direct genetic relationship, it seems likely because of the historical links between Great Britain and the Indian subcontinent that BSL has influenced IPSL more strongly than other sign languages. However, only a more detailed investigation can show whether there is a greater number of loanwords from BSL.

2.4 Nonmanual Components of Signs

In spite of a widespread misunderstanding among non-linguists sign languages are not ‘languages of the hands’ but rather allow the speaker to use the whole body for communication, i.e. body posture, head orientation, facial expressions and eye gaze. The entire information of a signed sentence is distributed over several of these so-called ‘channels’.

This kind of information processing is possible because the eye — unlike the ear — as the receiver organ is able to interpret information from the various channels at the same time. Whereas spoken languages basically have a sequential order, in sign languages it is not only *possible* but even *necessary* to organize information simultaneously to a large extent in order to arrive at a satisfactory speed of communication. Thus, it has been noticed that signers convey the same messages in approximately the same time as users of a spoken language although the production of a sign takes about twice as long the articulation of a word.¹⁹ One time saving strategy is the use of nonmanual components, especially for grammatical purposes (see 4.3. ‘Nonmanual Syntax’).

Apart from this time saving function, where the nonmanual components convey information about negation, conditional, interrogative etc. independently of the signs in the sentence, nonmanual components in IPSL can also be found as integral formative parts of certain signs. These are obligatory in the signs and have the same relevance as, for instance, handshape or place of articulation.

2.4.1 *Mouth Pattern, Mouth Gesture and Facial Expression*

Sign language research differentiates between mouth pattern (‘Mundbild’) and mouth gesture (‘Mundgestik’). A mouth pattern imitates the articulation of a

19. Klima & Bellugi (1979: 185).

word from the spoken language, whereas those movements of the mouth which do not derive from a spoken language word are called mouth gestures.²⁰ Mouth patterns do not have equal relevance in each sign language. In ASL they hardly play a role but in German and Swiss German Sign Language they fulfill important functions. Boyes-Braem (1990: 117) notes the following:

1. differentiating between two homonymous signs;
2. specifying the meaning of a sign by using a more exact expression in the mouth pattern;
3. emphasizing function;
4. mouth pattern with a meaning different from the sign, the total sense deriving from the combination with the sign;
5. only the mouth pattern carries the meaning where no sign exists (e.g. proper names);
6. redundant signals with no linguistic function.

In IPSL mouth patterns are quite frequent, too. However, determining their status is difficult because individuals use mouth patterns to very different degrees. Some speakers use practically no mouth patterns, some use many, others again frequently pronounce certain words instead of the silent mouth patterns. Women seem to use both mouth patterns and voicing more often than men. From the limited data it is not possible to conclude whether some of the mouth patterns must obligatorily be used and can therefore be regarded as integral formative parts of signs. Nevertheless, a few particularities may be noted here:

Mouth patterns can be used for disambiguation in IPSL as well. The sign *TYPE*, for instance, may mean 'type', 'type writer' or 'computer'. If a signer wants to refer to a computer unambiguously, he can combine *TYPE* with the mouth pattern 'computer':

- (8) SIGN: *TYPE* *MUXTALIF TYPE* *ABHI: \$URU:*
mor: type various type now begin
mth: computer computer
tra: 'Now they have started (to work with) various computers.'

However, this is not obligatory.

Sometimes a mouth pattern different from the sign completes the sentence, so that the whole sense can only be derived from the sign and the mouth pattern together:

20. Prillwitz (1985:20).

- (9) SIGN: YEAR MAIN' KA:M.
 mor: Y I work
 mth: pa:nc sa:l²¹
 tra: 'I have worked for five years.'

In combination with signs the mouth pattern behaves in accordance with the structure of sign language, i.e. the word is not inflected and adheres to the structural characteristics of the given sign language. Thus, the mouth pattern follows IPSL-specific inflections such as iterative or gradual aspect (see 3.3. on aspects).

- (10) SIGN: AMRI:KA: UN BATA:NA:.
 mor: America U*N inform-ITER-right.up
 nmn: G:right.up—————
 mth: bol bol²²
 tra: '(We have) repeatedly informed America and the UN
 (about the situation).'
- (11) SIGN: TANAZZUL DOST2 DEAF MULA:QA:T.
 mor: decline-GRAD friend deaf meet
 mth: kam kam kam kam²³
 tra: 'Meetings with deaf friends gradually became less (frequent) over time.'

In contrast to the mouth patterns there are cases in the domain of mouth gestures where a sign is always and obligatorily accompanied by its nonmanual component. Examples are discussed in detail in section 2.4.3. Apart from the mouth, facial expressions may also involve other parts of the face, such as narrowed eyes, wrinkled nose or puffed cheeks.

2.4.2 *Body Posture, Head Position and Eye Gaze*

Apart from facial expression the position of the head and body and the direction of eye gaze also play a role in some signs. In PI:CHE_HAT°A:NA: 'push away, neglect' the body is not kept straight: while the hands move in one direction, the body is tilted in the opposite direction (see fig. 45). The face mostly assumes a disapproving expression. In the sign RAVA:NA: 'disappear in the distance' (see fig. 46) eye gaze has to follow the path of the articulating

21. PA:NC, i.e. 'five', SA:L i.e. 'year'.

22. BOL, i.e. 'speak'.

23. KAM, i.e. 'little'.

hand and the signer has to convey an attitude of watching something disappear in the distance. This may be done by tilting the head and narrowing the eyes.

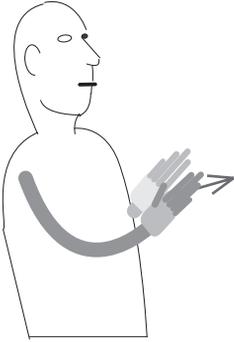


Fig. 45. PE:CHE_HAT°A:NA:

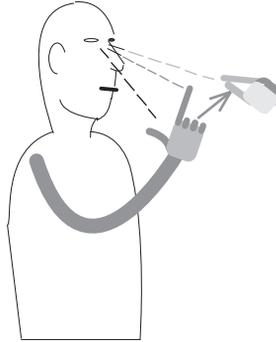


Fig. 46. RAVA:NA:

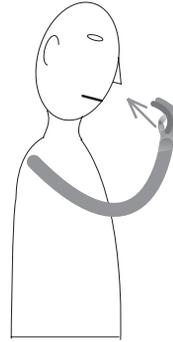


Fig. 47. ŠUKRIYA:

In some cases, e.g. ŠUKRIYA: ‘thanks’ (see fig. 47) the head must be lowered. Lowering of the head in this sign is coordinated with manual activity in a particular way: the head comes down during the upwards movement of the hand until the finger tips almost touch the front. When the hand starts moving back down, the head also assumes its upright position again. It would be wrong to lower the head first and then move the hand, or the other way round. Lowering of the head and eye gaze downwards may also occur as a nonmanual marker together with signs that have an upright position of the head in their basic form. In these cases, however, head position is determined by rules of syntax or discourse and not a component of the sign itself (see related examples in the chapters on syntax and on discourse).

2.4.3 *A Nonmanual Parameter?*

Most researchers have recognized four parameters so far which, simultaneously combined, make up the signs: handshape, place of articulation, movement and orientation. In this theory, every sign must differ in at least one of these parameters from every other sign in order to be uniquely identifiable. Although nonmanual components of signs have been taken into account sometimes, they have usually not explicitly been granted the same phonological status, i.e. they are not explicitly considered to be equivalent to the phonemes in spoken languages and to have a meaning differentiating function. In particular, to my knowledge no evidence has been presented for minimal pairs being differentiated by a nonmanual feature only in any known sign language yet. The existence of such minimal pairs would support the phonemic status of nonmanual features

because the existence of the other parameters has also been proposed and/or confirmed with arguments based on minimal pairs. I will show in this section that there are some minimal and near-minimal pairs of signs in IPSL in which handshape, place of articulation, movement and orientation are all the same and some nonmanual feature assumes the meaning differentiating function.

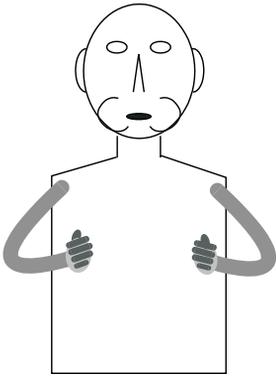


Fig. 48. MOT^oA:

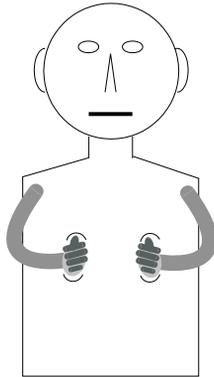


Fig. 49. TA:QAT_VAR

The sign MOT^oA: 'fat' is made with puffed cheeks, which give the impression of a fat face in addition to the wider girth conveyed by the position of the arms. The sign never occurs without this facial expression, so that it should be considered an integral formative part of the sign. MOT^oA: is similar in form to TA:QAT_VAR 'strong' (see figs. 48 and 49). In the latter the arms are closer to the body and the hands perform a slight vibrating up and down movement. Even though the shape of the mouth is not the only feature differentiating the two, it might reasonably be asked whether it is not the most salient one, especially when the speech tempo is fast. As the addressee usually looks at the eyes and face of the speaker, it may be easier for him to see the puffed cheeks than the position and movement of the hands. According to Siple (1978: 101) the face is a 'high acuity zone', i.e. an area where perception by the viewer is best:

Small differences in position, in motion, in number of fingers and overall handshapes can be easily detected in such areas. Farther out from fixation point, only gross differences in these aspects of a sign can be detected.

Therefore, as the difference between MOT^oA: and TA:QAT_VAR is rather small as far as the manual aspects of the signs (which are situated in an area of lower acuity) are concerned, the puffed cheeks in MOT^oA: are probably more important for identifying the sign than any manual differences. The same is true for the difference between TA:QAT_VAR 'strong', SARDI: 'cold', and the two-handed

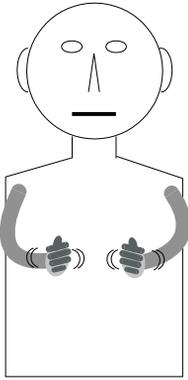


Fig. 50. SARDI:

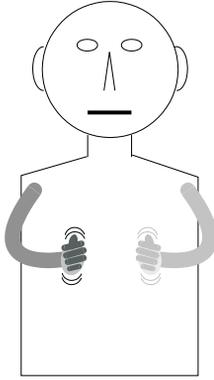


Fig. 51. MUŠKIL

realization of MUŠKIL ‘difficult’ (see figs. 50–51). There are slight manual differences between these signs: TA:QAT_VAR and MUŠKIL both have a vibrating up and down movement but TA:QAT_VAR is articulated with more tenseness and is always two-handed whereas MUŠKIL may be either one-handed or two-handed. In SARDI: the vibrating movement is sideways rather than up and down and the arms are very close to the body. In addition to the manual components, however, the facial expressions accompanying these signs are markedly different, which is particularly evident in one of the dictionaries using photographs (Sir Syed Deaf Association 1989). The facial expressions shown there are the following:

MOT°A: ‘fat’: puffed cheeks

TA:QAT_VAR ‘strong’: upright head, looking straight ahead (expression of confidence)

SARDI: ‘cold’: head lowered, tense face, teeth visible (as if shivering with cold)

MUŠKIL ‘difficult’: eyebrows raised, nose wrinkled, mouth slightly open (expression of doubt)

I would like to argue here that these facial expressions are obligatory non-manual components of the signs, at least when they are produced in isolation. Secondly, the facial expressions are at least as important for identifying the sign than any of the manual components.

In Pakistan the sign GARAM ‘hot’ has a nonmanual configuration with the mouth (and optionally the eyes) wide open. This sign is not used in India. The nonmanual component of the sign is the only one that differentiates GARAM from CUP ‘be silent’ (see fig. 52 and 53) so that we have a minimal pair here where a nonmanual component performs a meaning differentiating ‘phonemic’ function. There can be no doubt about the form of the two signs. CUP occurs

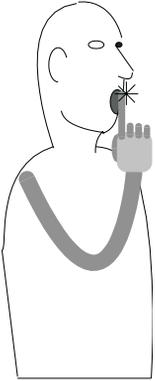


Fig. 52. GARAM

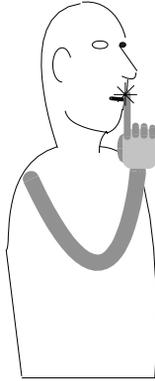


Fig. 53. CUP

five times in the Karachi corpus, GARAM occurs twice and is noted in all IPSL dictionaries from Pakistan as well.

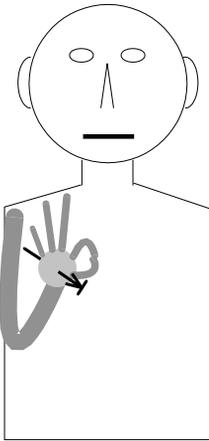


Fig. 54. BAHUT_ACHA:

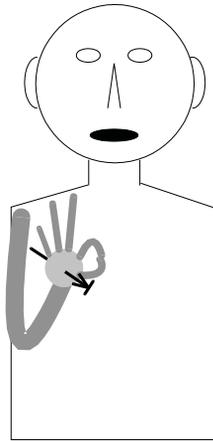


Fig. 55. VAHI:

A second clear case of a nonmanually distinguished minimal pair is BAHUT_ACHA: 'excellent' and VAHI: 'the same' (see fig. 54 and 55). Both signs involve the hand in F handshape being slightly thrust forward and ending in a stop. When BAHUT_ACHA: is emphasized there may be several tiny thrusts, but this repetition is not obligatory. Usually then the only distinguishing feature is a mouth gesture appearing in VAHI:, with the mouth being closed as in speaking the syllable 'up'. In BAHUT_ACHA: the mouth is not relevant to the form of the sign.

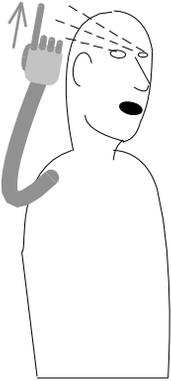


Fig. 56. GOD

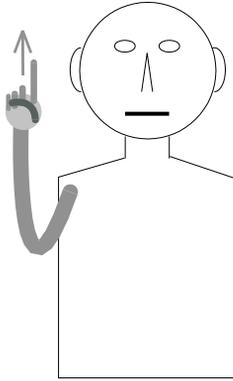


Fig. 57. U:PAR

The case of GOD 'God' and U:PAR 'above' (see figs. 56 and 57) is less straightforward. Both signs obviously have the same iconic basis (note that the Indian Hindus call their Gods *U:PAR_VALE* 'the above ones'). GOD as shown in fig. 56 was used by signers from Karachi, New Delhi, Madras, Bhopal, Ludhiana and Darjeeling in my data. Here both eye gaze and mouth pattern possibly play a role. In GOD the signer usually directs his look upwards towards the articulating hand, which can be observed in the data as well as in both the 1980 dictionary from New Delhi and the 1991 dictionary from Islamabad. Signers in Karachi usually accompany GOD with a mouth pattern ALLAH. Some of the Indian signers produced a mouth pattern GOD or BHAGWA:N. For U:PAR 'above' the data is not conclusive as to whether there is an obligatory mouth pattern and what the direction of eye gaze is. However, what is clear is that there is no difference between the two signs as far as the manual parameters are concerned. The difference may either be based on the mouth patterns or on the direction of eye gaze or on both. In any case, the meaning differentiating function is fulfilled by a nonmanual component of the signs.

The evidence presented here raises questions of a very basic nature. The fact that nonmanual components of a sign can have a meaning differentiating function leads to the question whether nonmanual components should be included among the parameters and considered equivalent to the phonemes of spoken languages. For there really is no difference in principle between some minimal pair which only differs e.g. by handshape, and a minimal pair such as GARAM and CUP. The mouth gesture in GARAM is as important for uniquely identifying the sign as handshape, place of articulation etc., so that a difference in status does not seem justified here. In any case it would be necessary to investigate in more detail a greater number of similar signs in other sign languages with respect to the functioning of such meaning differentiating nonmanual signals.

2.5 Iconicity

Besides the visual-gestural mode the naive view of sign language first notices how 'pictorial' (iconic) many signs are. A non-arbitrary relationship between a sign and its referent is called iconicity. For example, when in the sign GA:R^o: meaning 'car, drive' the hands are moved as if turning the steering wheel of a car, we call this sign iconic. On the contrary, the sign ENGLAND (contact of the thumb of the right hand with the palm of the left hand) is not iconic because the form of the sign and the referent 'England' have nothing in common. In spoken languages onomatopoeic words are the clearest, but marginal cases of iconicity, whereas in sign languages visually motivated similarity between signs and referents plays an important role both in individual signs and in the grammar. A good example of a grammatical process involving iconicity is the set of aspectual modifications of the basic form of a sign (see 3.3.2. for a detailed discussion): The form meaning 'repeated action' (iterative aspect) requires repeated movement, whereas for 'action executed at several places' (distributive aspect) the sign is accordingly repeated at various points in space. I have mentioned iconicity at several points of the discussion in this chapter but considering the importance of the topic I would like to add a few more general and systematic remarks here about the role of iconicity in IPSL.

2.5.1 *The Role of Iconicity in Sign Languages*

There is some disagreement about the importance of iconicity in sign languages. In a research tradition whose aim it is to prove that sign languages are full-fledged languages on a par with spoken languages there has been a tendency to discount iconicity in favour of emphasizing the similarities between signed and spoken languages. Researchers found that iconicity does apparently not play a role in mental processes such as recognizing or remembering signs (Klima & Bellugi 1979), and in language acquisition (Newport & Meier 1985), that morphological rules operate independently of and sometimes against iconic aspects (Klima & Bellugi 1979), and that ASL has historically developed from iconicity to increased arbitrariness in some cases (Frishberg 1975).

On the other hand, non-discreet and iconic phenomena have given rise to the demand 'to quit the oral analogies and look for a new sign language specific descriptive construct'.²⁴ Similarly, DeMatteo (1977:134) concludes: 'visual imagery is crucial to a proper understanding of ASL'. Non-discreet phenomena

24. Karlsson (1984:155).

requiring analogue rules are the major motivation for this conclusion, too. A non-discreet phenomenon is a continuous in principle endless range of form/meaning pairs such as pronominal forms that take the form of points in the signing space, or signs such as MEET in ASL with its countless variations representing various kinds of ‘meeting’. An analogue rule is ‘a rule which maps a continuous semantic feature continuously onto a continuous code feature’ (Mandel 1977: 65).

I agree with Armstrong (1983) that iconicity in sign languages does not in principle differ from iconicity in spoken languages but naturally manifests itself much stronger for the only reason that human beings are biologically predisposed to rely mainly on visual rather than auditory information:

It is for this reason that signed languages can be so much more iconic than spoken languages — there is simply not as much to represent iconically in the auditory mode.²⁵

The problem seems to be that supposedly universal characteristics of language such as double articulation, arbitrariness and discreteness have been worked out with a view to spoken languages only. If sign languages are studied without preconception and without a priori discounting the role of iconicity, the conclusion may well be ‘that total arbitrariness and discreteness are not necessary conditions for language.’²⁶

2.5.2 *Iconic signs*

First of all it is important to note that there are various possibilities, degrees and bases for iconic signs. Klima & Bellugi (1979) differentiate between ‘transparent’ signs which can directly be understood by hearing people without any prior knowledge of sign language and ‘translucent’ signs which are only recognizable as iconic when the meaning is already known. For instance, signs with corresponding gestures would have to be classified as transparent. However, as I have shown above, the relationship between signs within a linguistic system and gestures within nonverbal communication is not always straightforward. Moreover, the distinction depends on the perception of sign language by hearing people and is not a language internal category. Therefore, I do not take this distinction into account here.

Mandel (1977) proposes a detailed classification which differentiates between direct iconicity (relation between the sign and the referent itself) and

25. Armstrong (1983: 56).

26. Friedman (1978: 14).

metonymy (relation between the sign and a concept related to the referent). Moreover, both fall into the categories of presentation on the one hand, either by pointing to the referent ('indexing') or by acting out the intended item pantomimically ('mime'), and depiction on the other hand, either by having an articulating organ stand for the referent ('substitutive') or by drawing the shape of the referent in the air ('virtual'). Table 4 below gives some examples from IPSL for clarification.

The percentage of iconic signs in IPSL cannot be exactly determined without difficulty. First of all, a sufficiently large part of the vocabulary would have to be investigated with respect to iconicity. Secondly, and this is more important from a theoretical point of view, individual judgements may vary as to whether a given sign is to be accepted as iconic or not. For example, it is hard to say to what extent the sign GHAR 'house, home' discussed earlier involves iconicity. My own estimate is that more or less iconic signs in IPSL make up about half of the vocabulary, or maybe even more. Among the about 100 most frequently occurring signs in the initial text corpus from Karachi the percentage is probably higher than 50%, depending on interpretation.

Another important point which is often emphasized in this context (Mandel 1977, DeMatteo 1977, Klima & Bellugi 1979, Friedman 1978) is that iconicity does not at all exclude conventionality because

that there *is* an iconic relation — that elements of a form of a sign are related to visual aspects of what is denoted — does not in any way determine the actual details of the form.²⁷

sign	iconic basis
JISM 'body'	presentation by indexing; directly iconic
SAMAJH 'understand'	presentation by indexing; metonymy: head stands for cognition
PARINDA: 'bird'	substitutive depiction: fingers represent the beak; metonymy: 'beak' for 'bird'
G'ALAT 'wrong'	virtual depiction: drawing a cross in the air; as an abstract concept naturally involving metonymy
TYPE	pantomimic presentation of typing (mime); directly iconic when the meaning is 'type', metonymy when the meaning is 'type writer' or 'computer'

Table 4. Classification of iconic signs

27. Klima & Bellugi (1979: 21).

First of all, in most cases there are several characteristics of the referent that may serve as the basis of an iconic sign (e.g. beak or wings of a bird, crown or stem of a tree). Moreover, the iconic basis does not at all determine the details of articulation: In JISM ‘body’ another handshape could be used, the sign could be one-handed or the movement could run upwards, all without disturbing the intended iconic value ‘showing a body’.

2.5.3 *Pantomimic Modification*

The deaf user of a sign language is probably not always aware of the iconic basis of many of his signs. As Mandel (1977: 59) points out:

I am not saying that an addressee has to see, e.g. the full citation form, formalized outline of a house ^, or perceive the shape of the signer’s gesture as that outline, in order to recognize the sign HOUSE. The iconic value of a lexical sign is irrelevant to its use much of the time.

However, in special cases the latent iconic potential can suddenly assert itself, for example in ‘playful or poetic forms of sign language or in the creation of new signs’.²⁸ Pantomimic modification of signs, which occurs in the narrative texts of the corpus with some frequency, is such a case. A sign is modified in such a way that it comes to meet the intended meaning more closely in terms of iconicity:²⁹

CHATRI: ‘umbrella’

normal form: two T°-hands held above each other; modified sign: head lowered and shoulders raised; meaning: a woman carrying an umbrella during a heavy storm

GA:R°I: ‘car, drive’

modified sign with quicker and larger movements, with suitable facial expression; meaning: drive ruthlessly

KHOLNA: ‘open’

modified form with large sweeping movement and mouth pattern PAUH; meaning: throw open the door suddenly

SHOOT ‘shoot’

with tense facial expression, miming quick repeated ‘shots’, body tense and leaning back; meaning: fire mercilessly

28. Boyes-Braem (1990: 41). Quotation translated from German.

29. Klima & Bellugi (1979: 13) describe the same phenomenon as ‘mimetic elaboration’.

In all these cases the essential formational features of the corresponding 'basic form' are maintained in the modified sign: handshape, place of articulation, orientation and basic movement pattern are the same. However, it may obviously be difficult to make a categorical distinction in every case between such mimetically modified signs and true mime. The greater the difference is between the sign and its 'basic form' for the sake of iconicity, the closer the sign will come to mime. The examples above illustrate the general principle that iconicity is no absolute criterion but exists along a continuum ranging from pure convention to pure mime. Speakers of IPSL switch with great ease from one to the other and particularly use the expressive potential of various points on the continuum for the sake of being more precise and more lively in narrative texts.

CHAPTER 3

Morphology

3.1 Word Classes

Two formal approaches have been used for distinguishing word classes in sign languages: inflectional paradigms and positional analysis. For example, Padden (1988:106) argues for the distinction between nouns, verbs and adjectives in ASL:

... that ‘nouns’, ‘verbs’ and ‘adjectives’ display different morphological characteristics, and that there is basis for supporting distinctions between these grammatical categories in ASL. Only adjectives can be inflected for intensive aspect, only nouns can be modified by quantifiers and verbs cannot be attributive.

Adjectives are identified on the basis of a characteristic inflection whereas nouns and verbs follow from an analysis of their respective positions in the sentence. Note that the entire class of verbs can only be defined negatively because there is no inflectional paradigm common to all verbs. In the absence of word class specific inflections covering the whole or at least the greater part of the lexicon, such as case for nouns or tense for verbs in some spoken languages, word class assignment on the basis of inflectional paradigms is usually not straightforward in signed languages. On the other hand, word class assignment on the basis of a positional analysis depends on identifying sentence boundaries first. Secondly, it also depends on negative evidence in order to argue that a particular word class cannot appear in a given position.

A formational difference between some verbs and nouns has been suggested for ASL in the case of sign pairs denoting objects on the one hand and actions executed with these objects on the other hand (pairs of the type iron — to iron, hammer — to hammer, but also chair — sit):

There is, however, a second type of noun and verb in ASL, where the noun referring to an object is quite obviously related in form to the verb for the action performed

with this object. (...) in this special group of noun-verb pairs, (...) there is a consistent formal distinction.¹

It is evident that these cases only cover a small part of the whole vocabulary. The formal relation between such pairs of signs is described in the following way:

[R]elated nouns and verbs (and the modulated forms of each) share handshake, place of articulation and shape of movement but differ from one another by systematic changes in directionality, manner, and frequency of movement.²

Interestingly, a note in the preface to the NISE (1991) dictionary describes the difference between nouns and verbs in IPSL in the following way: 'the differences between noun and verb signs are signalled by intensity and length of movement'.³ This seems to be quite similar to the ASL case of noun-verb pairs but apart from the examples reproduced in fig. 58 below there is no further explanation of this phenomenon.

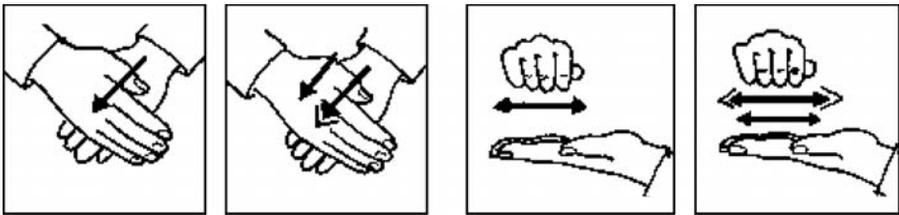


Fig. 58. 'Noun-verb pairs' in IPSL: clean-to clean (picture 1/2), iron-to iron (picture 3/4)

My own corpus of data does not support this distinction. First of all, it is difficult to detect such minor differences in continuous signed texts, especially in fast signing. Secondly, repetition of movement as shown in fig. 58 may have several functions, for example aspect (see 3.3), and 'intensity' could also be attributed to emphasis on the sign. Moreover, neither the meaning of the arrows in the drawings nor the meaning of the expressions 'length of movement' and 'intensity' is clear.

At the moment a word class analysis of the IPSL lexicon on the basis of formal properties, although highly desirable, is not possible because of a number of difficulties. Inflections in IPSL are not dependent on particular word classes in a straightforward way, segmentation of the signed texts is difficult,

1. Supalla & Newport (1978: 100).

2. Ibid. p. 94.

3. National Institute of Special Education (1991: 1).

sentence boundaries are not always clear, and there is no negative evidence in the corpus. However, it does make sense and is even necessary for a number of aspects in my analysis to have some way of referring to groups of signs because, as I will demonstrate below, not all signs are subject to the various local and aspectual modifications. This is often due to the semantics of the signs in question. Prillwitz (1985: 89) also emphasizes this point:

German Sign Language (DGS) does make a difference between various sign classes and also draws distinctions on the basis of formal properties. In particular, this has been demonstrated by the fact that different sign classes allow different possibilities of incorporation. However, unlike the German spoken language, these formal properties are closely related to basic semantic concepts of the various sign classes and sub-classes.⁴

Thus, Prillwitz distinguishes sign classes ‘by way of assignment according to logical content’.⁵ His sign classes are therefore called ‘Tätigkeitsgebärden’ (signs denoting actions), ‘Gegenstandsgebärden’ (signs denoting objects), ‘Eigenschaftsgebärden’ (signs denoting properties) etc.

Since I cannot say anything definite about the existence and formal characteristics of sign classes in IPSL at this point, I will use such descriptive expressions where it seems necessary. However, these expressions should be understood as a pre-theoretic construct and are only introduced in order to be able to refer to groups of signs. In addition, semantic roles will be used for the purpose of syntactic analysis (see chapter 4) in order to avoid reference to theoretical concepts such as ‘object’, ‘verb’ etc. whose applicability to IPSL is doubtful.

3.2 Directionality

In all sign languages that have been investigated so far space is of prime importance within the grammar. Pronominal reference, inflection of signs according to source and goal or agent and patient, representing perspective, the use of a time line, all of these are aspects of the use of space for grammatical purposes which have already been documented in various sign languages and play an important role within the linguistic structure of IPSL as well.

First of all, I will differentiate here between ‘directionality’ and ‘positioning’ of signs. Directional signs are those that require the definition of a beginning and an ending point of the movement in space. In a sign such as JA:NA: ‘go’ the

4. Quotation translated from German.

5. Prillwitz (1985: 88). Quotation translated from German.

hand covers a certain distance between two points, whereas in *KA:M* ‘work’, for example, the hand remains stationary. Grammatically relevant points in space are called *loci*.⁶ The meaning of the signs changes according to the direction of movement, and the assignment of *loci* depends on syntactic and morphological rules (see 4.2. ‘Localization’ for details). Positioning, on the other hand, applies to stationary signs that are made at a single place of articulation⁷ (such as e.g. *GHAR* ‘house, home’, *GA:R^oI:* ‘car, drive’, *EK* ‘one’). The place of articulation may be shifted for syntactic or discourse purposes. There is a basic difference to be made between signs that are subject to spatial modification and those that do not have this possibility. The latter case mostly applies to signs that are articulated on the body, such as *SAMAJH* ‘understand’, *AURAT* ‘woman’, *MAIN* ‘I’ etc. This dichotomy plays a crucial role in determining the range of grammatical options for each sign.

Directional signs are mostly ‘action signs’. Directionality either fulfills the function of distinguishing the agent of an action and the person or object affected by the action, or it defines the course of movement in a ‘movement sign’ involving movement from one place to another. Thus, *SIKHA:NA:* ‘teach’ as represented in fig. 59 means ‘I teach somebody’, whereas fig. 60 expresses the meaning ‘somebody teaches me, I learn’. The same applies to *MADAD* ‘help’ accordingly. Moreover, in one example *MADAD* is directed from above the head towards the body of the speaker to mean ‘help from God’ (see fig. 61). *SIKHA:NA:*, *MADAD*, *CIT^oT^oHI:* ‘letter’, and maybe *DEKHNA:* ‘see’ are the only signs in the corpus of data with the peculiarity of modifying the orientation of the hand in addition to the direction of movement.⁸ The fingertips are always directed away from the agent towards the participant affected by the action. In these cases, the sign is doubly directional, so to speak, once by movement and once by hand orientation. In other directional signs hand orientation is not relevant. Table 5 at the end of this section lists some frequently occurring directional signs.

6. Cf. e.g. Liddell (1990b) ‘Four Functions of a Locus’.

7. This does not mean that these are all ‘hold signs’ without any movement (cf. *GA:R^oI:*); it only means that there is no meaningful movement in space from locus A to locus B.

8. The form *DEKHNA:-I* ‘see me’, with movement beginning at the eyes and then turning back in a curve and ending with the fingertips on the chest of the speaker, only occurs once, which is not enough for conclusive evidence.



Fig. 59. SIKHA:NA with
3rd person directional
movement



Fig. 60. SIKHA:NA with
1st person directional
movement

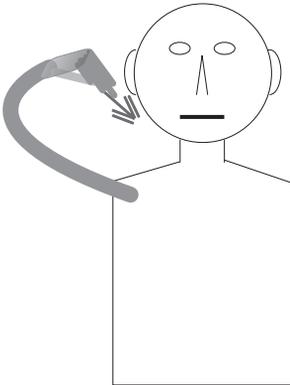


Fig. 61. MADAD with directional
movement: top locus → 1st person

A striking point about the participant-bound function of directionality is that many of the signs in question have something to do with a concrete, linguistic or abstract transfer from A to B. SIKHA:NA ‘teach’ and MADAD ‘help’ imply that B receives ‘knowledge’ or ‘help’ from A. Several directional signs such as BA:T ‘talk’, BATA:NA ‘tell’, or APPLICATION ‘apply’ involve exchange of linguistic information. LENA: ‘take’ and DENA: ‘give’ express a concrete transfer. The latter signs mostly incorporate the transferred object in the form of handshake, orientation, and arrangement of the hands, so that it is difficult to say with certainty what the basic forms look like. It is even possible that there are no basic forms and that LENA: and DENA: only consist of a direction of movement in combination with the remaining parameters taken from the transferred object (see 3.4.2 for more details).

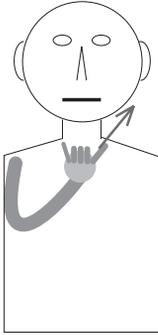


Fig. 62. FLY

Although the corpus of text only contains a limited number of examples, considering these suggests that for some directional signs one of the loci is fixed and unchangeable. For instance, in all occurrences of DEKHNA: 'see' (a total of 81) the hand moves away from the eyes of the speaker towards the locus of the object of perception, which may be localized at various places. Similarly, in BA:T 'talk' one of the loci is always the mouth of the speaker. On the other hand, the semantically similar sign BATA:NA: 'tell' is not restricted in this way, so that an explanation involving the iconicity of BA:T does not quite hold in this case, although iconicity surely plays a role. With 'movement signs' the choice of loci is always free, even though there may be preferences (for instance, A:NA: 'come' mostly ends in front of the body of the speaker). These signs often use the space above the shoulders,⁹ by contrast with the signs of the first group, whose loci are mostly localized horizontally at chest level. The sign FLY 'airplane, fly' (see fig. 62) is of course frequently associated with a locus in the upper signing space, but this also happens with A:NA: 'come' and JA:NA: 'go'. 'Movement signs' are also much more variable as far as other shades of meaning are concerned. The signs discussed above just link beginning and ending points in a straight line, and the relationship of the loci in space metaphorically reflects the relationship between the two participants. 'Movement signs', by contrast, refer to *real* movement in the extralinguistic world. Therefore, aspects of movement such as manner, speed or nonlinear path can be analogically reproduced in the signs. This fact, which is also true of ASL and German Sign Language (DGS), has often been discussed in connection with the question of discreteness of linguistic units.¹⁰

9. Usually, signs referring to localities are localized at these loci.

10. In particular the example of the sign MEET in ASL is repeatedly cited, whose countless continuous modifications can express any physically possible variety of 'meeting' (cf. Mandel 1977, DeMatteo 1977).

In the sentence:

- (12) SIGN: A:DMI: CALNA: KHOLNA:
mor: man walk-front-left.up-right open-right
nmn: B:right—————
mth: pauh!
tra: ‘The man suddenly entered; he threw open the door.’

the hand that signs CALNA: ‘walk’ moves along a path from the center of the body to the upper left and then, with increased speed, to the right side of the speaker in order to express the sudden appearance of the man. KHOLNA: ‘open’ is produced with a wide swinging movement and accompanied by a mouth pattern PAUH to the same effect.

The following example describes an accident:

- (13) SIGN: GA:R°I: JA:NA: JA:NA:+CRASH BAS
mor: car go-left-front go -crash END
tra: ‘An(other) car came along and they crashed.’
SIGN: SCOOTER JA:NA:+CRASH BAS.
mor: motorcycle go -crash END
tra: ‘A motorcycle crashed into them, (too).’

The first JA:NA: is executed with the left hand moving from the left to the front of the speaker’s body, representing one of the cars involved in the accident. The two signs transcribed JA:NA:+CRASH are two-handed, with the hands approaching each other from both sides and meeting in the middle. The two hands represent the two vehicles crashing into each other. In contrast with ASL and DGS, however, no classifier handshapes are used to indicate the type of vehicle involved.¹¹

Table 5 presents a survey of some of the more frequently occurring directional signs. The column ‘others’ contains signs which could not be attributed to any of the two functions discussed. However, it should be emphasized that a sign like SE_TAK ‘from ... to’ does not formally differ in any way from the other signs in this category. Although considering the English translations it may seem unusual that ‘letter’, ‘walk’ and ‘both’ all belong to the same category, there is no formal difference between the IPSL signs in terms of directionality. All signs establish a relationship between two loci in one way or another.

11. JA:NA: occurs with B and with G handshape. However, there is no reason to believe that this involves a difference in meaning in the sense of classifier handshapes. Whether there is a difference in meaning at all is not clear.

participant-bound function			movement signs		others	
sign	meaning	transfer	sign	meaning	sign	meaning
LENA:	take	concrete	CALNA:	walk	SE_TAK	from...to
DENA:	give	concrete	MILNA:	meet	DONON ⁷	both
CIT ^o T ^o HI:	(send) letter	concrete/ linguistic	FLY	fly		
APPLICATION	apply; application	linguistic	A:NA:	come		
BATA:NA:	tell	linguistic	JA:NA:	go		
SIKHA:NA:	teach	abstract	SETTLE	settle		
MADAD	help	abstract				
DEKHNA:	see	none				

Table 5. Directional signs

3.3 Aspects

3.3.1 *Completive Aspect*

In a large number of spoken languages completive aspect is derived from words whose meanings involve the concept of completion. Analogously, many sign languages also express completive aspect by a sign meaning ‘finish, complete’.¹² Thus in ASL the sign FINISH has several functions as main verb, as auxiliary and as completive aspect.¹³

In IPSL the situation is somewhat different. There are two signs meaning ‘finish, end’: XATAM(A) and XATAM(B). Both can be accompanied by the same Hindi/Urdu mouth pattern XATAM. XATAM(B) is much more frequent and means both intransitive ‘ending’ and transitive ‘completing’. On the other hand, XATAM(A) is *only* used intransitively and is often used to mean ‘some quantity being exhausted’. In some contexts, such as (16) below, both signs are possible.

In addition to these two signs there is yet another sign HO_GAYA:¹⁴ which is not related to the latter and, as far as the present data can tell, conveys a

12. Boyes-Braem (1990: 73).

13. Wilbur (1987: 130).

14. See fig. 41 in section 2.3.3.

more abstract concept of completeness of an action or a situation. HO_GAYA: is therefore called completive aspect (COMPL) here.

The sign FAUT 'die' almost always occurs in combination with HO_GAYA:, e.g.:

- (14) SIGN: AURAT \$A:DI: FAUT HO_GAYA:.
 mor: woman marry die COMPL
 tra: 'My wife is dead'

The collocation FAUT HO_GAYA: is so common that signers mostly produce the full phrase even when they are only asked to translate the word 'die' or 'death'. On the other hand, a sentence such as:

- (15) *SIGN: FAUT XATAM(B).
 mor: die end
 tra: 'He/she/it (has) died.'

does not occur at all because the meaning is not to 'complete death' actively and on purpose but rather to express the irrevocability of death.

Another argument for the abstract character of completive HO_GAYA: is that it may occur in combination with XATAM(A) and XATAM(B):

- (16) SIGN: XATAM(A) HO_GAYA:.
 mor: end COMPL
 tra: '(The affair) ended (without result).'
- (17) SIGN: JANG XATAM(B) HO_GAYA:.
 mor: war end COMPL
 nmn: H:tilt—————
 tra: 'The war is over (now).'

It makes sense to assume that HO_GAYA: in these sentences does not have a full lexical meaning 'to complete' or 'to end' because this function is already fulfilled by XATAM(A) and XATAM(B) respectively. Moreover, formal criteria of the use of HO_GAYA:, which will be discussed below, also play a role.

As far as the position of HO_GAYA: in the sentence is concerned, there is an evident regularity with HO_GAYA: appearing in sentence final position. This is true for 84% of the 49 sentences from the 1994 Karachi data in which a completive aspect occurs. When this rule does not apply it is mostly only a single sign with little phonological and semantic content such as VAH (the index) or YAHAN' 'here' that follows. Vasishtha, Woodward & Wilson (1978:72) also identify 'a single past marker which occurs in sentence final position in Indian Sign Language'. In the ISL dictionary from Delhi (Vasishtha, Woodward & deSantis 1980:8) PAST is 'a past tense sign that is placed at the end of sentences'. Whether this sign is identical with HO_GAYA: cannot be ascertained

because PAST is not included in the body of the dictionary. However, HO_GAYA: is not a 'past marker' but may on the contrary appear in all tenses:

Present tense:

- (18) SIGN: GA:R^o:I: HORN SAMAJH.
 mor: car horn understand
 tra: '(So) I get to know when a car sounds its horn.'
- SIGN: HAT^oA:NA: HO_GAYA:.
 mor: remove-right-left COMPL-left
 tra: '(Then) I just remove (my own car).'

Future tense:

- (19) SIGN: BA:T VAH MAIN' QUESTION MAIN' BA:D(B[^])
 mor: talk IND-front I Q I then
 SIGN: PAR^oHA:I: XATAM(B) KA:M KYA:.
 mor: study end work what
 tra: 'I have been asked what I would do when I had completed my study.'
- SIGN: SA:DI: HO_GAYA:.
 mor: marry COMPL
 tra: '(I) will be married.'

In contrast with HO_GAYA: the sign PAHLE 'before', which is used in IPSL to express past tense, mostly appears at the beginning of the sentence.

HO_GAYA: is subject to two types of modification. On the one hand the place of articulation is often adjusted to the preceding sign so that HO-GAYA: is executed where the preceding sign ends. In the basic form the space in front of the signer's chest on the side of the articulating hand is reserved for HO_GAYA:.. However, when HO_GAYA: immediately follows FAUT 'die', for instance, which requires movement of the hand across the throat, HO_GAYA: is executed at the same place where FAUT ends and the hand keeps moving without interruption. A similar behaviour applies to XATAM(B) HO_GAYA: 'has ended' (articulation below chest level) and BHU:LNA: HO_GAYA: 'has forgotten' (articulation on the forehead).

Secondly, there are examples in the corpus of data for the possibility of incorporating HO_GAYA: into other signs. However, the data available does not allow to determine at the moment to what extent and under which conditions incorporation is possible. In one example the various handbooks of the ABSA research group are enumerated. After an ordinal number and the name of the title the speaker repeats a modified form of some of the numbers: The numbers

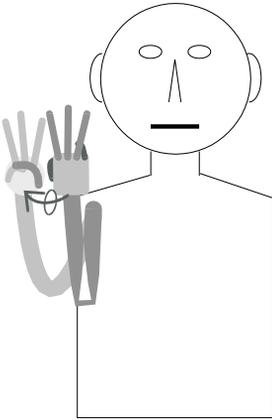


Fig. 63. TI:N+HO_GAYA:

TI:N ‘three’, CA:R ‘four’, and PA:NC ‘five’ normally consist of the corresponding number of fingers held up. In the example, however, the handshape of each sign is combined with a twist of the wrist as occurring in HO_GAYA: (see fig. 63 TI:N+HO_GAYA:), adding a completive meaning. In this way the speaker emphasizes the fact that the handbooks have really been completed. Handshape and place of articulation remain the same and are ‘overlaid’ with the movement pattern of the completive aspect. In the same way the form DEKHNA:+HO_GAYA: is produced in one example: a twist of the wrist is added to the usually straight movement. My bilingual informant transcribed this sign as *DEKH-LIYA:*, which means ‘has seen’ (completive form) in Hindi/Urdu.

However, incorporation and local assimilation only happen in a few cases. In particular, signs whose formation is relatively simple, such as numbers, seem to be able to incorporate the completive aspect because in these cases an additional twist of the wrist does not require too much physical and perceptual effort. This question calls for a more detailed investigation into the distribution of such forms.

3.3.2 *Aspectual Modulation*

Apart from the possibility of using a separate sign with aspectual meaning IPSL has a number of options to modify the movement pattern of signs in order to add aspectual shades of meaning. Klima & Bellugi (1979) use the expression ‘aspectual modulation’ for this phenomenon. Some of these aspects are clearly existent in IPSL whereas for other apparently modulated forms evaluation is more difficult.

Distributive Aspect (DIST)

The distributive aspect is produced by repeating the sign at various places in space without any other formational changes. The most common form involves a triple repetition of the sign with the place of articulation being shifted from right to left. Fig. 64 shows a typical example, the basic form and the distributive aspect of MADAD 'help'. The distributive form means 'to help various people / at various places'. Analogous distributive forms of SIKHA:NA: 'teach', KOŠIS 'try' and DEKHNA: 'see' also occur quite frequently, e.g.:

- (20) SIGN: CERTIFICATE PRIVATE KOŠIS.
 mor: certificate private try-DIST
 tra: '(I) have tried (to get a job) with my certificate at various private (firms).'

Signs whose articulation involves contact with some part of the body can obviously not form the distributive aspect in the same way because the hand cannot be displaced in space. In these cases displacement in space is transferred to the body. For example, JHU:T° 'tell a lie' is made with an X handshape sliding down the nose in the Karachi variety. The distributive aspect meaning 'tell lies to several people' is formed by repeating this movement several times while turning the body from a rightward orientation to a forward and then to a leftward orientation.

Considering the iconic content of the distributive aspect it is hardly surprising that, similarly to pantomimic modification of signs as discussed in 2.5.3, the form of the sign may be adjusted according to the situation it describes. In the following example the various places of articulation of SHOOT are distributed over various points on the *body* of the speaker in order to express the fact that someone was hit by several bullets.

- (21) SIGN: SHOOT.
 mor: shoot-1-DIST
 tra: 'I was hit by several bullets.'

Applying linguistic terminology that has been developed on the basis of spoken languages to a sign language can be tricky. Thus aspects in IPSL cannot straightforwardly be considered 'verbal inflections' or 'inflections of action signs'. On the contrary, there are examples for the use of the distributive form with signs that are clearly not related to action, for example:

- (22) SIGN: ISKU:L JAGAH İŞA:RA: PU:RA: SIFR.
 mor: school place-DIST sign all zero
 tra: '(Other) schools at various places are all a failure in sign language.'

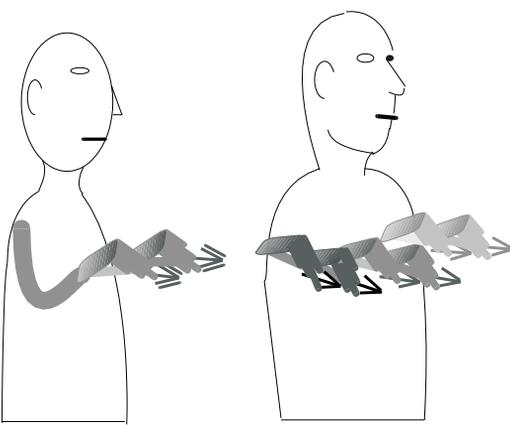


Fig. 64. MADAD basic and distributive form

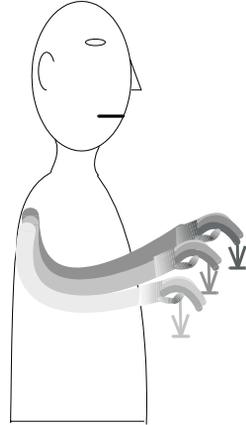


Fig. 65. BACCE 'children'

Here the inflected form of JAGAH oscillates between 'distributive aspect' and 'plural'. Usually IPSL does not distinguish between singular and plural, i.e. all signs may be interpreted as having either singular or plural reference depending on context or co-occurrence with numeral signs or quantifiers. Only a plural form of BACCA: 'child' (see fig. 65) occurs with some frequency¹⁵ and is identical in form to the distributive aspect as represented in fig. 64 except that the sign is usually displaced in space from left to right, i.e. in the opposite direction. This similarity suggests that the distributive form in IPSL may refer to several places in a more general fashion, i.e. may express a general concept of 'existing at various places'. The result is (in terms of spoken language terminology) either a distributive aspect of an 'action sign' or a plural form of an 'object sign', depending on what kind of sign is involved.

Iterative Aspect (ITER)

Similarly to the distributive aspect the iterative aspect is also formed by repeating the signs, but here every repetition is executed at the same place and the modified sign means 'happen repeatedly' or 'do something repeatedly', e.g.:

- (23) SIGN: ZULM LIST BAHUT.
 mor: injustice-ITER list much
 tra: 'All kinds of injustice happen again and again.'

Fig. 66 shows the basic and the iterative form of the sign ZULM 'injustice'. In combination with signs denoting a period of time, such as SA:L 'year', MAHI:NA: 'month' etc. the iterative aspect means 'every year', 'every month' and so on.

15. This is the only plural form that is represented as a separate sign in the ABSA dictionaries.

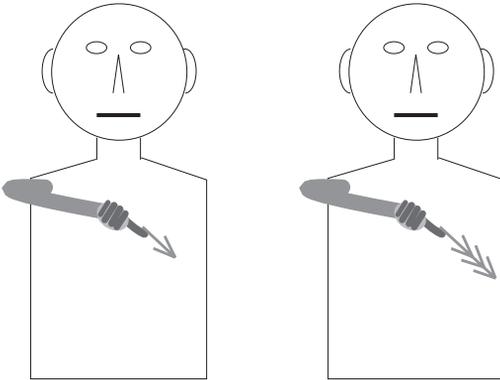


Fig. 66. ZULM basic and iterative form

- (24) a. SIGN: IFTIXA:R ISA:RA: BAHUT_ACHA:.
 mor: Iftikhar sign excellent.
 tra: 'Iftikhar's sign language (program) is excellent.'
- b. SIGN: JUMA:.
 mor: Friday-ITER
 tra: '(It is broadcast) every Friday.'
- (25) SIGN: MAIN' GHU:MNA: MAHI:NA:.
 mor: I outing month-ITER
 tra: I go out once a month.

While other modulations seem to be limited to certain groups of signs with certain meanings (see below), distributive and iterative aspect are not restricted semantically. The latter, however, is subject to a formal constraint. It is characteristic of the phonological structure of IPSL that a great number of signs involve repetition in one way or another. Contact with a part of the body, opening and closing of the hand and movement patterns are often repeated in citation form. Signs such as LAR^oA:I: 'fight, argue', MADAD 'help', BA:T 'talk, communication', BOLNA: 'speak' PAR^oHA:I: 'study', GA:R^oI: 'drive, car', SIKHA:NA: 'teach', D^oAR 'be frightened' cannot form an iterative aspect because they already involve repetition in their basic forms and more repetitions do not have any effect on the meaning or the morphological structure of the sign. In these cases iterative meaning must be expressed lexically by a separate sign BA:R_BA:R 'again and again'.

Like the distributive aspect the iterative aspect is not restricted to 'action signs', as sentences (24) and (25) illustrate. Moreover, there is some degree of iconicity in both aspects. The number and rate of repetitions in iterative signs may vary but the corpus of data does not allow to conclude with certainty whether this variation entails differences in meaning.

If there is a logical connection between a number of repeatedly occurring situations the iterative form is used every time. This may extend over considerable stretches of text, as in the following example.

- (26) a. SIGN: HUKU:MAT MA:NNA: LENA:.
 mor: government obey take-ITER
 tra: 'The government obeys (them because) they always get (money from them).'
- b. SIGN: COLD_DRINK PAISA: +DENA:.
 mor: cold_drink money-give-ITER
 tra: 'The (firms producing) cold drinks spend money (on this) all the time.'
- c. SIGN: LENA:.
 mor: take-ITER
 tra: '(and the government) always takes it.'
- d. SIGN: DEAF İŞA:RA: MA:MU:LI:.
 mor: deaf sign unimportant
 tra: 'Sign language of the deaf is unimportant.'
- e. SIGN: PI:CHE_HAT^o:A:NA:.
 mor: push_away-ITER
 tra: 'They are always neglected.'
- f. SIGN: HUKU:MAT PAISA: JEB_MEN'_RAKHNA: BAS.
 mor: government money put_in_pocket-ITER END
 tra: 'The politicians only (want to) put money in their pockets all the time.'

Since 'giving' and 'taking' entail each other, the iterative form is repeated every time. PI:CHE_HAT^o:A:NA: and JEB_MEN'_RAKHNA: are included in the iterative sequence as well. Such logically connected sequences also occur with other aspects.

Gradual Aspect (GRAD)

Fig. 67 shows the basic form and the gradual aspect of TARAQQI: 'progress'. Instead of a continuous opening of the hand from fO to C in the basic form the opening movement of the gradual aspect proceeds in stages and the modified sign means 'progress gradually'. The arrangement of the arrows indicates progressive movement. In this case it is particularly appropriate to speak of 'aspectual modulation' of individual signs rather than 'aspect' because the applicability of the gradual form seems to be limited to a small group of signs expressing a positive or negative development. The signs BAR^o:A:_HONA: 'grow up', BAR^oHNA: 'increase, grow', TARAQQI: 'progress, develop', TANAZZUL

‘decline, deteriorate’ and KAM_HONA: ‘reduce, lessen’ and a few closely related concepts are the only signs in the data to occur in the gradual form. Of course a concept must imply potential development in order for the gradual aspect to be applicable. However, this does not explain why other signs meeting this requirement do apparently not occur in this form. For example, the signed equivalent of the expression ‘learn gradually’ is not expressed by aspectual modification although the corresponding sign SIKHA:NA: has a straight movement that might easily be adjusted to the movement pattern of the gradual form. On the other hand, I cannot exclude the possibility that more gradual forms might be found in a larger corpus of data.

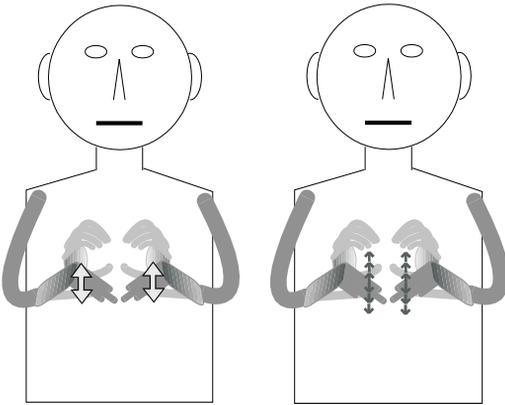


Fig. 67. TARAQIQI: basic and gradual form

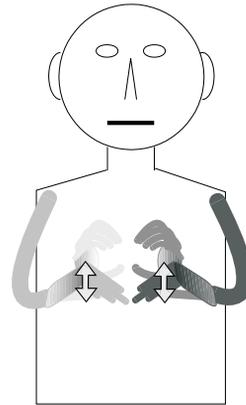


Fig. 68. Alternating form

Alternating Aspect (ALTERN)

Fig. 68 shows another modification of TARAQIQI: ‘progress’, the alternating aspect. This aspect is relatively frequent with some signs, especially with BA:T ‘talk’ (56% of occurrences). The ‘alternating aspect’ is created by the following rules:

- (a) Two-handed signs with a parallel movement of both hands receive an alternating movement, i.e. the right and the left hand move in turn rather than producing the same movement at the same time. This is the case with TARAQIQI:.
- (b) One-handed signs add a second hand with identical handshape, place of articulation and orientation which alternately mirrors the movement of the first hand, as in BA:T (see fig. 69).

The function of the alternating form is less clear because in the Hindi/Urdu translation it does usually not differ from the basic form. Only in one example a difference in meaning is expressed:

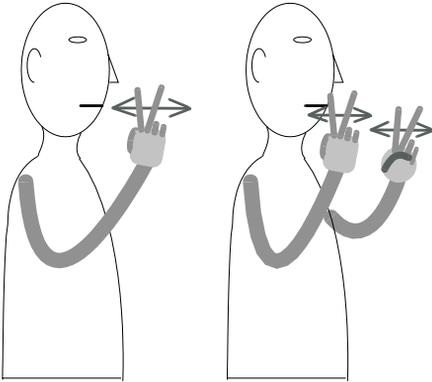


Fig. 69. BA:T basic and alternating form

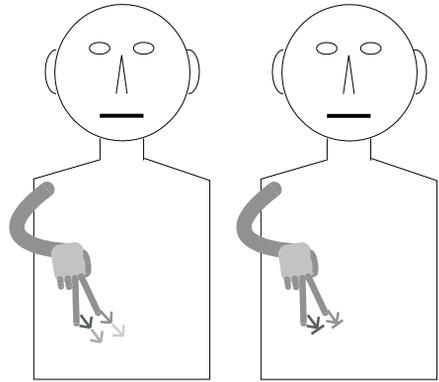


Fig. 70. CALNA: basic and unrealized form

- (27) SIGN: MUQA:BALA: PA:S.
 mor: competition success-ALTERN
 tra: '(We arrange) competitions and sometimes the first (team) wins, sometimes the second one.'

Other examples suggest that the meaning of the alternating form may be paraphrased as 'do something alternately' or 'happen alternately'. This interpretation is also suggested by the apparent iconicity of this aspect and in agreement with the iconic bases discussed for the other aspects above. Thus the difference between the basic form of BA:T and the alternating aspect is probably similar to English 'I talk to someone' versus 'we talk to each other'. On the other hand, I have also noted the limits of explanations based on iconicity before (cf. the case BA:T vs. BATA:NA: in 3.2), so that definite answers can only be expected from more detailed questioning of informants.

Unrealized Aspect (UNREAL)

The unrealized aspect is less frequent than the other aspects discussed here. It is formed by reducing the movement of a sign and means 'be about to do something', e.g.:

- (28) SIGN: MEZ MACHLI: KA:T^oNA:.
 mor: table fish-left-front cut-UNREAL
 tra: '(He) put the fish on the table and was just going to cut it (with a knife).'

Here the agent is prepared to execute the action of cutting but stops in between so that the action remains 'unrealized'. The movement of the sign KA:T^oNA: 'cut', which usually involves several to and fro movements, is reduced

to just a tiny movement in one direction corresponding to the beginning of the complete sign, with an abrupt stop added. Similarly, in the unrealized form of CALNA: meaning ‘was about to walk’ (see fig. 70) the hand starts moving and then suddenly stops. Movement may also be completely absent. When MA:RNA: ‘hit, beat’ is unrealized, the hand is raised to the beginning position but the downward movement that actually represents the ‘beating’ is omitted. Similarly, SHOOT ‘shoot’ only consists of a hold in its unrealized form.

Table 6 below shows the frequency and distribution of aspects in IPSL based on the Karachi 1994 and the Karachi 1996/1997 data.

aspect	frequency
completive aspect	120 times
distributive aspect	83 times with 39 different signs
iterative aspect	71 times with 34 different signs
gradual aspect	32 times with 9 different signs
alternating aspect	27 times with 10 different signs
unrealised aspect	7 times with 5 different signs

Table 6. Occurrences of aspects

3.4 Complex Signs

Signs may be complex, i.e. consist of several morphemes, in various ways. The aspectual modulations discussed above are complex because they consist of a sign and an additional movement pattern carrying aspectual meaning. The aspectual information in these signs is always bound to the complex sign and cannot occur as a free form. By contrast, in this section I will discuss complex signs whose parts may both occur as free forms and which are therefore semantically more complex, too.

There is some inconsistency as far as terminology in the domain of complex signs is concerned. The term ‘incorporation’ has been used to refer to several different phenomena in sign language research, among them classifying handshapes or ‘classifiers’ (e.g. Wilbur 1987), aspectual modulations (e.g. Norton-Warren 1978), incorporated numerals (e.g. Wilbur 1990), and various aspects of movement in movement signs (e.g. Prillwitz 1985). In the following discussion I use the term ‘incorporation’ for complex signs where a) both parts may occur individually as free forms, and b) one of the signs can be considered to incorporate the other rather than vice versa. For the term ‘incorporation’ presupposes that a difference can be made between an *incorporating* basis and an *incorporated* element. These two criteria apply to numeral incorporation and

(arguably) to combinations of LENA: 'give' and DENA: 'take' with the objects concerned. Where both parts of a complex sign seem to have equal status as far as the incorporating-incorporated distinction is concerned, the sign will be termed 'fusion' or 'compound'.

3.4.1 *Numeral Incorporation*

The numbers from zero to nine are formed in IPSL by holding up a hand with the appropriate handshape for each number. From one to five the corresponding number of extended fingers forms the numeral sign, whereas for zero and the numbers from six to nine special handshapes are used that derive from written numbers. DAS 'ten' may either be expressed by two 5-hands or by '1+0'. In India the special handshapes for the numbers from six to nine are not used by all informants or in all regions. Instead, these numbers may be expressed by two-handed signs with additional fingers of the second hand extended to show the corresponding numbers. Informants from Pakistan all used the special handshapes.

Prillwitz (1985: 80) describes the formation of numbers in DGS as follows:

Multiples of ten, one hundred and one thousand are exclusively expressed by a certain hand orientation and a certain movement. The number of extended fingers in the respective handshapes indicates which multiple of ten, one hundred and one thousand is intended.¹⁶

In addition, this type of incorporation is used to form expressions of time (*ibid.*: 81).

In IPSL the number of extended fingers may also be incorporated as a handshape into other signs, but usually not in order to produce numerals above ten. Rather, these are expressed by a sequence of digits that are ordered in accordance with the written form, so that, for instance, the year 1987 is expressed by the sequence EK 'one' NO 'nine' A:T^oH 'eight' SA:T 'seven'. The sign HAZA:R 'one thousand' (see fig. 71), in which the three extended fingers apparently stand for the three zeros of the written number, is never used in such temporal expressions although years are frequently mentioned in the data. Two other numeral signs which also combine the number of fingers corresponding to the number of zeros with a forward movement, LA:KH 'one hundred

16. Quotation translated from German.

thousand' and KAROR^o 'ten million', are listed in some of the dictionaries.¹⁷ This seems to be a formational principle which is comparable to the one described for DGS above.

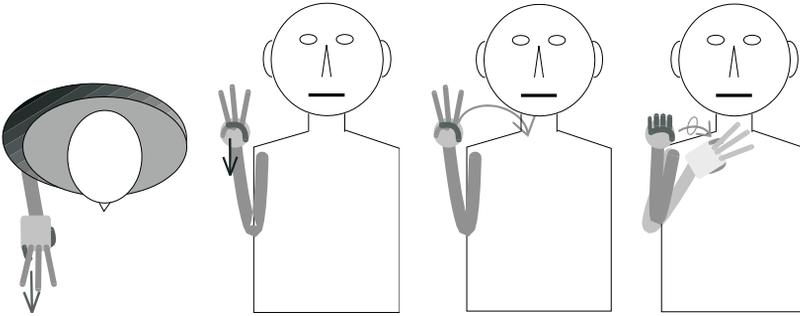


Fig. 71. HAZA:R

Fig. 72. TI:SRA:

Fig. 73. TI:N+SA:L

Fig. 74. TI:N+
MAHI:NA:

Before discussing further examples of numeral incorporation it is to be noted that the corpus of discourse data did naturally not yield complete numeral paradigms, so that it is not possible at present to say exactly which incorporating sign allows which numbers to be incorporated. There definitely is some variation across the various incorporating signs to the effect that each item allows only certain numbers to be incorporated. The numbers from one to five do not seem to present any difficulty, but for higher figures each sign is idiosyncratic as far as numeral incorporation is concerned. However, the exact paradigms for each sign have to be elicited yet.

Idiosyncrasy in the domain of numeral incorporation has also been discussed in other sign languages. Prillwitz (1985:81) notes some dialectal differences in DGS paradigms. Liddell (1996:218) refers to idiosyncrasy at several levels:

Numeral incorporation in ASL involves a significant number of idiosyncratic facts. For example, each paradigm has upper and lower bounds. Not only do these bounds differ from one paradigm to another, they also differ across individuals.

17. National Institute of Special Education (1991:136f); Sir Syed Deaf Association (1989:61); Vasishta, Woodward & de Santis (1980:89). The fact that corresponding forms for 'ten thousand' and 'one million' i.e. for numerals with an even number of zeros, are missing, does not necessarily mean that they do not exist. It is possible that they have just not been elicited because, by contrast with LA:KH and KAROR^o, there is no particular single word for these numbers in Hindi/Urdu.

In addition to the upper and lower bounds for each paradigm, numeral incorporation in ASL involves idiosyncratic handshapes differing from the corresponding numeral signs, and idiosyncratic gaps in several paradigms.

From the data collected so far IPSL seems to be quite similar to ASL. However, as all forms cannot be analyzed completely yet, I will limit the discussion to a few more examples here. Figs. 72 to 74 show some more signs which, for the sake of a unified account of possible mechanisms of incorporation, all use the W handshape to refer to the number ‘three’.

Ordinal numbers differ from cardinal numbers by a vertical movement downwards (fig. 72 shows the sign TI:SRA: ‘third’). The downward movement apparently stands for the concept of ‘ordinal number’ in general, whereas the handshape differentiates between the individual ordinal numbers.¹⁸

Figs. 73 and 74 show incorporation of the number ‘three’ into the temporal expressions SA:L ‘year’ and MAHI:NA: ‘month’. The basic form of both signs contains a G handshape. According to the rules of numeral incorporation this leads to the conclusion that the number ‘one’ is already implicitly present in the basic form, i.e. SA:L means both ‘year’ and ‘one year’, MAHI:NA: both ‘month’ and ‘one month’. The data confirm this, e.g.:

- (29) SIGN: DUBA:RA: MAHI:NA: TI:N HAFTA: RAHNA:.
 mor: again month three week stay
 tra: ‘They again stayed (about) one month or three weeks.’

This example is taken from the Karachi data, where the sign HAFTA: ‘week’ is made with an L handshape as in the number ‘seven’. As there is no numeral ‘seven’ handshape in the Indian variety of IPSL, HAFTA: is expressed by a two-handed sign with seven fingers extended for the seven days of the week. Both versions of HAFTA: do not belong to the temporal signs that permit numeral incorporation. The reason is probably that a different handshape would disturb the iconicity of the sign based on the number ‘seven’.

3.4.2 LENA: ‘take’ and DENA: ‘give’

When ‘giving’ or ‘taking’ is expressed in IPSL, the transferred object is often included into the sign. Figs. 75 to 77 show some examples: PAISA:+DENA: ‘give-money’, INA:M+LENA: ‘win-prize’, and CERTIFICATE+LENA: ‘receive-certificate’.

These signs differ from the signs for the transferred objects (money, prize, certificate) in that the hands move towards the speaker (with LENA:) or away

18. Another possibility of expressing ordinal numbers is to use the fingers of the left hand as ‘ordinal reference points’, the index of the right hand pointing to the appropriate finger on the left.

from the speaker (with DENA:). Moreover, a closing movement of the hands is added in INA:M+LENA:. Therefore, as almost all aspects of the form of such signs are attributable to the transferred object, the question arises what kind of relationship exists between the complex signs and the simple forms of LENA: ‘take’ and DENA: ‘give’.

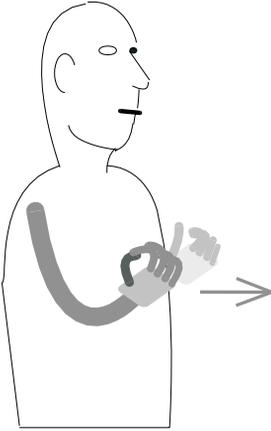


Fig. 75. PAISA:+DENA:

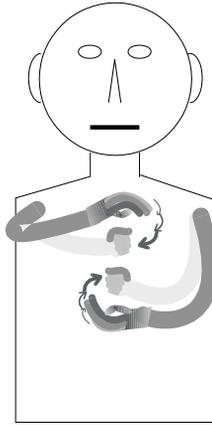


Fig. 76. INA:M+LENA:

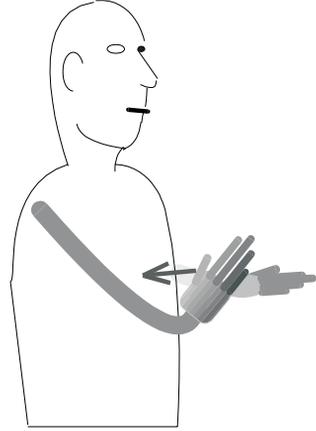


Fig. 77. CERTIFICATE+LENA:

In order to answer this question it would seem necessary first of all to identify the signs LENA: and DENA: in the data. However, this is not an easy task because both in the dictionaries and in the text transcriptions there are various signs that may be translated as ‘give’ or ‘take’ in English. The following list provides a formal description of all these signs together with details of occurrence.

LENA: ‘take’

a) Open handshape of the right hand closes to a fO handshape as if grabbing something and ends with the fingertips on the palm of the left B hand. The end position of this sign corresponds to the sign FA:IDA: ‘profit(able)’. It occurs in the ABSA (1987) and ABSA (1995) dictionaries where it is transcribed LENA:/TAKE. In the text corpus it is used in describing financial transactions and most likely means ‘take and keep (in one’s hand)’.

b) Open handshape with the palm facing downwards closes to a fO handshape while being moved towards the body. This sign occurs in the data in connection with collecting information (e.g. from a book) and was sometimes transcribed as JAMA: ‘collect’ by informants. It is particularly frequent in the complex sign JAMA:+MA:LU:M ‘collect-know’ meaning ‘to pick up information somewhere and make it part of one’s own knowledge’.

c) Open handshape the palm facing upwards closes to an S handshape while being moved towards the body. This sign is transcribed *LENA:/TAKE* in the New Delhi dictionary by Vasishta, Woodward & de Santis (1980). It exists in both Indian and Pakistani varieties of signing but has not been used frequently in my data.

DENA: 'give'

a) B handshape with the fingers slightly bent at the second knuckle, palm facing upwards, hand moving away from the body. This sign is transcribed *DENA:/GIVE* in the *ABSA* (1987) dictionary. It does not occur in any other of the dictionaries or in the data.

b) A fO hand held close to the body with the palm facing upwards is moved away from the body while the hand opens. The movement is represented as straight in Vasishta, Woodward & de Santis (1980) and as curved in *ABSA* (1995). The sign is transcribed *DENA:/GIVE* in both dictionaries. However, it has also been rendered as 'PEŠ_KARNA:' 'to offer, to present' in Hindi. A similar sign starts with the hands in the same position but is usually two-handed without opening of the hands and means 'to offer, to present' or 'gift'.

c) The hand with the palm facing downwards moves down and away from the body while the hand opens from a fO to a 5 handshape. This sign is very frequent in the data and is also listed in the entry for *DENA:/GIVE* in the *NISE* (1991) dictionary. In the data the sign is transcribed *CHOR^oNA:* 'leave' as well as *DENA:* 'give'. It occurs in a wide variety of contexts including 'give', 'leave', 'send', 'throw' etc.

It should be noted that the variation described here is not due to dialectal differences because various signs expressing 'give' and 'take' are used by speakers from the same region. It is more likely that some or all of the signs involve specific semantic connotations which can however not be finally ascertained at the present stage of research. What all the variants discussed here have in common is the movement away from the signer in the signs meaning 'give' and the movement towards the signer in the signs meaning 'take'. The transferred objects in the examples mentioned above also add a movement directed towards or away from the signer. It is a question of theoretical analysis now whether the directed movement is derived from combining the object sign with whatever variant of *LENA:* and *DENA:* or whether the movement is added independently.

The following example shows how the process of adding a directed movement to the transferred object is employed in discourse.

- (30) a. SIGN: SIBLING VAH GA:R^oI: GA:R^oI:+LENA:.
 mor: sibling IND-left car car -take-left-1
 mbi: bha:i:¹⁹
 tra: 'I take (my) brother's car.'
- b. SIGN: MAIN' GHU:MNA: GA:R^oI:+DENA:.
 mor: I outing car -give-1-left
 tra: 'I go for an outing and then I give the car back to him.'
- c. SIGN: SCOOTER GHU:MNA: SCOOTER +DENA:.
 mor: motorcycle outing motorcycle-give-1-left
 tra: 'I (also) go out by motorcycle and give it back (afterwards).'

Here the speaker's brother is localized on the left side and accordingly the course of the movement is towards the speaker with 'take' ('left' to '1') in (30a) and towards the left with 'give' ('1' to 'left') in (30b) and (30c). The other parameters of the signs GA:R^oI: 'car' and SCOOTER 'motorcycle' remain the same. Again, even though the complex signs have been transcribed as being composed of LENA: 'take' and DENA: 'give' on the one hand and the transferred object on the other hand, it is not entirely clear from the data whether these complex signs are in fact related to any of the signs discussed above. It may well be that the transcription employed here is inadequate and that the signs expressing the giving or taking of an object have to be analyzed in terms of adding a directional movement rather than with reference to any sign glossed LENA: or DENA:. However, in the absence of a more detailed analysis of these forms, I leave this question open to further research and only point out the possible problem of transcriptional adequacy here.

In example (25) above GA:R^oI: 'car' and SCOOTER 'motorcycle' appear immediately before the complex signs in the text in their stationary uninflected forms. After thus establishing the existence of the objects they are spatially 'displaced', so to speak, and 'deposited' at their respective destinations. This is achieved by moving the hands from the giver to the receiver. The same principle — establishing the objects and spatially displacing them immediately afterwards — can be found in a number of other examples, e.g.:

- (31) SIGN: INA:M INA:M+LENA:.
 mor: prize prize -take
 tra: 'I have (also) won a prize.'

19. BHA:I: i.e. 'brother'.

- (32) SIGN: LICENCE CERTIFICATE CERTIFICATE+LENA: PA:S.
 mor: L stamp-form form -take success
 tra: 'I have (already) passed (an exam) and received a certificate.'²⁰

Following from the discussion in this section, a preliminary result can be stated in the following way: In many cases 'give' and 'take' may be expressed by the direction of an added path movement alone. There is a frequent syntactic pattern of establishing objects and displacing them immediately afterwards. The exact relationship between the complex signs expressing giving or taking of an object and any of the simple signs glossed LENA: and DENA: above remains an open question for the time being.

3.4.3 *Fusion*

I have already indicated that the term 'incorporation' is problematic. In the case of paradigmatic organization, as for example in numeral incorporation, it makes sense to assume that a sign such as SA:L 'year' is the basis *into which* the various numbers are incorporated. However, the examples in this section are characterized by fusion of two signs in a way that does not allow to attribute the status of incorporating item to the one and the status of incorporated item to the other. In this respect the complex signs described here are like the compounds discussed in the next section. However, fusion formally differs from compounding more or less strongly even though there are borderline cases that are difficult to attribute to one or the other.

Fusion does not occur very frequently in the text corpus and it is certainly not possible to freely combine any sign with any other, if only for articulatory reasons. The existing examples are not numerous enough to draw general conclusions about the fusion of two signs. However, it is striking that none of the signs involved has a complex movement pattern such as circles, wavy lines, alternating movement of both hands, etc. Instead most signs involve either a hold in a certain position or a simple straight movement in one direction. Signs with changing handshape are apparently subject to restrictions as well (see below).

Fusion may result in combining the parameters of the two underlying signs in a new way. Each of the signs 'contributes' some of the sign parameters, so to speak, which together make up the new sign. In SA:TH+JA:NA: 'together-go,

20. The sign CERTIFICATE is made up of two parts. In CERTIFICATE+LENA: only the second part is repeated.

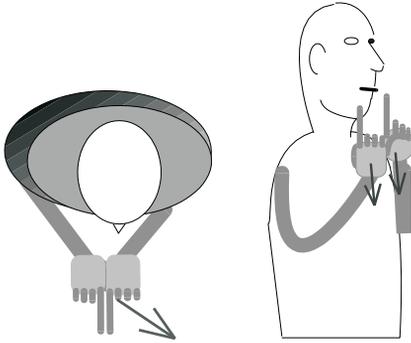


Fig. 78. SA:TH+JA:NA: Fig. 79. SA:TH+BAIT^oHNA:

i.e. accompany' (see fig. 78) the handshape and the side by side arrangement of the two hands are taken from SA:TH 'together'. JA:NA: 'go', which is usually formed one-handed with a B handshape, provides the straight movement and the grammatical category: SA:TH+JA:NA: is a directional movement sign like JA:NA: and may be moved towards any point in space where the goal of the movement has been localized.

A similar distribution of parameters is also found in SA:TH+BAIT^oHNA: 'together-sit, i.e. sit next to each other' (see fig. 79) where the downward movement is identical to the movement in BAIT^oHNA: 'sit'. Note the idiosyncratic orientation of the hands with the fingertips facing upwards, not forward as in SA:TH 'together'. Also, the fingers do not touch each other as in SA:TH but are placed next to each other at a small distance as in BAIT^oHNA:. Both in SA:TH and in BAIT^oHNA: the hands are in a parallel position, so that this feature of SA:TH+BAIT^oHNA: cannot be unambiguously attributed to any one of the signs. Shared formal properties seem to facilitate the creation of fusions, as the following examples prove as well.

MA:LU:M+TARAQQI: 'know-develop, i.e. develop mentally' (see fig. 80) and JAMA:+MA:LU:M 'collect-know, i.e. grasp mentally' (see fig. 81) both show partial handshape agreement of the signs they are based on. TARAQQI: 'develop' opens the hand from fO to C and can therefore easily be attached to MA:LU:M 'know' which also has a fO handshape. The place of articulation of the complex sign is the side of the head as in MA:LU:M, the opening movement corresponds to the movement in TARAQQI:. JAMA:+MA:LU:M is the opposite case in the sense that in JAMA: 'gather' the hand *closes* from 5 to fO and therefore *ends* in the position of MA:LU:M i.e. with the fO-hand held at the side of the head. The movement towards the body is the same as in JAMA: but the ending point is shifted to the place of articulation of MA:LU:M. As no sign may have three

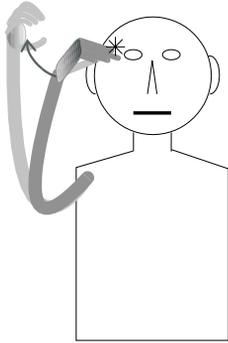


Fig. 80. MA:LU:M+TARAQQI:

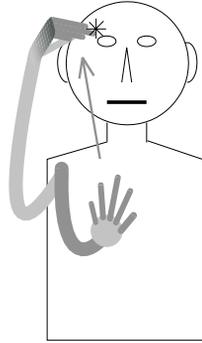


Fig. 81. JAMA:+MA:LU:M

different handshapes, this kind of combination of signs with partially agreeing handshapes provides the only possibility of using signs with changing handshape for fusion with another sign.²¹ A combination of e.g. JAMA: and SAMAJH ‘understand’ with successive 5, fO and G handshapes is not possible and such forms do not occur anywhere in the data.

The latter two signs could also be assigned to other formational categories. For example, it could be argued that the sign MA:LU:M+TARAQQI: ‘develop mentally’ is the result of an iconic change of the place of articulation of TARAQQI: and is not a complex sign in the sense intended here. Both signs might also be analyzed as compounds although it is difficult to say where the boundary between the two parts of the compound would be in MA:LU:M+TARAQQI:, i.e. does the initial contact with the head belong to MA:LU:M or to TARAQQI: or to both? JAMA:+MA:LU:M is more likely to be eligible for compound status because the hand may in fact already be in fO configuration before reaching the point of contact with the head, so that there is no boundary problem at least in this variant. The sign may be modified quite freely depending on the source of knowledge, e.g. a book held in the hand (movement starts from the non-dominant hand representing the book), or various persons or places (two-handed alternating form or distributive aspect with various starting points). However, this is probably not an argument in favour or against the assignment of the sign to any particular formal category.

21. Cf. Liddell (1990a) on ASL: ‘In all the signs with three handshapes I have been able to gather, the first and the third are always the same.’ (p. 52). However, a changing handshape of the one hand may be combined with a third handshape of the other hand, the latter one serving as place of articulation (e.g. the first variant of LENA: mentioned in the previous section).

3.4.4 *Compounds*

Compounding, i.e. the process of creating a new word from two independently existing free forms, has been discussed for several sign languages. In summary, the following characteristics of compounds have been proposed:

- There is temporal compression, with the first sign being shortened and losing stress, so that the compound has about the same duration as a simple sign (Klima & Bellugi 1979, Friedman 1978, Valli & Lucas 1995 for ASL, Glück & Pfau 1997 for DGS).
- Repetition of movement and internal movement are eliminated in the compound (Klima & Bellugi 1979, Friedman 1978, Valli & Lucas 1995 for ASL).
- There are various assimilation processes such as recessive handshape assimilation (Collins-Ahlgren 1990 for New Zealand Sign Language) and location assimilation (Glück & Pfau 1997 for DGS, Valli & Lucas 1995 for ASL).
- A non-dominant hand serving as the place of articulation for one part of the compound is retained in the other part as well (Klima & Bellugi 1979, Valli & Lucas 1995 for ASL, Glück & Pfau 1997 for DGS).
- The first sign in the compound is articulated at a higher location than the second part (Collins-Ahlgren 1990 for New Zealand Sign Language).
- The meaning of the compound may not be predictable from the meaning of the two simple signs (Valli & Lucas 1995 for ASL).

From my data it would seem that IPSL is not rich in compounds because there is only a limited number of items that can be classified as compounds, some of which I will discuss in this section. By contrast with fusion, these signs do not construct a new sign from simultaneously combined parameters of simple signs as, for example, the hand configuration of SA:TH and the movement of JA:NA: yielding SA:TH+JA:NA:. Rather, there is a sequence of two complete simple signs whose parameters are all retained, sometimes with modifications due to assimilation.

The signs BA:P 'father' and MA:N 'mother' can be combined to create a compound BA:P+MA:N 'father-mother' meaning 'parents' (see fig. 82). As MA:N' is itself a two-part sign (see fig. 37 in section 2.2.4), it must be formationally adjusted for compounding because otherwise the resulting compound would have a prohibited double change of handshape from A' to G and then to fO. Therefore, in BA:P+MA:N' the first part of MA:N', which is identical to the sign AURAT 'woman', is omitted. The more specific second part is retained unchanged, as well as the sign BA:P (A' handshape with the thumb contacting the chin).

The sign DAS+PA:S 'ten-pass' (see fig. 83) is a combination of the number 'ten' (DAS), in which two 5-hands are held in front of the body, and the sign PA:S 'win, success, pass', which is normally one-handed and has a twist of the

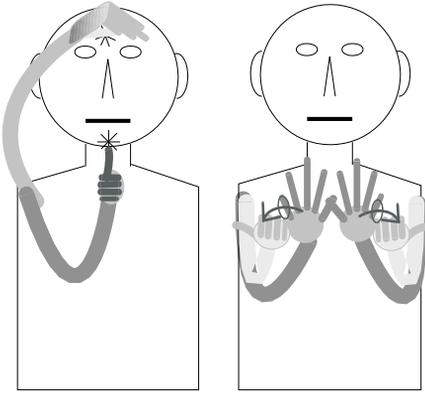


Fig. 82. BAP:P+MA:N' Fig. 83. DAS:+PA:S

wrist (see fig. 17 in section 2.2.1). In an assimilation process PA:S becomes two-handed like DAS and the hold of the citation form of DAS is omitted, so that a smooth transition is created and the compound starts with a twist of the wrists right away. The Hindi/Urdu translation of DAS+PA:S — ‘matric’ i.e. final school examination after the tenth grade — is interesting because it shows that the combination of the two signs results in a new concept that is not entirely derivable from the basic meanings. In this respect the compound is arbitrary to some extent because its meaning goes beyond the meaning of the two simple signs. This semantic arbitrariness is typical of spoken language compounds as well and also figures among the characteristics of sign language compounds in the list above.

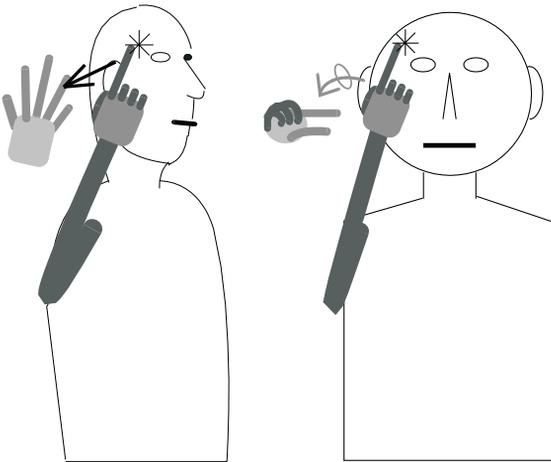


Fig. 84. SAMAJH+BAHUT Fig. 85. SAMAJH+KAM

Two other compounds involve the sign SAMAJH 'understand'. SAMAJH+BAHUT 'understand-much' means 'intelligent' and SAMAJH+KAM 'understand-little' means 'stupid' (see figs. 84 and 85). The second part of the compound is formationally assimilated to the first part in each case. BAHUT 'many, much' is usually two-handed and is articulated in front of the signer's chest. This is also the usual place of articulation of KAM 'little, few'. In the compound the number of hands used and the place of articulation are assimilated to SAMAJH. On the other hand, the handshape of SAMAJH may in turn be assimilated to the second part of the compound, so that, for example, SAMAJH+KAM starts with an L or a Q handshape rather than with a G handshape.

In addition to the specific formational properties of each compound described above, all compounds are characterised by rhythmic changes and temporal compression. In signing every speaker of IPSL keeps a more or less regular rhythm so that all signs have about the same duration, except for some deviations caused for instance by complex movements in a 'movement sign', by word stress or by sentence final position. The compounds all behave like *one* sign in this respect. Even without technical equipment and measurements the rhythm of speech and the duration of the signs indicate that the speakers do not produce a sequence of two signs, for instance DAS followed by PA:s, but *one* complex sign DAS+PA:s.

To sum up the discussion in this section, it is quite straightforward to identify compounds on the basis of formal properties. Semantic criteria for identifying compounds are much harder to come by. With reference to the examples discussed above, it is noticeable that the two signs constituting a compound may and do in fact also occur in sequence without any of the characteristics of the compounding process, i.e. in these sentences MA:N' is a two-part sign, PA:s is one-handed, BAHUT is in its normal place of articulation etc. On the basis of the formal changes discussed above it is possible to distinguish the compound DAS+PA:s from the phrase DAS PA:s. However, to the extent that the compounds are semantically transparent there is no considerable difference in meaning: for example, to say that somebody has 'little understanding' is about equivalent to saying that he is 'stupid'.

In IPSL there are a few cases of signs habitually occurring in sequence without any formal changes to the individual signs. For example, $\text{\$AKAL ACHA:}$ 'face good' means 'beautiful' and $\text{\$AKAL XARA:B}$ 'face bad' means 'ugly'. Neither rhythmic nor formational properties allow to assign compound status to these items unambiguously. If we still want to argue for compound status of these items, the argument depends on the question in how far the meaning 'ugly' is predictable on the basis of the meaning 'face bad'. Another case that could be discussed here is the set of compositional kinship terms. In sequences like

A:DMI: \$A:DI: ‘man marry’ meaning ‘husband’, AURAT PAIDA:IS ‘woman birth’ meaning ‘daughter’ there are no assimilation processes or formational changes in the two signs involved. However, it might be possible to argue that these signs are semantically similar to compounds in that the meaning is not totally predictable on the basis of the individual signs. For a closer evaluation of such cases as well as the clear cases of compounds it would also be helpful to determine whether signers are conscious of the compound being composed of two particular individual signs or whether the composition has become opaque.

CHAPTER 4

Syntax

The morphology of well-known sign languages has been investigated in much more detail than their syntax, the latter being a problematic field of research. For ASL a wide range of opinions have been and are being held as far as word order is concerned,¹ for example underlying SVO order (Fischer 1975, Liddell 1980) or approaches suggesting ordering principles in line with topic-comment structures in one way or another (Edge & Herrmann 1977, Friedman 1976). It may also be possible that sign languages use entirely different, non-formal principles of ordering. For instance, Prillwitz (1985: 46) states:

DGS prefers a logical rather than a formal word order principle. As far as possible persons, objects, places etc. should be mentioned first, followed by expressions of their qualities and properties or expressions of the relationships holding between them.²

What is beyond doubt is that space plays a crucial role in the syntax of all known sign languages (cf. e.g. the 'directional signs') and that nonmanual signals are used for syntactic purposes. Liddell has demonstrated this extensively in his research on ASL syntax.³

Considering the kind of data available for IPSL, it is particularly difficult to draw reliable conclusions about syntax. The main problem is that it was not possible to divide the texts, which were usually produced with considerable speed, into sentence segments on the basis of the video recordings alone. Signals such as longer pauses or clear changes in body posture and facial expression, which might formally indicate a sentence boundary, are rather rare. Therefore, for the texts that have been transcribed I relied on my bilingual informant's translations to a large extent and identified sentence or clause boundaries in the IPSL texts according to the propositions indicated by the Urdu translations. This strategy, unsatisfactory as it is from a formal point of view, was used as a starting point until a more rigid syntactic methodology can be developed on the

1. Coulter (1981: 120ff) gives a survey.
2. Quotation translated from German.
3. See Liddell (1980, 1986).

basis of further research. Some inaccuracy due to segmentation has to be taken into account, as well as performance problems such as slips of the hands, false starts etc. that are unavoidable in spontaneous speech data.

Secondly, a detailed syntactic analysis would actually necessitate goal-directed elicitation of certain sentences or sentence types. Therefore, generalizations made on the basis of the present data can only be preliminary and must be subject to more detailed verification at a later stage. I mostly prefer to speak of regularities rather than rules because even if clear preferences emerge from quantitative analysis, counterexamples can be found in almost all cases.

In accordance with the terminological discussion in section 3.1 above, I will employ descriptive terms in this chapter, too. Secondly, I will refer to semantic roles independently of formal considerations where applicable in order to avoid grammatical terms that cannot be meaningfully applied to IPSL at the present stage of description.

4.1 Word Order

4.1.1 *Predicates and Participants*

In IPSL there is a general tendency of placing the participants first and the predicate last. With one place predicates this ordering is almost exclusively adhered to, e.g.:

- (33) SIGN: MAIN' DEAF.
 mor: I deaf
 tra: 'I am deaf.'
- (34) SIGN: AURAT BACCA: FAUT HO_GAYA:.
 mor: woman child die COMPL
 tra: '(His) daughter has died.'
- (35) SIGN: DEAF KAM.
 mor: deaf little
 tra: 'There are (only) few deaf (people).'
- (36) SIGN: MAIN' BAR^oA: _HONA:.
 mor: I grow_up
 tra: 'I grew up.'
- (37) SIGN: CLUB TARAQQI:.
 mor: C develop
 tra: 'The club (will) become bigger.'

'Movement signs' in combination with an agent and a location mostly prefer the order agent-location-predicate:

- (38) SIGN: MAIN' CLUB JA:NA:
 mor: I C-right.up go-right.up
 tra: 'I went to clubs (for the deaf).'
- (39) SIGN: BA:D(G) EK NO A:T^oH CAH NORWAY ODD-INGE
 mor: then one nine eight six norway Odd-Inge
 SIGN: PATRICK DO KARA:CI: FLY.
 mor: Patrick two K fly-left.up-front
 tra: 'Then in 1986 the Norwegians Odd-Inge and Patrick came to Karachi.'

If there are several participants in a sentence, it is very often the case that not all of them are expressed in the sentence by an individual sign. The agent is often omitted and understood from the context, particularly if it is the first person MAIN' 'I'. A semantic relationship such as agent-patient can be represented by directionality of the predicate if the participants have been localized before.⁴ It is not necessary to refer to the participants again explicitly.

When space is used in this way for grammatical purposes, word order may be very variable so that a uniform pattern does not emerge. For the same reason ASL syntax has been assumed to follow a 'Flexibility Condition': 'The more inflected the verb is, the freer the word order may be.'⁵ The following examples demonstrate various possible constructions with DEKHNA: 'see':

experiencer — predicate — stimulus:

- (40) SIGN: DEAF DEKHNA: SIDE_MIRROR SIDE_MIRROR.
 mor: deaf see-right side_mirror-right side_mirror-left
 nm: G:right————— G:left—————
 tra: 'Deaf people, (on the contrary), look right and left into the side-mirrors.'

stimulus — experiencer — predicate:

- (41) SIGN: DRAMA MAIN' DEKHNA: BAS.
 mor: series I see-left END
 nm: H:left
 tra: 'I only watch TV series.'

4. See 4.2 on localization.

5. Judy Kegl (1976b), quoted in Wilbur (1987: 145).

experiencer — stimulus — predicate:

- (42) SIGN: SUBAH MAIN' AXBA:R DEKHNA: BAS.
 mor: morning I newspaper see-left END
 nmn: G:left—————
 tra: 'In the morning I have a look at the newspaper.'

Of course semantic restrictions also play a role in the interpretation of such sentences. As the predicate 'see' requires an animate experiencer, a second inanimate participant will automatically be interpreted as the stimulus. Liddell (1980: 70) suggests the same kind of argument for ASL: 'Word order is considerably freer if there is no confusion based upon the semantics of the lexical items present in a sentence.' Therefore, in combination with spatial arrangement the relationship between the participants mostly becomes clear independently of word order. In order to find out whether word order by itself may also fulfill this function, it would be necessary to elicit sentences whose predicates are not spatially modifiable (e.g. signs articulated at a certain point on the body) and in which all participants are represented by individual signs. In addition, the sentences should be reversible, i.e. it should be logically possible for each participant to fulfill each semantic role, e.g. 'X beats Y', 'X helps Y' etc., where X and Y would be persons.

Another rather frequent principle of ordering involves the most important sign which is semantically most prominent to be placed at the beginning of the sentence. Then the whole sentence follows which again contains the same sign.

- (43) SIGN: CIT^oT^oHI: | CLUB CIT^oT^oHI: HAI.⁶
 mor: letter-1 C letter-1 IS
 tra: 'I have got a letter (of identification) from the (deaf) club.'
- (43) SIGN: MATCHES | DEAF PU:RA: CIGARETTE MATCHES HAI.
 mor: match deaf all cigarette match IS
 tra: 'We deaf people all smoke, (so) we all have matches with us.'
- (44) SIGN: NA:M | AURAT VAH NA:M JUMLA: DEKHNA:
 mor: name woman IND-left name sentence-left see-left
 nmn: G:left—————
 SIGN: HO_GAYA:.
 mor: COMPL
 nmn: G:left—
 tra: 'He has seen the woman's name on the label.'

6. See section 4.1.3 'Function Signs' for details on HAI.

So first a title or headline is presented and then the whole subject matter follows. This brings to mind topic-comment structures of spoken languages, with the particularity that the sign which is extracted from the sentence appears again in the complete sentence. Whether this sign is accompanied by particular nonmanual signals, a special ‘intonation’, should be verified by further investigation involving facial close-up video recordings. The existing recordings showing the whole body only permit rather crude observations of nonmanual behaviour (cf. 4.3 ‘Nonmanual Syntax’).

4.1.2 *Temporal Expressions*

In IPSL, as in other sign languages, there is no temporal inflection. Instead tense is indicated by the use of time signs such as PAHLE ‘before’, BA:D ‘then, after’, A:GE ‘further, later, in future’ etc., quite similar to ASL:

[T]he sentence or utterance as a whole will have whatever time reference the situation or a general or specific time sign has indicated, until a change is signalled.⁷

The time signs are articulated along a time line as discussed in 2.2.3. Usually a temporal frame is fixed at the beginning of an utterance and the following signs are interpreted within this frame. Table 7 gives a survey of the regularities involved in the placement of temporal expressions in the sentence. The table shows that temporal expressions appear at the beginning of the sentence with great regularity (up to 95%). Only MAIN’ ‘I’ as an agent may often precede the time sign, the combination MAIN’ PAHLE ‘I before’ being especially frequent. If a point in time such as a certain date is mentioned, time signs expressing the relative temporal distance from the point of reference often precede it and the whole complex stands at the beginning of the sentence, e.g. ‘three years later, in 1975’, as in sentence (45c) below. PAHLE and BA:D indicate an event occurring before and after the present time or another temporal point of reference. If the temporal distance between the point of reference and the event is indicated, these signs occur in combination with expressions that stand for a certain period of time. In this case PAHLE and BA:D appear after these, i.e. DO+SA:L PAHLE ‘two years ago’ or ‘two years before that’ and DO+SA:L BA:D ‘in two years’ or ‘two years after that’ respectively, depending on whether the time of reference is the present or some other time. BA:D is often used repeatedly in a text in order to express a number of successive events.

7. Stokoe, Casterline & Croneberg (1976:282).

The following signed paragraph exemplifies some of the regularities discussed here:

- (45) a. SIGN: PAHLE ISKU:L DAS PA:S EK NO SA:T EK.
 mor: PAST school ten success one nine seven one
 tra: 'In 1971 I passed the tenth grade.'
 (tense indicated at the beginning of the text; time sign at the beginning of the sentence)
- b. SIGN: BA:D(G) ISKU:L DO +SA:L SIKHA:NA:.
 mor: then school two+year teach
 tra: 'Then I was a teacher at a school for two years.'
 (new time sign at the beginning of the sentence; change of temporal frame)
- c. SIGN: TI:N +SA:L BA:D EK NO SA:T PA:NC USTA:D
 mor: three+year then one nine seven five teacher
 SIGN: ISKU:L COLLEGE ISKU:L DEWA VAH.
 mor: school C school D IND-right.up
 tra: 'Then three years later in 1975 I became a teacher at the DEWA-Academy.'
 (relative temporal distance 'three years later' before particular date '1975')

	beginning of sentence/clause	incl. after MAIN ⁷	incl. after temporal expression	frequency ⁸
PAHLE	52%	84%		44x
BA:D	95%			20x
PURA:NA:	60%			5x
ABHI:	82%	89%		28x
A:GE	60%	70%		10x
date	33%	38%	75%	24x

Table 7. The position of time signs in the sentence

4.1.3 *Function Signs*

One consequence of the visual-gestural modality in sign languages is that in comparison with the average duration of spoken words much more time is needed to produce a sign. However, Klima & Bellugi (1979: 185) note:

8. Figures are based on the 1994 data from Karachi. Frequency counts do not include one-word utterances which only consist of the relevant sign.

There are, then, striking and consistent differences in the rate of production for signs and words, but clear similarities in the rate of production for propositions in the two modes.

Therefore, sign languages employ strategies such as the use of space or the use of nonmanual signals for grammatical purposes in order to convey information at a rate about equal to spoken languages although it takes more time to produce a sign than a word. In this way ‘compacting of information’ (ibid.: 194) is achieved and no additional functional signs are needed. Similarly, Boyes-Braem (1990: 52) refers to this ‘time pressure’ (‘Zeitdruck’) in explanation of the lack of prefixes, suffixes, and composition.

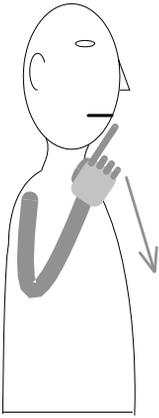


Fig. 86. KARO

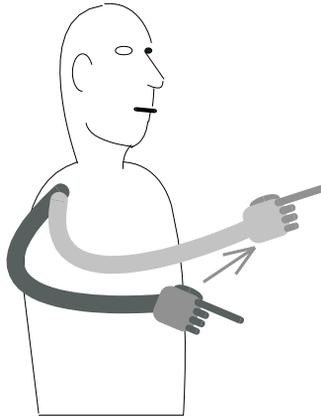


Fig. 87. JA:O

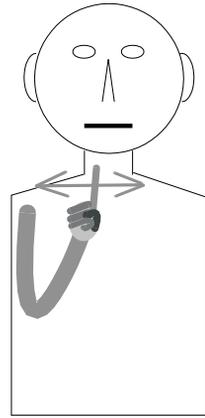


Fig. 88. NAH:EN' _KARO



Fig. 89. NAH:EN'

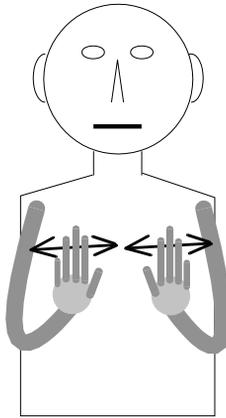


Fig. 90. NA: _NA:

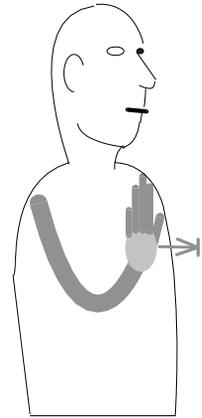


Fig. 91. HAI

It may be for the same reason that signs with a primarily grammatical meaning, which I call ‘function signs’ here in analogy with the difference between ‘function word’ and ‘content word’, are not frequently described in sign languages. In ASL the existence of a subordinator occurring with relative clauses has been demonstrated (Liddell 1980), as well as a group of ‘determiners’ whose function is ‘to mark specific entities in a discourse’ (Zimmer & Patschke 1990: 208). In British Sign Language there are two signs with existential meaning (Hughes, Colville & Brennan 1984), and Taiwan Sign Language has a class of auxiliaries which function as carriers of subject-object relationships or local information in combination with signs that cannot be inflected (Smith 1990). According to Collins-Ahlgren (1990: 295) names of professions can be formed by affixing nominalizers in New Zealand Sign Language. Such functional signs are particularly interesting because they are suitable to reveal typological differences between sign languages:

That TSL [Taiwan Sign Language] possesses a category of auxiliaries not found in ASL demonstrates that sign languages may differ as much from each other as they do from spoken languages.⁹

In IPSL there are a number of signs which I would like to assign to a separate class of function signs because they all share functional as well as formal characteristics. The signs are KARO, JA:O, NAHI:N’_KARO, NAHI:N’, NA:_NA:, KYA:, HO_GAYA: and HAI (see figs. 86–91).¹⁰ In contrast to signs with lexical meaning they fulfill grammatical functions that will shortly be discussed below. An additional point in favour of a class of function signs is the fact that they all appear at the end of the sentence and so follow the same syntactic rule. Table 8 at the end of this section shows how strictly this rule is observed; the percentage of sentence final position between 81% and 100% means an extremely low rate of deviation from the sentence final rule, particularly considering that word order may otherwise vary greatly in IPSL. The frequency counts in Table 8 are based on the 1994 data from Karachi. As the function signs JA:O and NA:_NA: have been added on the basis of new data, frequency counts are not available for these items.

The only systematic exception from the sentence final rule is that the sign BAS, a discourse particle which is used to end an utterance, occurs after some of the function signs. These occurrences are listed in a separate column in Table 8. The meaning of BAS may be paraphrased as ‘That’s all./What else can I say?’, which implies an interrogative component of meaning. It also occurs as

9. Smith (1990: 228).

10. HO_GAYA: see fig. 41 in section 2.3.3, KYA: see fig. 40 in section 2.3.3.

a filler of hesitation pauses and at the end of uncompleted utterances. Because of the implied interrogative meaning the handshape of *BAS* (3°) is the same that otherwise only occurs with the question sign(s).

KARO, *JA:O* and *NAHI:N'* *KARO* form imperative and negative imperative sentences:

- (46) SIGN: BOLNA: KARO!
 mor: speak IMP
 tra: 'You have to speak (like hearing people)!'¹¹
- (47) SIGN: KAPR°A: KAPR°A: _DHONA: JA:O.
 mor: cloth wash-clothes IMP2
 tra: 'Go and wash the clothes!'
- (48) SIGN: MA:RNA: NAHI:N' _KARO!
 mor: beat-1 NEG_IMP
 tra: 'Don't beat me!'

The difference between the two imperatives is that *JA:O* is used in impolite orders, in particular orders to servants and other inferiors, and implies that the addressee will have to move physically ('go and do'). *KARO* is neutral as to politeness, does not imply physical movement and might be translated as 'have to', 'should', 'is necessary' etc.

All three signs have the same G handshape and straight movements. *KARO* may be directional so that the end point corresponds to the addressee of the order, but this is not necessarily the case.

NAHI:N' and *NA:_NA:* are used to negate sentences. A headshake may fulfill the same function and may be combined with the negative sign. For details on the nonmanual negative marker see section 4.3.1. Whereas *NAHI:N'* is the neutral negation, *NA:_NA:* is used contrastively to negate a question or statement that has been either explicitly mentioned before or is implicitly understood as relevant context.

- (49) SIGN: MAIN' CA:E NAHI:N'.
 mor: I tea NEG
 tra: 'I haven't had tea yet.' (Answering the question 'Have you had tea yet?')

11. BOLNA: means 'communicate in a spoken language' in contrast with *BA:T* which refers to communication in general regardless of the language and modality used.

- (50) SIGN: MAIN' CA:E NA:_NA:
 mor: I tea NEG2
 tra: 'I don't want any tea.' (Answering the question 'Would you like a cup of tea?')

KYA; the interrogative, has been shortly discussed in the sections on hand-shapes and on the relationship between signs and corresponding gestures. Examples of the use of the question sign(s) can be found in section 4.3.2 on the nonmanual interrogative marker.

HO_GAYA; the completive aspect, has already been discussed in detail in 3.3.1.

HAI is difficult to describe as far as its semantic content is concerned. *HAI* in Hindi/Urdu means 'he/she/it is' and therefore the sign *HAI* is transcribed IS. In some cases *HAI* seems to function as an existential particle, e.g.:

- (51) SIGN: BA:P +MA:N' HAI.
 mor: father-mother IS
 tra: '(My) parents are still alive.'
- (52) SIGN: SAKAL DA:NA: HAI BARA:BAR BAS.
 mor: face spot IS same END
 tra: '(If somebody) has a spot or pimple in the face (he is given a name) accordingly.'

In other cases *HAI* is best to be interpreted as an emphatic particle which gives extra stress to an utterance, as in:

- (53) SIGN: PAR^oHA:I: FA:IDA: HAI.
 mor: study use IS
 tra: 'Education is really useful.'
- (54) SIGN: SAMAJH MUKAMMIL HAI.
 mor: understand complete IS
 tra: '(I) understand everything exactly.'

Note that in these two examples the sentence would also be complete without *HAI*, which is certainly not the case for sentence (51) above. Existential and emphatic functions are not far away from each other logically speaking because abstractly expressing the existence of a *situation* or a *statement* is similar to asserting the existence of an *object* in space or time. The former can then lead to emphasizing the truth of this statement, i.e. from 'statement X exists' to 'statement X is really true'. Hughes, Colville & Brennan (1984: 17) also note in their discussion of existential signs in British Sign Language that these may have the meaning 'definite' as well. However, for a final evaluation of the function of *HAI* much more data is necessary.

Finally it should be noted that the ‘function signs’ all have a relatively simple structure as compared to other signs — we may say that they have ‘little phonological content’, which is typical of function words. Except for *KYA*, whose handshape is independently motivated, and the first handshape in *HO_GAYA*: all handshapes involved belong to the group of basic handshapes. All function signs are executed at the most neutral place of articulation in front of the signer’s body and their movement patterns are not very complex: Hold, straight movement and twist of the wrist occur. Except for the imperatives and the question sign(s) the duration of the function signs is often very short so that it may be difficult to identify them when the speaker does not pause at the end of the sentence. Together with word order regularities and semantics these criteria seem to be a sufficient justification for speaking of a group of function signs.

	end of sentence/clause	incl. following BAS	frequency ¹²
KARO	100%		16×
JA:O	no figures available		
NAHI:N’_KARO	100%		13×
NAHI:N’	93%	94%	108×
NA:_NA:	no figures available		
KYA:	81%		36×
HO_GAYA:	90%		39×
HAI	88%	91%	65×

Table 8. The position of function signs in the sentence

4.1.4 *Modifying Constructions*

When a sign is modified by another in IPSL the modifying sign precedes the modified one in the great majority of cases. So far I have not found any reason to believe that modified and modifying sign may be marked by rhythmical or nonmanual signals in addition to their ordering. Mostly only two signs are combined:

PA:KISTA:N	IS:A:RA:	NO	XABRE:N’	MAIN’	BA:P
P	sign	nine	news	I	father
‘Pakistan Sign Language’		‘9-o’clock-news’		‘my father’	

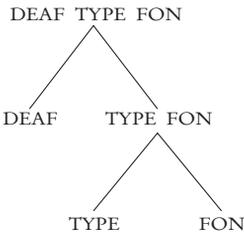
12. Cf. footnote to Table 7.

İŞA:RA: USTA:D sign teacher 'sign language teacher'	GA:R°I: HORN car horn 'horn of a car'	BIJLI: BOX electricity box 'battery'
SUNNE_VA:LA: SIBLING hearing sibling 'hearing sibling'	ENGLISH VCR English video 'English video film'	

It also seems to be possible to combine more than two signs in a modifying construction. In this case further modifying signs also precede the modified expression. An example for such a construction occurs in the data:

- (55) SIGN: MAIN' DEAF TYPE FON.
mor: I deaf type telephone
tra: 'I have a TDD' ('Telecommunication Device for the Deaf')

The expression translated 'TDD' has the following structure:



i.e. TYPE modifies FON first and then DEAF modifies the entire expression TYPE FON. However, evidence for such repeatedly modifying constructions is rare in the data.

A formally analogous construction consists of a classifying and a specific sign, the meaning of the one including the meaning of the other, as in:

PA:NI: SAMONDAR water sea 'sea'	ANGREZ NORWAY European Norway 'Norwegian'	ISKU:L COLLEGE school college 'college'
PA:NI: TEZ_BA:RIŞ water heavy_rain 'heavy rain'	ANGREZ ENGLAND European England 'Englishman'	

In contrast with the examples above the first sign does not *modify* the second one here. In fact, the signs in second position may have exactly the same semantic content as both signs together and do in fact occur alone in similar sentences in the data. For example, the sign glossed ENGLAND may mean either

‘England’ or ‘English’ (except in the sense of ‘English language’) or ‘Englishman’. The fingerspelled letter ‘C’ may refer to a college (as well as a number of other referents such as a computer or a club) without any further modification. If the first sign contributes anything to the meaning of the expression at all, it is by disambiguation of the various possible meanings of the second sign. In the examples involving the sign PA:NI: ‘water’ the first sign is totally redundant semantically. What the first sign seems to do in all the examples, however, is to *classify* rather than modify the other sign. The first sign with a more general meaning assigns the second sign with a more specific meaning to a class of related concepts. As the data only contain a few examples of this kind it is not possible at the present stage of knowledge to make more precise statements about the function, frequency and distribution of this construction.

4.2 Localization

4.2.1 *Loci*

I have mentioned before that space plays a crucial role in sign language syntax. Points in space that are used for grammatical-syntactic purposes are called ‘loci’. In a sentence these loci can be referred back to by a pointing sign (‘index’) or directional signs. Since the loci are associated with referents that have been ‘localized’ there, i.e. assigned to the corresponding point in space during discourse, referring to loci is equivalent to pronominal systems in spoken languages (Boyes-Braem 1990 speaks of ‘pronominal reference’). However, this interpretation is not unchallenged. Thus Liddell (1990b: 186) claims that ‘the relationship between the spatial loci (...) and their referents is not referential equality but location fixing.’ This suggestion is based on ASL signs such as ASK. When a locus has been established for the object of ASK by indexing, the sign is not directed towards this locus but at a point above because the goal of ASK is the forehead of the addressee, in this case an imaginary addressee who has been assigned to the established locus. If loci and their referents were related through referential equality, a sign such as ASK should be directed towards exactly the same point in space as the index sign.

A further distinction must be made in this domain between ‘real reference frame’ where places in sign space analogously correspond to places in the extralinguistic world and ‘abstract reference frame’ where the spatial arrangement of the loci is metaphoric (see Wilbur 1987: 97). In section 3.2 I have similarly differentiated ‘movement signs’ (functioning within the real reference frame) from participant-bound directional signs (functioning within the abstract reference frame).

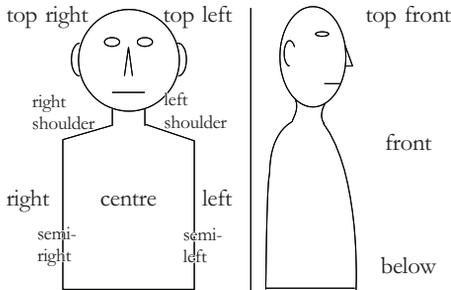


Fig. 92. Loci in IPSL

In IPSL loci are also used for syntactic purposes. The distribution of IPSL loci is represented in fig. 92 and is purely descriptive for the time being, i.e. it indicates the points in space that are used as loci in the data but does not imply that all loci are really distinctive. For example, it could be possible that the area at and above the shoulder only constitutes *one* distinctive locus and that it is simply due to articulatory reasons whether a sign is directed towards the shoulder or towards the space above the shoulder. Similarly, I do not exclude the possibility that loci may be differentiated further in discourses that are more complex than the ones in my data. The body centre locus is transcribed '1' in the morphology line (*mor*) because it is used almost exclusively for reference to the first person. The 'front' locus often stands for the second person, but not exclusively. When an index is used as a pronoun, it is not always easy to differentiate between second and third person reference in the texts because the form of the pointing sign *VAH* is identical in both cases except, arguably, for the direction of the pointing. Therefore, further analysis should pursue the question in how far the pronominal system in IPSL distinguishes between persons. Lillo-Martin & Klima (1990) have argued for a lack of this distinction in ASL and propose only one pronominal form. In IPSL at least the first person pronoun seems to differ in handshape, but there is some variation here, too.

In ASL loci are mostly arranged horizontally in front of the speaker, especially in the abstract reference frame: 'The indexic system operates with respect to target loci in a horizontal plane.' (Klima & Bellugi 1979: 276). By contrast, in IPSL the upper sign space above the shoulders and in front of or above the head is used very often. However, this part of the sign space seems to be more or less reserved for localizing places such as buildings, cities, countries etc. In example (56) the localization of *RA:VALPIND^oI:* at the top left locus in (56a) is used again in (56c) with *A:NA:* 'come' so that the resulting meaning is 'move from Ravalpindi to Karachi'.

- (56) a. SIGN: MAIN' PAHLE AVVAL MAIN' RA:VALPIND^oI:
 mor: I before first I R
 SIGN: JAGAH VAH.
 mor: place IND-top.left
 tra: 'First I was in Ravalpindi.'
- b. SIGN: BA:D MAIN' KA:M PIA FLY.
 mor: then I work P*I*A fly
 tra: 'Then I got a job at Pakistan International Airlines.'
- c. SIGN: KARA:CI: A:NA:.
 mor: K come-top.left-front
 tra: '(So) I moved to Karachi.'

In addition, in a number of cases the upper sign space is used to refer to institutions, for example to schools or to the government. Individual persons, on the other hand, are usually localized in a horizontal plane at chest level. In the following example the government participates in an interaction involving a participant-bound directional sign: APPLICATION in (57b) moves from the body centre, which is the first person locus, to the top right locus of HUKU:MAT 'government'. As in (56) localization is first achieved by indexing.

- (57) a. SIGN: HUKU:MAT VAH MUSKIL.
 mor: government IND-top.right difficult
 tra: '(Dealing with) the government is difficult.'
- b. SIGN: MAIN' APPLICATION.
 mor: I apply-top.right
 tra: 'I apply to them.'
- c. SIGN: FA:IDA: NAH:IN'.
 mor: use NEG
 nmn: NEG—————
 tra: '(But) it's useless.'

It is not clear from the data whether the finger tips may be used as loci in IPSL similarly to what Liddell (1990: 192) has described for ASL:

In contrast to the examples in all the previous sections, the relationship between ordinal tip loci and their referents seems to be one of referential equality. For anaphoric purposes a locus is designated as being equivalent to a referent. To make reference to that referent an agreement verb or pronoun is directed toward that locus.

In IPSL the finger tips are used in enumerations. The dominant hand points to the last of the appropriate number of extended fingers of the non-dominant hand. For example, in TI:N_SE_TI:SRA: 'third of three, thirdly' the index finger of the dominant hand touches the ring finger of the other hand which has a W

handshape. In addition, there is another set of ordinal numbers using one-handed signs. Yet within the IPSL corpus of data no example of anaphoric reference to a finger of the non-dominant hand can be found so that there is no evidence for anaphoric use of finger tip loci for the time being.

In this chapter I want to discuss the various possibilities of referring to loci, i.e. 1. directionality, 2. positioning, 3. indexing, 4. eye gaze, and 5. role play. The main topic here is localization for syntactic purposes, particularly as far as it is related to textual coherence, i.e. the question how a sign is localized for the first time and how reference to the corresponding locus is established in the following text. Localization may also fulfill discourse related functions. Examples will be given in chapter 5 'Discourse Strategies'. The various strategies of localization probably work together in a complex fashion, so that on the basis of the present data I can only describe the various *possibilities* of localization. *Why* the one and not the other possibility is used in a certain sentence cannot be investigated at this point.

4.2.2 Directionality

The form and function of directional signs has already been discussed in detail in section 3.2. However, within any given coherent text it is only partially true that beginning and ending points of directional signs are determined by *previously* localized participants. It is indeed often the case that referents are assigned to a certain locus by positioning or indexing (see 4.2.3 and 4.2.4) and that a directional sign refers to these loci afterwards. Yet the combined functioning of all strategies of localization, including eye gaze and body posture, is much more complicated, in fact too complicated to be expounded in all detail here. Thus, the directional sign itself can also be used for localization, as the following examples prove:

- (58) a. SIGN: DUBA:RA: SUNNE_VA:LA: SIBLING BA:T,
 mor: again hearing sibling talk-left
 nmN: B:left
 tra: '(We) again ask our hearing brothers and sisters.'
- b. SIGN: BA:T_SUNO VAH DRAMA MATLAB VAH?
 mor: excuse_me-left IND-front series meaning IND-front
 nmN: B:left—— B/G:left—
 tra: 'Excuse me, what's going on in this TV series?'

- c. SIGN: VAH SIBLING PI:CHE_HAT^oA:NA:.
 mor: IND-left sibling ignore
 nmn: B:left_____
- tra: '(But our) brothers and sisters ignore us.'

In (58a) SIBLING is localized on the left as a consequence of BA:T being directed to this side. SIBLING itself may not be positioned at any other place in space because it is articulated on the body (upper arm). It is not accompanied by a pointing sign either. Sentence (58c) continues with the same spatial arrangement, with the index VAH being directed to the left.

- (59) a. SIGN: SUNNE_VA:LA: BATA:NA:.
 mor: hearing tell-ITER-right-1
 tra: 'The hearing (teacher) always keeps me informed'
- b. SIGN: DEAF MAIN' İŞA:RA: MAIN' SIKHA:NA:.
 mor: deaf I sign I teach-ITER-1-right
 tra: 'and I always teach her the signs of the deaf.'

SUNNE_VA:LA is articulated on the body like SIBLING and therefore cannot be spatially modified. However, as the immediately following sign BATA:NA: begins on the right side and ends in front of the speaker, SUNNE_VA:LA: is unambiguously associated with the locus on the right side and with the role of agent. In the following sentence the locus on the right side can then be referred back to anaphorically. The agent-patient relationship is reversed in (59b) because the orientation of the fingers and the movement of SIKHA:NA: are directed away from the speaker.

The sign to be localized has to stand immediately next to the localizing directional sign, mostly before, sometimes directly after. Although this strategy of localization is applied in a number of cases to signs which do not permit positioning for articulatory reasons (as in the examples above), there are also some counterexamples, i.e. signs that are not articulated on the body but localized in the same way.

4.2.3 Positioning

When the place of articulation of a sign is shifted to a different point in signing space I speak of spatial positioning of this sign. The shifted place of articulation thus becomes a locus at which the referent of the sign is localized. In the following discourse the locus can then be referred back to. Positioning often occurs when a spatial reference frame has already been established. However, the examples below demonstrate that positioning by itself can also result in localization of a referent.

- (60) a. SIGN: CLUB BA:HIR.
 mor: C-right.up outside-right.up
 nmn: G:right.up
 tra: 'Outside there were clubs (for the deaf).' (...)
- b. SIGN: MAIN' CLUB JA:NA:.
 mor: I C-right.up go-right.up
 tra: 'I went to clubs (for the deaf).'

CLUB is usually executed in front of the body centre. Shifting the place of articulation to the upper right localizes CLUB at this point. This is an example of localization remaining constant throughout a long discourse because (60b) is taken from the answer to the following question in the interview.

- (61) a. SIGN: GA:R^oI: DEKHNA: INSIDE_MIRROR DEKHNA:.
 mor: car see inside_mirror-left see-left
 nmn: G:left "see"-left
 tra: '(When I) drive, I look into the inside mirror.'
- b. SIGN: SIDE_MIRROR.
 mor: side_mirror-right
 nmn: "see"-right
 tra: '(I also) look into the side mirror.'

Here the first occurrence of DEKHNA: is executed in its basic form, i.e. moving straight forward. There is no localized referent to which it could be directed. It is the positioning of INSIDE_MIRROR on the left side that allows the second occurrence of DEKHNA: to be directed towards this locus. SIDE_MIRROR is placed on the right side and the speaker looks at his hand during articulation, thereby pantomimically expressing the predicate 'see'.

- (62) SIGN: EK EK SE_TAK DAS ACHA:I
 mor: one one-left from_to-left-right ten-right good
 voc: one se ten
 SIGN: BAR^oHNA:.
 mor: gtow
 tra: 'From the first to the tenth class everything is all right and improving.'

The execution of SE_TAK 'from ... to' requires two points of reference: 'from X to Y'. Here these two points of reference are situated right and left of the speaker and are represented by the numeral signs articulated at these loci. This example shows the coordination and interdependence of different strategies of localization, in this case directionality of SE_TAK and positioning of the numeral signs. Only all three signs taken together and localized in this particular way convey the intended meaning.

4.2.4 *Index*

The pointing sign or index VAH (see fig. 93) is one of the most frequent signs in the text corpus as well as the most common method of localizing referents. VAH occurs in two different situations: a) in combination with the sign that is localized by VAH and b) by itself as an anaphoric index to the referent that has been established before at the locus to which VAH points. Formally speaking VAH is also a directional sign which is always oriented away from the speaker towards the goal. Yet the function and the meaning of VAH are different so that the index has to be treated in a separate paragraph here.

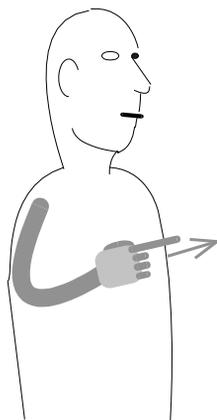


Fig. 93. VAH

As a localizer VAH stands immediately next to the sign to be localized. However, the order does not seem to be fixed or might be governed by yet unknown regularities. VAH may either precede or follow or may even appear before *and* after the other sign.

following:

- (63) SIGN: MAIN' PAHLE INDIA VAH.
 mor: I PAST India IND-left.up
 tra: 'I used to (live) in India.'

preceding:

- (64) SIGN: VAH INDIA VAH KA\$MI:R DU\$MAN.
 mor: IND-left.up India IND-left Kashmir enemy
 tra: 'India and Kashmir are enemies.'

preceding and following:

- (65) SIGN: VAH DEAF VAH SAMAJH NAHI:N'.
 mor: IND-left deaf IND-left understand NEG
 nmn: NEG—————
 tra: 'The deaf don't understand (them).'

Table 9 shows the distribution of anaphoric and localizing VAH and word order variations of the latter.¹³

anaphoric VAH	localizing VAH		
37%	63%		
	preceding	following	preceding and following
	36%	57%	7%

Table 9. The index VAH

When VAH is used as anaphoric index it corresponds closely to pronouns in spoken languages. By pointing to a locus the referent associated with this locus is identified so that it is not necessary to repeat a sign every time the signer wants to refer to it. The relationship between the locus and its referent may in principle remain constant until the spatial reference frame is changed by a new localization. Yet there are numerous inconsistencies in the data that will be discussed in 4.2.7.

In all examples presented so far VAH is realized as pointing to *one* certain point in space. In some cases, however, the index finger moves in a semicircle in the horizontal plane indicating *several* points. Thus the index refers to several participants in the action, corresponding to a 'pronoun' in the 'plural' form (or the 'distributive' form).¹⁴ In my IPSL text corpus these participants are always several persons. Whether the form can also apply to non-human or inanimate referents is not clear from the data.

- (66) SIGN: VAH DEKHNA:.
 mor: IND-Pl see-DIST
 nmn: G:down————
 B:DIST —————
 tra: 'I looked at them (the children).'

13. Figures are based on the initial 1994 corpus from Karachi.

14. Cf. the discussion 'plural' — 'distributive' in 3.3.2.

- (67) SIGN: VAH MAIN' CERTIFICATE TOHFA+LENA:.
 mor: IND-Pl I certificate gift -take
 tra: 'I got a certificate from them'
- (68) SIGN: DO_SE_DU:SRA: MAIN' EK MAIN' DO VAH
 mor: second_of_two I one I two IND-Pl
 SIGN: KOŞIŞ A:NA:.
 mor: try come
 tra: 'Secondly, I will try to come here together with several other persons.'

4.2.5 *Eye Gaze*

Eye gaze and body posture are often combined with other localization strategies, which is evident from some of the examples discussed so far. At this point I will not go into details of how this combination works. However, it is interesting that in some cases eye gaze alone is apparently sufficient to localize a sign, as in the following example:

- (69) SIGN: AMRI:KA: UN BATA:NA:.
 mor: America U*N tell-ITER-right.up
 nmN: G:right.up—————
 mth: bol bol
 tra: '(We) have repeatedly informed America and the UN (about the situation).'

The place of articulation of AMRI:KA: in the Karachi IPSL variety is the upper right part of the signing space, whereas the letters of the fingerspelled alphabet in UN are executed in front of the body centre. When the signer looks up and right, he localizes UN at the same place where AMRI:KA: has been articulated. The following directional predicate then applies to both, as is evident from the translation. The direction of eye gaze remains constant until the end of the sentence. As UN does not appear in the text before, it is localized here for the first time. Later in the text this locus is referred to again by the direction of eye gaze alone:

- (70) SIGN: AMRI:KA: UN JAVA:B NAHI:N'.
 mor: America U*N answer NEG
 nmN: G:right.up—
 tra: 'There was no answer from the UN or from America.'

There is not much evidence for localization by eye gaze in the data. This localization strategy may be restricted to specific conditions which would have to be investigated further yet. On the other hand, the use of eye gaze *in addition* to another localizer is quite frequent.

4.2.6 *Role Play*

Role play is a special case of localization in IPSL because it is limited to a certain kind of referents, i.e. to persons. In role play body posture is used to localize a referent in space and to refer back to it anaphorically after it has been localized. Role play also occurs in other sign languages¹⁵ and seems to work rather similarly there. The typical situation for role play is direct speech of a person in a narrative text. When the body is turned to one side, the first participant speaks, turning the body back or to the other side means it is the other one's turn. There is no need to use an explicit sign each time to indicate who is the speaker.

Apart from this horizontal role distribution there are also several examples of vertical role distribution in the data. The text below is from of a conversation between a teacher — who is the narrator of the text at the same time — and two children. The teacher is trying to settle an argument between the children. When the teacher speaks, the body is oriented downwards: The head is lowered and the trunk leaned slightly forward. The children are characterized by normal body position or by upwards eye gaze (in 71b). The translations 'I said' and 'they said' respectively are not based on manually produced signs but are inferred from the body posture during articulation of the sentences. It would of course be possible to use BATA:NA: 'tell' (with appropriate directionality) every time, but role play is much more efficient here.

- (71) a. SIGN: TUM BA:P MA:RNA: KYA:.
 mor: you father beat what
 nmn: B:down————— Q—
 tra: 'Your father will beat you, what (will you do then)?'
- b. SIGN: MAIN? MA:RNA:?
 mor: I beat-1
 nmn: G:up—————
 Q—————
 tra: (They said:) '(Will he really) beat me?'
- c. SIGN: BA:P MA:RNA:.
 mor: father beat-1
 nmn: AFF
 mth: ha:n'¹⁶
 tra: 'Yes, my father (will probably) beat me.'

15. Cf. Boyes-Braem (1990) 'Rollenspiel' in Swiss German Sign Language; Liddell (1980) 'role play' in ASL; Pizzuto, Giuranna & Gambino (1990) 'body markers' in Italian Sign Language.

16. HA:N' i.e. 'yes'.

- d. SIGN: NAHI:N' _KARO!
 mor: IMP_NEG
 nmn: B:down——
 tra: (I said to them:) 'Don't do that!'
- e. SIGN: TUM TUM DOST₃.
 mor: you-semi.right you-semi.left friend
 nmn: B:down—————
 tra: 'You two (should) be friends.'

4.2.7 *Inconsistencies*

The discussion so far should not convey the wrong impression that the principles according to which spatial syntax works in IPSL are already sufficiently clear. Apart from the fact that it is not at all evident, with the exception of role play, which localization strategy is used under which conditions, there are also numerous inconsistencies and problems with organizing space for localization purposes.

Inconsistencies are of two types:

1. A sign is inconsistently localized at several different loci.
2. Several referents are localized at the same locus.

In the first case a referent is initially assigned to a certain locus but this relationship is not maintained in the following discourse:

- (72) a. SIGN: BA:D PATRICK ODD_INGE DO FLY
 mor: then Patrick Odd_Inge two fly-front-left.up
 SIGN: HO_GAYA:.
 mor: COMPL-left.up
 tra: 'Then Patrick and Odd-Inge left by plane.'
- b. SIGN: DO +SA:L EK NO A:T^oH SA:T FLY.
 mor: two-year one nine eight seven fly-right.up-front
 tra: 'Two years (later) in 1987 they came (again).'

(72b) immediately follows (72a) in the text, and of course the place to which the two persons fly in the first sentence (in this case Norway) is the same as the one from which they come back in the second sentence. However, Norway is inconsistently localized on the other side of the body in the second sentence.

The following paragraph from the data exemplifies the second case:

- (73) a. SIGN: MAIN' PAHLE INDIA VAH.
 mor: I PAST India IND-left.up
 tra: 'I used to (live) in India.'

- b. SIGN: ENGLAND PAR^oHA:I: VAHA:N'.
 mor: England study there-left.up
 tra: '(Then I went) to England to study.'
- c. SIGN: CHOR^oNA: BA:P FAMILY VAH.
 mor: leave father family IND-left.up
 tra: 'I left my father and my family there.'

In this text all the locations, as well as the city RA:VALPIND^oI: 'Rawalpindi' later in the text, are localized at the same place (upper left side). Therefore, it is not clear whether the anaphoric index in the last sentence refers to INDIA or to ENGLAND. By assigning INDIA and ENGLAND to different loci the index could have been interpreted unambiguously.

Although localization functions the way I have demonstrated in this chapter in many cases, examples where localization seems inconsistent, ambiguous or at least not completely logical cannot be ignored. For instance, it also frequently happens that a referent is localized only once and this locus does not play any role either in the same sentence or in the following text, so that it seems unnecessary for the referent to have been localized at all. In any case, considering the fact that this is only a preliminary investigation it is of course expected that many questions will remain open for the time being, especially in the domain of syntax.

4.3 Nonmanual Syntax

Baker & Padden (1978:29) refer to ASL as a 'multi-channel system' which can convey information simultaneously via the following five channels: '(a) the hands and arms; (b) the head; (c) the face; (d) the eyes; and (e) the total body orientation or posture.' In addition, there may be several components within a channel. Wilbur (1987:40) emphasizes the extent to which several signals are possible at once. The head position can be made independently of actions of the eyes and eyebrows or of the mouth and cheeks. Combinations of nonmanual signals from various channels are often used in sign language syntax, e.g. for yes-no questions, conditional and relative clauses, negation and topicalization.

The most important prerequisite for a study of nonmanual syntax is to investigate detailed close-up recordings of facial expressions such as the ASL data discussed in Baker and Padden (1978). On the contrary, refined observations are not possible on the basis of the present IPSL video material because it mainly consists of recordings of the signer's whole body. The points discussed here in a rather general way include nonmanual affirmation and negation, interrogatives and nonmanual signals in conditional clauses. In addition, eye gaze and body posture have been treated as a means of localization above.

4.3.1 *Affirmation and Negation*

To a greater extent than spoken languages, sign languages confront the researcher with the difficulty of distinguishing linguistically relevant from nonlinguistic behaviour because signing involves the whole body rather than just the speech organs. For instance, it may be difficult to distinguish a pointing *sign* such as VAH from a formationally identical pointing *gesture* used to point to something in an extralinguistic context. Petitto (1986) has discussed this problem as far as it pertains to the acquisition of ASL pronouns. Similarly, I have mentioned a continuum with conventionalized signs on the one end and pantomime on the other end in section 2.5 and have pointed out the difficulty of drawing the line between the two.

The phenomena discussed here pose the same problem again because hearing speakers of Hindi/Urdu also shake their heads, nod, or look questioningly. Therefore, we have to ask in how far the same phenomena in IPSL are more 'linguistic' in comparison to the facial expressions and gestures of hearing people and in how far it is justified to consider them integral parts of a 'linguistic system'. Two arguments may be put forward in favour of the linguistic status of nonmanual phenomena:

1. The nonmanual signal is produced differently from the facial expression used otherwise, i.e. there is a difference in form.
2. The nonmanual signal is synchronized with the manually produced signs in certain rule-governed ways.

Nonmanual *affirmation* (AFF) appears as a head nod in several functions. First of all, it means 'yes' when it occurs by itself without an accompanying manually produced sign. As far as I know no sign meaning 'yes' is used in IPSL. However, the head nod is frequently accompanied by a mouth pattern HA:N' ('yes') or ACHA: ('OK').

- (74) SIGN: MAIN' DEKHNA:2 VAHA:N'.
 mor: I see there-semi.left
 nmn: AFF
 mth: ha:n'
 tra: 'Yes, I have seen (her) there.'
- (75) SIGN: AURAT.
 mor: woman
 nmn: AFF—
 mth: acha:
 tra: 'The woman nodded (and said): 'All right.'

A single accentuated head nod often occurs at the end of a sentence either together with or after the last word.

- (76) SIGN: VAH IFTIXA:R İŞA:RA: ŞURU: EK.
 mor: IND-right.up Iftikhar sign begin one
 nmn: AFF
 tra: 'Only a single sign language (program) by Iftikhar has started.'
- (77) SIGN: PU:RA: SAMAJH NA:M KA:N_PE_HA:TH.
 mor: all understand name hand_on_ear
 nmn: AFF
 tra: 'And everybody knew that (my) name was 'the one with the hand on his ear'.'

In this case the function seems to be emphasis or affirmation of the sentence. Thus this kind of head nod also occurs to affirm that communication has been successful. In sentence (78) below the speaker did not express himself clearly but the addressee signalled that he still got the message and the head nod here means something like 'that's it; you got it right'. Sentence (6), which I repeat here as (79), also contains a head nod of the same kind, confirming that the meaning of the fingerspelled letters has been interpreted correctly.

- (78) SIGN: EK NO A:T^oH DO TI:N.
 mor: one nine eight two three
 nmn: AFF—
 tra: '(That was) in 1982, I mean '83, yes, that's it.'
- (79) SIGN: BA:P MAIN^o DIRECTOR DIRECTOR(FS) FINANCE.
 mor: father I D D*I*R*I*C*T*O*R F
 voc: director finance
 nmn: AFF
 tra: 'My father is a finance director.'

In some cases the head nod continues throughout the whole sentence or the greater part of the sentence.

- (80) SIGN: LICENCE ACHA:I.
 mor: L good
 nmn: AFF—————
 tra: 'It is good (to have) a licence.'
- (81) SIGN: MUQA:BALA: INA:M MAIN^o EK DO.
 mor: competition prize I one two
 nmn: AFF—————
 tra: 'I won one or two prizes in competitions.'

The data is not conclusive as to the function of this continuous head nod, except that a special affirmation or emphasis of the subject matter probably plays a role here, too. In particular, there is no evident difference between a sentence such as (80) and a sentence such as

- (82) SIGN: DEAF ACHA:I.
 mor: deaf good
 nmn: AFF—
 tra: 'Deaf people are good (teachers).'

where the affirmative head nod is restricted to the last word.

However, the important point about all these forms of head nods is that the head is always moved *vertically*, whereas the head nod hearing people use in nonmanual communication consists of tilting the head to both *sides* alternately. This sideways nodding is very rare in the IPSL data and seems to be limited to certain pragmatic functions such as signalling that a signer is following the argument or the question addressed to him. In particular, it does not occur in combination with manual signs in the way exemplified by the sentences above. According to the argument that a formal difference between a grammatical nonmanual signal and a facial expression used in nonmanual communication can be considered an additional argument for the linguistic status of this nonmanual signal, the head nod in IPSL clearly falls into the category of linguistically relevant behaviour.

Nonmanual *negation* (NEG), realized as a headshake, is considerably more frequent than affirmation. Even though headshake negation does not formally differ from 'nonlinguistic' headshakes, synchronization with manually produced signs, which has been argued above to be a point in favour of linguistic structure, does seem to play an important role. I cannot propose any generalized rules here yet but the two following utterances from the data already indicate that the scope of nonmanual negation, i.e. those manual signs in the sentence which are produced together with the headshake and which are thus negated, cannot be chosen randomly.

- (83) SIGN: MUŞKIL NAHI:N'.
 mor: difficult NEG
 nmn: NEG—
 tra: 'It isn't difficult.'
- (84) SIGN: MUŞKIL.
 mor: difficult
 nmn: NEG—
 tra: 'It's difficult; it won't do.'

In (83) MUŠKIL ‘difficult’ falls under the scope of nonmanual negation whereas in (84) this is not the case. Therefore, the two sentences have opposite meanings.¹⁷ In sentence (83) the manual negation NAHI:N’ can be omitted because

- (85) SIGN: MUŠKIL.
 mor: difficult
 nmn: NEG—
 tra: ‘It isn’t difficult.’

is also a possible sentence that occurs in the data several times. So a headshake alone is sufficient to negate a sentence. The sign NAHI:N’ may be added, but this is not necessarily the case. Moreover, NAHI:N’ by itself, i.e. without a headshake, is also a possible negation, so that we have three possibilities to negate a sentence or clause:

- the sign NAHI:N’ (or the negative imperative NAHI:N’_KARO) by itself (24% of all cases);
- nonmanual headshake negation only (32%);
- headshake negation in combination with a negative sign (44%).¹⁸

It is very hard to say which type of negation signers chose under which conditions because all three types may occur in quite similar sentences, as in the following examples:

- (86) SIGN: MAIN’ SAMAJH NAHI:N’.
 mor: I understand NEG
 tra: ‘I don’t understand that.’
- (87) SIGN: PA:KISTA:N INTIZA:M SAMAJH.
 mor: P organize understand
 nmn: NEG—
 tra: ‘The Pakistanis don’t know how to organize.’
- (88) SIGN: DEAF VAH SAMAJH NAHI:N’.
 mor: deaf IND-left understand NEG
 nmn: NEG—
 tra: ‘(Only) the deaf people don’t know about it.’

In most cases sentences do not begin with a nonmanual negative signal. Rather, the headshake starts later in the sentence, co-occurring, for example, with the

17. Sentence (84) might also be interpreted in terms of two sentences as suggested by the translation. The second sentence would consist of the headshake negation only, without any manual component.

18. The figures are based on the 1994 data from Karachi.

predicate only. However, there is some variation here and further research is necessary to determine the exact scope of nonmanual negation in each case. In particular, it would be interesting to investigate in how far a different scope changes the meaning of otherwise similar sentences. For example, the following two sentences appear in the data:

- (89) SIGN: A:DMI: SAB ACHA:I NAHI:N'.
 mor: man all good NEG
 nmn: NEG—————
- (90) SIGN: A:DMI: PU:RA: ACHA:I NAHI:N'.
 mor: man all good NEG
 nmn: NEG—————

In (89) the quantifier sign SAB 'all' falls under the scope of the negation, whereas in (90) PU:RA: 'all' is not accompanied by a headshake. Unfortunately, the Urdu translation does not permit to decide whether this entails a difference in meaning.

4.3.2 *Interrogatives*

In IPSL there is an interrogative facial expression (Q) which is similar to nonmanual interrogative 'intonation' patterns found in other sign languages: the eyebrows are raised, the eyes wide open, the head is tilted forward and eye contact established, and the last sign is held longer than usual. However, the nonmanual interrogative configuration is much more difficult to observe in recordings showing the entire body than negation and affirmation. Moreover, there is individual variation among signers as to how clearly the interrogative pattern is realized. The analysis presented here is therefore only preliminary. For example, it is quite possible that there may be several different interrogative 'intonation' patterns.¹⁹

In *wh*-questions the question sign(s) must appear at the end of the sentence in IPSL. The interrogative intonation pattern co-occurs with the whole sentence in only two cases. Otherwise the scope of the nonmanual signal is limited to the latter part of the sentence, often to the predicate. In this respect, the distribution of nonmanual signals over the sentence seems to follow the same regularities in negative and interrogative sentences.

19. Cf., for instance, Boyes-Braem (1990) distinguishing between *wh*-questions and yes-no-questions.

- (91) SIGN: DEAF İŞA:RA: KYA:?
 mor: deaf sign INTERROG
 nmn: Q—————
 mth: kya:
 tra: 'What signs is this deaf guy making?'
- (92) SIGN: SAB AFSOS MATLAB KYA:?
 mor: all sad meaning INTERROG
 nmn: Q—————
 tra: 'What are we all so sad about?'
- (93) SIGN: A:DMI: VA:PAS_A:NA: KYA:?
 mor: man return INTERROG
 nmn: Q—————
 mth: kyu:n²⁰
 tra: 'Why did the man come back?'

A question sign can also be used to introduce a clause expressing a causal relationship, as illustrated by example (94) below. In this case the question sign appears at the beginning of the clause, in contrast with the sentence final position in *wh*-questions. The nonmanual interrogative pattern is then restricted to the question sign itself, as far as I can tell from the data.

- (94) SIGN: MAIN' PASAND HAI,
 mor: I like is
 tra: 'I liked (that),'
 SIGN: KYA: DEKHNA: JAMA: MA:LU:M
 mor: INTERROG see gather know
 nmn: Q—————
 SIGN: MA:LU:M+TARAQQI:.
 mor: know -develop-GRAD
 tra: 'because by watching and gathering knowledge you keep developing mentally.'

Since the data used here does not provide a great number of interrogative sentences, and in particular no facial close-up recordings of interrogatives, further research is needed in this domain to address some of the following questions:

- a) Is there any difference between yes-no-questions and *wh*-questions as far as nonmanual signals are concerned?

20. KYU:N' i.e. 'why'.

- b) What is the exact scope of the nonmanual signal?
- c) How many question signs exist in IPSL?
- d) What is the distribution and function of question signs in clause-initial position?

4.3.3 *Conditional Clauses*

The following discussion is based on a limited set of positive conditional clauses in the IPSL data. Negative conditionals and questions with conditionals were not investigated. Nonmanual behaviour in these sentences has been transcribed in detail, with separate lines for each relevant component: eyebrows, eyes and head or body. Although the generalizations listed below are based on a relatively small sample, it is clear enough that all sentences follow the same pattern, so that conditional clauses can be characterized in the following way:

- The condition is given in the first part of the sentence, the consequence in the second part.
- During the whole first part the eyebrows are raised and the eyes are wide open.
- The last sign of the first part is accompanied by a single accentuated head nod.
- The last sign of the first part and the accompanying nonmanual configuration (raised eyebrows, open eyes, lowered head) are characterized by a prolonged final hold. This results in a pause between the two parts of the sentence.
- As the second part begins, the head is raised again, eyes and eyebrows return to their normal position.

The following examples illustrate these regularities:

(95)	SIGN:	KA:M	HAI	—		—	A:NA:	.
	mor:	work	is			come		
	brows:	raised	—			normal	—	
	eyes:	wide	open	—		normal	—	
	head:		nod	—		left	tilt	—
	mth:						a:o ²¹	
	tra:	‘If (you) have a job, then join (the club).’						

21. A:o i.e. ‘come!’.

- (96) SIGN: PU:RA: DEAF PU:RA: MA:NNA: ACHA:I—— | MAIN'
mor: all deaf all obey good | I
brows: raised—— | normal——
eyes: wide open—— | normal——
head: nod—— |
SIGN: YAHA:N' MAIN KA:M BAR°HNA:.
mor: here I work increase
brows: normal——
eyes: normal——
tra: 'If all the deaf really accept (us), I (will be able to) increase activities here.'
- (97) SIGN: VAH DEAF SUSTI:—— | MAIN' TOLNA: MUŠKIL.
mor: IND-left deaf lazy | I undecided difficult
brows: slight raise | normal——
eyes: wide open—— | normal——
head: nod—— |
tra: '(But) if the deaf are lazy, then I don't really know (what to do), then it's difficult.'
- (98) SIGN: QA:NU:N SAMAJH—— | APPLICATION JALDI: PROCESS.
mor: law understand | apply fast get_on
brows: raised—— | normal——
body: up-down—— |
tra: 'If they understood the law, their applications could get on quickly.'

Sentence (97) immediately follows sentence (96) in the same text; sentences (95) and (98) are taken from other texts. The speaker of the last sentence wears glasses so that the eyes cannot be observed in the recording. Moreover, he moves up and down with the whole *body* rather than just nodding the head. However, this creates an equivalent visual impression. The head tilt in (95) is probably not relevant to the conditional clause.

Interestingly, Liddell (1986:255) describes a very similar configuration of nonmanual signals in ASL conditional clauses:

the combination of brow raise and rotated head position throughout the conditional, and the head thrust during the final sign, are the nonmanual activities used to mark a conditional constituent.²²

22. Liddell (1986), p.255.

Such correspondences are interesting to observe and call for further research of nonmanual syntax in all sign languages, the well documented as well as the more 'exotic' ones.

CHAPTER 5

Discourse Strategies

5.1 Contrasts

So far I have considered directionality and positioning of signs from a morphological and syntactic point of view. Referents are localized at a certain point in space in order to be referred back to later, either to differentiate between agent and patient of an action or to fix beginning and ending point of a ‘movement sign’ or more generally to establish a spatial relationship between them.

However, apart from the syntactic function of spatial arrangement, which is necessary in order to understand the message conveyed, the use of space also has a more comprehensive discourse structuring component. In this context we may speak of a ‘stage’ which a signer constructs for his addressees and over which the referents are distributed in space. Such a stage does not only permit an understanding of syntactic relationships but may also develop discourse related regularities, a ‘dramatization’ of signing, so to speak. In IPSL one such possibility of using space for dramatization is to express a contrast between two places, situations or tenses. In the following text, which discusses the differences in deaf education in former times and nowadays, the two tenses are arranged right and left of the speaker, thus emphasizing the contrast.

- (99) a. SIGN: ABHI: SURU: BACCA: SIKHA:NA:.
mor: now begin child-Pl teach-**left**
tra: ‘Now they have started to teach the children.’
- b. SIGN: BAR^oA: _HONA: ACHA:I.
mor: grow_up-**left** good-**left**
tra: ‘(When they will) grow up, they will be good (signers).’
- c. SIGN: PAHLE TABDI:L.
mor: before change-**right**
nmn: **B:right-**
tra: ‘(What was) before has changed.’

- d. SIGN: XATAM(B).
 mor: end-**right**
 nmn: **B:right-**
 tra: 'That's finished.'
- e. SIGN: I:JA:D BAR^oA: _HONA:.
 mor: appear-**left** grow_up-**left**
 tra: 'There are new developments.'
- f. SIGN: PAHLE SIKHA:NA: MUŠKIL.
 mor: before teach-**right** difficult-**right**
 nmn: NEG——
 tra: '(Signs) were not taught before; (it was too) difficult.'
- g. SIGN: CHOR^oNA:.
 mor: leave-**right**
 tra: (Everybody said:) 'Leave it.'
- h. SIGN: NAYA: ABHI: BACCA:
 mor: new-**right** now-**left** child-**left**
 nmn: **B:left**——
 SIGN: ISKU:L SIKHA:NA:.
 mor: school-**left** teach-**left**
 nmn: **B:left**——
 tra: 'The new (thing is that) children are now taught (sign language) at school.'
- i. SIGN: BAR A: _HONA:.
 mor: grow_up-**left**
 nmn: **B:left**——
 tra: 'They grow up.'
- j. SIGN: TABDI:L.
 mor: change-**left**
 nmn: **B:left**——
 tra: '(The situation) is changing.'

Everything related to the present new situation is localized left of the speaker whereas the past is situated on the right side. Note that this arrangement is independent of the time line that extends forward through the body. Present actions happen on the left side of the stage, past actions happen on the right side. TABDI:L 'change' is once attributed to the past (in 99c), the second time to the present (in 99j). In (99h) there is a transition between the tenses: NAYA: 'new' is moved from the right side to the centre of the body and reaches the place of articulation of ABHI: 'now' on the left in a single prolonged movement. The usual place of articulation of ABHI: in front of the body is shifted to

the left in accordance with the spatial arrangement of the tenses. Signs that can be positioned in space are also shifted according to their temporal reference.

The following paragraph dealing with a similar topic demonstrates that such spatial arrangement is not grammatically necessary in IPSL

- (100) a. SIGN: ISKU:L DEWA VAHA:N' CHOR^oNA:
 mor: school D there-left leave-left
 tra: '(Then) they sent me to the Dewa school.'
- b. SIGN: PAR^oHA:I: BAR^oHNA:
 mor: study increase-GRAD
 tra: '(My) education progressed.'
- c. SIGN: DAS+PA:S XATAM(B).
 mor: ten-success end
 tra: 'I have passed the tenth (grade).'

Although in this text the activities described in the last two sentences also 'take place', logically speaking, in the school localized on the left side, only the directional signs VAHA:N' 'there' and CHOR^oNA: 'leave' are oriented towards the left. All the other signs, some of which are quite similar to the signs used in the first text (XATAM(B), BAR^oHNA:), are not subject to positioning and keep their usual place of articulation at the locus in front of the body. Apparently, spatially expressed logical coherence is not particularly important here.

By contrast, In the first text (99a-) the contrast between 'before' (right side) and 'now' (left side) functions as a superposed frame and gives structure to the discourse as a whole. For a complete explanation of localization such discourse structuring functions of loci have to be taken into account as well.

5.2 Use of the Left Hand¹

A striking difference between signed and spoken languages is that a signer has two organs of articulation (the two hands) at his disposal which can be operated independently of each other to a large extent, whereas spoken languages have only a single vocal tract for articulation. One of the interesting consequences resulting from this distribution is the fact that in sign languages it is possible in principle to produce two different words at the same time, one with the right hand and one with the left hand, provided that they are one-

1. For simplification I will mostly speak of the 'left hand' here although 'non-dominant hand' would be more accurate, i.e. for left-handed people the right hand is relevant here.

handed signs. In spoken languages, by contrast, it is physically impossible to pronounce two words at the same time.

Reversing the dominant and the non-dominant hand, i.e. articulating the signs with a left dominant hand, results in mirror images. This does not, however, disturb communication in any way.² As far as I know so far, it is not absolutely necessary in any context to use the non-dominant hand for one-handed signs. However, there are in fact regular patterns of use that depend on the text type involved, i.e. discourse related patterns.

First of all, it must be noted that the theoretically possible case mentioned above (two different signs articulated at the same time with one hand each) is practically non-existent, which is probably due to articulatory and perceptive difficulties in processing such a constellation. Rather, what often happens is that a sign is produced with one hand and then held in the same position while the other hand articulates one or several other signs.

Secondly, almost all signs that are shifted to the left hand within a sentence are relatively simply structured, e.g. a hold in front of the body (the existential HAI, the numbers), a single contact with a body part (AURAT 'woman', SAMAJH 'understand', MAIN 'I') or a straight movement in one direction (the index VAH, JA:NA: 'go', the imperative KARO). The index VAH is frequently shifted to the left hand, especially when the corresponding referent is also localized on the left so that the index requires movement to the left. Sometimes a whole sentence is produced with the left hand in the data.

Apart from these regularities, which are probably due to articulatory and perceptive reasons, context is important as well. In particular, I will discuss the interaction of two hands in enumerations, which often follows a certain pattern. The sentences below are examples of enumerations in which numbers play an important role as structuring elements.

- (101) right SIGN: PANJA:B SINDH PASA:VAR BALOCISTA:N
 mor: Punjab Sindh Peshawar Beluchistan
 left SIGN: EK— DO— TI:N— CA:R
 mor: one two three four
 tra: 'There are four (provinces): Punjab, Sindh, the
 Peshawar (region) and Beluchistan.'

In sentence (101) the right hand articulates the names of the provinces while the left hand does the numbering. The left hand remains in its previous

2. In fact, before I began to study handshapes more closely I had not even noticed that some of my informants are left-handed (cf. Table 2 in chapter 1.2).

position until the right hand has produced the next sign.³ Then the handshape of the left hand changes for the next number. At no point do both hands move at the same time, so that we cannot actually speak of simultaneous articulation with both hands. An utterance like

- (102) *right SIGN: PANJA:B SINDH PAŠA:VAR BALOCISTA:N
mor: Punjab Sindh Peshawar Beluchistan
left SIGN: EK DO TI:N CA:R
mor: one two three four

with *simultaneous* use of both hands does not occur anywhere in the text corpus, whereas a pattern of *alternate* articulation in combination with held numeral signs is typical.

- (103) right SIGN: DRAWING BAS
mor: draw END
both SIGN: TYPE LOTUS(FS) TYPE XATAM(B)
mor: type L*O*T*U*S type end
left SIGN: EK—
mor: one
tra: ‘(I can) draw, and firstly (I am) fully (competent) in LOTUS computers,’
-
- right SIGN: DRAWING
mor: draw
both SIGN: TYPE TYPEWRITER TI:N_SE_TI:SRA:
mor: type typewriter third_of_three
left SIGN: DO
mor: two
tra: ‘secondly, (I can) write on a typewriter, and thirdly, (I can) draw.’
-
- right SIGN: A:GE
mor: further
both SIGN: BAS.
mor: END
left SIGN: TI:N ————— TI:N
mor: three three
nmn: NEG—
tra: ‘(I can do) nothing else, just these three (things).’

3. The lines indicate how long the numeral signs are held.

This is the case in the somewhat more complicated example (103), too, where EK is held throughout the following BAS. In this sentence there are two-handed signs as well which are represented in the middle line ('both'). Numeration differs from (101) in that it is not uniform. After EK 'one' and DO 'two' TI:N_SE TI:SRA: 'third_of_three' is an alternative way of counting in which the index finger of the right hand touches the third of three extended fingers of the left hand. The W handshape of the left hand then remains until the end of the sentence: after DRAWING the W hand is accentuated again to articulate TI:N once more, and in the two-handed BAS there is only a twist of the wrist, i.e. the left hand does not change to 3° handshape as the right hand does.

There are several instances of this kind of enumeration in the data, and therefore more than 20% of all signs articulated with the non-dominant hand are numeral signs. Although enumeration does not necessarily work this way, it seems to be preferred by the speakers because when the numbers are continuously represented on the left hand, the concept of enumeration is evoked more vividly.

5.3 Perspective

Since sign languages use the whole body for signing rather than just the hands, it is possible in IPSL to stage situations before the addressee in a film-like way. Acting persons and places are distributed over the sign space, perspective may be shifted from bird's-eye view to close-up and to the perspective of various participants. Lucas & Valli (1990), for instance, have studied various possibilities of giving perspective to 'predicates of perceived motion' in ASL.

In section 4.2 I have already discussed the use of eye gaze and body posture for localization, and the use of perspective partly overlaps with such syntactic functions. For example, in role play changing the body orientation of course also means taking the perspective of the speaker in relation to the addressee, e.g. orientation downwards in conversation with children (see ex. 71 in section 4.2.6). Yet the means perspective is used for go beyond the purely syntactic requirements of localization and directionality because perspective structures the text as a whole.

For instance, in the following paragraph the direction of eye gaze is important:

- (104) a. SIGN: ACCOUNTING TAX(FS) ACCOUNTING TYPE.
 mor: accounting T*A*X accounting type
 nmn: G:down—————
 tra: '(I do) accounting, taxes and computer (work).'

- b. SIGN: LIKHNA: ACCOUNTING.
 mor: write accounting
 nmn: G:down _____
 tra: '(I) write down the accounts.'

Here we neither have role play nor are the signs localized below in front of the speaker in order to establish syntactic reference based on spatial arrangement. Rather, the downward gaze represents the perspective of a person bending over his books and writing. In this way situations are frequently given a concrete frame. A look at the left wrist — the place of articulation of *VAQT* 'time' — is appropriate when talking about a certain time, a look downwards when talking about children, upwards when referring to rain. In some cases such components of perspective even constitute a fixed nonmanual part of a sign. Thus in *RAVA:NA*: 'disappear in the distance' eye gaze follows the articulating hand and the signer is represented as watching something disappear (see fig. 46 in section 2.4.2).

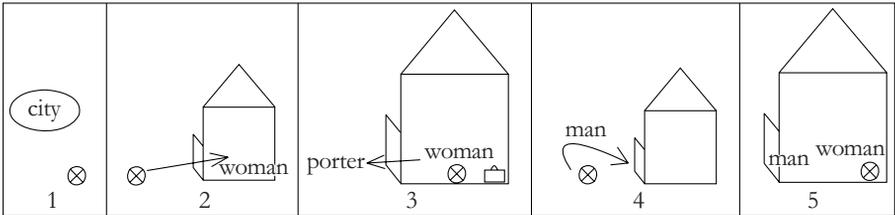


Fig. 94. Changes in perspective

Of course perspective plays a major role in narrative texts. The five pictures in fig. 94 show changes in perspective occurring in one part of a longer narration. The signer repeatedly uses spatial arrangement and directional movement to change perspective. The symbol (X) represents the point of view adopted by the signer in each picture.

The first picture corresponds to the situation at the very beginning of the narration where the setting, an 'American or English city', is introduced.

- (105) SIGN: AMRI:KA: SAHAR ENGLAND
 mor: America city-semi.left England
 nmn: G:semi.left
 SIGN: SAHAR AURAT KOI: REL_GA:R°I:
 mor: city-semi.left woman some train
 mth: koi:
 nmn: G:semi.left

SIGN: REL GHAR REL_GA:R°I.
 mor: railway_line house train
 tra: 'In some American or English city there was a woman at a railway station.'

The city is localized semi-left of the signer, eye gaze following the hand articulating at this place. After this bird's-eye view a perspective of the immediate surroundings follows in picture 2, a waiting room at a train station, localized on the right of the speaker. The house has to be imagined from the outside perspective with a door on the left side. In (106) a woman enters, so the sign ANDAR-JA:NA: 'enter' moves to the right.

(106) SIGN: GHAR ANDAR_JA:NA:.
 mor: house enter-right
 tra: 'She entered the waiting room.'

Picture 3 shows a close-up view of the interior of the house. The signer's perspective is identical to the one of the woman in the narration. She places a suitcase at her right and pays the porter who leaves to the left through the door at this side:

(107) SIGN: A:DMI: CALE_JA:NA:.
 mor: man go_away-left
 tra: 'The man (i.e. the porter) goes away.'

In picture 4 the same perspective as in picture 2 is adopted again, a man approaches in a curve (cf. CALNA: 'walk' moving as indicated by the arrow), opens the door and enters the house which has to be imagined from an outside perspective again now. The signer's body is turned to the right in the direction of the movement.

(108) SIGN: A:DMI: CALNA:
 mor: man walk-front-top,left-right
 nmn: B:right—
 SIGN: KHOLNA:.
 mor: open-right
 mth: pauh!
 nmn: B:right—
 tra: 'A man suddenly approached and threw open (the door).'

In the next sentence the perspective of the woman inside the house is adopted again; she abruptly turns to the left towards the door, suddenly perceiving the man standing there. So the speaker, employing mime here, abruptly turns to the left where the door is supposed to be as seen from the inside perspective.

- (109) SIGN: AURAT.
 mor: woman
 nmn: 'start'-left
 tra: 'The woman started (at the sight of the man).'

This paragraph illustrates in a particularly clear fashion how complex the working together of manually produced signs, eye gaze, body posture and mime can be. This enables the signer to represent the various perspectives simply by using space as a stage. There is no need for explanatory comments such as 'The woman is now inside the house' or 'The door is on the left side of the house'. This cinematic potential is among the most impressive aspects of sign languages, and such particularities of the visual modality inspire the researcher more than anything else to ever more detailed studies of sign language structure. It must have become clear from this book that the way towards a more exact understanding of IPSL is particularly long yet.

Bibliography

- ABSA Research Group (1987¹ & 1995²): A Dictionary of Pakistan Sign Language (Focus on Karachi). Anjuman Behbood-e-Samat-e-Atfal (ABSA School for the Deaf): Karachi.
- ABSA Research Group (1989): Relationships in Sign Language. Anjuman Behbood-e-Samat-e-Atfal (ABSA School for the Deaf): Karachi.
- ABSA Research Group (1989): Time and Seasons in Sign Language. Anjuman Behbood-e-Samat-e-Atfal (ABSA School for the Deaf): Karachi.
- ABSA Research Group (1990): The Anatomy in Body Actions and Sign Language. Anjuman Behbood-e-Samat-e-Atfal (ABSA School for the Deaf): Karachi.
- ABSA Research Group (1992): Numeration in Sign Language. Anjuman Behbood-e-Samat-e-Atfal (ABSA School for the Deaf): Karachi.
- Ahn, Sung-Ho (1990): A Structured-Tiers Model for ASL Phonology. In: Lucas, Ceil (ed): *Sign Language Research. Theoretical Issues*. Gallaudet University Press. p. 11–26.
- Armstrong, David F. (1983): Iconicity, Arbitrariness, & Duality of Patterning in Signed & Spoken Language: Perspectives on Language Evolution. *Sign Language Studies* 3. p. 51–69.
- Baker, Charlotte & Carol A. Padden (1978): Focusing on the Nonmanual Components of American Sign Language. In: Siple, Patricia (ed.): *Understanding Language through Sign Language Research. Perspectives in Neurolinguistics and Psycholinguistics (Series)*. New York. p. 27–58.
- Battison, Robbin (1978): *Lexical Borrowing in American Sign Language*. Silver Spring, MD: Linstok Press.
- Bellugi, Ursula & Don Newkirk (1981): Formal Devices for Creating New Signs in American Sign Language. *Sign Language Studies* 30. p. 1–35.
- Boyes-Braem, Penny (1990): Einführung in die Gebärdensprache und ihre Erforschung. Internationale Arbeiten zur Gebärdensprache und Kommunikation Gehörloser, Bd.11. Hamburg.
- Brentani, Diane (1990): Licensing in ASL Handshape Change. In: Lucas, Ceil (ed): *Sign Language Research. Theoretical Issues*. Gallaudet University Press. p. 57–70.

- Carmel, Simon J. (1992): A Checklist of Dictionaries of National Sign Languages of Deaf People. *Sign Language Studies* 76. p. 233–252.
- Collins-Ahlgren, Marianne (1990): Word Formation Processes in New Zealand Sign Language. In: Fischer, Susan D. & Patricia Siple (ed.): *Theoretical Issues in Sign Language Research, Vol. 1*. University of Chicago. p. 279–312.
- Corazza, Serena (1990): The Morphology of Classifier Handshapes in Italian Sign Language (LIS). In: Lucas, Ceil (ed): *Sign Language Research. Theoretical Issues*. Gallaudet University Press. p. 71–82.
- Corina, David P. (1990): Handshape Assimilations in Hierarchical Phonological Representation. In: Lucas, Ceil (ed): *Sign Language Research. Theoretical Issues*. Gallaudet University Press. p. 27–49.
- Coulter, Geoffrey Restall (1981): *American Sign Language Typology*. Ann Arbor, Michigan.
- DeMatteo, Asa (1977): Visual Imagery and Visual Analogues in American Sign Language. In: Friedman, Lynn A. (ed.): *On the Other Hand. New Perspectives on American Sign Language*. New York-San Francisco-London. p. 109–136.
- Deshmukh, Dilip (1996): *Sign Language and Bilingualism in Deaf Education*. Ichalkaranji.
- Edge, VickiLee & Leora Herrmann (1977): Verbs and the Determination of Subject in American Sign Language. In: Friedman, Lynn A. (ed.): *On the Other Hand. New Perspectives on American Sign Language*. New York-San Francisco-London. p. 137–179.
- Fischer, Susan (1975): Influences on Word Order Change in American Sign Language. In: Li, Charles N. (ed): *Word Order and Word Order Change*. University of Texas Press, Austin. p. 1–25.
- Friedman, Lynn A. (1976): Subject, Object, and Topic in American Sign Language. In: Li, Charles N. (ed.): *Subject and Topic*. New York-San Francisco-London. p. 125–148.
- Friedman, Lynn A. (1978): Phonology of a Soundless Language: Phonological structure of the American Sign Language. Ann Arbor, Michigan.
- Frishberg, Nancy (1975): Arbitrariness and Iconicity: Historical Change in American Sign Language. *Language* 51:3. p. 696–719.
- Glück, Susanne & Roland Pfau (1997): Einige Aspekte der Morphologie und Morphosyntax in Deutscher Gebärdensprache. *Frankfurter Linguistische Forschungen* 20 p. 30–48.
- Hughes, Gerry, Martin Colville & Mary Brennan (1984): Talking about 'Existence' in British Sign Language (BSL). In: Loncke, Filip, Penny Boyes-Braem & Yvan Lebrun (ed.): *Recent Research on European Sign Languages*. Lisse, Netherlands. p. 5–18.

- Jepson, Jill (1991a): Two Sign Languages in a Single Village in India. *Sign Language Studies* 70. p. 47–59.
- Jepson, Jill (1991b): Urban and Rural Sign Language in India. *Language in Society* 1:2. p. 37–57.
- Karlsson, Fred (1984): Structure and Iconicity in Sign Language. In: Loncke, Filip, Penny Boyes-Braem & Yvan Lebrun (ed.): *Recent Research on European Sign Languages*. Lisse, Netherlands. p. 149–155.
- Klima, Edward S. & Ursula Bellugi (1979): *The Signs of Language*. Cambridge, Mass., Harvard University Press.
- Liddell, Scott K. (1980): American Sign Language Syntax. The Hague.
- Liddell, Scott K. (1986): Head Thrust in ASL Conditional Marking. *Sign Language Studies* 52. p. 243–262.
- Liddell, Scott K. (1990a): Structures for Representing Handshape and Local Movement at the Phonemic Level. In: Fischer, Susan D. & Patricia Siple (ed.): *Theoretical Issues in Sign Language Research, Vol. 1*. University of Chicago. p. 37–66.
- Liddell, Scott K. (1990b): Four Functions of a Locus: Reexamining the Structure of Space in ASL. In: Lucas, Ceil (ed): *Sign Language Research. Theoretical Issues*. Gallaudet University Press. p. 176–200.
- Liddell, Scott K. (1996): Numeral Incorporating Roots & Non-Incorporating Prefixes in American Sign Language. *Sign Language Studies* 92. p. 201–226.
- Lillo-Martin, Diane & Edward S. Klima (1990): Pointing out Differences: ASL Pronouns in Syntactic Theory. In: Fischer, Susan D. & Patricia Siple (ed.): *Theoretical Issues in Sign Language Research, Vol. 1*. University of Chicago. p. 191–210.
- Lucas, Ceil & Clayton Valli (1990): Predicates of Perceived Motion in ASL. In: Fischer, Susan D. & Patricia Siple (ed.): *Theoretical Issues in Sign Language Research, Vol. 1*. University of Chicago. p. 153–166.
- MacWhinney, Brian (1991): *The CHILDES Project. Tools for Analysing Talk*. Hillsdale, New Jersey.
- Mandel, Mark (1977): Iconic Devices in American Sign Language. In: Friedman, Lynn A. (ed.): *On the Other Hand. New Perspectives on American Sign Language*. New York-San Francisco-London. p. 57–107.
- McIntire, Marina, Don Newkirk, Sandra Hutchins & Howard Poizner (1987): Hands & Faces: A Preliminary Inventory for Written ASL. *Sign Language Studies* 56. p. 197–241.
- Narasimham, R. (1995): *Tools through Signs*. Bombay.
- Newport, Elissa L. & Richard P. Meier (1985): The Acquisition of American Sign Language. In: Slobin, Dan Isaac (ed.): *The Crosslinguistic Study of Language Acquisition, Vol.1: The Data*. Hillsdale, New Jersey. p. 881–938.

- NISE National Institute of Special Education (1991): *Pakistan Sign Language, with Regional Differences*. Islamabad.
- NISE National Institute of Special Education (1994): *Pakistan Sign Language, Based On Primary School Course Vocabulary. Second Handbook for Teachers, Parents and Hearing Impaired Persons*. Islamabad.
- Norton Warren, Katherine (1978): Aspect Marking in American Sign Language. In: Siple, Patricia (ed.): *Understanding Language through Sign Language Research. Perspectives in Neurolinguistics and Psycholinguistics (Series)*. New York. p. 133–162.
- Padden, Carol A. (1988): *Interaction of Morphology and Syntax in American Sign Language*. Garland: New York-London.
- Petitto, Laura A. (1986): From Gesture to Symbol: The Relationship Between Form and Meaning in the Acquisition of Personal Pronouns in American Sign Language. Indiana University Linguistics Club, Indiana.
- Pizzuto, Elena, Enza Giuranna & Giuseppe Gambino (1990): Manual and Nonmanual Morphology in Italian Sign Language. In: Lucas, Ceil (ed): *Sign Language Research. Theoretical Issues*. Gallaudet University Press. p. 83–102.
- Prillwitz, Siegmund (1985): *Skizzen zu einer Grammatik der deutschen Gebärdensprache*. Hamburg.
- Sandler, Wendy (1990): Temporal Aspects and ASL Phonology. In: Fischer, Susan D. & Patricia Siple (ed.): *Theoretical Issues in Sign Language Research, Vol. 1*. University of Chicago. p. 7–36.
- Siple, Patricia (1978): Visual Constraints for Sign Language Communication. *Sign Language Studies* 19 (Summer 1978): 95–110.
- Sir Syed Deaf Association (1989): *Pakistan Sign Language*. Rawalpindi.
- Smith, Wayne H. (1990): Evidence for Auxiliaries in Taiwan Sign Language. In: Fischer, Susan D. & Patricia Siple (ed.): *Theoretical Issues in Sign Language Research, Vol. 1*. University of Chicago. p. 211–228.
- Stokoe, William C., Dorothy Casterline and Carl Croneberg (1976): *A Dictionary of American Sign Language on Linguistic Principles*. Silver Spring, Md.
- Supalla, Ted & Elissa L. Newport (1978): How Many Seats in a Chair? The Derivation of Nouns and Verbs in American Sign Language. In: Siple, Patricia (ed.): *Understanding Language through Sign Language Research. Perspectives in Neurolinguistics and Psycholinguistics (Series)*. New York. p. 91–132.
- Valli, Clayton & Ceil Lucas (1995²): *Linguistics of American Sign Language. An Introduction*. Washington, D.C.: Gallaudet University Press.
- Vasishtha, Madan, James Woodward & Kirk L. Wilson (1978): Sign Language in India: Regional Variation within the Deaf Population. *Indian Journal of Applied Linguistics*. IV:2. p. 66–74.

- Vasishtha, Madan, James Woodward & Susan deSantis (1980): An Introduction to Indian Sign Language (Focus on Delhi). All India Federation of the Deaf: New Delhi.
- Wilbur, Ronnie B. (1987): American Sign Language. Linguistic and Applied Dimensions. Boston, Mass.
- Wilbur, Ronnie B. (1990): Why Syllables? What the Notion Means for ASL Research. In: Fischer, Susan D. & Patricia Siple (ed.): *Theoretical Issues in Sign Language Research, Vol. 1*. University of Chicago. p. 81–108.
- Woodward, James (1993): The Relationship of Sign Language Varieties in India, Pakistan, & Nepal. *Sign Language Studies* 78 p. 15–22.
- Zeshan, Ulrike (1996): Aspects of Pakistan Sign Language. *Sign Language Studies* 92. p. 253–296.
- Zeshan, Ulrike (1997): “Sprache der Hände?” — Nichtmanuelle Phänomene und Nutzung des Raums in der Pakistanischen Gebärdensprache. *Das Zeichen* 39 p. 90–105.
- Zimmer, June & Cynthia Patschke (1990): A Class of Determiners in ASL. In: Lucas, Ceil (ed.): *Sign Language Research. Theoretical Issues*. Gallaudet University Press. p. 201–210.

Appendix A

Sample text:

SIGN: ACHA:I ACHA:I.

mor: good good

nmn: AFF—————

tra: ‘Yes, (television) is good.’

SIGN: YAHA:N’ SCREEN TV NASRIYA:T ACHA:I.

mor: here screen T*V broadcast good

nmn: AFF—————

tra: ‘The TV programs here are good.’

SIGN: IFTIXA:R ISA:RA: BAHUT_ACHA:.

mor: Iftikhar sign excellent

nmn: H:back—————

tra: ‘Iftikhar’s sign language program is excellent.’

SIGN: PU:RA: SAMAJH ACHA:I.

mor: all understand good

nmn: AFF—————

tra: ‘You understand everything very well.’

SIGN: FRIDAY.

mor: F-ITER

tra: ‘(It is broadcast) every Friday.’

SIGN: BAHUT_ACHA:.

mor: excellent

tra: ‘(It’s) a good (program).’

SIGN: DO_SE_DU:SRA: DRAMA.

mor: second_of_two serial

tra: ‘Secondly, there is the serial.’

- SIGN: VAQT NO AXBA:R ACHA:I.
mor: time nine newspaper good
nmn: AFF—
tra: ‘The nine-o’clock-news are also good.’
- SIGN: PU:RA: SUNNE_VA:LA: SAMAJH HAL.
mor: all hearing understand is
nmn: AFF—
tra: ‘All the hearing people understand them.’
- SIGN: VAH DEAF VAH SAMAJH NAHI:N’.
mor: IND-left deaf IND-left understand NEG
nmn: NEG—————
tra: ‘The deaf don’t understand them.’
- SIGN: FA:IDA:?
mor: use
nmn: Q—
tra: ‘(What’s) the use of it then?’
- SIGN: DEKHNA: SAMAJH NAHI:N’.
mor: see understand NEG
nmn: G:front NEG—————
tra: ‘(We) don’t understand (what we) see.’
- SIGN: DUSMAN MATLAB SAMAJH NAHI:N’.
mor: enemy meaning understand NEG
nmn: NEG—————
tra: ‘(If they show) a conflict (on television), we don’t understand what it means.’
- SIGN: VAQT NO AXBA:R LIST SAMAJH NAHI:N’.
mor: time nine newspaper list understand NEG
nmn: NEG—————
tra: ‘(We) don’t understand the nine-o’clock-news exactly.’
- SIGN: IŞA:RA: JUMLA: KARO.
mor: sign sentence IMP
tra: ‘Signs or subtitles are necessary.’
- SIGN: VAH SAB SAMAJH PU:RA: HUKU:MAT HUKM MUZA:HIRA:.
mor: IND-left all understand all government order demonstration
tra: ‘Everybody knows when a strike is ordered by the government.’

- SIGN: PU:RA: CHUT^oI:
 mor: all holiday
 tra: '(so that) everybody has a holiday.'
- SIGN: DEAF VAH SAMAJH NAHI:N'.
 mor: deaf IND-left understand NEG
 nmn: NEG—————
 tra: '(Only) the deaf people don't know about it.'
- SIGN: SONA:.
 mor: sleep
 nmn: H:tilted
 tra: 'They sleep.'
- SIGN: KA:M SUBAH KA:M CALNA:.
 mor: work morning work walk
 nmn: 'look-around'
 tra: 'In the morning they go to work and look around.'
- SIGN: BUS BAND BAND.
 mor: bus close close
 nmn: 'look-around'
 tra: 'They look around (and notice that) the buses are not running.'
- SIGN: KOT^o TIE CHOR^oNA:.
 mor: coat tie leave
 tra: '(They have dressed in) a suit and tie in vain.'
- SIGN: CALNA:.
 mor: walk
 tra: '(So they) walk along.'
- SIGN: CHUT^oI: SAMAJH NAHI:N'.
 mor: holiday understand NEG
 tra: '(They) don't know about the holiday.'
- SIGN: CALNA:.
 mor: walk-top.right-left
 tra: 'They go back (home).'
- SIGN: TAKLI:F BAS.
 mor: trouble END
 tra: 'That's troublesome.'

- SIGN: İŞA:RA: JUMLAH DEKHNA: SAMAJH CHUT^oI.
mor: sign sentence see understand holiday
tra: ‘(If they could) see (news in) sign language or with subtitles, they would know about the holiday.’
- SIGN: SONA: RAHNA:.
mor: sleep stay
nmn: H:tilted
tra: ‘(They could) stay (in bed) and sleep.’
- SIGN: FA:IDA:.
mor: use
tra: ‘(That would be) an advantage.’
- SIGN: JUMLA: BAS.
mor: sentence END
nmn: NEG—————
tra: ‘There are just no subtitles.’
- SIGN: BA:T BAHUT.
mor: talk much
tra: ‘There’s a lot of talking (on TV).’
- SIGN: SUNNA: JUMLA: KARO.
mor: hear sentence IMP
nmn: NEG—————
tra: ‘(For those who) can’t hear there must be subtitles.’
- SIGN: İŞA:RA: BAS JUMLA: BA:T İŞA:RA: JUMLA: KARO.
mor: sign END sentence talk sign sentence IMP
tra: ‘The spoken (text) must be (rendered in) sign language or subtitles.’
- SIGN: DRAMA İŞA:RA URDU: JUMLA: KARO.
mor: serial sign Urdu sentence IMP
nmn: H:tilted
tra: ‘In the serials there must be sign language or Urdu subtitles.’
- SIGN: ACHA:I.
mor: good
nmn: H:tilted
tra: ‘(That would be) good.’

- SIGN: DUBA:RA: SUNNE_VA:LA: SIBLING BA:T
mor: again hearing sibling talk-left
nmn: B:left
tra: ‘(So we) again ask our hearing brothers and sisters.’
- SIGN: BA:T_SUNO VAH DRAMA MATLAB VAH?
mor: excuse_me-left IND-front serial meaning IND-front
nmn: B:left— B/G:left—
Q—————
tra: “‘Excuse me, what’s going on in this (TV) serial?’”
- SIGN: VAH SIBLING PI:CHE_HAT^oA:NA:.
mor: IND-left sibling ignore
nmn: B:left—————
tra: ‘(But our) brothers and sisters ignore us.’
- SIGN: KAHA:NI: BA:D ISA:RA: DUBA:RA:.
mor: story then sign again
nmn: B:left—————
tra: ‘Later they (tell us) the story in sign language once more.’
- SIGN: SAMAJH MATLAB NAHI:N’.
mor: understand meaning NEG
nmn: NEG—————
tra: ‘(Then) you don’t understand the meaning (any more).’
- SIGN: FA:IDA: KYA:?
mor: use INTERROG
nmn: Q—————
tra: ‘What’s the use of this?’

Table 1. Transcription

Transcription	Hindi	Urdu
A	अ	آ
A:	आ	آ
I	इ	ا
I:	ई	ای
U	उ	ا
U:	ऊ	او
E	ए	ای
O	ओ	او
AI	ऐ	ای
AU	औ	او
N'	.	ن
B	ब	ب
P	प	پ
D	द	د
D°	ड	ڈ
T	त	ت
T°	ट	ٹ
G	ग	گ
K	क	ک
Q	क	ق
F	फ	ف
Z	ज़	ظ
S	स	س
\$	श	ش
G'	ग	غ
X	ख	خ
H	ह	ح
J	ज	ج
C	च	چ
M	म	م
N	न	ن
R	र	ر
R°	ड़	ڑ
L	ल	ل
V	व	و
Y	य	ی

This table shows how the transcription of Hindi/Urdu words on the SIGN line corresponds to the letters of both languages. The transcription is basically phonemic. Therefore, there is no exact correspondence between transcription symbols and letters of either language.

Table 2. Abbreviations on the ‘mor’ line

ITER	iterative aspect
COMPL	completive aspect
DIST	distributive aspect
ALTERN	alternating aspect
GRAD	gradual aspect
UNREAL	unrealized aspect
IMP	neutral imperative
IMP2	impolite imperative
NEG_IMP	negative imperative
INTERROG	interrogative
END	end marker BAS
IS	existential/emphatic HAI
NEG	neutral negation
NEG2	contrastive negation
IND	Index
1	1st person; body centre locus
Pl	Plural
(e.g.) left	sign positioned in space (e.g. on the left)
(e.g.) -right-front-...	directional movement (e.g. from the right to the front to...)
(e.g.) P	for PA:KISTA:N; first letter of English words (fingerspelling)
(e.g.) T*A*X	fingerspelled word

Table 3. Abbreviations on the ‘nmn’ line

B	body posture
H	head position
G	eye gaze
AFF	head nod
NEG	headshake negation
Q	interrogative marker
(e.g.) ‘see’	meaning expressed through mime
DIST	(gaze or body) directed towards several points in space (distributive)

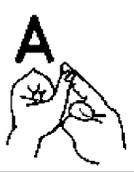
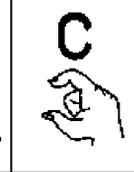
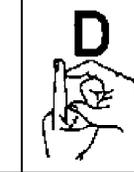
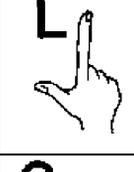
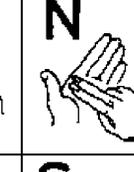
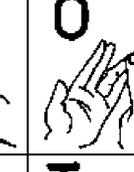
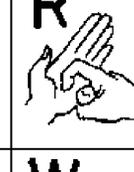
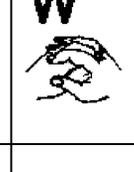
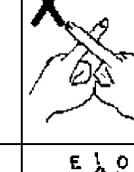
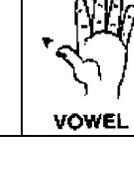
A 	B 	C 	D 	E 
F 	G 	H 	I 	J 
K 	L 	M 	N 	O 
P 	Q 	R 	S 	T 
U 	V 	W 	X 	Y 
	Z 		VOWEL 	

Fig. 1. Manual alphabet (Pakistan)¹

1. The letter 'O' may also be made with a bO or O handshape. For the letter 'C' the C handshape is also used instead of bC. The letter 'I' is mostly realized as contact of the finger tip with the cheek rather than the middle finger of the left hand. The table is taken from National Institute of Special Education (1991: 158).

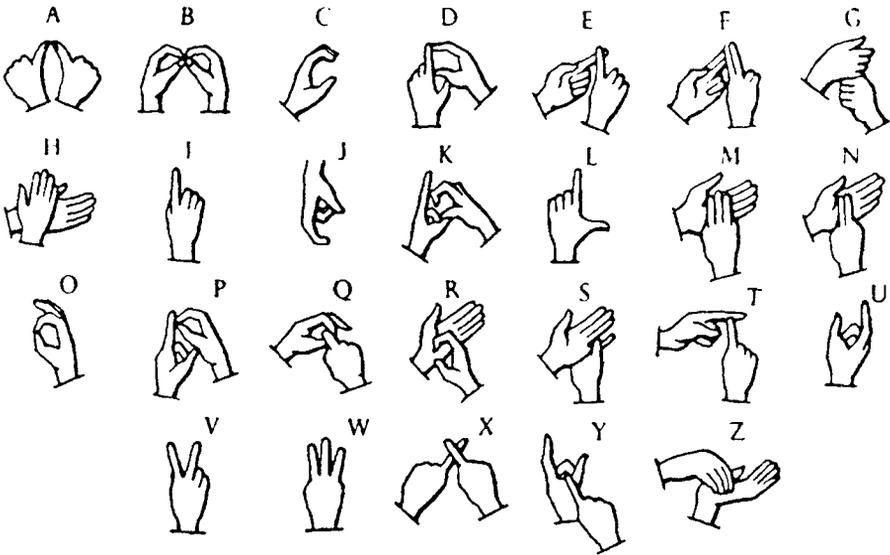
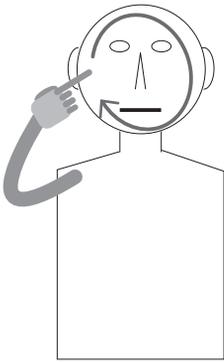


Fig. 2. Manual alphabet (India)²

2. The manual alphabet is subject to some variation across India that cannot be discussed in detail here. Variation is particularly important among the vowels but also among some of the consonants.

Appendix B

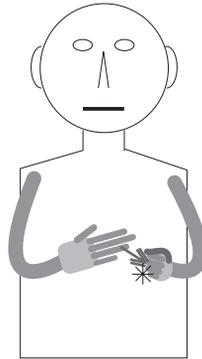
The graphic representations of the signs are arranged alphabetically on the basis of the transcription. Modified consonants follow simple consonants, e.g. ‘D’ follows ‘D’. Long vowels follow short vowels, e.g. ‘A:’ follows ‘A’. English translations of the signs include all meanings validated by the corpus of data. Signs marked with an asterisk * are likely to be limited to Pakistan because they have not been used by any of the signers from various regions of India. However, this does not mean that all the other signs are indeed used in India. Research on variation across India and Pakistan is still on-going.



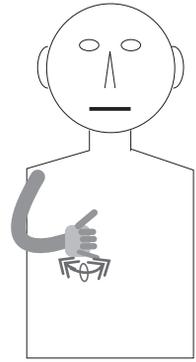
\$AKAL face



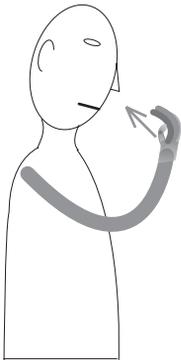
\$ARA:B alcohol,
alcoholic (addict)



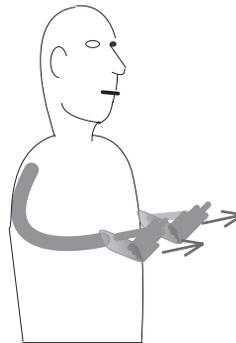
*\$A:DI marry, married,
marriage, spouse



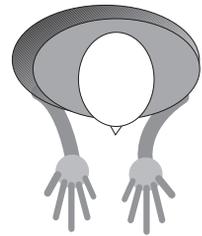
*\$A:YAD maybe



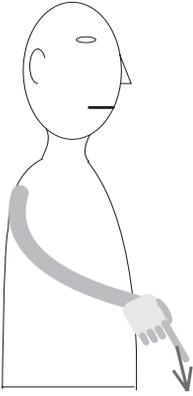
\$UKRIYA: thanks,
to thank



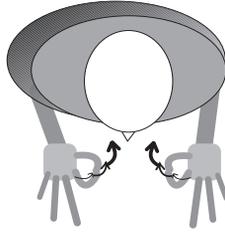
1
\$URU:



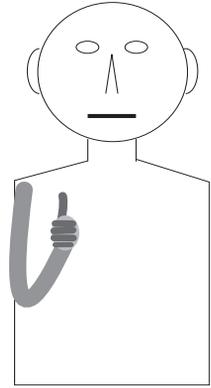
2
beginning, start, begin (tr. and itr.)



ABHI: now



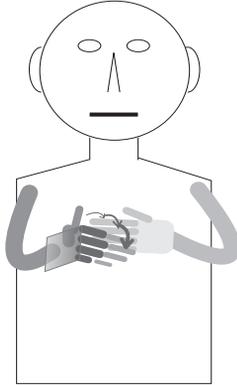
ACCOUNTING accounting



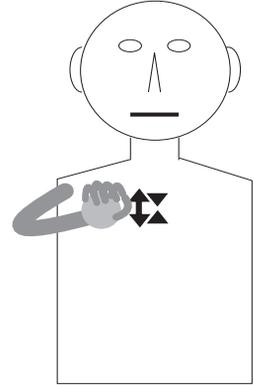
ACHA:1 good



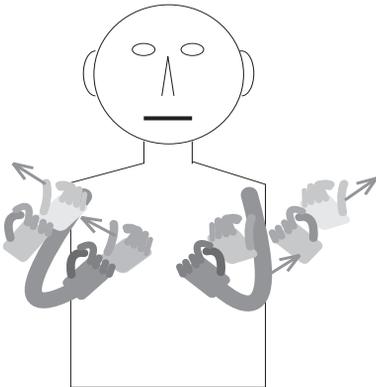
AFSOS feel sorry about (be) sad



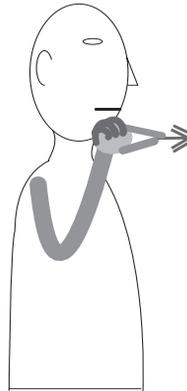
AGLA: next



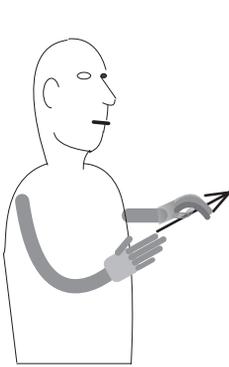
AMBULANCE ambulance



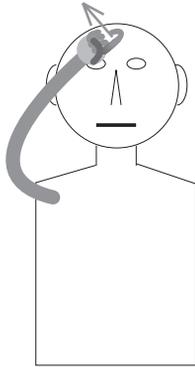
AM:R rich



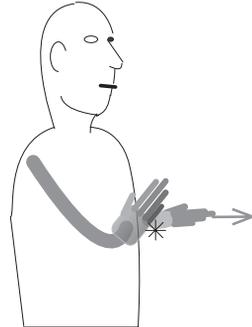
*AMRI:KA: America



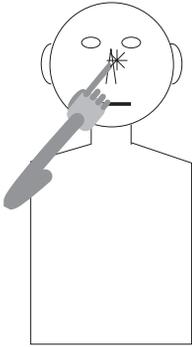
ANDAR_JA:NA: enter



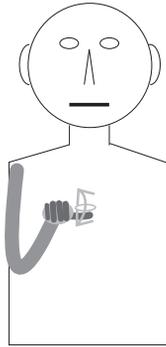
ANGREZ Englishman,
European



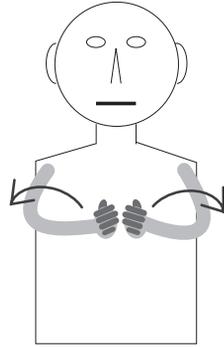
APPLICATION apply,
application



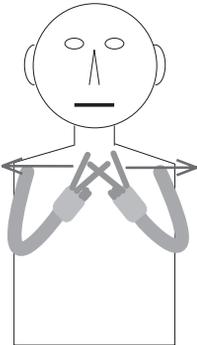
AURAT woman



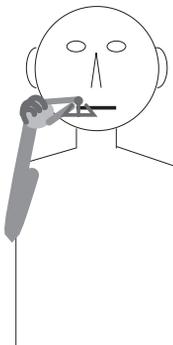
AVERAGE average, mediocre,
second-rate



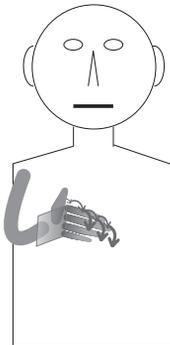
AXBA:R newspaper



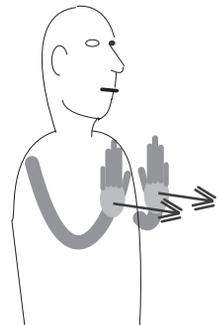
A:DAT habit



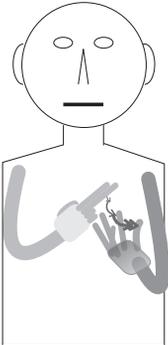
A:DMI: man



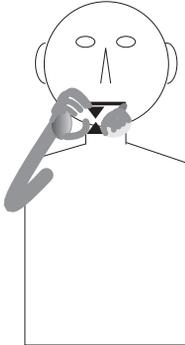
A:GE further, later,
in future



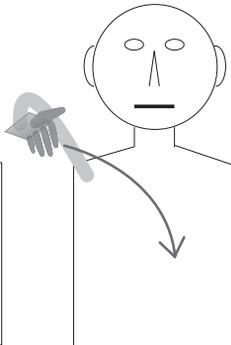
A:HISTA: slow(ly)



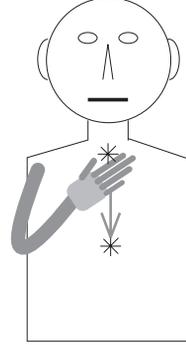
A:LU: potato



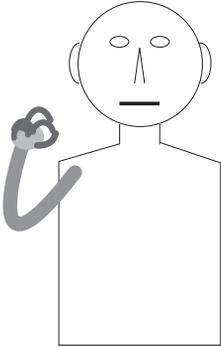
A:M mango



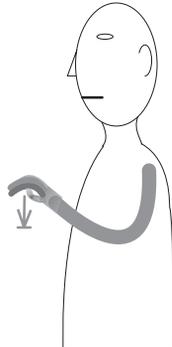
A:NA: come



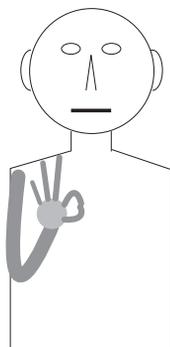
A:RA:M relaxed, calm, take one's time, well-being



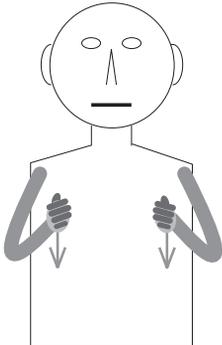
A:T°H eight



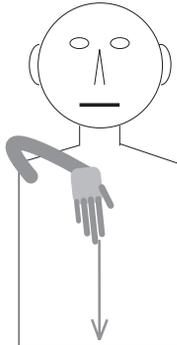
BACCA: child



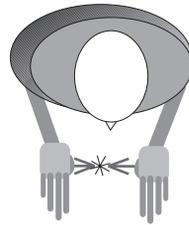
BAHUT_ACHA: excellent



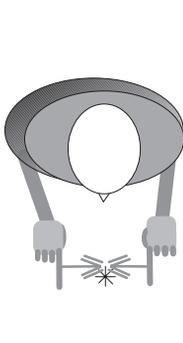
BAIT°HNA: sit, sit down



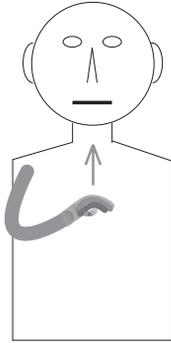
BALOCISTA:N Beluchistan



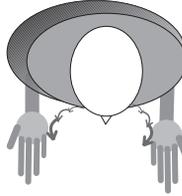
BAND to close, closed



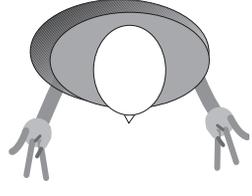
BARA:BAR same, equal



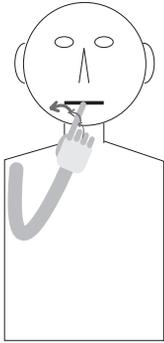
BAR°A: _HONA: grow up, increase
(in size or quantity)



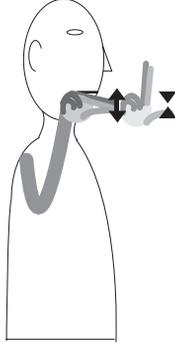
BAR°HNA: increase (in size
or quantity)



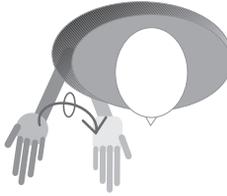
BAS that's it; what
else can I say?



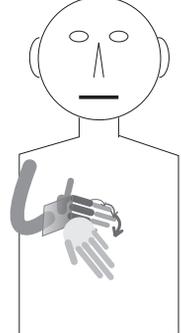
BATA:NA: inform, say (to sb.)



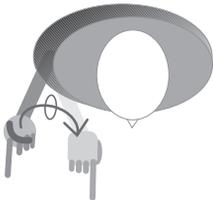
BATTAX duck



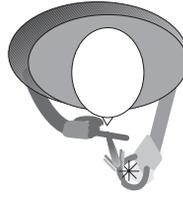
BA:D then, after,
later



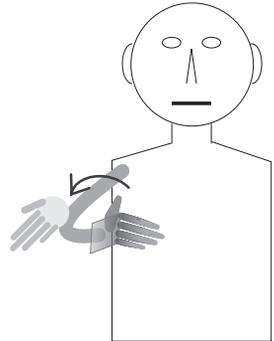
BA:D(B) then, after,
later



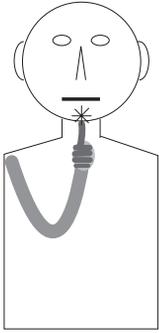
BA:D(G) then, after
later



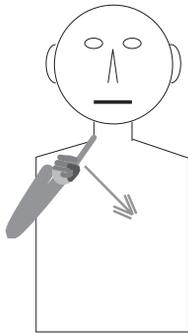
BA:DA:M almond



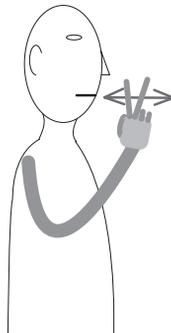
BA:HIR outside, out of



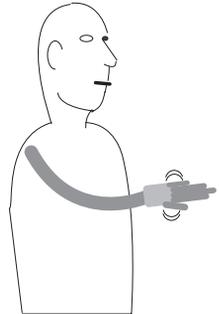
BA:P father



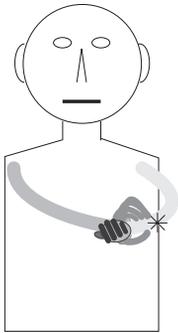
BA:R_BA:R again and again



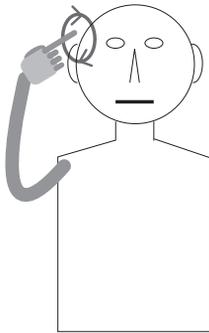
BA:T talk, conversation



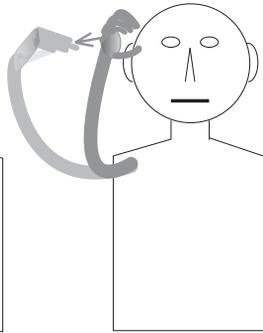
BA:T_SUNO excuse me!



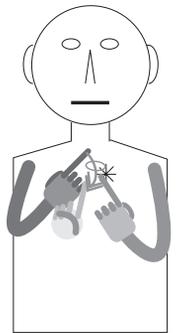
BEMA:R ill(ness), sick(ness)



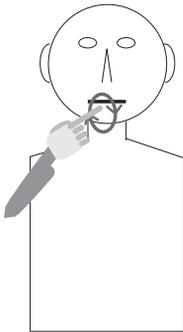
BE_VAQU:F stupid, silly



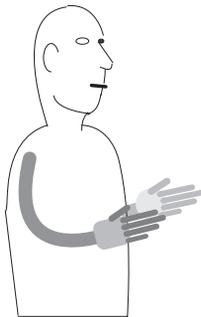
BHU:JNA: forget



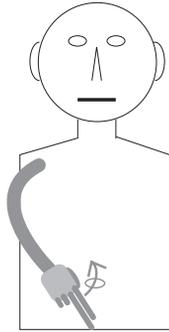
BIJLI: electric, electricity, power station



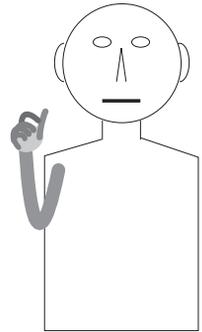
BOLNA: speak (a spoken language)



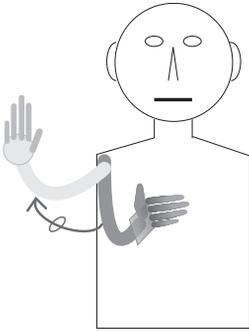
BOX box



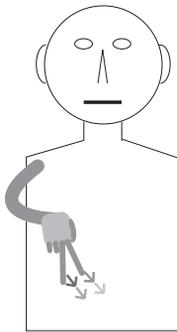
BUS bus, public transport



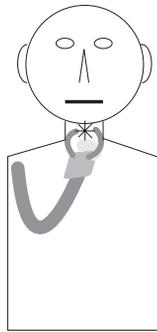
CAH six



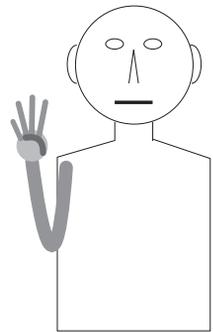
CALE_JA:NA: leave, go away



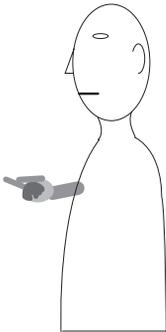
CALNA: walk



CA:LA:K clever



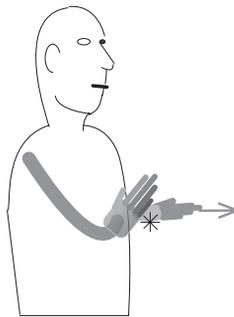
CA:R four



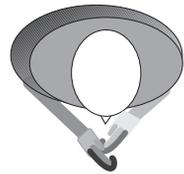
CA:VAL rice



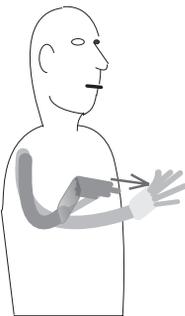
1
CERTIFICATE



2
certificate



CHATRI: umbrella



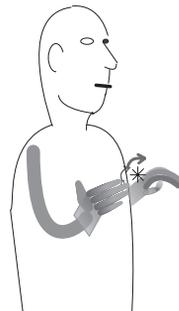
CHOR^NA: let, leave, give



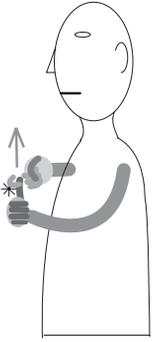
CHUT^I: holiday, day off,
vacation



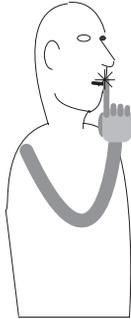
CIGARETTE cigarette,
smoke



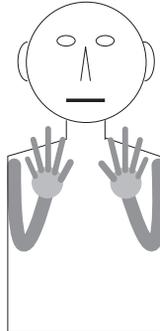
CIT^T^HI: (send a) letter



COLD_DRINK drink sold in bottles
(Coca Cola etc.)



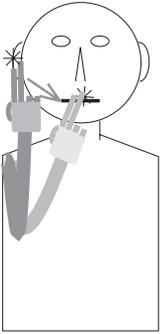
CUP be quiet, silent



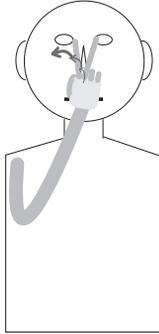
DAS ten



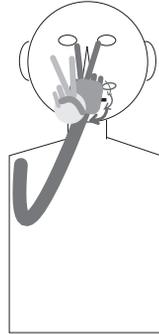
DA:NA: pimple, freckle
(in the face)



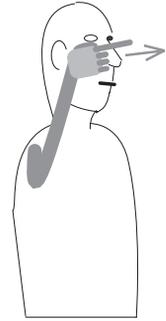
DEAF deaf



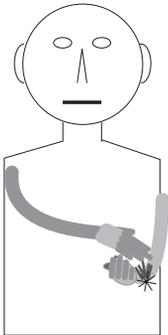
DEKHNA: see



DEKHNA: (completive aspect)



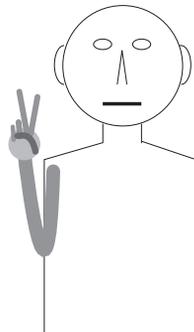
DEKHNA:2 see



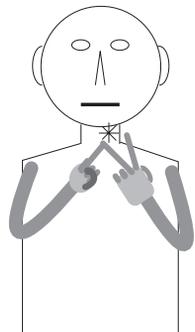
DER late



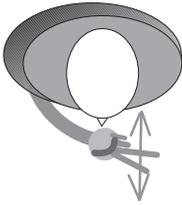
DESIGN (to) design, designer



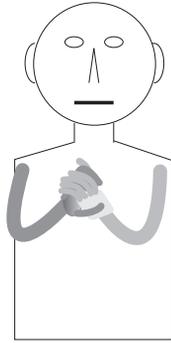
DO two



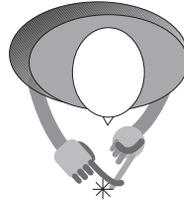
DO_SE_DU:SRA: second(y)



DONON' both



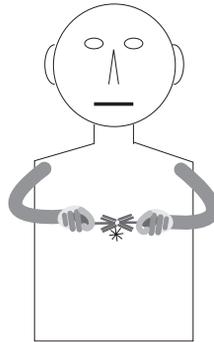
DOST1 friend



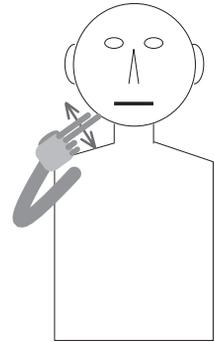
DOST2 friend



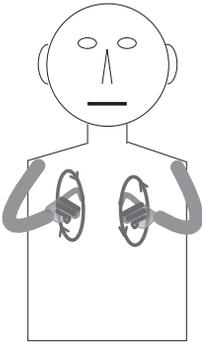
*DOST3 friend



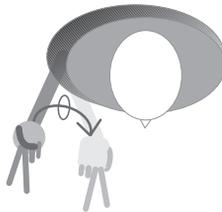
DRAMA TV serial



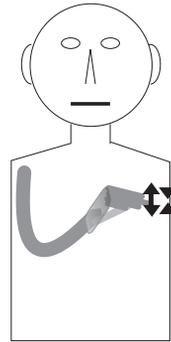
DRAWING draw, paint



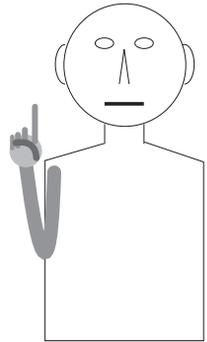
DUSMAN enemy



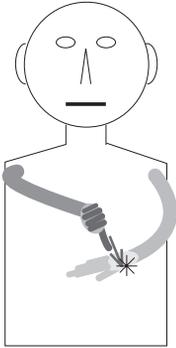
DUBA:RA: again, once more



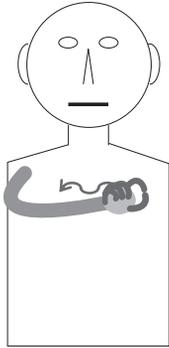
D°AR fear, (be) frightened



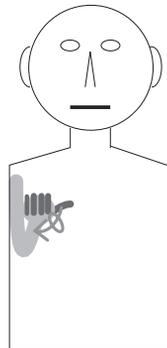
EK one



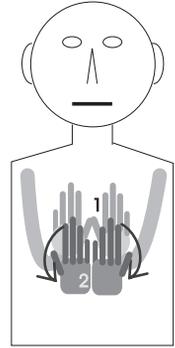
ENGLAND England



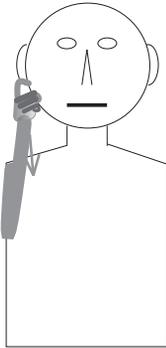
ENGLISH (write) English



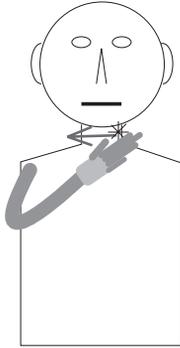
FAIL fail, lose



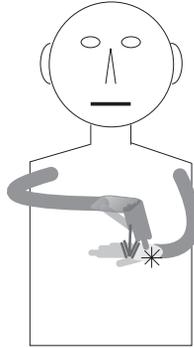
FAMILY family



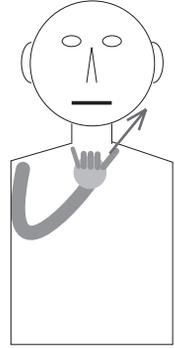
FAUJ army, soldier



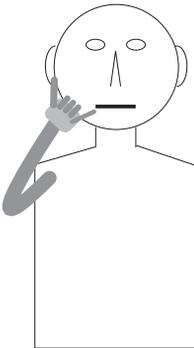
FAUT die, dead



FA:IDA: (to) use, profit



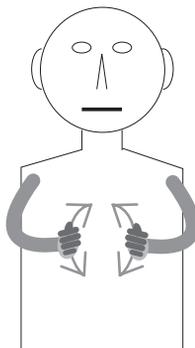
FLY fly, airplane



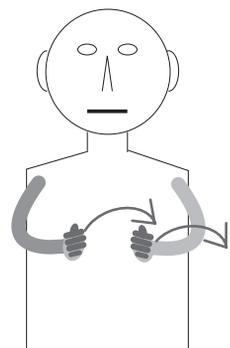
FON (to) telephone



GARAM hot



GA:R^I: car, drive



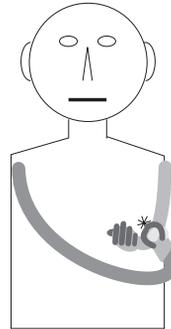
GA:R^I:+DENA: give-car



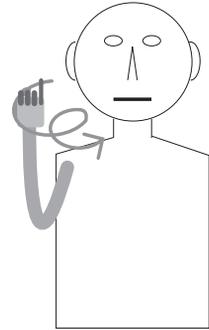
GHANT^o: hour



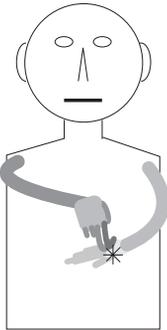
GHAR house, home



GHARⁱ: wrist-watch



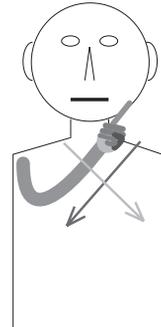
GHU:MNA: outing, go out, go for a walk



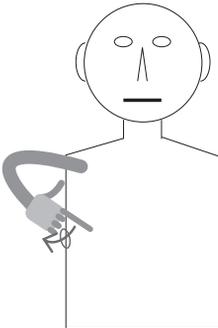
GUT^oHNON^o_PE_BAIT^oHNA: kneel



GOD God



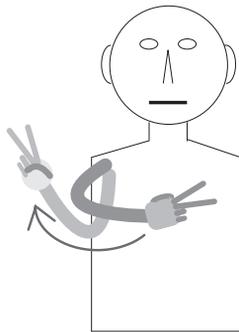
G^o ALAT wrong



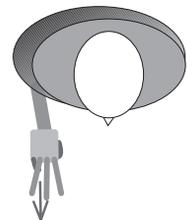
*HAFTA: week



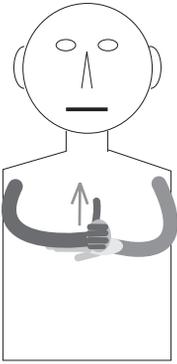
HAI existential/emphatic particle



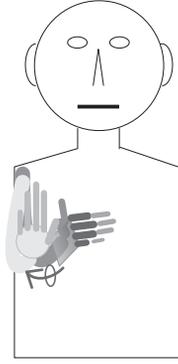
HAMESA: always



HAZA:R a thousand



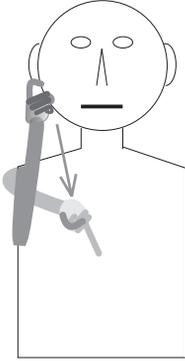
HELP help, support



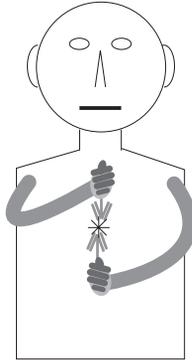
HO_GAYA: completive aspect



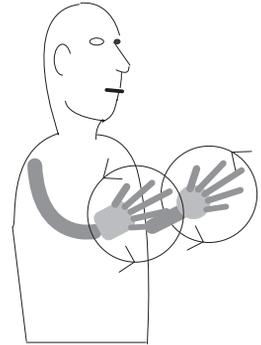
HORN (car's) horn



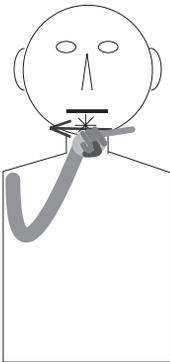
HUKM (give) order



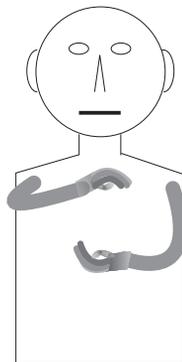
HUKU:MAT government



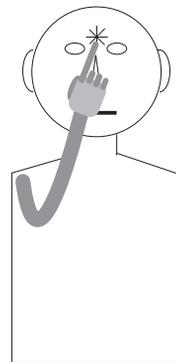
İŞA:RA: (to) sign, sign language



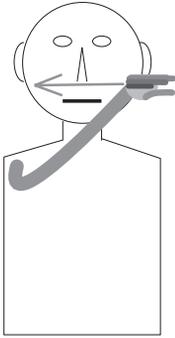
İFTİXA:R sign name



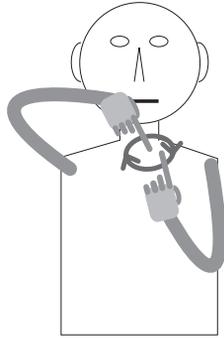
İNA:M prize, trophy



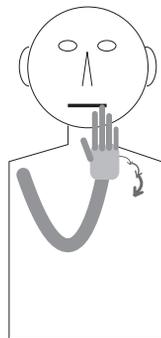
İNDIA India



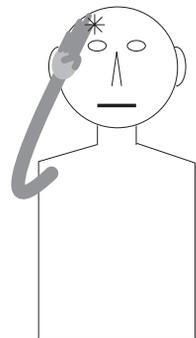
INSIDE_MIRROR inside mirror



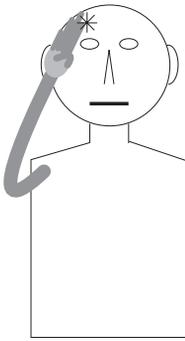
INTIZA:M organize,
organization



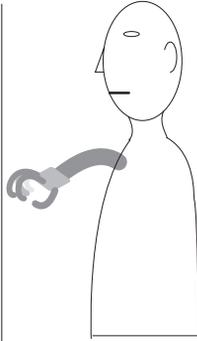
ISKU:L school



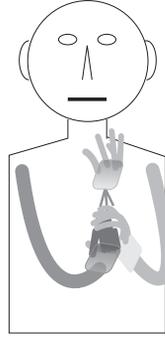
ISLA:M Islam



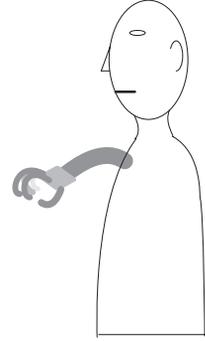
1
ISLA:MA:BA:D



2
Islamabad



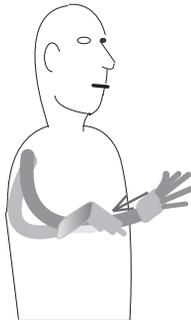
I:JA:D appear,
appearance



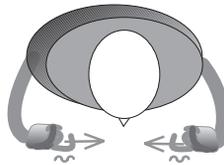
JAGA: place



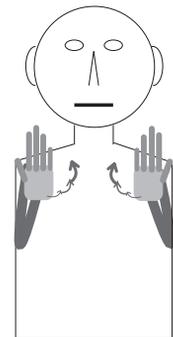
JALDI: quick, fast



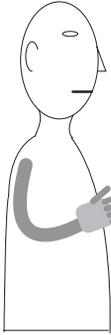
JAMA: collect, gather



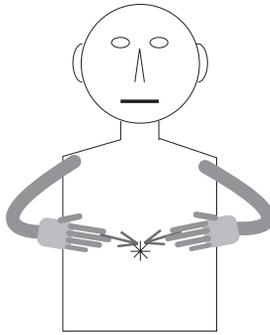
JANG war



JAVA:B (to) answer



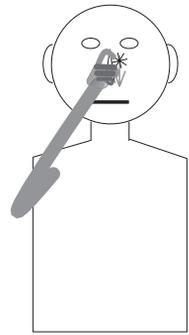
JA:NA: go to, move



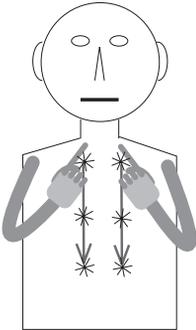
JA:NA:+CRASH crash into each other



JEB_MEN'_RAKHNA: put into one's pocket



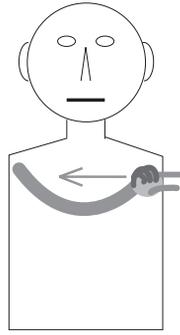
JHU:T° (tell a) lie



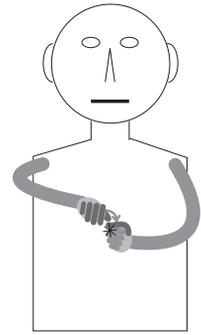
JISM body



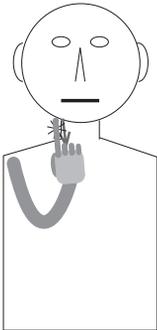
JUMARA:T Thursday



JUMLA: sentence, subtitle lable, line of writing



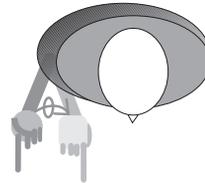
JUNE June



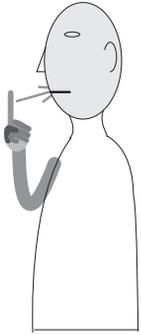
KASMI:R Kashmir



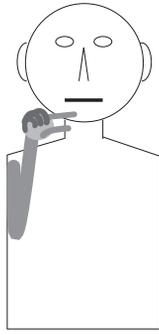
KAHA:NI: story



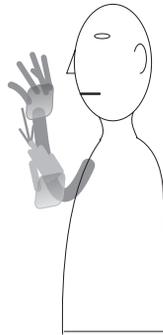
KAL(FUT) tomorrow



KAL yesterday



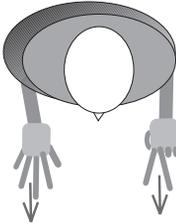
KAM (a) little



KAM_HONA: be reduced,
lessen



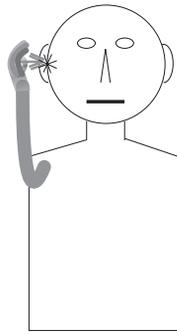
KARO neutral imperative



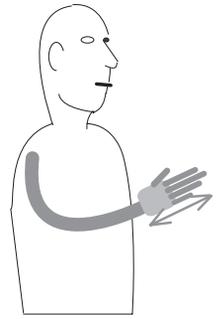
KAROR^o ten million



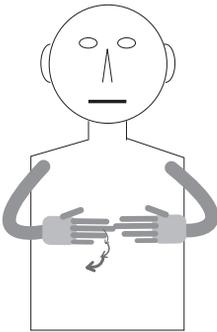
KA:M (to) work, affair



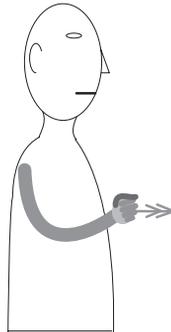
KA:N_PE_HA:TH sign name



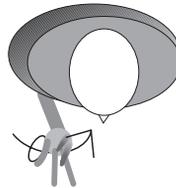
KA:T^oNA: cut (with a knife)



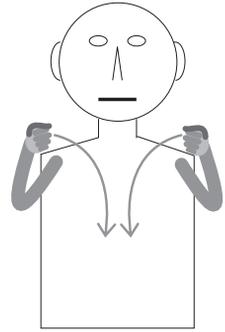
KHOLNA: (to) open



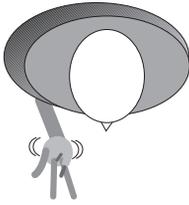
KOSI\$ (to) try



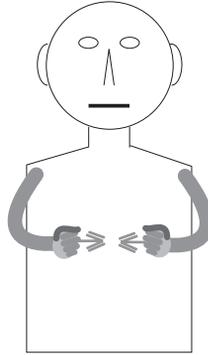
KOI: some, any



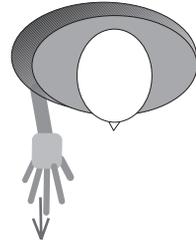
KOT^o coat



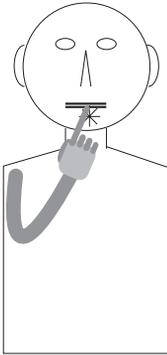
KYA: interrogative



LAR°A:I: to argue, argument



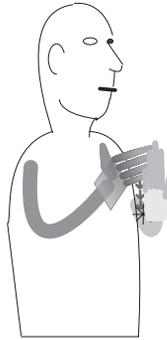
LA:KH 100.000



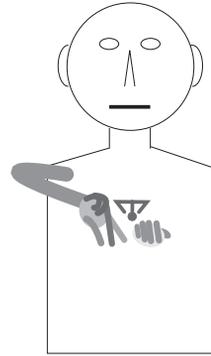
LA:L red



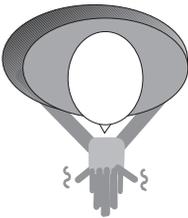
LIKHNA: write



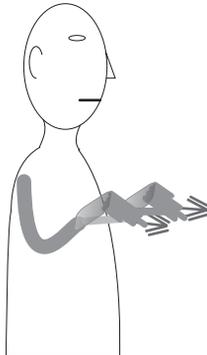
LIST (make a) list, all kinds of...



LI:MU:N' lemon



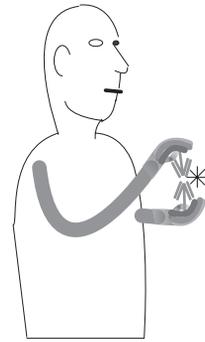
MACHLI: fish



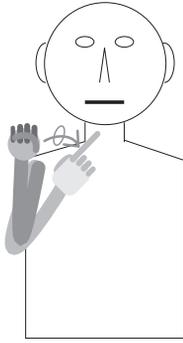
MADAD (I) help (so.)



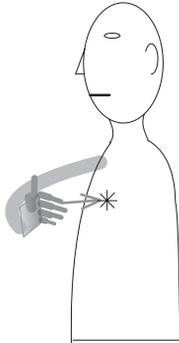
MADAD (so.) helps (me)



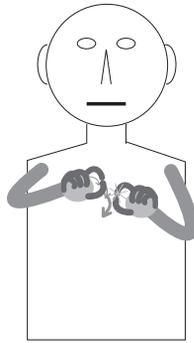
MAHFU:Z_RAKHNA: keep, save, store



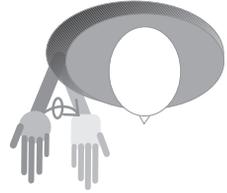
MAHI:NA: (one) month



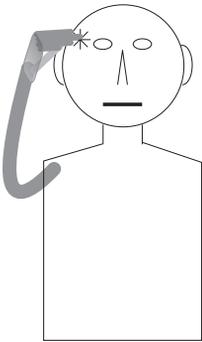
MAIN': I



MATCHES: (strike a) match



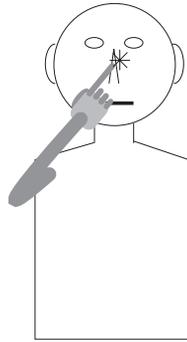
MATLAB: meaning



MA:LU:M: know, knowledge

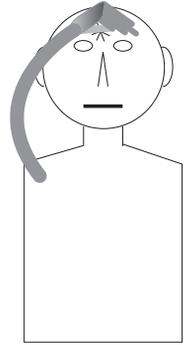


MA:MU:LI: unimportant, vain



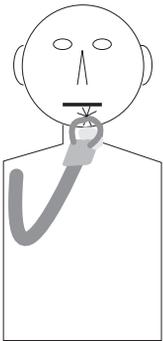
1

*MA:N'

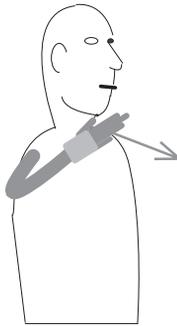


2

mother



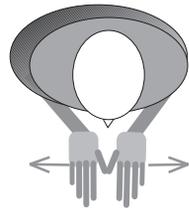
MA:NNA: accept, obey



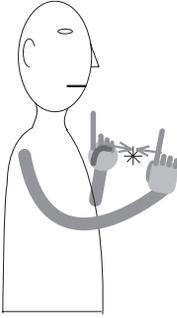
MA:RNA: (I) beat (so.)



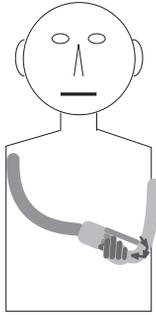
MA:RNA: (so.) beats (me)



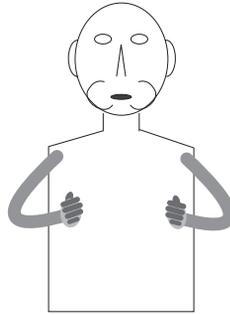
MEZ: table



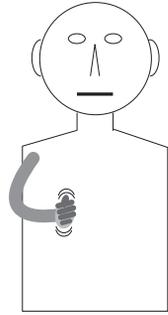
*MILNA: meet, meeting



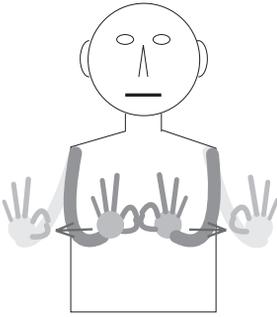
MINIT^o minute



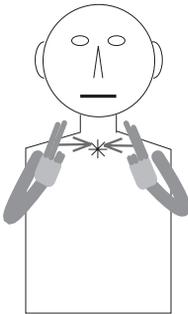
MOT^oA: fat



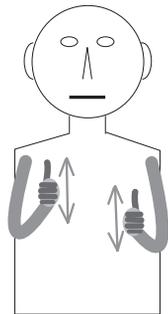
*MUSKIL difficult



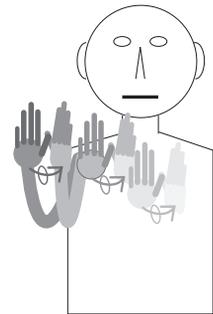
MUKAMMIL complete(ly)



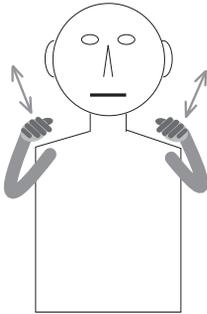
MULA:QA:T meeting



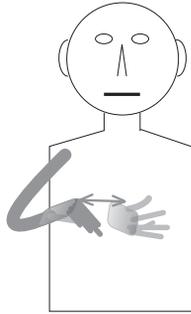
MUQA:BALA: competition



MUXTALIF various



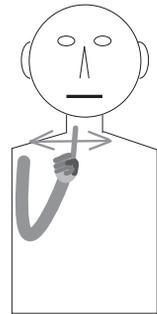
MUZA:HIRA: strike, demonstration



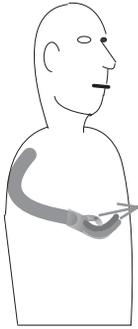
NASRIYA:T TV program(s)



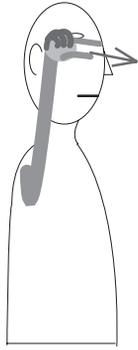
NAHE:N' no, not, none (neutral negation)



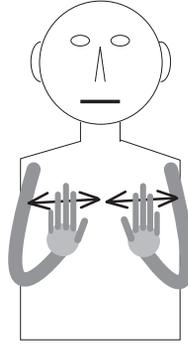
NAHE:N' _KARO don't (neg. imperative)



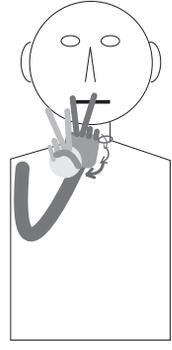
NAYA: new



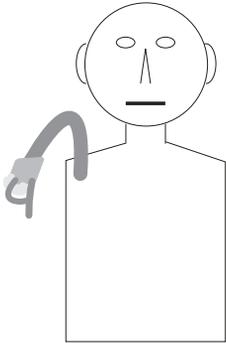
NAZAR (to) look, gaze,
eye falling on sth.



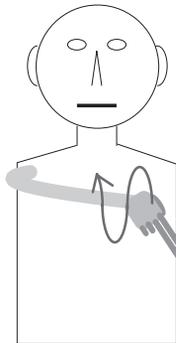
NA:_NA: contrastive
negation



NA:M name



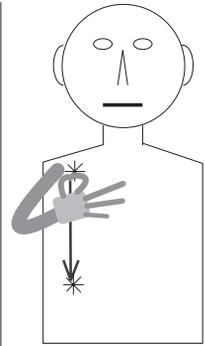
NO nine



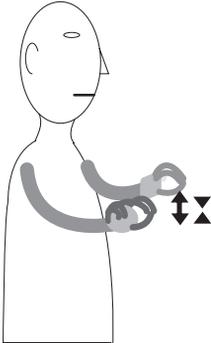
NORWAY Norway



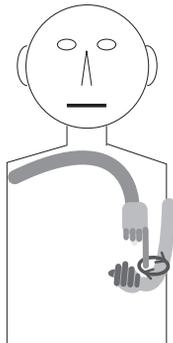
1
ODD_INGE



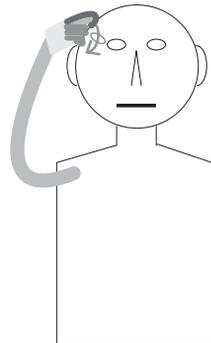
2
sign name



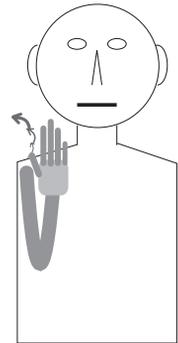
NO_NO no



OVERTIME (work) overtime



PAŠA:VAR Peshawar



PAHLE before, ago



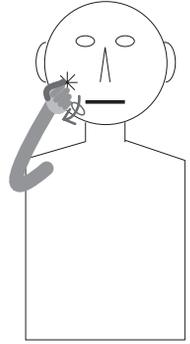
PAHLE+SE_TAK+ABHI: up to now



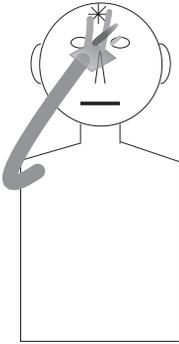
PAIDA:I\$ born, birth, child of



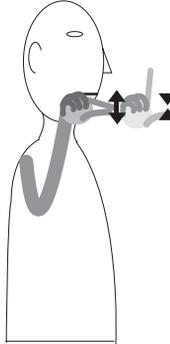
PAISA: money



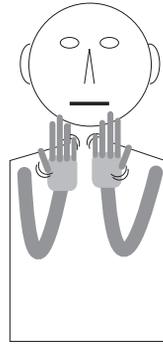
PANJA:B Punjab



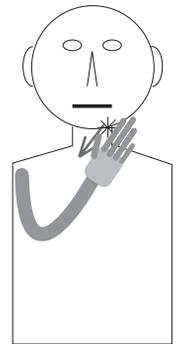
PARESA:N nervous, tension, worry, worried



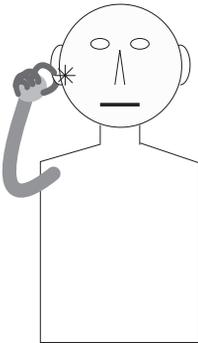
PARINDA: bird



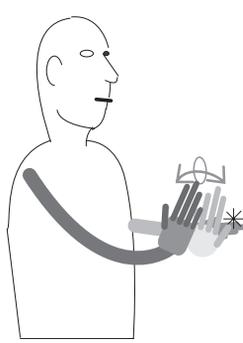
PAR^HA:I: study, learn, instruction



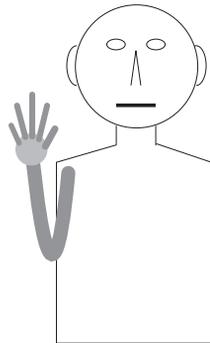
*PASAND to like (so./sth.)



1 PATRICK



2 sign name



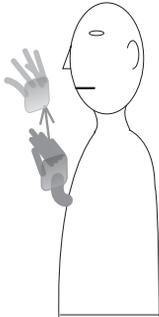
PA:NC five



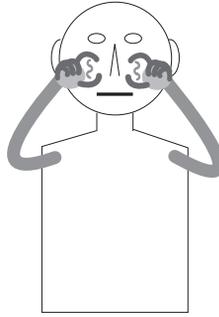
PA:NI: water



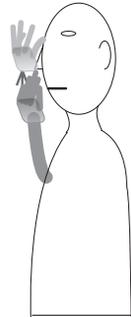
PA:S succeed, success,
win, pass



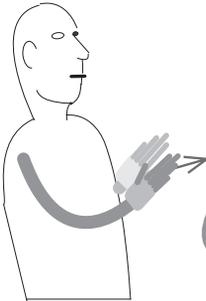
PHAILNA: spread, multiply



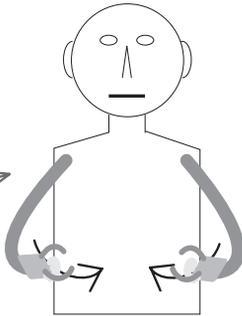
PHOTOGRAPHY (take a) photo



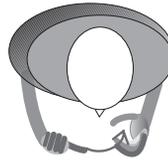
PHU:L flower



PI:CHE_HAT°A:NA: push away,
ignore, neglect



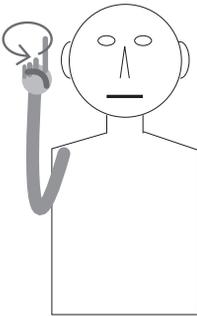
*POL:ES police



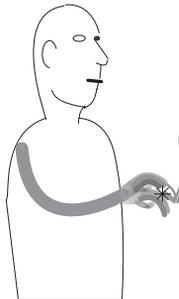
POUR_DRINK pour into



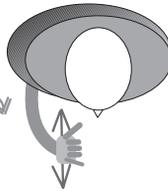
PURA:NA: old, previous



PU:RA: all, whole



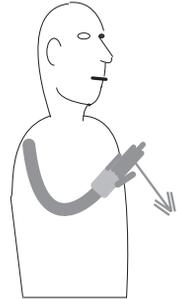
PYA:R (to) love,
caress



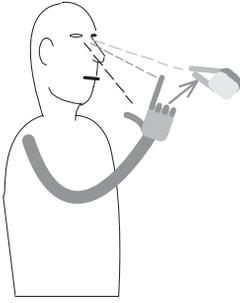
*QAR:IB near



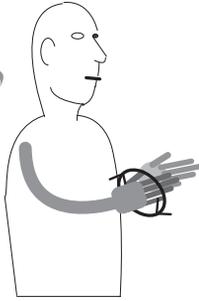
*QA:NU:N law



RAHNA: stay



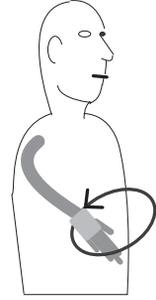
RAVA:NA: set off, disappear
in the distance



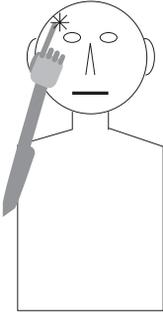
REL_GA:Rʔ: train



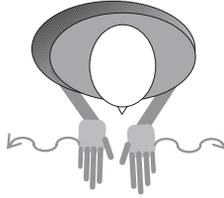
REVOLVER revolver



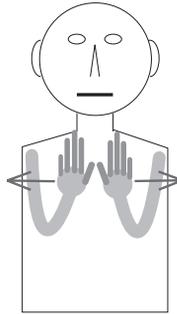
*SAB all, everybody



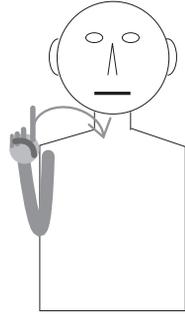
SAMAJH understand,
mind



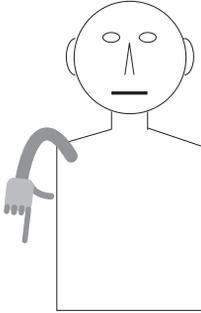
SAMONDAR sea



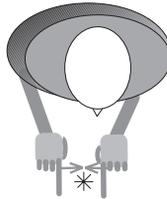
SA:F clean



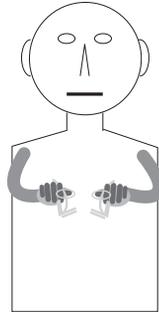
SA:L (one) year



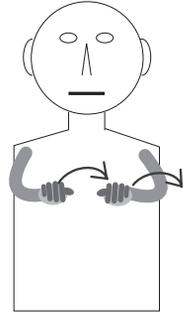
SA:T seven



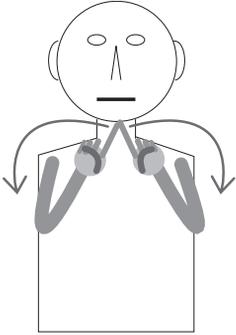
SA:TH together



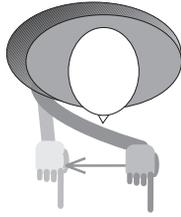
SCOOTER motorcycle



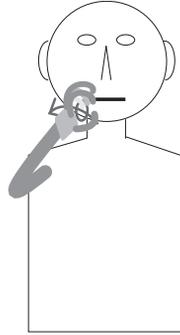
SCOOTER+DENA: give-motorcycle



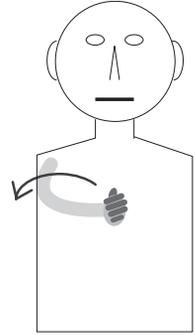
SCREEN screen



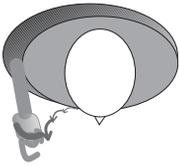
SE_TAK from...to



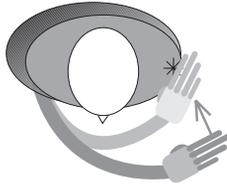
SEB apple



SETTLE settle down



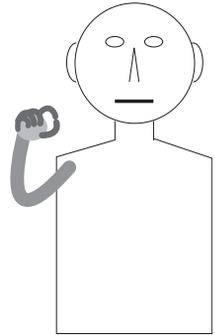
SHOOT shoot, shot



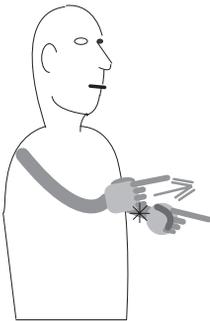
SIBLING sibling



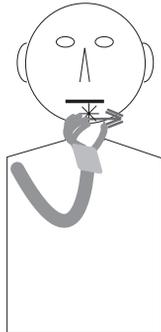
SIDE_MIRROR side mirror



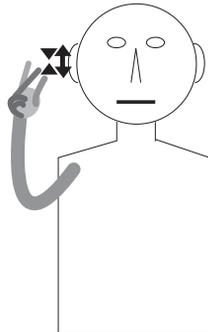
SIFR zero



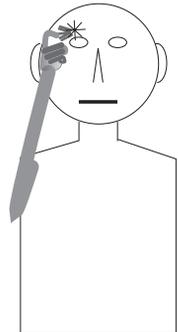
SIKHA:NA teach



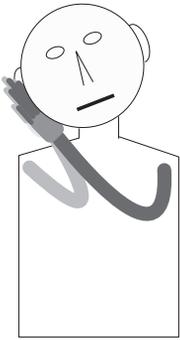
SINDH Sindh



SITA:RA star



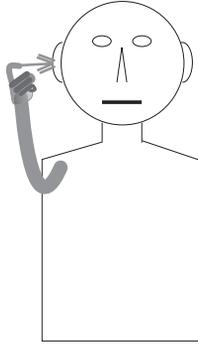
SOC think, reflect



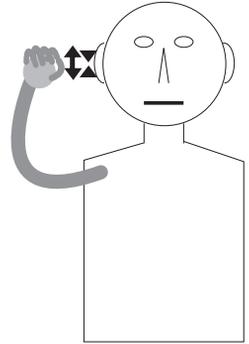
SONA: sleep



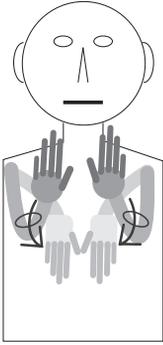
SUBAH morning



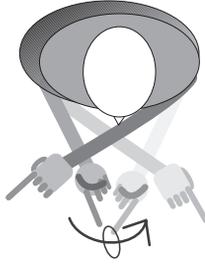
SUNNA: hear



SUNNE_VA:LA: hearing



SUSTI: (be) lazy, laziness



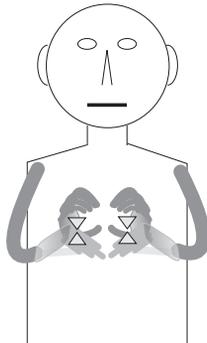
TABDI:L (to) change



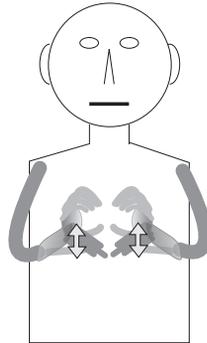
TAKLI:F suffer(ing), trouble(some)



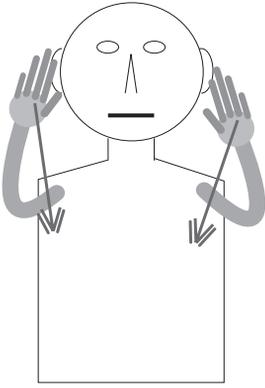
TALA:\$ search, look for



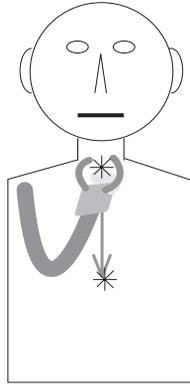
TANAZZUL decline, deteriorate



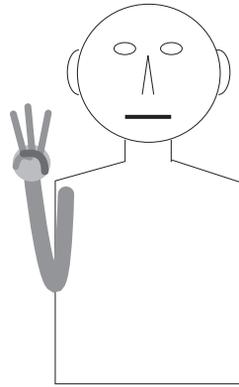
TARAQQI: (make) progress



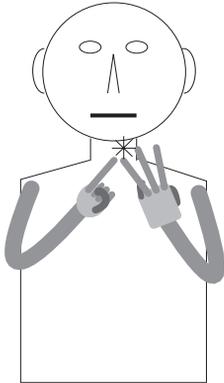
TEZ_BA:RIŠ hard rain



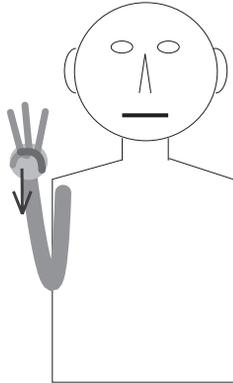
TIE tie



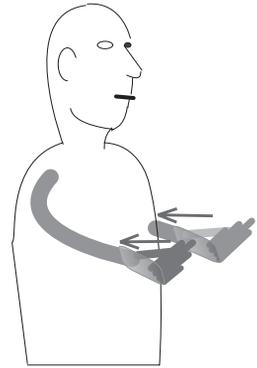
TI:N three



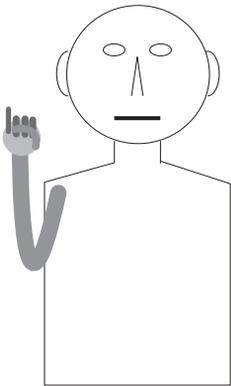
TI:N_SE_TI:SRA: third of three



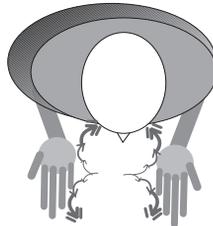
TI:SRA: third(ly)



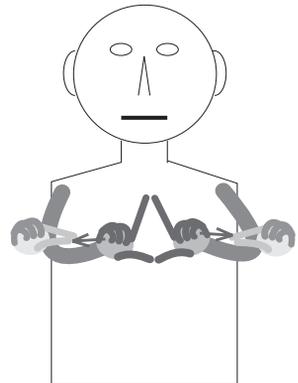
TOFAH (receive a) gift



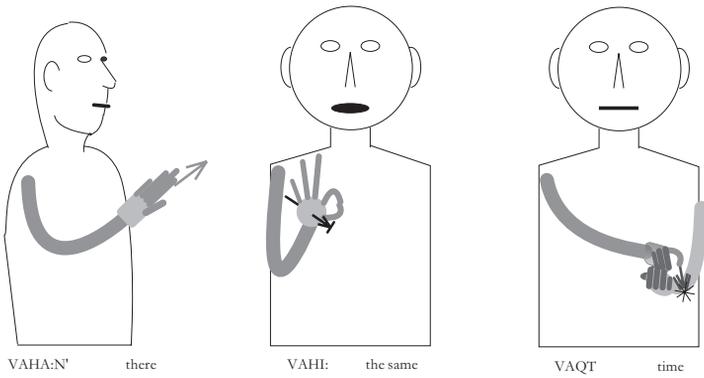
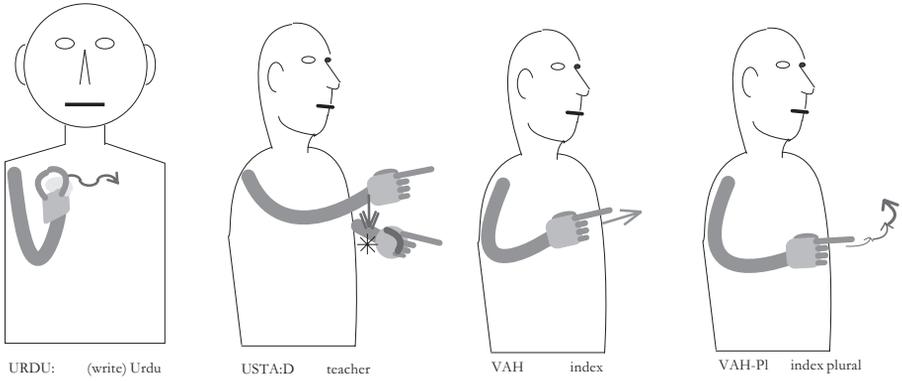
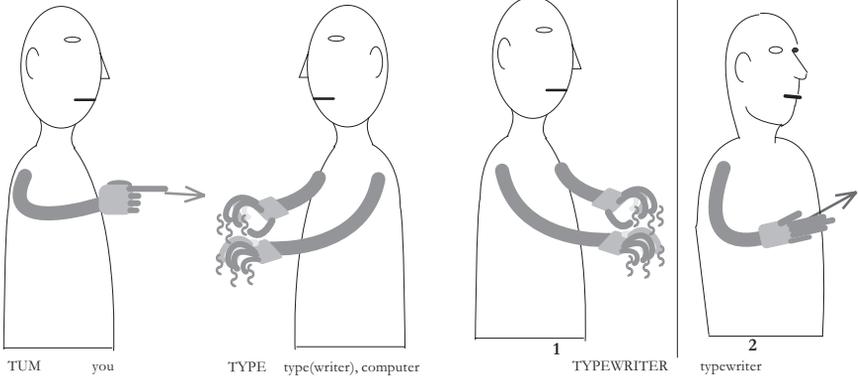
TOILET toilet, bathroom

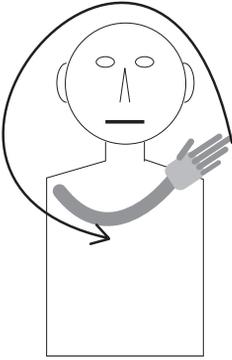


TOLNA: undecided, consider (the pros and cons)

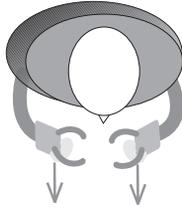


TRIANGLE triangle





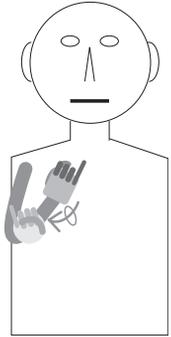
VA:PAS_A:NA: return, come back



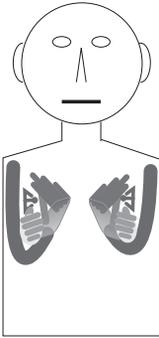
VCR video film



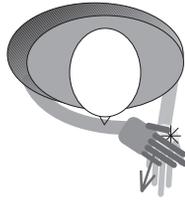
*XABREN' news



XARA:B bad



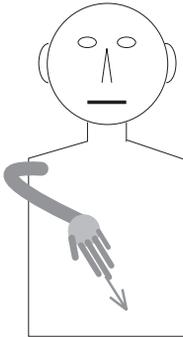
XATAM(A) (to) end (itr.)



XATAM(B) finish, end
(tr. and itr.)



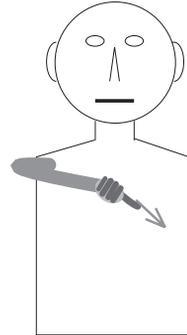
XO\$ happy



YAHA:N' here



ZARU:R important, importance,
necessary, necessity



ZULM (do) injustice,
suppress(ion)

Index

A

- action signs 57, 58, 66–67
- ABSA School for the Deaf, Karachi 2, 4–5, 8, 11
- alternating aspect *see* aspects/aspectual modulation
- American Sign Language (ASL)
 - and English 10, 36
 - morphology 26, 28, 41, 50–51, 55–56, 62, 74–75, 82, 91, 111
 - phonology 17, 21, 27
 - syntax 87, 89–90, 94, 110, 118
 - use of space 31–32, 60, 99, 100, 126
- animacy/humanness 90, 106, 108
- ASL *see* American Sign Language
- aspects/aspectual modulation *see also*
 - completive aspect
 - alternating aspect 70–71
 - distributive aspect 66–67
 - frequency of 72
 - gradual aspect 69–70
 - iterative aspect 67–69
 - unrealized aspect 71–72
- assimilation
 - of handshape 17, 82, 84
 - of place of articulation 64, 82, 84
 - of handedness 83, 84

B

- basic form of signs 13, 59
- Baker, Charlotte 110
- Bellugi, Ursula 26, 28, 34, 51, 92–93, 100
- bilingualism in deaf signers 35–36
- Boyes-Braem, Penny 26, 43, 93

- British Sign Language (BSL) 41, 42, 94, 96

C

- classifiers 26–27, 61
- commands *see* imperative
- completive aspect
 - incorporation 64–65
 - local assimilation 64
 - syntactic position 63
 - and tense 63
- conditional *see* nonmanual signals-conditional

D

- deaf education *see* Indopakistan Sign Language-status in India/Pakistan
- Deshmukh, Dilip 7
- DGS *see* German Sign Language
- direct speech 108–109
- directionality
 - directional movement with ‘giving’/‘taking’ 77–79
 - hand orientation in directional signs 58, *see also* sign parameters
 - list of directional signs 62
 - and localization 102–103
 - and perspective 128
 - and positioning 57–58
 - semantic categories 58, 62
- discourse particles 94–95
- distributive aspect *see* aspects/aspectual modulation
- Dominance Constraint *see* dominant/non-dominant hand

dominant/non-dominant hand 18, 82,
123–124

E

emphasis *see* existential; head nod-for
emphasis
enumeration 124–126
existential 94, 96
eye gaze
and localization 107
and perspective 126–127
in signs 44–45

F

facial expressions *see* nonmanual signals
fingerspelling
English 37–38
Hindi and Urdu 36
tables 144–145
Flexibility Condition 89
Friedman, Lynn 10, 27
function signs *see also* completive aspect;
existential; imperative; interrogative
sign; negation
and discourse particle 94–95
formational properties 97
in other sign languages 94
syntactic position 94, 97

G

generic expressions 34
German Sign Language (DGS) 26, 43,
57, 60, 61, 73–74, 82, 87
gesture
pointing 111, *see also*
pronouns/pronominal reference
questioning gesture *see* interrogative
sign
relationship with corresponding signs
38–40, 111
'give': IPSL signs 77
gradual aspect *see* aspects/aspectual
modulation

H

hand orientation *see* directionality-hand
orientation in directional signs; sign
parameters

handedness *see* dominant/non-dominant
hand

handshape *see also* classifiers

changing handshape 18, 21, 28,
80–81, 82
criteria for basic handshapes 18, 21
handshape inventory 28
list of basic handshapes 19
list of central handshapes 23
list of marginal handshapes 24

head nod

for emphasis 112–113
form 113, *see also* nonmanual signals-
linguistic status
positive reply 111

headshake *see* negation

I

iconicity

across sign languages 40
and arbitrariness/discreetness 50–51,
60
classification of iconic signs 51–52
and conventionality 52–53, 54
iconic handshape 23–25, 27
iconic place of articulation 30–31, 81
percentage of iconic signs 52
transparent/translucent signs 51

imperative 95

incorporation *see also* completive aspect-
incorporation

definition 72–73
idiosyncrasy in numeral incorporation
73–74

Indopakistan Sign Language (IPSL)

history 4
number of users 4
regional variation 1–4, 10–11, 49
status in India 7–8
status in Pakistan 5, 8

information flow, rate of 93

information channels in signing 110

initialized signs 36–37, 38

interrogative sign

and questioning gesture 39–40
handshape 24–25
syntactic position 115–116

interrogative facial expression
 form 115
 scope 115–116

IPSL *see* Indopakistan Sign Language
 Italian Sign Language (LIS) 26, 108
 iterative aspect *see* aspects/aspectual
 modulation

K

kinship terms 33, 82, 84–85
 Klima, Edward 26, 28, 51, 92–93, 100

L

Liddell, Scott 74, 87, 90, 99, 101, 118
 LIS *see* Italian Sign Language
 loanwords 41–42
 locus/loci
 definition 58, 99
 finger tip loci 101–102
 list of loci 100
 and reference frame 99, 100

M

Mandel, Mark 51–52, 53
 mime 53–54, 128–129
 minimal pairs
 nonmanually differentiated 46–49
 and sign parameters 45–46, 49
 morphological paradigms 10, 55, 74
 mouth patterns
 functions 37, 43–44
 Hindi/Urdu and English 36, 41
 and IPSL inflections 44
 movement patterns
 in aspects *see* aspects/aspectual
 modulation
 in function signs *see* function signs-
 formational properties
 in fused signs 79
 in opposites 28
 path movement and internal
 movement 17
 movement signs 58, 60, 79, 80, 89, 128,
see also directionality

N

names of months 35, 37
 National Institute of Special Education
 (NISE) 2, 6–7
 negation
 manual and nonmanual/headshake
 114
 negative function signs 95–96
 scope of headshake negation
 113–114, 115
 NISE *see* National Institute of Special
 Education
 nonmanual signals
 affirmation *see* head nod
 conditional 117–118
 interrogative *see* interrogative facial
 expression
 linguistic status 111, 113
 nonmanual negation *see* negation
 New Zealand Sign Language 37, 82, 94
 numerals 73–74, 82–83, *see also*
 enumeration

O

ordinal numbers 75

P

Padden, Carol 55, 110
 phonology 17, 68, *see also* assimilation
 place of articulation
 assimilation of *see* assimilation
 in sign families *see* iconicity-iconic place
 of articulation
 in compounds 82
 in function signs *see* function signs-
 formational properties
 place names 35–36, 37
 plural 67, 106–107
 Prillwitz, Siegmund 57, 73, 87
 pronouns/pronominal reference 100,
 106

Q

questions *see* interrogative sign;
 interrogative facial expression

R

- research methodology 9–10, 87–88
- Rotary Deaf School, Ichalkaranji 7
- rhythm 84

S

- semantic sign classes 57
- sign parameters
 - definition 17
 - distribution in fused signs 79–81
- sign space *see also* directionality; locus/loci; time line
 - expressing contrasts in space 121–123
 - upper sign space 100–101
 - use in sign language grammar 57
- Sign Urdu 5–7, 36
- simultaneity 17, 110, 125
- Stokoe, William 17
- Swiss German Sign Language 43, 108
- symbols for movement patterns 15

T

- Taiwan Sign Language 94
- 'take': IPSL signs 76–77
- 'The Deaf Way' Magazine 8
- time line 31–32, 122

time signs

- and numeral incorporation 73, 75
- and time line 32–33
- syntactic position 91–92
- topic-comment structures 87, 90
- transfer, semantic notion of 59, *see also*
 - directionality
- transparent signs *see* iconicity-
 - transparent/translucent signs
- typological variation across sign
 - languages 27, 94

U

- unrealized aspect *see* aspects/aspectual
 - modulation

V

- Vasishta, Madan 4
- verb-noun pairs 55–56
- visual acuity 46
- Vocational Rehabilitation Centre for Handicapped, Mumbai 7–8

W

- Wilbur, Ronnie 99, 110
- Wilson, Kirk 4
- Woodward, James 1, 4