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Indo-Pakistani Sign Language Grammar: A Typological Outline

INDO-PAKISTANI Sign Language (IPSL) is the sign language used by deaf communities in urban centers in parts of the Indian subcontinent. The language community is large, estimated at several hundred thousand signers, if not more (Vasishta, Woodward, and Wilson 1978). IPSL is not known to be related to other sign languages of either Asia or Europe. Its exact geographic extension is not known at present. Previous research (Zeshan 2000b; Woodward 1993) suggests that IPSL may be in use throughout India, Pakistan, and Nepal with varying degrees of dialectal variation, but this has not yet been investigated in detail, nor has its possible use in other countries of the Indian subcontinent (e.g., Sri Lanka, Bangladesh). This article is based on the variety used in southern and central Pakistan and northwestern India.

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This article consists of selected sections from a typological grammar sketch that was written for the Research Centre for Linguistic Typology (RCLT), La Trobe University, Melbourne, as part of a research project, "The Categories of Human Languages." The sections here are reprinted with RCLT's permission, slightly rearranged, and renumbered. Most of the information is based on Zeshan (2000a, 2000b) but is cast in a typological framework here.

1. Grammatical Profile

IPSL is a visual-gestural language that uses the hands and arms, facial expressions, eye gaze, and head/body posture to encode linguistic information. A manual sign has various formational components or parameters that are realized both simultaneously and sequentially and constitute the sign. These are handshape, place of articulation, movement (path movement and internal movement), orientation, and nonmanual features. Manual signs can be simultaneously combined with linguistically meaningful facial expressions, eye gaze, and head/body posture. Simultaneity is extremely important on both the lexical and the morphological level.

IPSL has both isolating traits and a fair number of derivational processes. It has no affixes in the sense of a sequence of morphemes because all of morphology is realized as simultaneous modifications of one or several of the formational parameters. Morphology is almost entirely derivational, with a possible exception of directional signs (see section 2.1.3). The derivational morphological processes are characterized by optionality and a high degree of idiosyncratic variation. Because of the simultaneous nature of the processes, the articulatory form of signs may block the application of morphological rules.

IPSL has three open lexical classes that can be distinguished on the basis of their behavior in space (i.e., not modifiable in space, changing place of articulation, and directional movement between two points in space). The first two classes are multifunctional items and do not correlate in any way with syntactic functions or semantic characteristics. The third class (directional signs) has mostly verbal properties. Closed word classes include functional particles, classificatory stems, nonmanual signs, discourse particles, and indexical signs. IPSL has no modals, articles, adpositions, or conjunctions.

Sentences are always predicate final, and all of the signs from the open lexical classes can function as predicates. Ellipsis is extensive, and one-word sentences are common. There is a strong preference for sentences with only one lexical argument. Constituent order does not play any role in the marking of grammatical relations. These are coded exclusively by spatial mechanisms (e.g., directional signs) or inferred from the context. Temporal expressions usually come first in

the sentence, and if there is a functional particle, it always follows the predicate (e.g., YESTERDAY FATHER DIE COMPLETIVE "(My) father died yesterday"). Functional particles are operators with scope over the whole clause and assign the clause to a certain clause type (interrogative, negative, imperative, completive, or existential). Modification within a referential expression is coded as simple apposition (e.g., I FATHER "my father"). If there is an index (pointing sign used for localization), it usually comes last (e.g., DEAF TEACHER INDEX "the deaf teacher").

Derivational morphology includes various optional markings for plurality in both arguments and predicates (e.g., dual, distributive, iterative), various *Aktionsart* (kind of action) derivations (e.g., gradual, unrealized, alternating), numeral incorporation, and classificatory stems. The marking of grammatical relations (always source-goal relationships) in transitive directional predicates has a more inflectional character. A transitive directional predicate moves between two locations in space: the source (the initial location) and the goal of the action (the final location). This is roughly equivalent to person agreement by bound pronominals. With respect to this construction IPSL is basically head-marking, but there can be spatial agreement between the arguments and a directional predicate, with the spatial location marked on the argument. Animate arguments in "goal" function can employ a dependent-marking mechanism. IPSL has some highly productive morphological processes. Classificatory stems consisting of a handshape morpheme can combine with a large number of movement specifications to refer to the position and movement of entities in discourse. The number of hands and extended fingers, orientation of the hand in space, and internal movement can also vary.

Complex sentences involve either simple apposition of coordinated clauses or a general subordinating construction that relies on facial expression and rhythm to express a semantically vague relationship between the clauses (e.g., conditional, temporal). Facial expressions are of paramount importance in the grammar for coding clause types such as interrogatives and negatives. They can also indicate various adverbial modifications.

IPSL is almost always used in face-to-face interactions and is a highly context-dependent language. The basic vocabulary is rather small (probably around four to five thousand signs). One way of

compensating for this is the use of productive morphological constructions such as those involving classificatory stems. Such productive multimorphemic processes are iconically motivated. Another way to expand on the comparatively small number of lexemes is the semantic vagueness of many signs. For example, IPSL employs a set of signs denoting geometrical shapes that can be modified in a highly productive way.

In the organization of discourse, spatial modification of signs and spatial arrangement of referents again play a very important role. In localization processes referents are identified with locations in the sign space, and this spatial arrangement can also be used for anaphoric reference and for constructing various types of discourses (e.g., enumerations, contrasts). The signer can identify with the perspective of one of the discourse participants, and conventions govern the choice of perspective. Elaborate spatial descriptions are easily realized in IPSL and are particularly common in narrative texts.

2. Word Classes

2.1. Open Lexical Classes

The only straightforward way to divide lexemes into different open lexical classes is by morphological criteria (i.e., the way they behave with respect to the sign space). This yields three classes: (1) signs that cannot be modified in space, (2) signs whose place of articulation can change, and (3) directional signs. Classes one and two do not correlate with any syntactic or semantic criteria. Class three has mostly verbal properties.

2.1.1. Signs That Cannot Be Modified in Space. These signs have a fixed place of articulation either on the body or in relation to the body. Morphological processes that require the use of sign space, such as distributive forms, spatial positioning, or directionality, are not applicable. Signs may be eligible for nonspatial morphological processes. All of the signs denoting body parts and many of the signs denoting feelings or cognition fall into this category, but many more of the signs cannot be categorized semantically. Signs in this group are multifunctional, that is, they can appear in various syntactic slots without any formal modification. In particular, they can all be predicates. Examples are the signs for ''hearing (person),'' ''fear, be afraid,''

"mother," "again, once more," "die, dead, death," "start, beginning," "to mean, meaning," "self, do oneself," and "black."

2.1.2. Signs with Changing Place of Articulation. Signs in this class have a default place of articulation in their basic form, but this location may be shifted in sign space. This class comprises signs that are either articulated in neutral space or have one hand (active hand) articulating on the other hand (passive hand). Such signs can be localized by articulating them at a place different from the default place of articulation, and they can spatially agree with other signs (e.g., for marking contrasts in space). They cannot move between two points in space. Semantically this class is entirely heterogeneous and is used multifunctionally like the first class. Examples are the signs for "good," "grow up," "(to) end," "friend, friendship," "different, another," "outside," "war, fight," and "marry, marriage, spouse."

2.1.3. Directional Signs. Directional signs move between two points in space and express relationships between the referents associated with these points. Movement is always from a source location to a goal location and can express local movement ("from here to there") or grammatical relations (e.g., subject, object). From a semantic point of view all of the signs in this class are inherently relational. They often describe a transfer in some sense, that is, a concrete transfer ("giving," "taking"), an abstract transfer (e.g., of knowledge in "teach"), or a transfer of information ("tell"). The class is relatively small, with about fifty members, but it is not a closed class. New signs can be added, but IPSL has no morphological process that converts the lexical items of the other two classes into directional signs. Directional signs behave like verbs in that they appear preferably in predicate position and select arguments, that is, they have two argument slots corresponding to the beginning and end points of the movement. However, they can be arguments of other predicates as well, even though this is less common. The morphological behavior of members of this class varies from sign to sign and warrants division into three main subclasses: Multidirectional signs can move around in space freely between any two locations. They mostly have to do with describing the movement and location of entities (e.g., "go (by any vehicle or on foot)," "fly in a plane," "walk"). Bidirectional

signs can move both away from and toward the body of the speaker but not between two points in space. Some bidirectional signs change the orientation of the fingertips or the palm, whereas others do not (see figure 1). Unidirectional signs are signs that involve one fixed and one variable place of articulation between which they move. So movement is either away from the body only (e.g., ''see'') or toward the body only (e.g., ''collect'').

2.2. Closed Lexical Classes

2.2.1. Nonmanual Signs. A limited number of signs in IPSL are made without any manual component, that is, without using the hands. These include the following:

YES: IPSL has no manual sign for ''yes,'' although some people use a ''yes'' sign borrowed from another sign language (American Sign Language in particular). Instead, in IPSL ''yes'' is signaled by a vertical head nod. The right and left head tilt that hearing people in the region commonly use is not used to mean ''yes'' in IPSL. Head nods also have various other functions either by themselves or with accompanying manual signs (cf. section 11.1.2).

NO: ''No'' can be signaled by a side-to-side headshake. There are also various manual negative signs (see section 8 on negation). A headshake is equivalent to neutral negation but cannot signal contrastive negation. Headshakes again have various other functions in grammar and discourse.

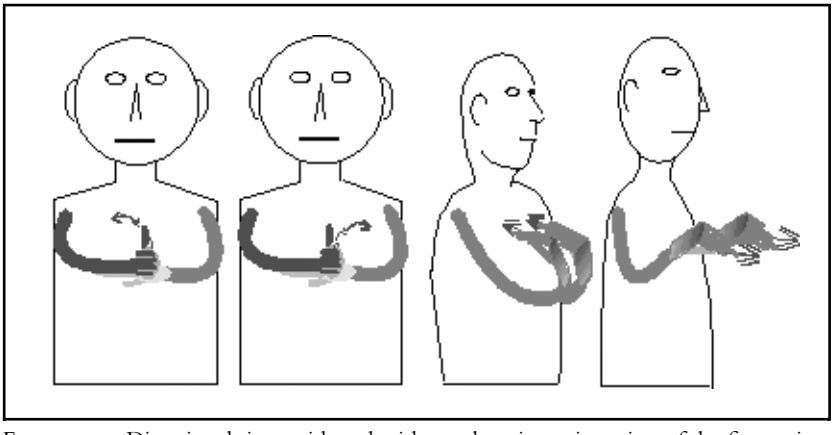

Figure 1. Directional signs with and without changing orientation of the finger tips (''s.o. helps me,'' ''I help s.o.,'' ''s.o. helps me,'' ''I help s.o.'')

Some adverblike meanings can be signaled in IPSL by accompanying manual signs with particular facial expressions. These facial expressions signal diminutive, augmentative, and negative meanings as well as difficulty/hardship. However, these facial expressions are not words in the sense of minimal free forms, that is, they do not occur by themselves.

2.2.2. Classificatory Stems. Classificatory stems consist of a handshape word stem that simultaneously combines with complex movement patterns to indicate the location, movement, and handling of various entities. These subsystems rely on iconicity but also include arbitrary grammatical rules that determine which combinations are possible and how they can be used.

In "handling" handshapes the hand assumes a shape appropriate for handling a particular entity (e.g., a flower or a glass), and a movement is added to express events of giving, taking, putting, and so on. Other handshapes stand for classes of entities (humans in particular) and convey their position and/or movement (e.g., the number of people involved, the direction of movement, or their position in relation to each other). A V handshape is used for "(person by) legs" and a G handshape for "person (whole entity)," whereas vehicles are not referred to by classificatory handshapes.

2.3. Closed Classes of Shifters

Compare section 2.4.3 and section 5.

2.4. Closed Grammatical Systems

Articles, adpositions, and conjunctions do not exist in IPSL. The pronominal and demonstrative system appears under the heading "indexical signs" (section 2.4.3) because it bears more similarity to a grammatical than to a lexical subsystem.

2.4.1. Functional Particles. Functional particles are signs that assign a clause to a clause type. They have scope over the whole clause. Not every clause has a functional particle, but if there is one, its syntactic slot is always the clause-final position (i.e., after the predicate). There is only a single position for a functional particle in each clause, so combinations of several particles are not possible (cf. sections 7.1.3

and 8.11). The functional particles (see figures 2–9) and corresponding clause types are as follows:

KARO	neutral positive imperative, distant force
JA:O	nonpolite positive imperative, immediate force
NAKARO	negative imperative
NAHI:N′	neutral negative
NA:_NA:	contrastive negative
KYA:	content question
HO_GAYA:	completive aspect
HAI	existential

2.4.2. Discourse Markers. IPSL has a number of manual and nonmanual discourse markers. They fall into two broad categories: markers structuring the text and markers regulating sender-addressee interactions. See section 11.1 for details on text-structuring discourse markers.

2.4.3. Indexical Signs. Indexical signs in IPSL include the equivalents of pronouns and demonstratives in other languages and an auxiliary. They are realized by pointing at various locations in sign space.

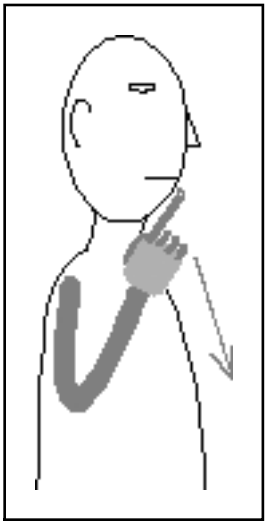

Figure 2. KARO

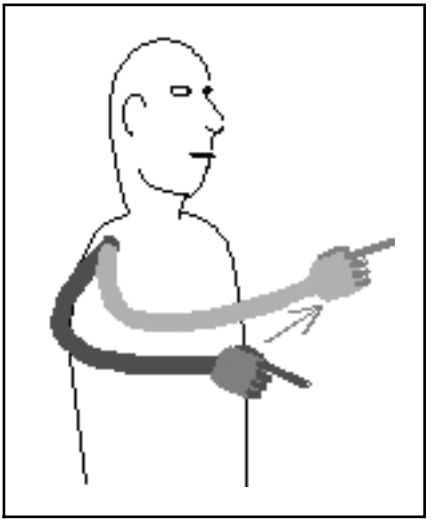

FIGURE 3. JA:O

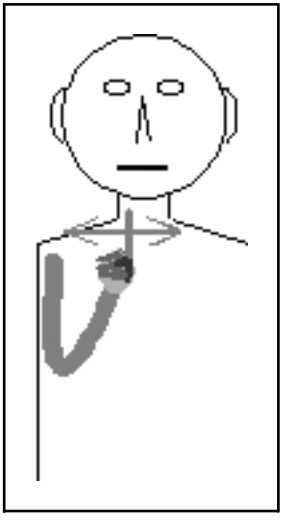

FIGURE 4. NAKARO

2.4.3.1. THE INDEX IN PRONOMINAL FUNCTION. Pointing signs with an extended index finger, when used anaphorically, are equivalent to pronouns. However, the index is also used to localize a referent in sign space, that is, to indicate a point with which the referent is to be associated in the following text. (For details on the forms and uses of pronouns, see section 5.1.)

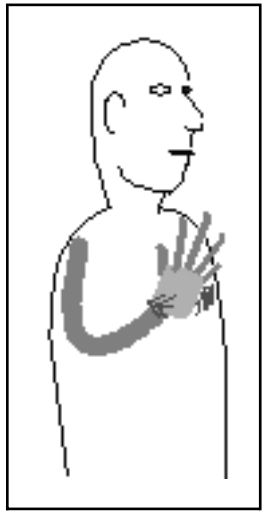

Figure 5. nahi:n'

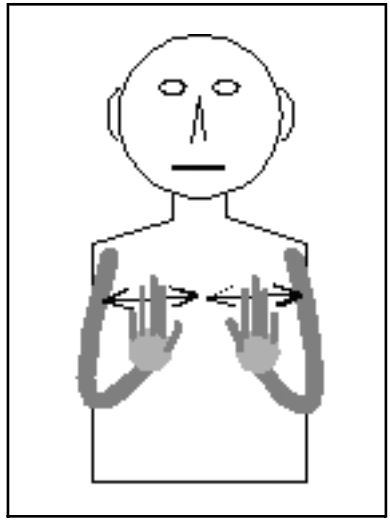

Figure 6. na:_na:

2.4.3.2. DEMONSTRATIVES. The proximal demonstrative (''here'') and the distal demonstrative (''there'') are pointing signs with a flat B handshape. They share a unique numeral category with the index (see section 6.2.1). For details see section 5.2.

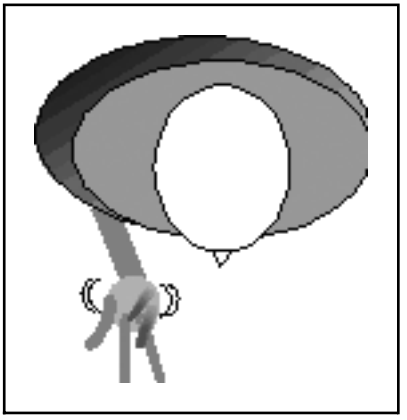

FIGURE 7. KYA:

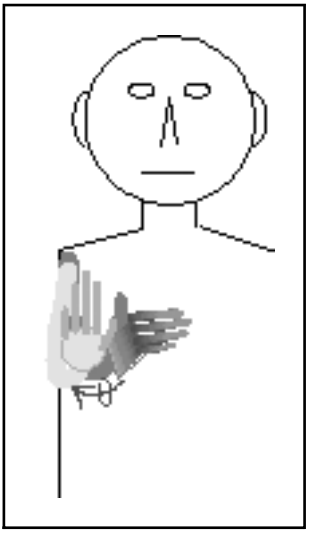

FIGURE 8. HO_GAYA:

2.4.3.3. AUXILIARY. The auxiliary consists of pointing at two locations, with a smooth transitional movement between the two. It indicates a relationship between the referents associated with the two locations and is similar to directional signs in this respect. The semantic content of the relationship is specified in the main predicate, whereas the auxiliary is semantically empty, that is, it means only "I to you," "he/she to him/her," "you to him/her," and so on. The

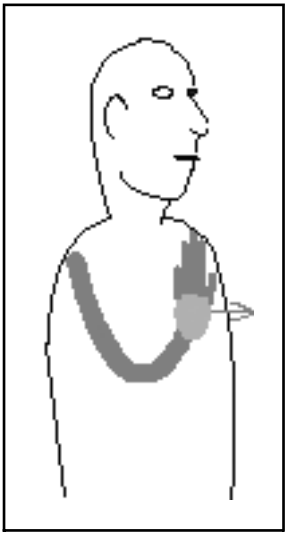

Figure 9. HAI

auxiliary occupies the same syntactic slot as the index in its localizing function, that is, immediately before or after the main predicate (the index occurs immediately before or after the sign it localizes). For details on the use of the auxiliary see section 4.3.

3. Relationship between Word Class and Functional Slot

For the three open word classes in IPSL (see section 2.1) it is difficult to argue for a clear noun-verb distinction. Accordingly, all of the words can be both predicates and core arguments. However, certain preferences are associated with the class of directional signs and provide some of the arguments for calling directional signs "verbs." On the other hand, there are no comparable arguments to establish a class of nouns.

Directional signs are much more likely to be in the clause-final predicate slot than in the argument slot. Moreover, when they do occur as arguments, they tend to occur with a limited number of predicates, that is, with evaluative judgments such as "good," "bad," "problem," "liking," and so on (but cf. example 3.7 with the directional sign TOFAH). No morphological changes need to be made to a directional sign to put it in argument position, and the construction

is identical to clauses with arguments from the other open word classes, for example:

NONDIRECTIONAL

3.1. Sign: KHA:NA: ACHA:.
mor: eat good
tra: The food is/was good.

DIRECTIONAL

3.2. Sign: MADAD ACHA:.
mor: help-DIST good
tra: It's good to help everybody.

Signs from the two multifunctional open word classes appear in both the predicate and the core argument slot without requiring morphological derivations. All of the signs can be predicative on their own when they appear in a one-word clause.

3.3. Sign: AFSOS.
mor: sad
tra: It's sad.

3.4. Sign: AURAT AFSOS.
mor: woman sad
tra: The woman is sad.

3.5. Sign: AFSOS MAIN′ PASAND NAHI:N′.
MOR: SAD I LIKE NEG
tra: I don't like sadness/to be sad.

3.6. Sign: KITA:B.
mor: book
tra: It's a book.

3.7. Sign: TOFAH KITA:B.
mor: give_gift book
tra: The gift is a book.

3.8. Sign: KITA:B LA:L.
mor: book red
tra: The book is red.

4. Marking of Basic Syntactic Relations

Marking of basic syntactic relations always involves the grammatical use of space in IPSL. Three spatial devices are used: index (section 4.2), auxiliary (section 4.3), and directional predicate (section 4.4). Auxiliary and directional predicates are head-marking devices, whereas indexing can be considered dependent marking. Word order does not play any role here. Sometimes there is no overt marking of syntactic relations, in which case interpretation of the clause depends on pragmatic inferencing (section 4.1).

4.1. Realization of Constituents, Word Order, and Pragmatic Inference

In IPSL it is quite rare to find sentences with more than one lexical participant. Typically, situations tend to be split up into several propositions (e.g., ''The man lied. His wife was angry'' rather than ''The man lied to his wife.''), or one of the participants is understood from the context (e.g., if there is a chain of activities carried out by one and the same person). Sentences with one pronominal and one lexical participant are more common. If there is no overt marking of syntactic relations, interpretation of transitive clauses depends on pragmatic inference, since the order of agent (A) and object (O) is not indicative of the syntactic relation.

4.1. Sign: BACCA: MAIN′ PYA:R.
mor: child-PL I love
tra: I treat the children with love.
Inference: The speaker is a teacher, and teachers are responsible for treating children in a certain way.

4.2. Sign: CLUB YAHA:N′ DEAF MADAD.
mor: C here deaf help
tra: The club here helps the deaf people.
Inference: The club has more resources to help deaf people than the other way around.

4.2. Index

O arguments (those involving less-agentive participants) can be marked by an index (pointing sign), but this applies only to humans (and other animate referents whose perspective a signer may adopt; see section 11.4). Inanimate referents cannot be marked with an index to indicate the syntactic relationship, so example 4.4 is ungrammatical:

4.3. Sign:	SUNNE_VA:LA	VAH	MAIN′	D°AR.
mor:	hearing	IND-left	I	afraid
nmn:				NEG---
tra:	I am not afraid of hearing people.			

4.4. Sign:	*SEB	VAH	BACCA:	KHA:NA:.
mor:	apple	IND	child	eat
tra:	A child is eating an apple.			

Pronominal forms in O function cannot be marked by an index because they are themselves indexical (see section 5.1). Usually the auxiliary is used in this case to indicate both A and O (see section 4.3).

It is important to note that the index is not an object marker per se. Rather, the correlation between index marking and object function is indirect and has to be explained through the notions of perspective and localization. As section 11.4 explains, the signer can take the perspective of one of the discourse participants, representing this participant with the signer's own body. Typically, the signer assumes the role of the more "agentive" participant (see section 11.4 about this term), and a number of devices can achieve this. On the other hand, localization blocks a change in perspective, and indexing is an important localization device. A participant that gets localized is placed at a location away from the signer, which makes it less likely for the signer to identify with this participant. Since this preferably happens with less-agentive participants (i.e., O arguments), a high correlation exists between O arguments and indexing.

4.3. Auxiliary

The auxiliary is a member of the class of indexical signs (see section 2.4.3.3) and expresses spatial agreement. It is semantically empty except for the agreement relationship itself (translatable as "he/she to

me,'' ''you to him/her,'' etc.; see figure 10). Like directional predicates (see section 4.4), the auxiliary indicates the syntactic relationship in space, with the beginning point associated with the source of the action and the end point associated with the goal of the action (see section 4.4 for a discussion of the terms ''source'' and ''goal'').

With nondirectional predicates (i.e., predicates that do not show syntactic relations in space), the auxiliary immediately follows the predicate (example 4.5). However, the auxiliary can also occur in combination with a directional predicate, resulting in the double marking of syntactic relations (example 4.6). In the latter case, the order of auxiliary and main predicate is more variable, with the auxiliary preceding, following, or appearing on both sides of the predicate and with other constituents able to come in between predicate and auxiliary. The auxiliary can stand alone when the main predicate is ellipted and is recoverable from the context or when a communicative act (say, tell, talk, inform, etc.) is expressed (example 4.7). In the latter case, the auxiliary itself seems to have meaning.

4.5. Sign:	SAMAJH	AUX?
mor:	understand	front-1
nmn:	Q----------	
tra:	Do you understand me?	

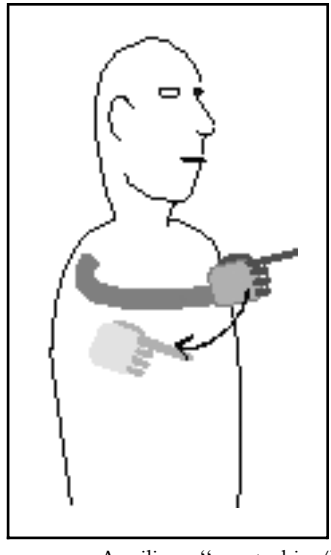

Figure 10. Auxiliary: ''you to him/her''

4.6. Sign:	AUX	PU:RA:	MUKAMMIL	SIKHA:NA:.
mor:	left-1	all	complete	teach-left-1
tra:	He taught me everything completely.			

4.7. Sign:	YA:SI:N	AUX	DEAF	KAM	BAS.
mor:	Yasin	right-1	deaf	little	END
tra:	Yasin told me that there are few deaf people.				

The auxiliary can be further inflected to express more complex relationships. The form in figure 11 can be used if A and B take turns to do something ("I to him/her, then he/she to me," etc.), whereas another reciprocal form indicates that A and B are simultaneously involved in the action ("to each other"; figure 12). Moreover, auxiliaries can be serialized to trace the exact flow of actions, as in the following example, which describes an indirect telephone conversation:

4.8. Sign:	I$A:RA:	KA:M	AUX	AUX
mor:	sign	work	1-front	front-left
Sign:	AUX	AUX	AUX	
mor:	left-front	front-1	1-front	
Sign:	DONON′.			
mor:	both-front-left			
tra:	I discuss the matter via an interpreter.			

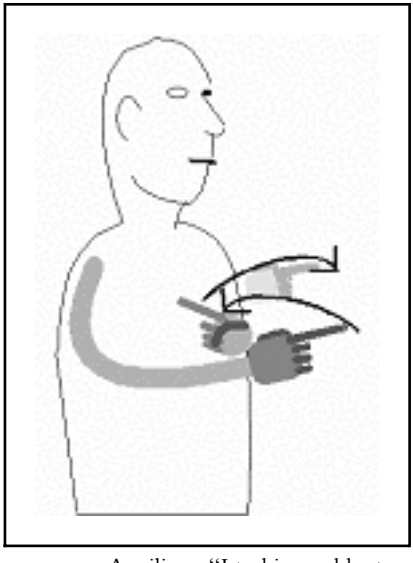

FIGURE 11. Auxiliary: "I to him and he to me"

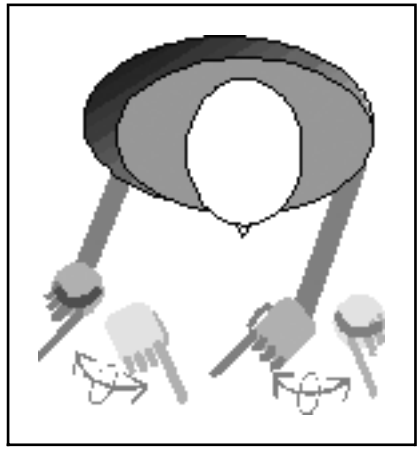

Figure 12. Auxiliary: "to each other"

Here the interpreter has been assigned the "front" locus, and the person at the other end of the telephone line is at the "left" locus, whereas the signer is representing himself. The auxiliaries trace the flow of communication among the three people.

4.4. Directional Predicates

This section describes directional signs that indicate transitive relationships and does not consider those that indicate locative relationships. Transitive directional predicates indicate syntactic relationships through movement between two points in space. For a unified account of the spatial agreement phenomenon it is useful to refer to the "source" and the "goal" of an action rather than to the terms "subject" and "object" or "agent" and "patient" or "A" and "O." The generalization then holds that the beginning point of directional predicates is always associated with the source of the action, and the end point is always associated with the goal of the action. Often the source corresponds to "A" function and the goal to "O" function, as for instance in the signs SIKHA:NA: "teach," MADAD "help," BATA:NA: "tell," and TOFAH "give gift" (see figures 13 and 14). However, with some signs this relationship would seem to be reversed if thought of in terms of A and O functions, as for instance in the signs MAHMA:N "invite," JAMA: "collect," and BULA:NA: "call" (see figures 15 and 16). In such signs movement would seem to be from O to A. However, if

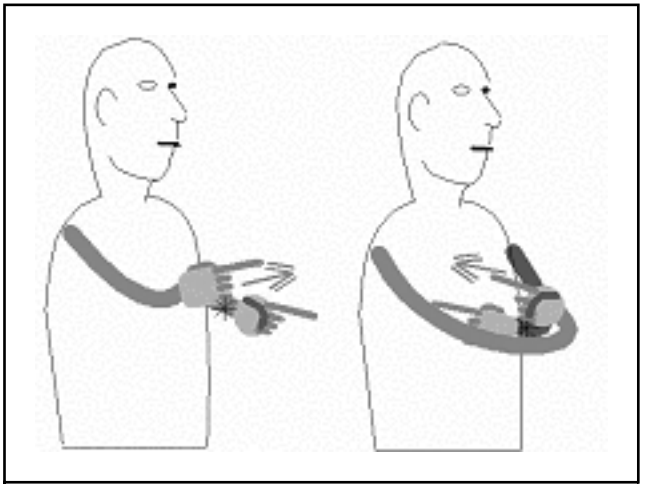

FIGURE 13. "I teach s.o.," "s.o. teaches me" (Karachi variety)

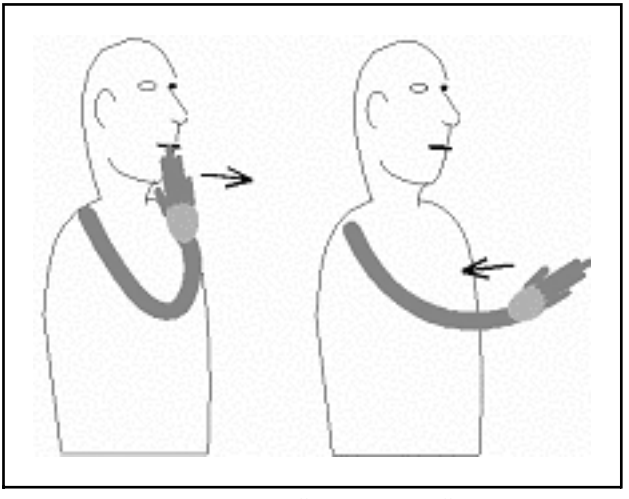

FIGURE 14. "I tell s.o.," "s.o. tells me"

thought of in terms of a spatial relationship (and metaphorical extensions thereof), it is obvious that collecting involves transferring things *to* the "collector" (the "A" in traditional terms), that when calling someone, the person called moves *from* his source location *to* the location he is called to, and that a guest comes *from* another place *to* the host's place when invited. Therefore, in spatial terms, marking for source and goal is consistent in IPSL.

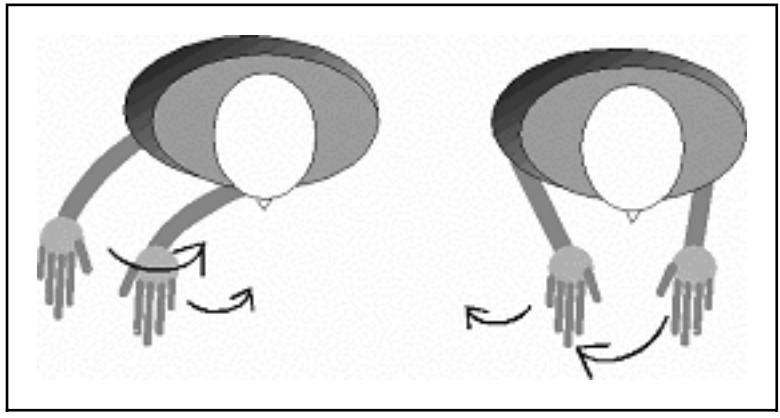

Figure 15. "I invite s.o.," "s.o. invites me"

Figure 16. "I call (someone)"

IPSL has various subclasses of directional signs (cf. section 2.1.3). Most transitive directional signs are either bidirectional or unidirectional. Bidirectional signs can move both toward and away from the body (e.g., MAHMA:N "invite," SIKHA:NA: "teach," MADAD "help," and TOFAH "give gift"). Within these, some signs change the orientation of the hand in addition to the direction of the movement (e.g., SIKHA:NA: "teach" and MADAD "help"). Unidirectional signs have

one fixed place of articulation, so they move either toward the body only (e.g., JAMA: "collect") or away from the body only (e.g., DEKHNA: "see"), thus marking only one of the two arguments. In the latter case, first-person goals ("to me") can be expressed by moving the hand outward first and then turning back to end on the signer's body. A few transitive directional signs in IPSL can move between two points in sign space. This is very rare, although it occurs regularly with multidirectional locative predicates. Accordingly, the signer almost always takes the perspective of one of the participants in the action (usually the more agentive one; see sections 4.2 and 11.4) and represents this participant with the signer's own body. Only the second participant is localized in sign space.

Marking of syntactic relations in directional predicates can be considered equivalent to a head-marking mechanism in which the verb takes obligatory pronominal affixes for the A and O arguments. In IPSL it is more difficult to segment source location, goal location, and predicate stem due to the simultaneous nature of the sign as a whole, but it makes some sense to argue at least for an ordering of elements where source precedes goal.

5. Shifters

5.1. Pronouns

Pronominal reference is one of the functions for which the index is used in IPSL. The index has the full set of IPSL number distinctions (cf. section 6.2.1), that is, transnumeral (figure 17), dual, nonspecific plural (distributive form), and iconic plural (see sections 6.1.3 and 6.1.4 on plurals). Even with first-person reference the index pointing at a single location is transnumeral (i.e., not marked for number), so that the difference between "I" and "we" cannot be expressed in the pronoun. A single point to a locus in sign space can refer to any number of entities.

The dual form has a handshape with two extended fingers (index and middle finger). This is a suppletive form in the otherwise formationally regular pronominal paradigm. In IPSL more than two extended fingers are not used to refer to groups of more than two, so there are no separate triple or quadruple forms. The dual pronoun in IPSL involves a to-and-fro movement between the two points of

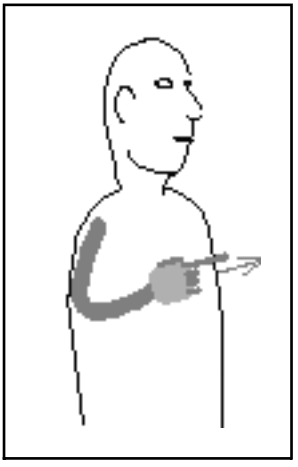

Figure 17. Index, transnumeral

reference, that is, either the signer's body and a point in space for 1–2/3 dual or two points in space for 2/3–2/3 dual (figure 18). The choice of points is fully productive, so it is possible to express all kinds of inclusive-exclusive-like distinctions, for example, "me and he/she," "me and you," "both of them," "both of you," "you and he/she," and so on.

In addition to the numeral categories shared with other form classes, the pronominal index has a particular nonspecific plural form with a half-circle horizontal movement (see figure 19). This form refers to humans exclusively and occurs only within the class of indexical signs, that is, with the index and the demonstrative.

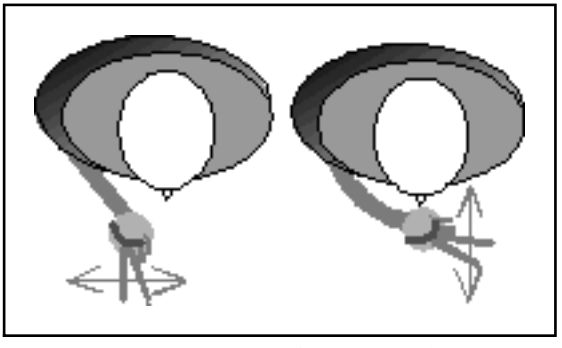

Figure 18. Index, dual (2/3-2/3 and 1-2/3)

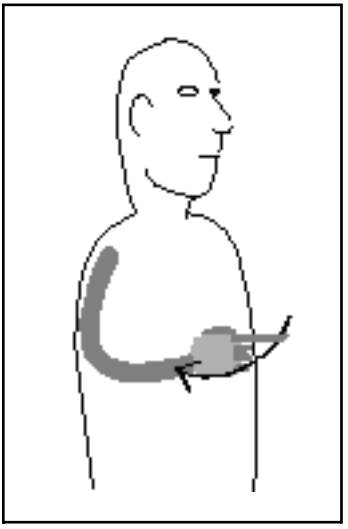

FIGURE 19. Index, plural personal

IPSL has no separate forms for nonemphatic possessive pronouns. The index is used in the same form in the possessor slot preceding the possessed item, for example, "I father" (i.e., "my father") (see section 7.2 on "possessive NP" constructions). Emphatic possession ("my own") can be expressed by substituting an A handshape (fist) for the index finger point, but this is much less common. IPSL also has an emphatic pronominal form XUD (see figure 20) that refers to people. In some IPSL dialects (e.g., Karachi) XUD occurs in only one fixed form and has unspecific reference ("x-self"). Reference specification is provided by a coreferential term co-occurring with XUD, that is, if XUD co-occurs with the first-person pronoun it means "myself"; if it occurs with a person's proper name it means "herself/himself," and so on (cf. examples 5.1 and 5.2). Note, in particular, that XUD is *not* a reflexive pronoun in any IPSL variety.

5.1. Sign:	MAIN′	XUD	KOI.
mor:	I	PRON.EMPH	try
tra:	I tried it myself.		

5.2. Sign:	SOHAIL	XUD	PAISAH.
mor:	Sohail	PRON.EMPH	money-front
tra:	Sohail paid it himself.		

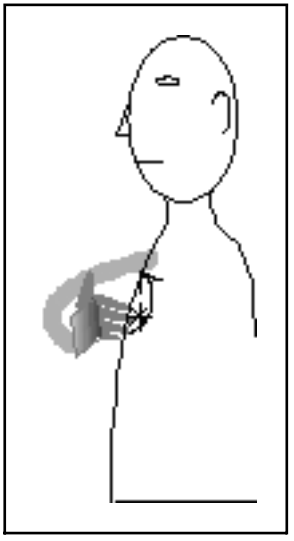

Figure 20. Emphatic pronoun XUD

5.2. Deictics

There are two forms of demonstratives with flat B handshapes (i.e., with all of the fingers extended). One of them points to the location directly in front of the signer (''here, this''); the other one points at any other location in sign space, with the fingertips always facing away from the signer (''there, that''). The latter form can form a plural by adding a half-circle movement and then refers to a group of people like the corresponding plural of the index. There is no dual form.

A particular form of the index is also used in a deictic function. It points downward in front of the signer's feet and may have either temporal-proximal or spatial-proximal meaning (i.e., time or place close to the signer). Its temporal meaning can be translated as both ''now'' and ''today''; its spatial meaning translates as ''here.'' The location in front of the signer's feet is never used for pronominal reference. Other time shifters are lexical signs that do not involve pointing. They are, however, arranged with reference to a so-called timeline that is deictic in nature and runs from behind the signer's shoulder (indicating the past) to the front of the signer's body at a lower level (indicating the future).

6. Number Systems

6.1. Number Systems Operating in the Grammar

IPSL has a complex number system with several numeral categories. The basic pattern involves transnumeral, dual, nonspecific plural, and iconic plural. Both of these plural categories contain subcategories. The numeral categories of singular and plural personal are restricted to one word class each.

6.1.1. Transnumeral. All of the basic forms of signs except classificatory stems are transnumeral, that is, they are indifferent as to number and may have any singular or nonsingular reference. This is true for both referential and predicative expressions. All of the forms other than the transnumeral are optional and are subject to various articulatory and idiosyncratic constraints.

6.1.2. Dual. The dual is formed by replicating the handshape, place of articulation, and movement of one hand with a second hand. Each hand then stands for one referent or for an action performed by one referent. It can be formed only with signs that

- are one-handed in their basic form
- do not have a two-handed variant along with the one-handed form
- are not articulated on any body part

The index meets all of these requirements but does not form a dual according to this pattern. Rather, it has a suppletive dual form (see figure 18 in section 5).

The number ''two'' can also be expressed within the iconic plural and within numeral incorporation (see section 6.1.4.).

6.1.3. Nonspecific Plural. Nonspecific plural refers to any unspecific number greater than two. IPSL has three morphological processes that produce nonspecific plurals: Either the handshape of a sign is changed or the movement pattern is changed, with repetitions added either at the same place of articulation (iterative form) or along several locations in a horizontal line (distributive form).

6.1.3.1. CHANGE OF MOVEMENT PATTERN FOR NONSPECIFIC PLURAL. This morphological derivation forms plurals by the application of two repetition patterns: The iterative form has repetitions at the same place of articulation, whereas the distributive form has repetitions at a number of different locations next to each other in a horizontal line. The derivation applies to both referential and predicative expressions with signs from all of the three open lexical classes (see section 2) in principally the same way. However, only a limited number of signs can undergo both derivations; otherwise applicability of one or both of the derivations depends on formational features of the signs. A contrast in meaning (iterative form meaning ''several referents'' or ''repeated action'' and distributive form meaning ''several referents in various places'' or ''action repeated in various places'') exists only in signs that are able to undergo both derivations (figure 21 shows the sign A:DHA: ''half'' in its basic form and with both derivations). In all of the other cases, the interpretation of either form is simply ''nonspecific plural.''

Formational constraints on the applicability of the two derivations are the following:

- Signs that already have repeated movement in their basic form can undergo only a distributive derivation.

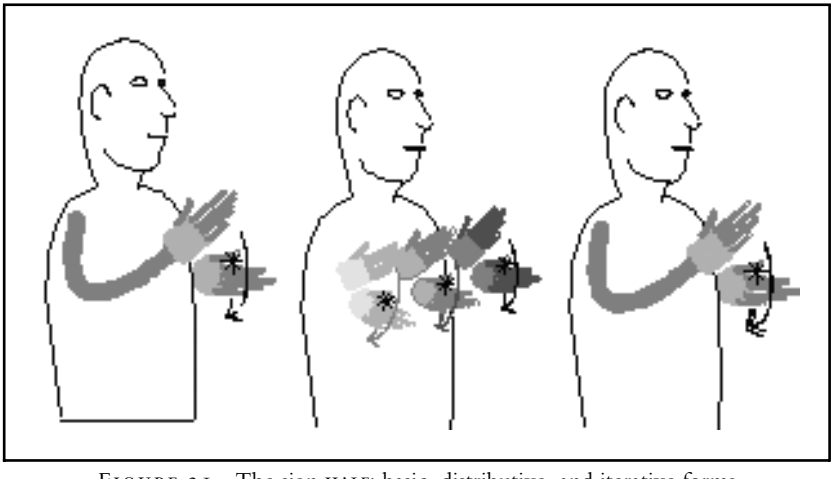

FIGURE 21. The sign HALF: basic, distributive, and iterative forms

- Signs that are made on the body usually cannot undergo a distributive derivation (a few such signs are attested with the position of the torso changing instead of the place of articulation of the hands).
- Hold signs can undergo only a distributive derivation, not an iterative derivation.
- Signs that are made on the body and have repeated movement in their basic form cannot form any plural.
- Signs that consist only of contact with some body part cannot form any plural. These signs behave like hold signs with respect to the iterative derivation and like signs made on the body with respect to the distributive derivation.
- Fingerspelled words or letters cannot form any plural, with the exception of a few letter-meaning correspondences that are so frequent that they behave like lexical signs rather than fingerspelled letters (e.g., initial letters of the days of the week).

Iterative and distributive derivations are more productive in IPSL than any other plural derivation. They can apply to all of the signs from the open lexical classes that are not subject to any of the preceding restrictions. However, these restrictions still cover a substantial number of signs. For signs that cannot form a morphological plural, number is either inferred from the context, indicated by numerals or quantifiers (''many''), or expressed elsewhere in the clause, for example in a predicate co-occurring with a nonplural argument.

6.1.3.2. CHANGE OF HANDSHAPE FOR NONSPECIFIC PLURAL. Compared with the change of movement pattern, plural derivations involving change of handshape are far less productive. The process is formally regular but is used with only a limited number of lexemes (fewer than ten items) and is not easily applicable to other signs.

This derivation involves replacing the handshape of a sign in the basic form with either a 4 or a 5 handshape. The 4 handshape is used for meanings that refer to paired objects (e.g., eyes, legs) or to parallel arrangements of several objects. The 5 handshape is used in other cases (i.e., in connection with plurality in general). Change of handshape for plurality can be subject to idiosyncratic meaning changes

and can also be a source of lexicalization. It can serve as input to further derivational processes. Figure 22 shows the sign GO AWAY/LEAVE with two changes of handshape derivations, the second with an additional alternating aspectual modification.

6.1.4. Iconic Plural. Iconic plural refers to a specific number above one and is expressed by various iconic processes. Iconic plural is created by rules that are similar to those for nonspecific plural except that there is a direct mapping of the form of plural morphemes to the number of referents (e.g., three movement repetitions stand for three rather than many referents; objects in a vertical arrangement are shown by repetitions in a vertical rather than a horizontal line; and four extended fingers stand for four rather than many referents). Other semantic and formal characteristics also distinguish iconic plural from nonspecific plural, as detailed in the following sections.

6.1.4.1. CHANGE OF MOVEMENT PATTERN FOR ICONIC PLURAL. This derivation differs from change of movement pattern for nonspecific plural in the following ways:

- Repetitions are clearly separate rather than in rapid succession.
- The spatial arrangement of repetitions is free and can correspond to the situation one wishes to convey (e.g., in a circle, in a vertical line).
- In the case of one-handed signs both hands can be used for iconic plural but not for nonspecific plural.

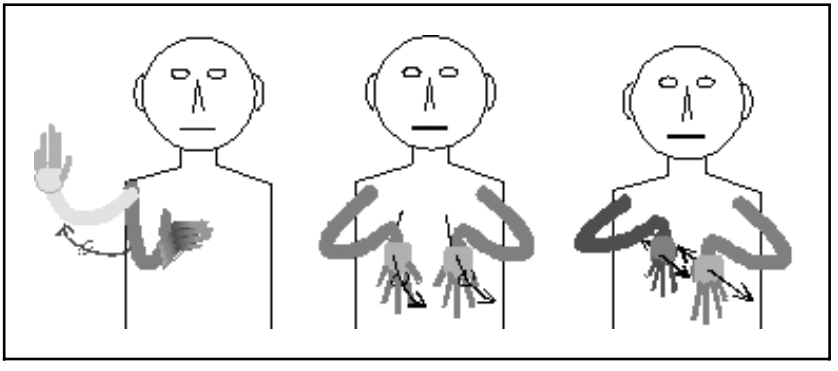

FIGURE 22. "Go away, leave;" "go away, leave" (plural); "traffic" (plural alternating form)

- The number of repetitions can correspond to the number of referents.
- Iconic plural can represent either the number of referents or the spatial arrangement of referents or both. For example:
  three pointing signs (indexes) in a horizontal line representing three siblings; only the number of referents is indicated, not their spatial arrangement;
  three pointing signs in a vertical line representing the levels of a three-story house; both number and arrangement are indicated.

The formational restrictions to distributive and iterative forms apply in the same way as specified in section 6.1.3.1. Iconic plural is an efficient and economical way to convey specific information about the number and spatial arrangement of referents. In principle there is no limit to how many referents can be iconically represented, but in practice most occurrences concern numbers up to about five.

6.1.4.2. CHANGE OF HANDSHAPE FOR ICONIC PLURAL. This derivation differs from change of handshape for nonspecific plural in the following ways:

- The number of extended fingers is relevant for numbers from one to five, not just for four or five.
- The number of fingers corresponds to the number of referents.
- Changes in meaning are always transparent, never idiosyncratic.

Numeral incorporation belongs here as far as the category of number is concerned. However, it is different from other instances of iconic plural by virtue of its paradigmatic organization. Lexemes from particular semantic fields (temporal expressions, monetary units, and numerical expressions) can vary their handshape according to the number of units (figure 23 shows some examples: "third," "three months," "four anna coins"). Most signs that can undergo numeral incorporation have a basic form with one extended (index) finger that also indicates the number "one" at the same time. In IPSL the signs for "hour," "month," "year," "rupee," "anna coin," ". . . and a half," ". . . thousand," "minus . . . ," ordinal numbers, and school grades can undergo numeral incorporation. There is considerable individual and dialectal variation as well as idiosyncratic variation across

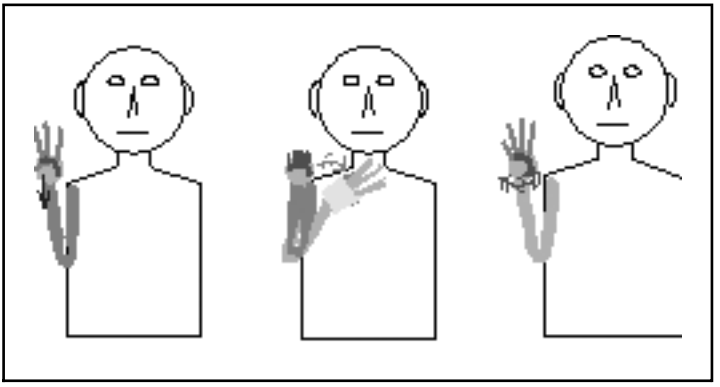

Figure 23. "third," "three months," "four Anna-coins"

different signs as to the extent of numeral incorporation. Dialects with one-handed numbers greater than five (cf. section 6.5) can maximally incorporate numbers from one through ten. The most common paradigm covers the numbers from one through five, but others incorporate only one and two or only four and eight, for example.

6.2. Applicability of Number System

All of the morphological processes indicating number are derivational. None of the number categories can be said to apply generally to an entire word class, and it is not obligatory in any case to indicate number. Many constraints on the formation of the various number categories apply. The constraints under section 6.1 were described with respect to the three open lexical classes. Number marking for other classes is as follows:

6.2.1. Number on Pronouns and Demonstratives. The number system for the word class of indexical signs differs from the other paradigms in that there is an additional plural form, realized as a half-circle movement, that indicates nonspecific plural for humans only. So whereas the paradigm for all of the other word classes consists of (maximally) transnumeral, dual, nonspecific plural, and iconic plural, the paradigms for the index in pronominal function and for demonstratives are as follows:

pronouns: transnumeral—dual (suppletive form!)—nonspecific plural, distributive form—nonspecific plural for humans—iconic plural

demonstratives: transnumeral—nonspecific plural, distributive form—nonspecific plural for humans—iconic plural

6.2.2. Number on Interrogatives/Indefinites, Functional Particles, Nonmanual Signs, and Discourse Particles. These signs show no number marking.

6.2.3. Number on Classificatory Stems. The classificatory stems ''person (whole entity)'' and ''(person by) legs'' show the following number categories:

''person (whole entity)'': singular—dual—iconic plural (numeral incorporation)
''(person by) legs'': singular—dual—nonspecific plural (change of handshape)

The basic form, with an upright index finger in ''person (whole entity)'' and index and middle fingers facing downward in ''(person by) legs'' is always interpreted as referring to *one* person (i.e., they are singular, not transnumeral). The same forms articulated with both hands refer to *two* persons (dual). Both stems occur in partly mutually exclusive contexts. With reference to number this means that nonspecific plural can be expressed only with the ''(person by) legs'' stem (using the 4 handshape), whereas iconic plural can be expressed only with the ''person (whole entity)'' stem for numbers up to five using numeral incorporation.

6.3. Markedness

Transnumeral is the unmarked term both formally and functionally. Of the other forms, nonspecific plural is functionally unmarked, occurring in a greater number of contexts than iconic plural and dual. Formationally, plural forms involving handshape change, and dual forms are marked because they are the most restricted, occurring with the smallest number of lexical items.

6.4. Interrelations with Other Systems

There are more number categories for humans in pronominal and demonstrative forms than for other entities (see section 6.2.1), with the former having an additional ''nonspecific plural personal'' category. The

classificatory stems that refer to humans also differ from other word classes in number marking in that they have a singular rather than a transnumeral category.

6.5. Lexical Class of Numbers

IPSL has a full set of lexical numbers that is partly based on written numbers. Considerable dialectal variation occurs in the forms of number signs. Numbers one through five consist of the corresponding number of vertically extended fingers in all of the dialects. Numbers six through nine employ special handshapes in some dialects, and one set of forms is an imitation of the shape of written numbers (see figure 24). In other dialects more extended fingers are added from the second hand. The number ten has at least three variants. Numbers greater than ten consist of a sequence of single-digit numbers corresponding to the written form (e.g., the year 1986 is indicated by the sequence "one-nine-eight-six"). An existing sign for "thousand" is not used in dates.

Starting with "1,000" some dialects use a different system that takes the number of horizontally extended fingers to stand for the number of zeros, so that "1,000" has three extended fingers, and "100,000" has five (see figure 25). Forms with three, five, and seven extended fingers are attested and are quite common. Note that these numbers have single corresponding words in Hindi/Urdu: *hazar* for 1,000, *lakh* for 100,000, and *crore* for 10,000,000. In-between members and higher members of the paradigm should in principle be possible, too. Other dialects use a fingerspelled L for lakh and a fingerspelled C for crore.

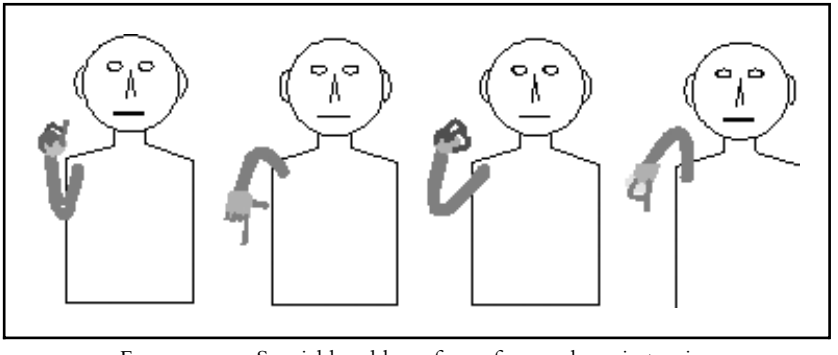

Figure 24. Special handshape forms for numbers six to nine

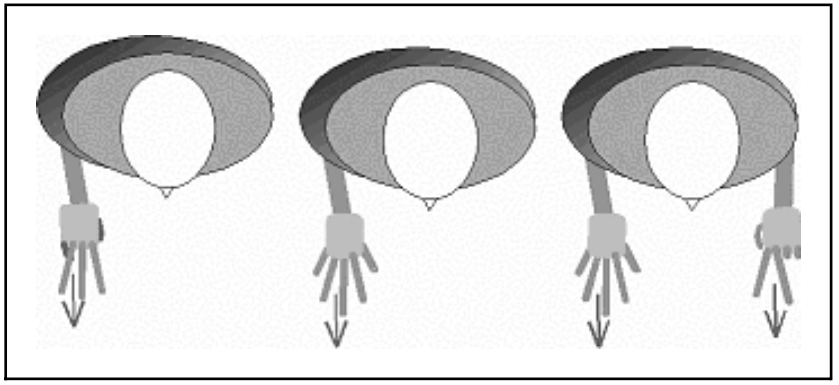

FIGURE 25. HAZA:R, LAKH, and CRORE

All of the people in the region use a counting system on the hands, with the thumb indicating parts of the fingers of the same hand. Each finger can indicate three numbers, so that each hand can count up to fifteen. This system is used for calculating by oneself and is not the source of any number signs in IPSL. To signal numbers to someone else one would use vertically extended fingers, which is identical to one of the possible IPSL number paradigms.

7. Types of Possession

7.1. Predicative Possession

7.1.1. Predicative Possession in Positive Clauses. IPSL has no lexical verb "have." To express predicative possession the existential HAI (see figure 9) is used in positive clauses ("The boy, a ball exists," i.e., "The boy has a ball"). All kinds of possessors and possessed items are constructed in the same way, for example:

7.1. Sign: MAIN′ AURAT SIBLING HAI.
mor: I woman sibling EXIST
tra: I have a sister.

7.2. Sign: MANZU:R GA:R°I: HAI.
mor: Manzur car EXIST
tra: Manzur has a car.

7.3. Sign: GHAR CHAT° HAI.
mor: house roof EXIST
tra: The house has a roof.

Note that when the possessor is inanimate, the construction tends to be ambiguous between possessive and existential (''The house has a roof.'' ''There is a roof on the house.'').

7.1.2. Predicative Possession with Modified Possessed Items. When the possessed is accompanied by a modifier or a quantifier, there is no existential, and the modifier or quantifier appears in the position that the existential occupies in other possessive clauses, for example:

7.4. Sign:	MAIN′	AURAT	SIBLING	TI:N.
mor:	I	woman	sibling	three
tra:	I have three sisters.			
7.5. Sign:	MANZU:R	GA:R°I:	ACHA:.	
mor:	Manzur	car	good.	
tra:	Manzur has a good car.			

Note that these sentences are systematically ambiguous between predicative possession and ''possessive NP'' constructions, as if to say: ''I have three sisters''—''My sisters are three,'' ''Manzur has a good car''—''Manzur's car is good.''

7.1.3. Predicative Possession in Negative Clauses. For negative possession the existential HAI is not used because it cannot be combined with either manual or nonmanual negation. Instead, the neutral negative sign functions as a negative existential in Pakistani dialects of IPSL (example 7.6). Indian dialects use either the neutral negative particle or a suppletive negative existential particle (''not exist''), consisting of an F handshape with a circular movement. Note the same ambiguity with inanimate possessors as in positive clauses (example 7.7).

7.6. Sign:	MAIN′	GA:R°I:	NAHI:N′.
mor:	I	car	NEG
tra:	I don't have a car.		

7.7. Sign:	PA:KISTA:N	YAHA:N′	DEAF	COLLEGE	NAHI:N′.
mor:	P	here	deaf	C	NEG
tra:	Pakistan doesn't have a college for the				

deaf / There is no college for the deaf here
in Pakistan.

7.2. "Possessive NP" Construction

"Possessive NP" constructions are realized by simple apposition of possessor and possessed. "Possessive NP" is in quotes here insofar as a nominal word class cannot be established for IPSL (see section 2). The possessor always precedes the possessed, in accordance with the more general principle in IPSL for modifiers to precede modified items. The "possessive NP" construction is identical for all types of possessors and possessed items. Personal pronouns can appear in the possessor slot. Special possessive pronoun forms (with an A handshape) are restricted to emphatic contexts.

7.8. Sign: MAIN′ BA:P
mor: I father
tra: my father

7.9. Sign: MUNA: HA:TH
mor: Muna hand
tra: Muna's hand(s)

7.10. Sign: USTA:D GHAR°I:
mor: teacher watch
tra: the teacher's watch

7.3. Nature of Possessive Relation

Possessive constructions in IPSL seem to be semantically quite vague. This is suggested by the various kinds of ambiguity that have been noted in the preceding possessive constructions. "Existence in connection with" and "possession of" partly overlap in IPSL. The "possessive NP" construction is identical to other modifying constructions in IPSL that are also realized by apposition.

8. Negation

8.1. Clause Negators

IPSL has manual negative signs as well as nonmanual negation (headshake). There are two uninflecting clause-final negative particles (cf.

section 2.4.1 "functional particles"), NAHI:N′ and NA:_NA: (see figures 5 and 6). In addition, NAKARO is used for the negative imperative (see figure 4). NAHI:N′ is a neutral negation, whereas NA:_NA: expresses contrastive negation. The clause-final negative particles always have scope over the whole clause, whereas the scope of headshake negation is variable.

8.1.1. Nonmanual Negation. Nonmanual negation consists of a side-to-side headshake. Its minimal scope (i.e., the manual signs it co-occurs with) includes the clause-final constituent (either the negative particle or the predicate if there is no negative particle), whereas the beginning of the clause may or may not fall under its scope. The maximum scope is the whole clause. If the initial part of a clause does not fall under the scope of headshake negation, it is interpreted as topicalized (see section 11.2.2). Headshake negation can occur by itself without an additional negative particle, as well as vice versa, even though a combination of both is most common. The double expression of negation by manual and nonmanual means is not semantically different from "manual only" or "nonmanual only" negation. It never has positive meaning and is not emphatic either. Headshake negation can be combined with a number of other nonmanual signals.

8.1. Sign:	MAIN′	FAUT.
mor:	I	die
nmn:	NEG-------	
tra:	I'm not dead.	
8.2. Sign:	TUM	FAUT?
mor:	you	die
nmn:	Q--------	
		NEG----
tra:	You didn't die?	

8.3. Sign:	MAIN′	KA:M	NAHI:N′.
mor:	I		work NEG
nmn:			NEG---------
tra:	As for me, I am not working.		

8.4. Sign: MAIN′ KA:M NAHI:N′.
mor: I work NEG
nmn: NEG----
tra: As for my work, (I'm) not (working).

Headshakes can indicate nonnegative meanings that have semantic affinity with negation, in particular with an adverbial meaning "unfortunately" and as a discourse marker.

8.1.2. Neutral Negation. The sign NAHI:N′ is used for neutral negation (for examples, see section 8.1.3.). No additional connotations are expressed beyond the negative. NAHI:N′ contrasts formally and functionally with NA:_NA:, and only one of them can occur in any given clause. NAHI:N′ is also used as a negative existential (cf. section 7.1.3).

8.1.3. Contrastive Negation. NA:_NA: basically means "no/not, in contrast to X." The contrast may be either explicit in the preceding text or implicit (implied by general knowledge or by the signer), for example:

Contrast in the Preceding Text

8.5. Sign: $AHAR ACHA: NAHI:N′.
mor: city good NEG
tra: Cities aren't nice. (said without any particular context)

8.6. Sign: GA:ON′ ACHA:. $AHAR NA:_NA:.
mor: village good city NEG_CONTR
tra: Villages are nice. By contrast, cities are not.

Implicit Contrast

8.7. Sign: PARE$A:N NAHI:N′.
mor: worry NEG
tra: There's no problem/worry.

8.8. Sign: PARE$A:N NA:_NA:.
mor: worry NEG_CONTR

tra: There's no problem/worry (contrary to what you may be expecting, contrary to what usually happens, etc.).

8.2. Negative Reply to a Question

NAHI:N′, NA:_NA:, and NAKARO can all be used in reply to a question with slightly different meanings. NAHI:N′ simply means "no," NA:_NA: establishes a negative contrast with the question, and NAKARO is a refutation with an imperative meaning component. NAKARO is similar to NA:_NA: semantically but occurs less often.

8.9. Sign: NAHI:N′.
mor: NEG
tra: No (this is not the case).

8.10. Sign: NA:_NA:.
mor: NEG_CONTR
tra: No (contrary to what has been suggested in the question).
8.11. Sign: NAKARO.
mor: NEG_IMP
tra: No (you shouldn't think so).

Headshake negation without any accompanying manual signs is another option in response to a question. However, it covers only the meaning of neutral negation, that is, it is equivalent to NAHI:N′ but not to NA:_NA: and NAKARO. Some signers use a loan sign from American Sign Language that is based on the fingerspelled letters N-O as used in the American one-handed fingerspelling system (IPSL uses a two-handed fingerspelling system). The exact semantics of this sign are not clear.

To reply to a negative question, IPSL in principle copies the polarity of the question. If the answer is no, very often a positive statement would be added, for example:

8.12. Sign: TUM JA:NA: NAHI:N′?
mor: you go NEG
tra: Aren't you going?

8.13. Sign: NAHI:N′, MAIN′ RAHNA:.
mor: NEG I stay
tra: No, I'm staying.

To answer "yes" to a negative question, a common strategy is to use existential HAI (possibly accompanied by a head nod). Note that most IPSL signers do not use a lexical sign YES. A head nod is the usual equivalent of "yes" (see section 2.2.1).

8.14. Sign: MAIN′ JA:NA: HAI.
mor: I go EXIST
tra: Yes, I'm (really) going.

8.3. Negative Imperative

The functional particle NAKARO is used in negative imperatives both with immediate force ("don't") and with modal-like meaning ("you/one should not"). There are no politeness levels here beyond those that can be expressed by the "tone" of signing. NAKARO covers all of the politeness levels and distant/immediate distinctions made in positive commands, so these grammatical parameters are neutralized in the negative.

8.15. Sign: MA:RNA: NAKARO.
mor: beat-1 NEG_IMP
tra: Please don't beat me! (signed in a pleading "tone")

8.16. Sign: DEAF HATA:NA: NAKARO.
mor: deaf push_aside NEG_IMP
tra: Deaf people shouldn't be neglected.

8.4. Negating Clause Constituents

Only predicates can be negated in IPSL. Therefore, the target of clause negation can be manipulated in two ways: by the choice of predicate and, depending on the choice of predicate, by the scope of nonmanual negation. It is *not* possible to have either manual or nonmanual negation occur with constituents clause initially or clause medially.

8.4.1. Choice of Predicate. In IPSL all of the signs from the open lexical classes can be used predicatively without any morphological processes applied, just by putting them in the clause-final predicate slot. The choice of sign to put in predicate position in a negative clause affects the interpretation of that clause. The principal target of negation is evident when a positive statement is added, a very common strategy in IPSL. The following sentences show examples with signs in the predicate slot that might be quantifiers, verbs, nouns, and adverbs in other languages.

8.17. Sign:	A:DMI:	CORI:	TI:N	NAHI:N′,	CA:R.
mor:	man	steal	three	NEG	four
tra:	The robbers were not three, (they were) four.				

8.18. Sign:	TI:N	A:DMI:	CORI:	NAHI:N′,	UDHA:R.
mor:	three	man	steal	NEG	loan
tra:	The three men didn't steal, (they) took a loan.				

8.19. Sign:	CORI:	A:DMI:	NAHI:N′,	AURAT.
mor:	steal	man	NEG	woman
tra:	The robbers weren't men, (they were) women.			

8.20. Sign:	CORI:	A:SA:N	NAHI:N′,	MU$KIL.
mor:	steal	easy	NEG	difficult
tra:	(They could) not steal (it) easily, (it was) difficult.			

8.4.2. Scope of Nonmanual Negation. Because the scope of nonmanual negation always includes clause-final constituents, the choice of predicate allows manipulation of those signs that fall within its scope. The manual negation in examples 8.17–8.20 may in each case be replaced by a headshake accompanying the predicate, with the initial signs topicalized, resulting in sentences such as these:

8.21. Sign:	A:DMI:	CORI:	TI:N,	CA:R.
mor:	man	steal	three	four
nmn:			NEG—	
tra:	The robbers, they were not three, (but) four.			

8.22. Sign:	TI:N	A:DMI:	CORI:,	UDHA:R.
mor:	three	man	steal	loan
nmn:			NEG—	
tra:	The three men, they didn't steal, (they) took a loan.			

8.5.–8.9. Negative Members of Shifter Classes, Negative Adposition, Negative Linker, Negative Tags, and Negative Derivational Processes

None. IPSL does not express negative shifters (''nobody, nothing''). Therefore, sentences are ambiguous between an interpretation involving a negative shifter and an interpretation involving sentential negation, for example:

8.23. Sign: A:NA: NAHI:N′.
mor: come NEG
tra: (a) (You/he/someone/they, etc.) didn't come.
(b) Nobody came.

8.24. Sign: MAIN′ DEKHNA: NAHI:N′.
mor: I see NEG
tra: (a) I don't/can't see.
(b) I see nothing.

8.10. Inherently Negative Lexemes

Some signs make use of a spatial metaphor equating ''up'' with ''positive'' and ''down'' with ''negative.'' This becomes particularly apparent in the case of sign pairs differing only in the direction of movement (e.g., ''pass'' and ''happy'' with an upward movement, ''fail'' and ''sad'' with a downward movement). Only a limited number of signs exploit this spatial metaphor, so this is not a productive morphological process. The signs concerned do not differ in any way morphologically and/or syntactically from other signs.

IPSL also has nonmanual elements that are inherently negative, in particular ''adverbial'' facial expressions meaning ''with difficulty'' and ''negative emphasis/doubt,'' as well as the nonnegative headshake mentioned in section 8.1.1. However, because these are suprasegmentals spreading over manual signs, they cannot be called lexemes.

8.11. Interrelationship of Negation with Other Systems

Negation is not compatible with existential HAI. All of the combinations of the existential sign HAI with any of the three manual negatives or with headshake negation are ungrammatical (examples

8.25–8.27). Instead, the neutral negation functions as a negative existential, or some dialects use a suppletive negative existential (cf. sections 8.1.2. and 7.1.3).

8.25. Sign:	⋆MAIN′	GHAR	TV	NAHI:N′	HAI.
mor:	I	house	TV	NEG	EXIST
8.26. Sign:	⋆MAIN′	GHAR	TV	HAI	NA:_NA:.
mor:	I	house	TV	EXIST	NEG_CONTR
nmn:			NEG----------		
8.27. Sign:	⋆MAIN′	GHAR	TV	HAI.	
mor:	I	house	TV	EXIST	
nmn:			NEG----------		
tra:	There is no TV in my home. I don't have a TV at home.				

Manual and nonmanual negation are equally incompatible with content questions, that is, there are no negative content questions (cf. section 9.2.4). Negative polar questions can occur without restriction with either manual or nonmanual negation.

9. Questions

9.1. Polar Questions

9.1.1. Marking of Polar Questions. IPSL has distinct nonmanual marking for polar questions (also known as yes/no questions) and for content questions (also known as wh-questions). Polar questions are signaled by nonmanual marking alone, corresponding to questions that are marked just by intonation in spoken languages. Marking for polar questions consists of the following features:

[eyes wide open
head leaning forward
eye contact with addressee]

Optionally, eyebrows may also be raised, and the shoulders or torso (in addition to the head) may be leaning forward. Eyebrow raise occurs particularly in echo questions ("Do you mean X?" "Did you say X?") to add emphasis. The last sign in the sentence is held longer than usual in its final position, that is, it receives an extra hold (indicated by a line --- following the sign on the sign transcription line).

9.1.2. Constituent Order and Scope of Nonmanual Marking in Polar Questions. The order of constituents in the sentence remains the same as in statements:

9.1. Sign: BA:P GA:R°I: HAI.
mor: father car EXIST
tra: (My) father has a car.

9.2. Sign: BA:P GAR°I: HAI--?
mor: father car EXIST
nmn: Q----------
tra: Does (your/his/their) father have a car?

The scope of the nonmanual signal (i.e., the manual signs it co-occurs with) is variable. It may extend over the whole clause (example 9.2), but the initial part of the clause is commonly outside the scope of the nonmanual signal. In this case, the initial sign(s) can be said to be topicalized (see section 11.2.2). The minimal scope of the nonmanual signal is the last sign in the sentence:

9.3. Sign: MA:N′ BA:P PAIDA:I$ DEAF--?
mor: mother father birth deaf
nmn: Q-----
tra: The mother, the father and the children—(are they all) deaf?

9.1.3. Negative Polar Questions. Negative polar questions can be formed by combining the nonmanual signal with nonmanual negation (headshake) and/or negative particles. Because negative particles are clause final, they always fall under the scope of the nonmanual marking for questions. The latter can be combined freely with headshake negation, and the scope of both markings can be realized independently of each other:

9.4. Sign: SAMAJH NAHI: N′--?
mor: understand NEG
nmn: Q----------
tra: Don't (you) understand?

9.5. Sign: I$A:RA: KACVA:--?
mor: sign turtle
nmn: Q----------
NEG------
tra: Don't (you know) the sign "turtle"?

9.2. Content Questions

9.2.1. Marking of Content Questions. Content questions are marked both nonmanually and by the interrogative sign KYA: (see figure 7). As in polar questions, the clause-final sign receives a prolonged hold. The nonmanual configuration for content questions is this:

[eyebrows raised
head tilted backward]

To the extent that the parts of this configuration are articulatorily independent of each other, they can sometimes be realized at different points in the clause, or some parts can be missing (this is also true of polar questions). The backward head tilt seems to be more closely associated with the interrogative sign than with the rest of the clause, so that sometimes eyebrow raise starts early in the clause, but the head tilt accompanies only the clause-final interrogative sign. In addition, a number of complexities depend, for example, on discourse rules for eye gaze direction or facial marking of adverbial functions. For instance, in example 9.6 there is no eyebrow raise because the clause is accompanied by an adverbial facial expression meaning "strenuous/with difficulty/problematic." Since this adverbial facial expression requires the eyebrows to be lowered, the raised eyebrow component of the content-question marking is overridden. It is a general principle in IPSL that adverbial facial expressions override grammatical facial expressions when there is a conflict.

9.6. Sign: PARE$A:N KYA:?
mor: problem INTERROG
nmn: "difficulty"-----
head back
tra: What is/are the problem(s)?

9.2.2. Content Question Words. The sign KYA: is the only content-question word in IPSL, covering the whole range of question words in other languages (*who, what, where, how,* etc.). It may appear by itself if the intended question is clear from the context, or it may be accompanied by various disambiguation devices. The default meaning (if there are no other clues) is "what." Sometimes a mouth pattern contributes to the meaning (e.g., *kaise* "how," *kyu:n′* "why," *kab* "when"). This is one of the few instances in IPSL where a mouth pattern may be crucial for understanding the intended meaning.

9.7. Sign:	BACCA:	NA:RA:Z′	KYA:--?
mor:	child	angry	INTERROG
nmn:			WH------
mth:			kyu:n′
tra:	Why is the child angry?		

Otherwise, KYA: may combine with a number of other signs to narrow down its meaning. Common combinations are the following:

"face" or "man" + KYA: = "who"
"day" or "time" + KYA: = "when"
"place" + KYA: = "where"
"count" + KYA: = "how many"

"Do what" can be rendered as "work + KYA:," "which" is expressed by a number of indexes in different directions followed by KYA:, and there is a tendency for KYA: to be two-handed when it means "how." Some evidence exists that conventional combinations with KYA: may be evolving toward compounds, but except for one possible instance ("day + KYA:") they are not compounds at the current stage.

Note that a difference between sentences such as "Who did John hit?" and "Who hit John?" cannot be expressed at the clause level in IPSL. They would both involve the sequence HIT MAN/FACE + KYA:. Instead, one must infer the semantic role of the questioned constituent from discourse, for example: "(Someone) is injured. John hit him. *Whom did (he) hit?"* vs. "John is injured. *Who hit (him)?"*

9.2.3. Constituent Order and Scope of Nonmanual Marking in Content Questions. The interrogative sign KYA: is a member of the class of functional particles (see section 2.4.1) and therefore obligatorily appears in clause-final position (either by itself or in combination with another sign), regardless of the position that a corresponding constituent would occupy in a statement, for example:

9.8. Sign:	MAIN′	UMR	**DO**	**PA:NC.**
mor:	I	age	two	five
tra:	I am 25 years old.			

9.9. Sign:	TUM	UMR	**KYA:**?
mor:	you	age	INTERROG
tra:	How old are you?		

9.10. Sign:	**KAL**	MAIN′	DILLI:	VAH	JA:NA:.
mor:	tomorrow	I	Delhi	IND	go
tra:	I am going to Delhi tomorrow.				

9.11. Sign:	TUM	DILLI:	VAH	JA:NA:	**DIN**	**KYA:**?
mor:	you	Delhi	IND	go	day	INTERROG
tra:	When are you going to Delhi?					

In rare instances KYA: may occur clause initially to introduce a causal clause (''because''). This is probably due to influence from the spoken language (causal conjunction *kyu:n′ke* ''because'' in Hindi/Urdu; cf. *kyu:n′* ''why''). KYA: is not used as a relative clause introducer. Observations about the scope of the nonmanual signal mentioned earlier for polar questions apply in the same way here.

9.2.4. Content Questions and Negation. Content questions are not compatible with negation (in sentences such as ''Why didn't you call me?'' ''Who is not coming?'' etc.). They cannot combine with negative signs because there is only one clause-final position into which either the interrogative or the negative particle can go, and they do not combine with headshake negation either. Because it is physically possible to combine the content-question facial expression with a headshake, the latter is a linguistic, rather than an articulatory, constraint. Consequently, negative content questions have to be split up into two clauses. For example, ''Why didn't you call me?'' is expressed as ''You didn't call me.

Why?'' The negative content question ''Who didn't come?'' could be expressed in a discourse such as ''Five persons came. One didn't come. Who was it?'' Similarly, multiple content questions (such as ''Who did what?'') cannot be expressed in a single clause.

9.3. Interrogative and Indefinite

Interrogative and indefinite functions are clearly formationally related. The interrogative sign in IPSL has a particular handshape whose distribution is highly restricted. Except in KYA:, it is used only in the discourse particle BAS (an end-of-utterance and hesitation marker; see section 11.1.1) and in the indefinite sign KOI: (see figure 26). This sign is similar in its semantics to KYA: in that it covers a whole range of indefinite meanings (some, something, someone, sometimes, etc.). It may be combined with disambiguating signs in a way similar to the combinations involving KYA: (see section 9.2.2), for example ''man'' + KOI: = ''someone,'' ''place'' + KOI: = ''somewhere''; it may be repeated, and a mouth pattern may be added for disambiguation (as in example 9.12, *kabhi:* ''sometime'').

9.12. Sign:	TUM	KOI:	KOI:	DEAF	DOST	MILNA:	DOST
mor:	you	INDEF	INDEF	deaf	friend	meet	friend
mth:		kabhi	kabhi				
Sign:	MULA:QA:T	HAI--?					
mor:	meeting	EXIST					
nmn:	Q----------						
tra:	As for your sometimes meeting deaf friends, are there any meetings?						

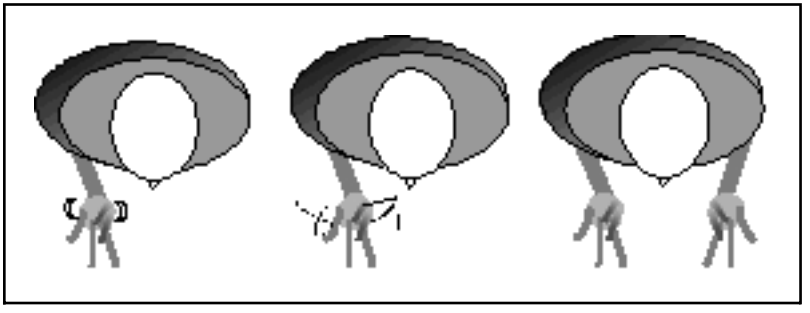

FIGURE 26. KYA:, KOI:, and BAS. Formationally related interrogative, indefinite, and discourse particle

9.13. Sign:	A:DMI:	KOI:	CALNA:.
mor:	man	INDEF	walk
tra:	Someone/some man was walking.		

10. Subordinate Clauses

10.1. Form of Subordinate Clauses

IPSL has only one type of subordinate clause, with a vague subordinating meaning covering the semantics of various subordinate-clause types found in other languages. Subordinate clauses are realized through a combination of facial expression, head posture, and rhythm. This pattern is subject to minor variations, but the most common realization is the following:

- The subordinate clause always precedes the main clause.
- The entire subordinate clause is characterized by wide-open eyes and raised eyebrows.
- There is a head nod (i.e., the head is lowered) on the last sign of the subordinate clause.
- The last sign of the subordinate clause is held longer, resulting in a pause at the clause boundary.
- After the pause the head is raised again, and facial expression returns to normal.

Some of these characteristics can be absent, in particular if there is a conflict between the nonmanual features of subordinate and other functions. For example, the expression of a diminutive may require the eyes to be narrowed, whereas subordination requires the eyes to be wide open. Conversely, the clause boundary may be marked by additional features such as eye blink or a change in body posture. If it is topicalized, the initial part of the subordinate clause may not fall under the scope of nonmanual subordination (cf. examples 10.3 and 10.5). Example 10.1 illustrates the most common subordination pattern (note that there are two subordinate clauses).

10.1. Sign:	MAIN′	AMI:R	|	PAIDA:I$	DEAF HAI	| MAIN′	MADAD
mor:	I	rich	|	born	deaf EXIST	| I	help
nmn:	subord-----		|		subord-----	|	
tra:	If someone is rich, and if he has a deaf child, he will help (other deaf people).						

Note that in IPSL it is common to use first person when making general statements, that is, one says "if I am rich" to mean "if someone is rich," for example.

10.2. Semantic Range of Subordinate Clauses

The construction described in section 10.1 has a general subordinating meaning that leaves open the kind of semantic relationship between the two clauses, so that the main clause is foregrounded and the subordinate clause is backgrounded without further semantic specification. Because the subordinating construction is vague with respect to its semantic content, distinct conditional clauses, temporal clauses, relative clauses, and so on of other languages, all translate into the same construction in IPSL. Often several translations are possible (cf. examples 10.4. and 10.5). The following examples illustrate the range of semantic relationships that can be expressed by the subordinating construction.

10.2. Sign:	IF	SUNNE_VA:LA:	MILNA:	BA:R_BA:R		
mor:	I★F	hearing	meet	again_and_again		
nmn:	subord----------					
Sign:	KARONA:M		VAH			
mor:	IMP	name	IND-forward.right			
tra:	*If* you meet a hearing person again and again, he should (get a sign) name.					

10.3. Sign:	PAR°HA:I:	SAMAJH	PA:S	A:GE	KOI.	
mor:	study	understand	success	further	try	
nmn:		subord----------				
tra:	His studies, *after* he had successfully completed them, he tried further.					

10.4. Sign:	DEAF	PU:RA:	SAMAJH + BAHUT	VAH	
mor:	deaf	all	understand + much	IND-up.front	
nmn:		subord----------			
Sign:	SAMAJH	MAIN′	BA:T.		
mor:	understand	I	talk		
tra:	(a) I can understand and talk to all of *those* deaf (persons) *who* are intelligent.				

(b) *If* all of the deaf (persons) are intelligent, I can understand and talk to them.

10.5. Sign:	ABHI:	YU:SUF	SA:TH	|	VAQT	KAM_HONA:	HAI.
mor:	now	Yousuf	together	|	time	lessen	EXIST
nmn			subord---|				

tra: (a) *Now that* I am together with Yousuf, I have less time.
(b) I have less time *because* I am together with Yousuf now.

11. Discourse Organization

Discourse in IPSL is structured by a number of both manual and nonmanual discourse markers. Similarly, interactions between signer and addressee are regulated by discourse markers. Section 11.1 provides a list (probably not exhaustive) of text-structuring discourse markers commonly used in IPSL.

IPSL is a highly context-dependent language. Ellipsis is pervasive, and grammatical structures are often vague in meaning (cf. subordination in section 10, possession in section 7, and content questions in section 9.2). On the other hand, geometrical shapes and spatial relationships of entities are often expressed very precisely, and space is crucial to the organization of discourse as a whole (see section 11.3 on the role of space in discourse).

IPSL has several topicalization devices (see section 11.2) and formally distinguishes between contrastive and noncontrastive topics.

11.1. Text-Structuring Discourse Markers

11.1.1. Manual Discourse Markers. BAS (see figure 26 in section 9.3): The handshape of BAS (the same as in the interrogative and indefinite signs) points to an interrogative/indefinite-meaning component that is present in both main uses: (a) as a clause-final particle signaling the end of utterances (''That's all. What else can I say?'') and (b) as a clause-initial hesitation marker (''Well, what should I say?'').

AUR_AUR (see figure 27): Hesitation marker filling a pause during which the signer wants to hold the floor but is thinking about what to say next (''Just a moment, I have to think, but it's still my turn to talk.''). In enumerations AUR_AUR is oriented forward in the text (''I

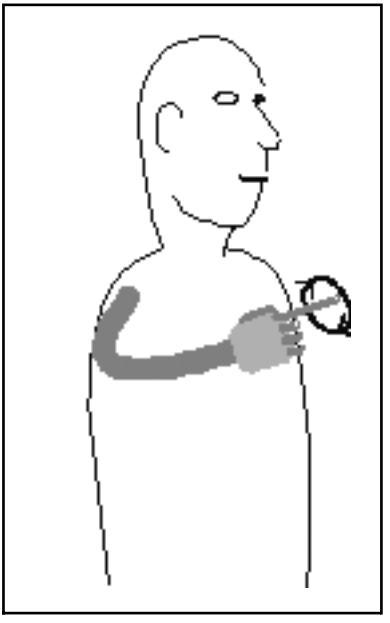

FIGURE 27. AUR_AUR

am going to mention more items''), whereas BAS is oriented backward, as if the signer wanted to end the list after each item.

BA:D (see figure 28): This sign marks the beginning of a new paragraph in a text (''and next . . .''). It also has a temporal meaning, ''then,'' which is probably the source of its meaning as a discourse particle.

11.1.2. Nonmanual Discourse Markers. Clause-final head nod: This occurs after or together with the last manual sign in the clause and is used for affirmative purposes. It corresponds more or less to emphatic intonation in a spoken language and can often be adequately represented by an exclamation mark in a written translation.

Head nod in enumerations: In enumerations each item of the list may be accompanied by a simple accentuated head nod that creates an intonation break between them. This corresponds to a coordination marker such as ''and'' (IPSL has no lexical sign for ''and'').

11.2. Topicalization. IPSL has two topicalization strategies: nonmanual marking of the topic and indirect topic marking depending on the scope of other facial expressions.

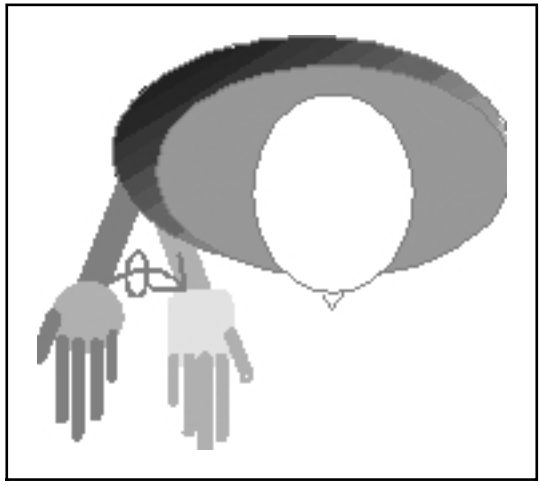

Figure 28. ba:d

11.2.1. Nonmanual Topic Marking. Topics can be marked by accompanying the topicalized sign(s) with a particular facial expression. This mainly involves raised eyebrows. Additionally, the topicalized constituent can be set off from the rest of the sentence by a prolonged hold, by a change in head position, or by eye blink. The topicalized constituent appears at the beginning of the clause.

11.1. Sign:	ABHI:	AURAT	ALAG	A:DMI:	ALAG	KYA:?
mor:	now	woman	separate	man	separate	INTERROG
nmn:	t----					wh------
tra:	As for now, why are boys and girls separate now?					

Nonmanual topic marking is used for contrastive topics. In example 11.1 the present situation ("now") is contrasted with the earlier situation and is therefore marked nonmanually.

11.2.2. Indirect Topic Marking. Many clauses in IPSL discourse are accompanied by one of the grammatical or adverbial facial expressions (see sections 8, 9, and 10), which are identical with respect to their scope behavior in clauses with topics. They may extend over the whole clause, but the initial part of the clause may be outside their scope. All of the signs at the beginning of a clause that do not fall under the scope of a facial expression can be said to be topicalized. The extent of topicalization can be varied freely, from just one sign

to almost the whole clause (see examples 11.2 and 11.3). Clauses can have double topicalization, with both nonmanual and indirect topic marking. In these cases, nonmanual topic marking precedes indirect topic marking (see example 11.4).

11.2. Sign:	KHA:NA:	PARE$A:N	NA:_NA:.
mor:	eat	worry	NEG_CONTR
nmn:		NEG----------	
tra:	As for earning a living, they don't need to worry.		

11.3. Sign:	A:DMI:	AURAT	I$A:RA:	BA:T	HA:TH	KAM	ALAG--?
mor:	man	woman	sign	talk	hand	little	separate
nmn:							Q-------
tra:	As for men and women talking in sign with their hands, is that a bit different (from each other)?						

11.4. Sign:	HA:DSA:	PA:ON′	T°U:T°NA:DEKHNA:		THOR°A:	
mor:	accident	foot	break	see	little_bit	
nmn:	T-------				NEG-----	
Sign:	NAHI:N′.					
mor:	NEG					
nmn:	NEG-----					
tra:	As for an accident (for example), to see someone break his foot, that was not the case (for me) at all.					

11.3. The Role of Space in Discourse

11.3.1. Localization. Space not only plays an important role in syntax but also organizes discourses as a whole. The sign space can be thought of as a kind of "stage" where a signer "enacts" scenes for an audience. Therefore, localization of referents is not random but can contribute significantly to discourse meaning. For example, to contrast two objects, persons, situations, or reference times, signers often localize these opposite each other in the right and the left half of the sign space. On the other hand, when people are conceived of as a group, they tend to be localized at the same location in space. Such spatial arrangements can be held constant over entire discourses.

11.3.2. Geometrical Shapes. IPSL has a large set of signs denoting all kinds of geometrical shapes (e.g., line, circle, pipe, square, surface).

These can be productively modified to describe complex spatial arrangements. Discourses often start with outlining the situation in terms of the geometrical properties of the objects involved. For example, a signer might start by saying something such as "I am walking on a street ("horizontal surface" extending away from the body) with electricity lines running across" ("lines" signed at head level from right to left) or "I am shooting at a target (SQUARE SHAPE with two ROUND SHAPES inside it)." The actual objects are often not mentioned but are understood from the context, especially if there is no conventional lexical sign for an object. Different geometrical signs can describe one and the same object or situation, depending on how it is construed.

11.4. Perspective in Discourse

Sign languages work in a "cinematic" way in that the signer can adopt various perspectives in the course of a text. Spatial arrangements as described in the preceding section on geometrical shapes can be constructed from a bird's-eye view or from the point of view of a person involved in the situation. When several people (or sometimes animals) figure in a text, in particular a narrative text, the signer typically takes the role of one of the participants, telling the story from a first-person perspective. For example, rather than saying "The father is reading the newspaper, and the son shoots him with a water pistol," a signer may say "*I* am reading the newspaper, and *my* son shoots *me* with a water pistol." Another common pattern is that the signer first talks about each person individually without taking a particular perspective, but as soon as there is an interaction between them, the signer assumes the role of one of them.

Typically the signer adopts the perspective of the more "agentive" participant (i.e., an experiencer or an agent). This has important consequences for other parts of IPSL grammar. For example, the fact that indirect speech does not exist is due to the fact that signers always take the perspective of the person saying something since this person is more agentive than the addressee in the interaction. Moreover, transitive directional predicates almost always move either toward or away from the body because the signer is usually identical with one of the participants in the interaction. Therefore, multidirectional transitive predicates hardly ever occur.

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Transcription Conventions

A multiline transcription is used to represent signed sentences and texts. The lines are labeled "sign," "mor," "nmn," "mth," and "tra."

In the uppermost sign line Hindi/Urdu (sometimes English) words whose meanings come closest to the meaning of the corresponding sign are printed in small capital letters. The words are not intended to be translations or glosses but stand for the signs as a whole. This format is also used to talk about individual signs in the body of the text. When more than one word is needed to express the meaning of a single sign, the words are joined by a line, for example, PAHLA:_YA:_DU:SRA: "one_or_the_other." Parts of compounds are joined by a plus sign (+).

The "mor" line presents a morphological analysis of the signs. All of the morphological modifications of the signs are glossed here. Note that English words used in the glosses on this line are usually to be understood in terms of their several derivations that together come close to the overall meaning of the sign; for example, a sign glossed "die" can mean "die," "dead," and "death"; a sign glossed "marry" can mean "marry," "marriage," and "married," as well as "spouse." Table 1 lists the abbreviations used on the "mor" line.

The "nmn" line indicates nonmanual phenomena such as head position and facial expressions. This line may consist of several sublines because several nonmanual activities can occur at the same time. The scope of nonmanual markers is indicated by the length of a line following the transcription symbol (e.g., NEG-------). Table 2 lists the abbreviations used on the "nmn" line.

The "mth" line codes mouth patterns (i.e., movements of the mouth imitating the articulation of words from the spoken language). They are noted only when they are of particular relevance.

The "tra" line provides English translations of the signed sentences. Words in brackets are additions that are not explicitly expressed in the signed text but have been included in order to make the translation more readable.

Table 1. Abbreviations Used on the "Mor" Line

1	first person; body center location
DIST	distributive derivation
END	end-of-utterance discourse marker
EXIST	existential particle
IMP	imperative particle
IND	index
INDEF	indefinite
INTERROG	interrogative particle
NEG	neutral negative particle
NEG_CONTR	contrastive negative particle
NEG_IMP	negative imperative particle
PL	plural
PRON.EMPH	emphatic pronoun(e.g.)
P	"Pakistan"; fingerspelled first letter of a word
(e.g.) I★F	"if"; fingerspelled word
(e.g.) -right	sign positioned at or moving toward a particular location in space
(e.g.) -1-right	directional movement between two locations (e.g., center to right)

Table 2. Abbreviations Used on the "Nmn" Line

NEG	negative headshake
Q	polar question
subord	subordinating facial expression
T	topic marking
WH	content question
(e.g.) "difficulty"	adverbial facial expression

Graphics

The pictures are mostly self-explanatory, with arrows indicating the various movement patterns. A star indicates contact with a body part or contact of the hands with each other. A curved arrow with a circle around it indicates a twist of the wrist in the direction of the arrow. When the hands are shown in two or more subsequent positions, the darker coloring represents the initial position and lighter coloring, the final position.