Wh-movement and wh-split in Indo-Pakistani Sign Language

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1 Introduction[1]

→ Indo-Pakistani Sign Language (IPSL) is a visual-gestural language that conveys linguistic meaning by means of hand movements, facial expressions, and head and body positions.

→ Despite the fact that the Indian subcontinent covers a vast area and includes hundreds of spoken languages from different language families, previous research has indicated that there is only one sign language (SL) used in various regions of India and across the border in regions of Pakistan (Vasishta et al. 1978; Woodward 1993; Zeshan 2000).

→ Different dialects of IPSL are used in deaf communities in urban centres of parts of the Indian subcontinent (Jepson 1991; Vasishta et al. 1978; Zeshan in press a, in prep.); cf. figure 1 for the extension of the geographic area as documented to date.

Figure 1: Geographic extension of IPSL

→ All IPSL dialects have the same grammar but lexical variation may be considerable.

→ There is no reliable information about when and how IPSL originated. IPSL is not known to be genetically related to any other sign language.

→ The deaf community in India and Pakistan is primarily a linguistic and cultural rather than an ethnic community. Focal points are the deaf schools and deaf associations.

→ IPSL is not an officially recognized language in any part of the Indian subcontinent. The use of IPSL, in particular in the educational system, is still widely stigmatized.

2 Manual and non-manual marking of wh-questions

→ While some SLs have a minimal question word paradigm with only few wh-signs which can be combined with other non-interrogative signs to express specific question words (e.g. IPSL), other SLs have a fairly large paradigm of question words (e.g. German SL); cf. Zeshan (in press b).

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→ SLs may differ from each other w.r.t. the syntactic position of the wh-sign, the most common positions being clause-initial, clause-final, or both of these (i.e. doubling of wh-sign). It is common for a SL to make use of more than one of these options.
→ For some SLs, it has been reported that the wh-sign may also remain in situ (e.g. ASL).
→ Non-manual activities (facial expressions, head and body movements) are an integral part of SL grammar; on a syntactic level, they serve to distinguish clause types such as questions, negatives, topicalizations, and conditionals.
→ Non-manual marking in SLs serves a similar function as intonation in spoken languages: both are suprasegmental and allow for spreading over a variable number of words/signs in the clause (Sandler 1999, Wilbur 2000, Pfau 2002).
→ Notational conventions: Whenever the phonology of the signed string is not of importance, signs are glossed using capital letters. Nonmanual information is notated above the glosses, the line indicating the scope of the nonmanual marker (wh-marking in ASL: furrowed brows, squinted eyes, and head tilt).

(1) *Notation of signed (ASL) utterance*

a. JOHN LIPREAD YESTERDAY WHO (wh)
'Who did the teacher lipread yesterday?'

b. WHO LIKE NANCY WHO (wh)
'Who likes Nancy?'

3 Wh-movement in ASL – leftward or rightward?

→ ASL is underlyingly SVO (Liddell 1980, Padden 1988). There is consensus in the literature (Lillo-Martin & Petronio 1997, Neidle et al. 1997, 2000) that wh-signs may appear in situ, sentence-finally, or doubled; in (2), this is only shown for a wh-object.

(2) *Object wh-questions in ASL (Petronio & Lillo-Martin 1997:26f, 37)*

a. JOHN BUY BOOK YESTERDAY
'Yesterday John bought a book.'

b. JOHN BUY **WHAT** YESTERDAY (wh) (in situ)
'What did John buy yesterday?'

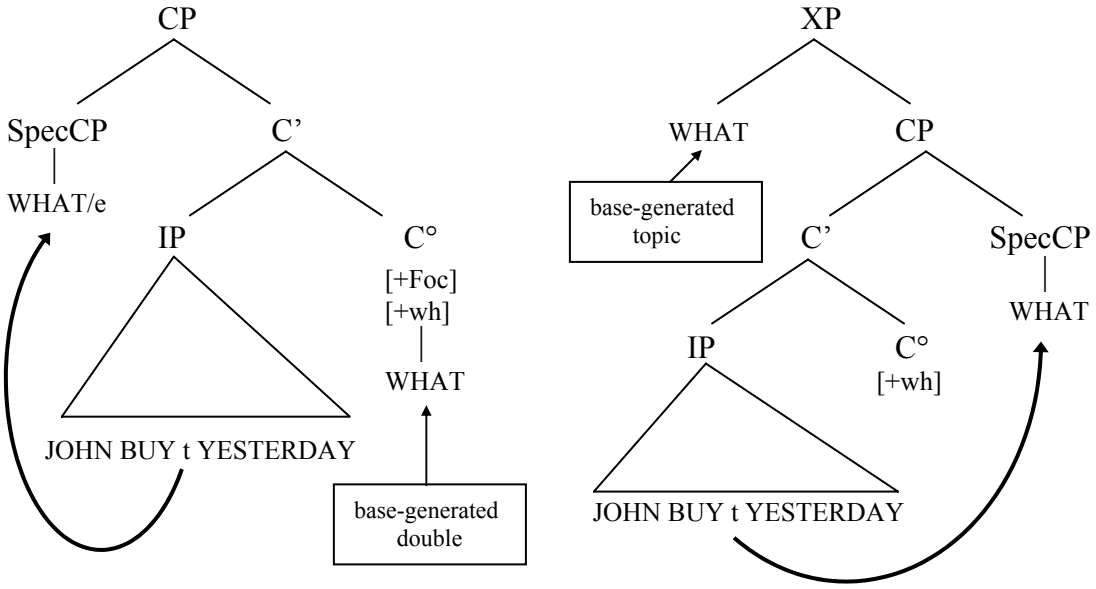
c. JOHN BUY YESTERDAY **WHAT** (wh) (sentence-final)

d. **WHAT** JOHN BUY YESTERDAY **WHAT** (wh) (doubled)

→ Leftward analysis (LA: Lillo-Martin 1990; Petronio 1993; Petronio & Lillo-Martin 1997): proponents claim that SpecCP and wh-movement is leftward universally; in sentences such as (2c), a null wh-element (*e*) has been moved to SpecCP; the final wh-element in (2d) is a base-generated double occupying the head of CP (cf. the structure in (3a)).
→ Rightward analysis (RA: Aarons et al. 1992; Neidle et al. 1997, 1998, 2000): proponents claim that the ASL data show that SpecCP and wh-movement is not leftward universally;

in ASL, SpecCP is on the right; the initial wh-element in sentences such as (2d) is a base-generated topic (cf. the structure in (3b)).

(3) a. *Leftward analysis (LA)* b. *Rightward analysis (RA)*



→ With respect to some wh-constructions, there is disagreement in the literature:

1. According to the LA, (4a) with sentence-initial wh-object is grammatical, according to the RA it is ungrammatical (Lillo-Martin 1990:214 vs. Neidle et al. 2000:110).
2. The RA predicts (4b) with wh-object in situ and sentence-finally to be ungrammatical; it also predicts (4c) with wh-object in situ and sentence-initially to be grammatical (Neidle et al. 1997:261); the LA does not discuss such examples.
3. The RA claims that complex wh-phrases may appear sentence-finally (4d), since SpecCP may host phrases; according to the LA this is impossible, since C° may not host phrases (Neidle et al. 2000:136 vs. Petronio & Lillo-Martin 1997:37)

(4) *Some disputed constructions*

wh
a. ? **WHO** JOHN LOVE (initial wh-object)
'Who does John love?'

wh
b. * JOHN BUY **WHAT** YESTERDAY **WHAT** (in situ & final)
'What did John buy yesterday?'

wh
c. **WHO** JOHN SEE **WHO** YESTERDAY (in situ & initial)
'Who, who did John see yesterday?'

wh
d. ? BREAK-DOWN [**WHO (POSS) CAR**] (final wh-phrase)
'Whose car broke down?'

→ Basically, the debate about wh-movement in ASL is due to the fact that wh-signs may in fact appear in sentence-initial and/or sentence-final position.
→ While we don't wish to make any claims about the direction of wh-movement in ASL, we take the IPSL-data to be presented below to make an even stronger argument in favour of rightward movement of wh-elements.

4 Wh-questions in IPSL

4.1 Constituent order in IPSL

→ The order of arguments in IPSL is fairly free and is based on pragmatic factors. The verb sign, however, always appears sentence-finally (5a-c). Since IPSL does not have a copula verb, this also holds for adjectival (5d) and nominal (5e) predicates.

(5) *IPSL sentences are predicate-final (Zeshan 2003)*

a. A:DMI: KOI: CALNA:
man INDEF walk
'Someone/some man is walking.'

b. SEB BACCA: KHANA:
apple child eat
'A child is eating an apple.'

c. KAL MAIN' DILLI: VAH$_3$ JA:NA:
tomorrow I Delhi INDEX go
'I am going to Delhi tomorrow.'

d. AURAT AFSOS
woman sad
'The woman is sad.'

e. AURAT VAH$_3$ NAUKAR
woman INDEX servant
'That woman is a servant.'

→ There are very few signs that may follow the predicate in IPSL; amongst these are the manual negation marker NAHI:N' (6a), the completive marker HO_GAYA: (6b), and wh-signs (cf. below).

(6) *Sentence-final negation and aspect marker (Zeshan 2000:114)*

a. DEAF VAH$_3$ SAMAJH **NAHI:N'**
hs
deaf INDEX understand NEG
'(Only) the deaf people don't know about it.'

b. KAL PITA: MARNA: **HO_GAYA:**
yesterday father die COMPL
'Yesterday (my) father died.'

4.2 Position of wh-signs in the clause

→ Wh-questions in IPSL are marked by raised eyebrows and a backward head position with the chin raised (see figure 2).

→ As mentioned above, IPSL has a minimal wh-sign paradigm. In fact, there are only two non-compositional wh-signs, namely the general wh-sign KYA: (see figure 2) and – in most Indian dialects – the sign KAB 'what day' (see figure 3).

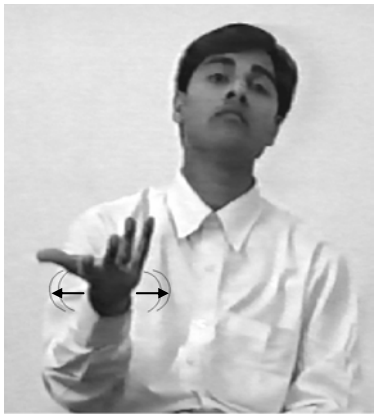


Figure 2: General wh-sign KYA:

Figure 3: KAB 'what day'

→ As is shown by the examples in (7), the sign KYA: covers the whole range of question words in other languages. In order to express more specific meaning, KYA: may combine with other non-interrogative signs (cf. section 4.3.). 'What', 'Why', and 'How', however, are only covered by the general wh-sign KYA: alone.

(7) *Use of the general wh-sign KYA: (Zeshan 2003:201f, in prep.)*

a. BACCA: NA:RA:Z' **KYA:** (wh)
child angry WH
'Why is the child angry?'

b. TUM UMR **KYA:** (wh)
you age WH
'What's your age?'

c. VAH_3 A:NA: **KYA:** (wh)
INDEX come WH
'Who is coming?'

d. TUM JA:NA: **KYA:** (wh)
you go WH
'Where are you going?'

→ A striking contrast to the ASL data presented above is that KYA: can only appear in sentence-final position (8b); that is, it may not remain in situ (8c), appear in sentence-initial position (8d) or be doubled (8e-g). Below this is only shown for the direct object.

(8) *Position of the general wh-sign KYA:*

a. KAL PITA: DOST MILNA:
tomorrow father friend meet
'Tomorrow (my) father will meet a friend.'

b. KAL PITA: MILNA **KYA:** (sentence-final)
tomorrow father meet WH
'Who will (my) father meet tomorrow?'

c. * KAL PITA: **KYA:** MILNA: (in situ)

d. * **KYA:** KAL BA:P MILNA: (sentence-intial)

e. * KAL PITA: **KYA:** MILNA: **KYA:** (in situ & final)

f. * **KYA:** KAL PITA: **KYA:** MILNA: (in situ & initial)

g. * **KYA:** KAL PITA: MILNA: **KYA:** (initial & final)

4.3 Complex wh-signs and wh-split

→ To express specific wh-words, IPSL signers may use composite expressions which consist of a combination of KYA: with a non-interrogative sign; common combinations are $AKAL ('face') + KYA: 'Who', JAGA: ('place') + KYA: 'Where' (figure 4), VAQT ('time') + KYA: 'When' (figure 5), and NAMBAR ('number') + KYA: 'How many'.

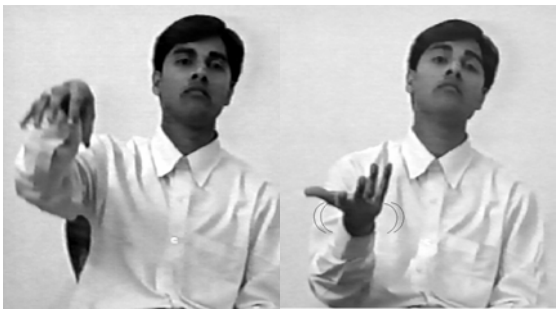


Figure 4: JAGA: KYA: 'where'

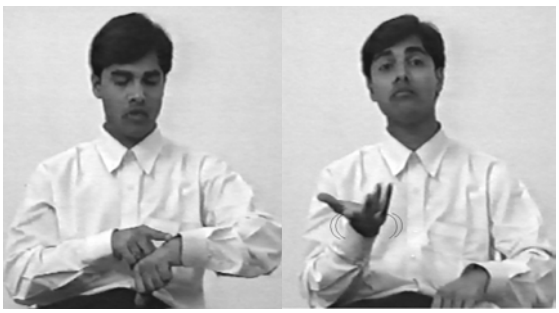


Figure 5: VAQT KYA: 'when, what time'

(9) *Questions involving complex wh-signs*

a. TUM GHAR [**JAGA: KYA:**]
you house place WH
'Where is your house?'
(= 'Where do you live?')

b. t_i SEB KHANA: [**$AKAL KYA:**]$_i$
t apple eat face WH
'Who has eaten the apple?'

c. KITA:B t_i LENA: [**NAMBAR KYA:**]$_i$
book t take number WH
'How many books will you take?'

d. t_i TUM DILLI: VAH JA:NA: [**DIN KYA:**]$_i$
t you Delhi INDEX go day WH
'When are you going to Delhi?'

→ At present, the IPSL composite interrogatives do not show any sign of evolving into compounds (except for DIN+KYA: 'when' in some dialects). The two parts of the composite interrogatives are always clearly separate signs, i.e. no phonological reduction or assimilation is observed (Zeshan 2003:201).

→ Interestingly, while the wh-sign KYA: may never remain in situ (10d), the other component of complex wh-signs may be stranded in its base position, i.e. we observe wh-split, as exemplifed by the examples in (10c) and (10g). We take this to be further evidence for the assumption that composite interrogatives are phrasal and not compounds.

(10) *Questions involving wh-split*

a. VAH_3 USTA:D PU:CHNA:
s/he teacher ask

b. VAH_3 t_i PU:CHNA: **[$AKAL KYA:**]$_i$
s/he t ask face WH

'S/he asks the teacher.' 'Who did s/he ask?'

c. VAH$_3$ [**$AKAL** t$_i$] PU:CHNA: **KYA:$_i$**
s/he face t ask WH

d. * VAH$_3$ [**$AKAL KYA:**] PU:CHNA:
s/he face WH ask

e. VAH$_3$ KITA:B TI:N LENA:
s/he book three take
'S/he took three books.'

f. VAH$_3$ t$_i$ LENA: [**KITA:B NAMBAR KYA:**]$_i$
INDEX t take book number WH
'How many boks did s/he take?'

g. VAH$_3$ KITA:B [**NAMBAR** t$_i$] LENA: **KYA:$_i$**
INDEX book number t take WH

h. VAH$_3$ [KITA:B t$_i$] LENA: [**NAMBAR KYA:**]$_i$
INDEX book t take number WH

→ Note that with the quantificational term NAMBAR KYA: 'how many', wh-NP-split is also possible (10h); cf. Boster (1996) for discussion of similar constructions in ASL in which HOW-MANY appears in sentence-initial position without the NP it modifies.

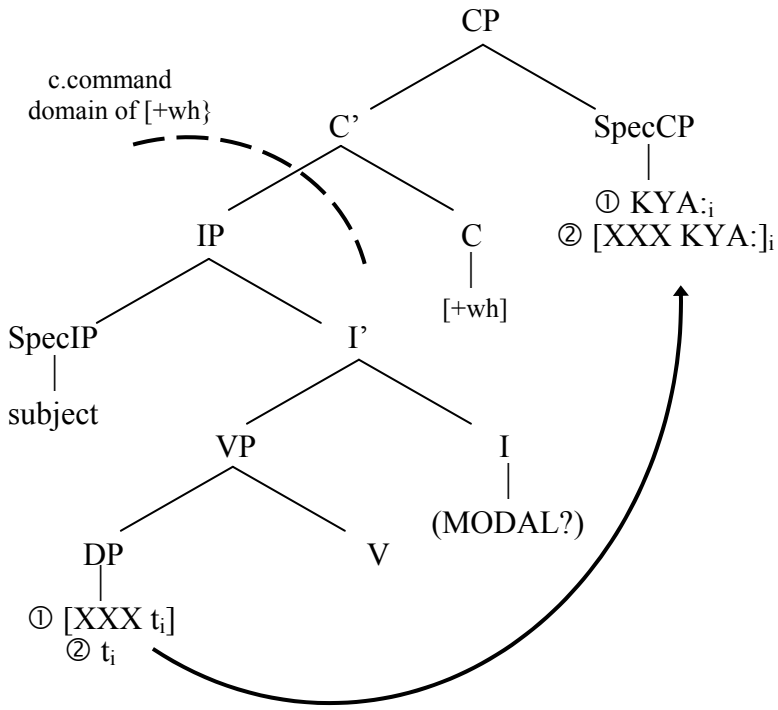
→ Note: No other SL is known to have such an extensive paradigm of compositional interrogatives and no other SL is known to allow only clause-final placement of wh-signs.

4.4. Analysis

→ We take the IPSL data presented above to be a serious challenge to the assumption that SpecCP, the landing site of wh-movement, is universally on the left.

→ Instead, we propose that the IPSL wh-sign KYA: is always moved rightwards to SpecCP. In case there is a composite interrogative ([XXX KYA:] in (11) below), KYA: may either be extracted (①) or the whole complex moves to SpecCP (②).

(11) *Syntactic structure for wh-questions*



→ Following Neidle et al. (2000), we assume that non-manual wh-marking is associated with the [+wh]-feature in C. Since in IPSL, the wh-sign always moves to SpecCP, the wh-marking associated with [+wh] always has manual material to be articulated with.

→ Consequently, and as illustrated by (7abc), it is possible for the wh-marking to occur over the wh-sign only (or the composite wh-expression, respectively).

→ Optionally, however, the wh-marking may spread. When spreading occurs it has to target the entire c-command domain of C, i.e. it may not spread over part of the material contained under IP only; the same is true in ASL, as is illustrated in (12).

(12) *Optional spreading of wh-marking in ASL (Neidle et al. 2000:111ff)*

a. TEACHER LIPREAD t_i YESTERDAY WHO$_i$ (wh)
'Who did the teacher lipread yesterday?'

b. TEACHER LIPREAD t_i YESTERDAY WHO$_i$ (wh)

→ However, the initial part of a clause may be outside the scope of the nonmanual marking when the respective constituent has been topicalized to a position above SpecCP, i.e. to a position outside of the the c-command domain of C. Zeshan (2003:199) points out that this is commonly the case in IPSL. See (13) for examples from IPSL and ASL.

(13) *Spreading domain in IPSL and ASL (Zeshan 2003:116; Neidle et al. 1997:268)*

a. A:DMI: VA:PAS_A:NA: KYA: (wh)
man *return* *WH*
'Why did the man come back?'

t wh

b. JOHN$_i$, YOU SEE t_i WHERE
'John, where did you see (him)?'

→ Summary: The fact that wh-elements in IPSL always appear sentence-finally is best captured by the assumption of rightward movement of such constituents.
→ The fact that phrasal wh-constituents also commonly appear in final position, supports our claim that the landing site is SpecCP (and not C, as has been claimed for ASL by Petronio & Lillo-Martin 1997).
→ Finally, the distribution of nonmanual marking (optional spreading) is further evidence for the proposed syntactic structure.
→ Note that, in principle, the above IPSL data could also be accounted for in Kaynes's (1994) antisymmetry model when we assume that first, the wh-sign moves leftwards to SpecCP followed by IP (remnant) movement to a specifier position above CP. Besides the problematic status of remnant movement, however, such an account cannot explain the observed non-manual patterns without further stipulation.

5 Negated wh-questions

→ Negative sentences in IPSL are marked by the sentence-final manual negation sign NAHI:N' (figure 6) in combination with a non-manual marker, viz. a side-to-side headshake (hs) (14ab); the manual element is optional, as is illustrated in (14c).

(14) *Negative sentences in IPSL (Zeshan 2000:114, 2003:192)*

a. MAIN' KA:M NAHI:N' (hs)
I work NEG
'As for me, I am not working.'

b. DEAF VAH$_3$ SAMAJH NAHI:N' (hs)
deaf INDEX understand NEG
'(Only) the deaf don't know about it.'

c. PA:KISTA:N INTIZA:M SAMAJH (hs)
Pakistan organize understand
'The Pakistanis don't know how to organize.'

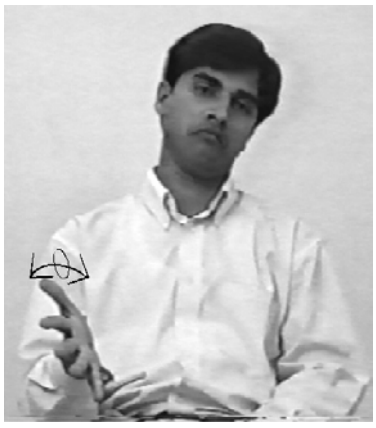


Figure 6: Manual negation sign NAHI:N'

→ As with wh-marking, we assume that the nonmanual is associated with a feature residing in a functional head, namely Neg°. When NAHI:N' is present, the headshake can be coarticulated with it (14a); in this case, spreading is optional. As with wh-marking, clause-initial constituents are often outside the c-command domain of Neg° (14b).

→ Negated wh-questions in IPSL are particularly intriguing. Zeshan (2003:202) points out that wh-questions are not compatible with negation and that negative wh-questions have to be split up into two clauses.

→ In particular, while the Neg sign NAHI:N' and the wh-sign KYA: may appear adjacent to each other (with or without a prosodic pause separating them), as in (15a), the two non-manual markings may not cooccur; cf. (15bc).

(15) *Negated wh-questons in IPSL*

a. A:DMI: SAMAJH NAHI:N' KYA:
hs wh
man understand NEG WH
'What doesn't the man understand?'

b. * A:DMI: SAMAJH NAHI:N' KYA:
wh
hs
man understand NEG WH

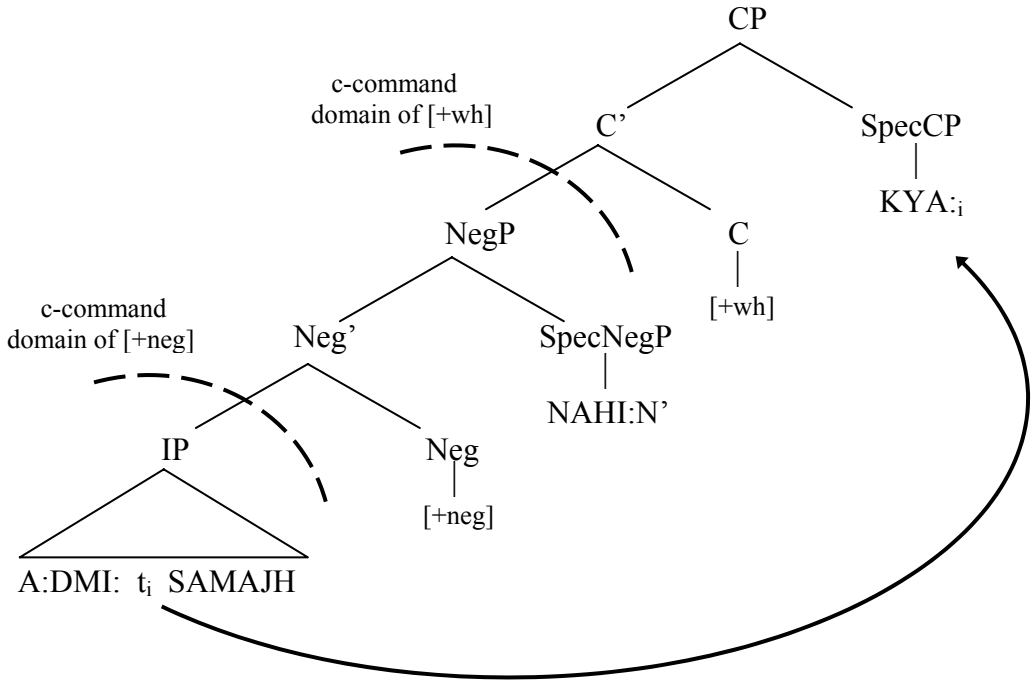
c. * A:DMI: SAMAJH NAHI:N' KYA:
wh
hs
man understand NEG WH

d. * A:DMI: SAMAJH KYA: NAHI:N'
man understand WH NEG

→ When the negative sign NAHI:N' and the wh-sign KYA: cooccur in one utterance, KYA: follows NAHI:N', as predicted given that NegP always stands below CP; consequently, (15d) is ungrammatical (irrespective of non-manual marking).

→ In (16) you will find a (putative) syntactic structure for negated wh-questions in IPSL. Note that we assume that SpecNegP is also on the right (cf. Pfau 2002, Pfau & Quer 2003, and Quer 2002 for similar assumptions w.r.t. German SL and Catalan SL).

(16) *Syntactic structure for negated wh-questions*



→ On the basis of this structure, it is predicted that the negative headshake cannot cooccur with the wh-sign, since the wh-sign KYA: is not within the c-command domain of Neg. That this is in fact the case, has been illustrated in (15b).

→ What is surprising, however, is that the wh-marking – contrary to what has been observed in affirmative wh-questions (13a) – cannot spread over the c-command domain of C, as is illustrated by the ungrammaticality of (15c).

→ Note that in general, non-manual markings in SLs can be layered, i.e. they can be simultaneously combined (Wilbur 2000; Smith 2003). This also holds for other combinations of nonmanual markers in IPSL; yes/no-questions, e.g., are readily negated.

→ At present, we can only speculate about the nature of the relevant constraint. Zeshan (2000, 2003) assumes that the two manual signs NAHI:N' and KYA: cannot be combined in one clause, since they occupy the same clause-final position; i.e. even without a prosodic pause separating the two signs, (15a) has to be analyzed as bi-clausal.

→ Alternatively, one might assume that the structure in (16) is correct – at least for the cases without a prosodic pause – and that the cooccurence constraint is phonetic in nature.

→ Note that wh-marking involves raising of the chin (cf. figure 2) and that this may conflict with the side-to-side headshake associated with Neg-marking (see Smith (2003) for a similar observation in Sign Language of the Netherlands).

6 Conclusion

→ IPSL has a minimal question word paradigm: there is only one general wh-sign, the sign KYA:. This sign, however, may combine with other non-interrogative signs to yield more specific meanings.

→ In contrast to ASL (and many other sign languages), in IPSL there is only one surface position for the wh-sign KYA:, viz. a sentence-final position.

→ Wh-questions in IPSL are a challenge to the assumption that SpecCP, the landing site of wh-movement, is to the left universally. We have argued that the IPSL data can be accounted for in a straightforward way when we assume that wh-movement proceeds rightwards in this language.

→ The analysis we propose is further supported by the existence of wh-split-constructions (in which a composite interrogative is split up) and by the patterns of non-manual marking (spreading).

→ Intriguing constraints on the coocuurence of non-manual markers are observed in negated wh-questions. The exact nature of these constraints is as yet unknown and we leave this issue for further research.

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