When a *wh*-word is not a *wh*-word: The case of Indian Sign Language

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1. Introduction[1]

→ Indian Sign Language (IndSL) 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, previous research has indicated that there is only one SL used in various regions of India and across the border in regions of Pakistan (Vasishta et al. 1978; Woodward 1993; Zeshan 2000).

→ Possibly, the same SL is also used in other parts of the subcontinent, for instance, in Nepal, Bangladesh, or Sri Lanka (Woodward 1993).

→ Different dialects of IndSL are used in deaf communities in urban centers of parts of the Indian subcontinent (Jepson 1991; Vasishta et al. 1978; Zeshan 2005, in prep.); cf. figure 1 for the extension of the geographic area as documented to date.

Figure 1: Geographic extension of IndSL

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

→ There is no reliable information about when and how IndSL originated. IndSL 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.

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

2. Wh-questions across sign languages

2.1. 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. IndSL), other SLs have a fairly large paradigm of question words (e.g. German SL); cf. Zeshan (2004).

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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
→ See Dubuisson et al. (1994) and Bouchard & Dubuisson (1995) for Quebec SL, Coerts (1992) and Van Gijn (2004) for SL of the Netherlands, Cecchetto & Zucchi (2004) for Italian SL, and Šarac et al. (in press) for Austrian and Croatian SL.
→ 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).

2.2. Wh-movement in American Sign Language

→ ASL is underlyingly SVO (Liddell 1980; Padden 1988). There is consensus in the literature (Petronio & Lillo-Martin 1997; Neidle et al. 1997, 2000) that wh-signs may appear in situ, sentence-finally, or doubled; in (1), this is only shown for a wh-object (Petronio & Lillo-Martin 1997:26f, 37).[2]

(1) a. JOHN BUY BOOK YESTERDAY
'Yesterday John bought a book.'

b. JOHN BUY **WHAT** YESTERDAY [in situ]
'What did John buy yesterday?'

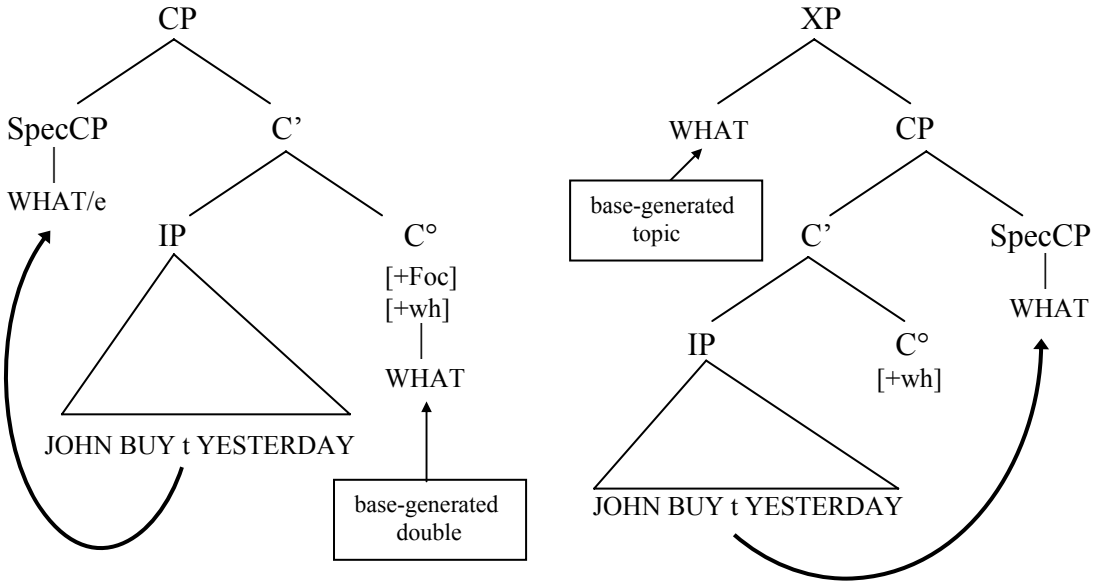
c. JOHN BUY YESTERDAY **WHAT** [sentence-final]

d. **WHAT** JOHN BUY YESTERDAY **WHAT** [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 (1c), a null wh-element (*e*) has been moved to SpecCP; the final wh-element in (1d) is a base-generated double occupying the head of CP (cf. the structure in (2a), also see Šarac et al. (in press)).
→ Rightward analysis (RA: Aarons et al. 1992; Neidle 2002; 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 (1d) is a base-generated topic (cf. the structure in (2b); also see Cecchetto & Zucchi (2004)).

[2] Notational conventions: Whenever the phonology of the signed string is not of importance, signs are glossed using capital letters. Non-manual information is notated above the glosses, the line indicating the scope of the non-manual marker (wh-marking in ASL: furrowed brows, squinted eyes, and head tilt). Subscript numbers refer to points in the signing space that are used in pronominalization (INDEX referring to a pointing sign towards a location) and agreement.

(2)



→ With respect to some wh-constructions, there is disagreement in the literature:
1. According to the LA, (3a) 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 (3b) with wh-object in situ and sentence-finally to be ungrammatical; it also predicts (3c) 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 (3d), 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)

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

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

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

d. % BREAK-DOWN [**WHO (POSS) CAR**] [final wh-phrase]
wh
'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.

3. Wh-questions in Indian Sign Language

3.1. Constituent order in Indian Sign Language

→ IndSL is a verb/predicate-final language ((4); Zeshan 2003). The order of arguments, however, is fairly free and is based on pragmatic factors. Just as in ASL, topicalization of constituents is a common strategy in IndSL (4b).

(4) a. MAN INDEF WALK
'Someone is walking.'

b. APPLE CHILD EAT
'A child eats an apple.'

c. TOMORROW INDEX$_1$ DELHI INDEX$_3$ GO
'I am going to Delhi tomorrow.'

d. WOMAN SAD
'The woman is sad.'

e. WOMAN INDEX$_3$ SERVANT
'That woman is a servant.'

→ There are very few signs that may follow the predicate in IndSL. All of these belong to the class of "functional particles" which assign a clause to a particular clause type and which have scope over the whole clause. Amongst these particles are the manual negation marker NEG ((5a); cf. figure 2 below) and the completive aspect marker COMPL (5b).

(5) a. INDEX$_1$ WORK **NEG**
neg
'As for me, I am not working.'

b. YESTERDAY FATHER DIE **COMPL**
'Yesterday (my) father died.'

3.2. Position of wh-signs in the clause

→ IndSL has a minimal wh-sign paradigm. In fact, there is only one non-compositional wh-sign, namely the general wh-sign G-WH (see figure 3). This sign is related to a co-speech gesture commonly used in the hearing communities of India and Pakistan.

Figure 2. Negation sign NEG

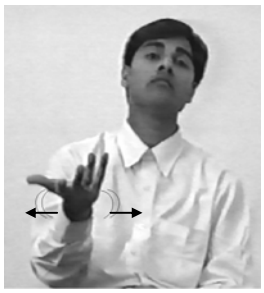


Figure 3. General wh-sign G-WH

→ In IndSL, wh-questions are marked by raised eyebrows and a backward head position with the chin raised (see figure 2). As in ASL, the eyebrow marking may spread, but the head/chin position is usually most pronounced on the manual wh-sign.

→ The sign G-WH covers the whole range of question words in other languages (6). The interpretation of the wh-sign has to be inferred from the context. To express more specific meanings, G-WH may combine with other non-interrogative signs (cf. section 3.3.).

(6) a. CHILD ANGRY **G-WH**
wh
'Why is the child angry?'

b. INDEX$_2$ AGE **G-WH**
wh
'What's your age?'

c. INDEX$_3$ COME **G-WH**
wh
'Who is coming?'

d. INDEX$_2$ FRIEND SLEEP **G-WH**
wh
'Where does your friend sleep?'

→ Interestingly, the placement of G-WH is much more constrained than the placement of wh-signs in ASL. In (7a), we give a base sentence with canonical S-O-V sign order. Examples (7b) to (7e) illustrate that G-WH can only appear in sentence-final position (7b).

(7) a. FATHER INDEX$_3$ BOOK SEARCH
'Father is/was searching for a book.'

b. FATHER INDEX$_3$ SEARCH **G-WH** [sentence-final]
'What is/was father searching?'

c. *FATHER INDEX$_3$ **G-WH** SEARCH [in situ]

d. ***G-WH** FATHER INDEX$_3$ SEARCH [sentence-initial]

e. ***G-WH** FATHER INDEX$_3$ SEARCH **G-WH** [initial & final]

→ Remember that the ASL counterparts of (9c) and (9e) are claimed to be grammatical by proponents of the leftward and the rightward analysis.

3.3. Complex wh-expressions and wh-split

→ In case the the context does not allow for an unambiguous interpretation of G-WH, IndSL signers may use composite expressions which consist of a combination of G-WH with an associate phrase. Common combinations are FACE G-WH ('who'), PLACE G-WH ('where'; cf. figure 4), TIME G-WH ('when'; cf. figure 5), and NUMBER G-WH ('how many').

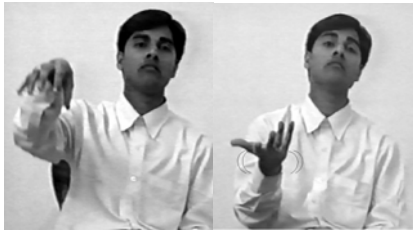


Figure 4. PLACE G-WH 'where'

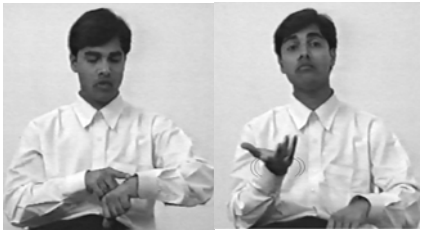


Figure 5. TIME G-WH 'when'

→ However, this option is not available for 'What', 'Why', and 'How'; these meanings can only be expressed by the general wh-sign G-WH alone. The examples in (8) illustrate the use of three of these composite wh-expressions (Zeshan 2003:201).

(8) a. INDEX$_2$ FRIEND SLEEP **PLACE G-WH**
'Where does your friend sleep?'

b. INDEX$_3$ ASK **FACE G-WH**
'Who did s/he ask?'

c. INDEX$_2$ BOOK TAKE **NUMBER G-WH**
'How many books will you take?'

→ Interestingly, while G-WH always appears sentence-finally, the associate phrase of the complex wh-expressions may remain in situ, i.e. we observe wh-split, as in (9).

(9) a. INDEX$_2$ FRIEND **PLACE** SLEEP **G-WH**
'Where does your friend sleep?'

b. INDEX$_2$ [BOOK **NUMBER**] TAKE **G-WH**
'How many books will you take?'

→ Main characteristics that distinguish wh-questions in IndSL from those reported for ASL: (i) IndSL has a minimal question word paradigm; (ii) IndSL has a number of complex wh-expressions to express more specific meanings; these complex wh-expressions allow for wh-split; (iii) the wh-sign – be it by itself or part of a complex wh-expression – always appears in sentence final-position and cannot be doubled.

4. G-WH as a wh-phrase

→ In Aboh, Pfau & Zeshan (in press), we discuss a rightward (RA) and a leftward analysis (LA) that build on the assumption that G-WH is phrasal in nature.
→ Similar to the ASL data presented in 2.2., the IndSL data can be seen as a serious challenge to the assumption that SpecCP, the landing site of wh-movement, is universally on the left. In fact, the IndSL data seem to make an even stronger argument for a rightward SpecCP since the wh-sign G-WH always and only appears sentence-finally.
→ According to the RA, G-WH is moved to a sentence-final SpecCP. In sentences with a complex wh-expressions there are two options available. Either G-WH is extracted from the complex expression, stranding the specifying element in its pre-verbal base position or the whole complex moves to SpecCP.
→ Following Neidle et al. (2000), we assume that non-manual wh-marking is associated with a [+wh]-feature in C. Since in IndSL, at least the wh-sign always moves to SpecCP, there is always manual material locally available for the wh-marking to be associated with. We therefore predict that it should be possible for the non-manual marking to be coarticulated with the wh-sign only. This prediction is borne out (cf. (6)).
→ When the complex wh-expression is hosted by SpecCP, it is expected that the whole constituent is non-manually marked under Spec-head agreement. This, however, need not be the case, as is exemplified by (10) (also compare figure 4 above).

(10) [INDEX$_2$ FRIEND t_i SLEEP [+wh]$_C$ [**PLACE** **G-WH**]$_i$]$_{CP}$ (wh)
'Where does your friend sleep?'

→ As in ASL, optional spreading of the wh-marking – at least the eyebrow marking – is possible. When spreading occurs it has to target the entire c-command domain of C.
→ The initial part of a clause, however, may be outside the scope of the non-manual marking in case 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 (11).

(11) [MAN$_j$]$_{TopP}$ [[t_j t_i STAY]$_{IP}$ [+wh]$_C$ [**G-WH$_i$**]$_{SpecCP}$]$_{CP}$ (wh)
'The man, why did (he) stay?'

→ Obviously, for IndSL. the LA requires further movement operations in order to derive the surface sign order. To account for the sentence-final placement of G-WH, leftward movement of the wh-sign (or the complex wh-expression, respectively) to SpecCP has to be followed by remnant movement of the entire IP to a specifier position above CP.

→ However, the LA is faced with a number of problems. First, it is not clear what specifier position remnant IP-movement targets. Building on Petronio and Lillo-Martin (1997), Neidle (2002), and Nunes & de Quadros (2004), it could be suggested that remnant movement of IP past G-WH is triggered by focus operation.
→ Secondly, the observed distribution of the non-manual marker cannot be accounted for in a straightforward way. In particular, the spreading facts – which are correctly predicted by the RA – pose a serious challenge for the LA, since according to the LA, the IP is outside of the c-command domain of the [+wh]-feature in C at surface structure.
→ Note that it is generally accepted that non-manual marking is a surface structure phenomenon, as has been argued for negative headshakes (Neidle et al. 2000; Pfau 2002; Pfau and Quer 2002), topic marking (Aarons 1994), and relative clause marking (Wilbur and Patschke 1999; Pfau and Steinbach, in press), amongst others.

5. G-WH as a clause typing morpheme

→ The analyses discussed in 4. presuppose that G-WH is similar to English wh-phrases in nature in that it functions both as a wh-operator that ranges over a variable and as an interrogative clause typing element in the sense of Cheng (1997).
→ In this section, we provide cross-linguistic facts from spoken languages and evidence from IndSL which suggest that G-WH is better analyzed as a clause typing morpheme that encodes the interrogative feature in wh-questions.

5.1. Question particles in Lele and Indian Sign Language

→ Spoken languages realize wh-questions in various ways. In Lele (East Chadic), for instance, wh-questions require a question particle that also surfaces in yes-no questions (Frajzyngier 2001). (12) is a yes-no question that involves the question particle *gà*.

(12) Kiya hàb kùlbá ke-y **gà** ?
Kiya find cow GEN-3SG[M] INTER
'Did Kiya find his cow?'

→ In the wh-questions in (13) the question particle combines with a wh-element that may either remain in situ (13a) or be fronted due to focusing (13bc), the wh-elements being focus-marked by the particle *ba*, the question particle *gà* occurring sentence-finally.

(13) a. Mè ày **wéy** **gà** ?
2SG[F] marry who INTER
'Who did you marry?'

b. **Wéy** ba é **gà** ?
who FM go INTER
'Who went away?'

c. **Me** ba gol dí **gà** ?
what FM see 3SG[M] INTER
'What did he see?'

→ What these examples suggest is that languages may allow for a labor division between the clause typing morpheme and the wh-element. More precisely, languages may allow a split between the interrogative feature and the wh-feature proper.
→ W.r.t. clause structure, this could be evidence that the wh-feature and the interrogative feature are not licensed by the same syntactic head, contrary to what is often suggested in the literature (i.e. FocP and InterP, see Rizzi 2001; Aboh 2004 for discussion).

→ We assume that IndSL uses a strategy that is parallel to the Lele wh-question strategy, and which can be represented as in (14) where YP is a wh-phrase that surfaces in situ or in the left periphery of the clause due to focusing.

(14) a. .....YP.....gà... [Lele]
b. .....YP.....G-WH... [IndSL]

→ An immediate conclusion that arises is that IndSL – in contrast to Lele – has null variants of wh-phrases. That is, in a sequence like (7b), repeated here as (15), there is a silent <what> in the object position.

(15) FATHER INDEX$_3$ <what> SEARCH **G-WH**
'What is/was father searching?'

→ This state of affair is not surprising within IndSL grammar given that IndSL uses null arguments as long as they are unambiguously recoverable from the discourse.
→ Under this description, IndSL has a sentence-final particle G-WH (similar to Lele *gà*) that is associated or combined with a null or overt wh-element to form the wh-question.

5.2. Clause typing in Indian Sign Language

→ IndSL manifests other clause typing morphemes (all of which occur in sentence-final position) together with which G-WH forms a paradigm. This empirical fact provides the ground for the analysis of G-WH in terms of clause typing.
→ According to Zeshan (2000:97), these signs "have a relatively simple structure as compared to other signs", and form a closed class, two typical properties of functional items; see (16) for examples (Zeshan 2000:95f).

(16) a. INDEX$_2$ STUDY **IMP** [Imperative]
'You have to study!'
b. INDEX$_1$ TEA **NEG** [Neutral negation]
'I haven't had tea yet.'
c. INDEX$_1$ TEA **NEG2** [Contrastive negation]
'I don't want any tea.'
d. STUDY USEFUL **EXIST** [Existential]
'Education is really useful.'

→ Not all of these particles may co-occur, but when they do, they appear to follow a fixed order. NEG, for instance, must precede the question particle G-WH (17).

(17) a. MAN UNDERSTAND **NEG G-WH**
'Why doesn't/didn't the man understand?'
b. *MAN UNDERSTAND **G-WH NEG**

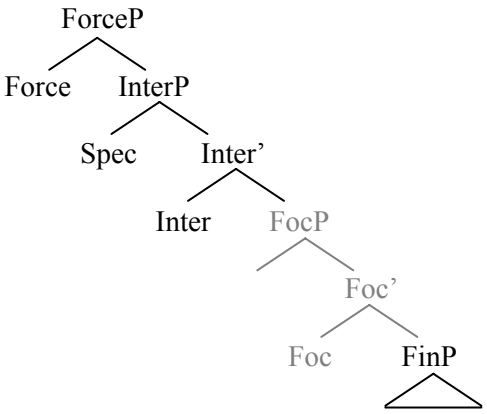
→ These facts suggest that the IndSL clause typing morphemes manifest the same syntactic domain, which may encode interrogative, emphasis, mood, or negation. We take this to be strong empirical evidence for treating these particles as functional heads.
→ Zeshan (2000, 2003) observes that, to the extent that these function signs are associated with non-manual markers, they manifest similar scope properties: their scope domain extends leftward from the right edge of the sentence.

5.3. Analysis

→ In Aboh, Pfau & Zeshan (in press), we sketch an analysis which assumes that G-WH is a right head of InterP and we point out empirical and conceptual shortcomings that indicate that this might not be the right characterization.

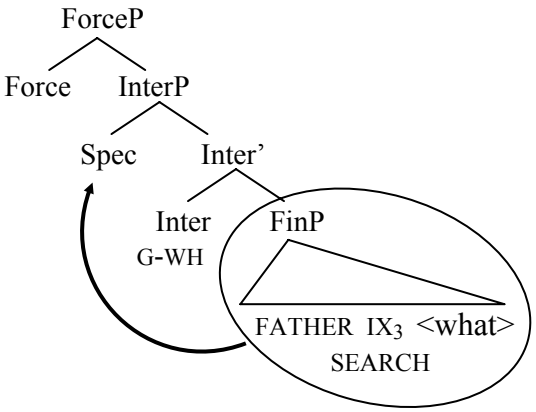
→ Given these issues, we propose an alternative perspective that assumes, along the lines of Kayne (1994) that phrase structures are of the type specifier-head-complement. Under this approach, the IndSL clause structure looks like the representation in (18).

(18)



→ Crucially, we make a distinction between neutral and focused wh-questions (cf. Bošković 2002 for Slavic languages). Neutral wh-questions involve cases like (15). For such cases, we assume that the interrogative head Inter hosts the wh-particle G-WH which attracts the FinP – including the null wh-element – into its specifier. cf. (19).

(19)



→ Wh-questions containing an associate phrase receive a focus interpretation; they involve two cases: one with the associate phrase in situ, one with the associate phrase in focus.

→ In an IndSL wh-question like (20a), where the sign PLACE remains in situ, SpecFocP hosts a null operator that binds the associate phrase inside the proposition.

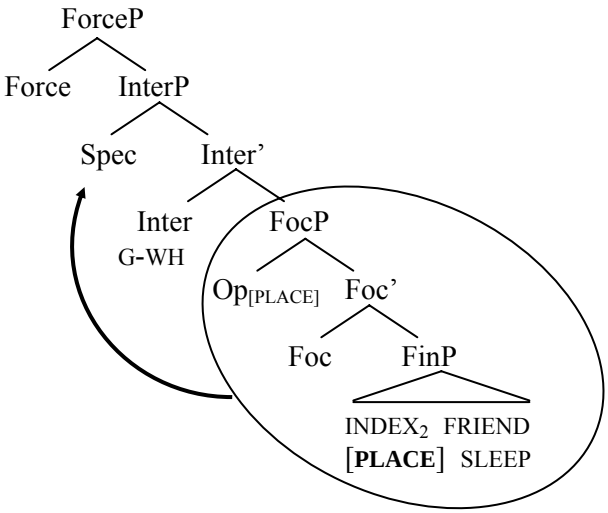
→ Moreover, we argue that the interrogative clause-typing head Inter has scope over the focus phrase that is attracted into its specifier (Aboh 2004). In other words, the wh-element is licensed in SpecFocP, while the proposition (here the focus phrase) as a whole moves to SpecInterP due to clause-typing; cf. the structure in (21).

→ According to Chomsky (2001), this would mean that Inter has strong EPP features that are checked by the fronted proposition (including the focus projection).

(20) a. INDEX$_2$ FRIEND [**PLACE**] SLEEP **G-WH**
'Where does your friend sleep?'

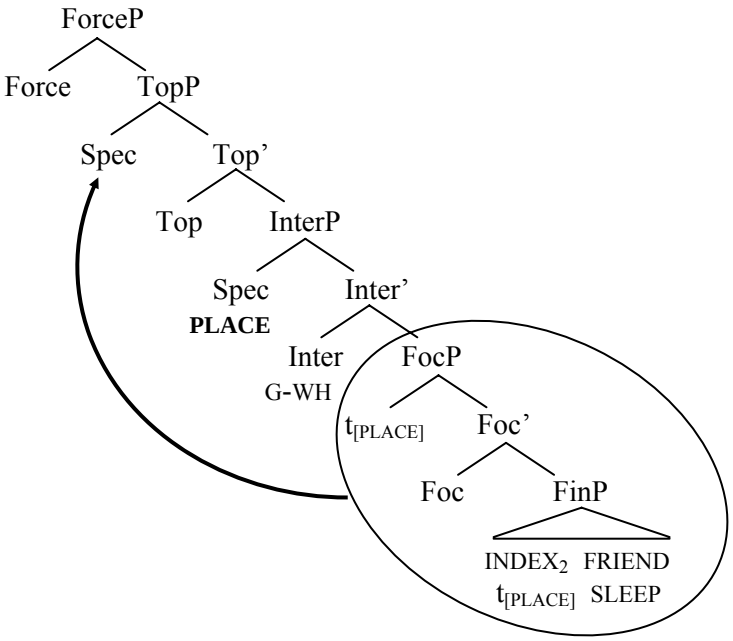
b. INDEX$_2$ FRIEND t_i SLEEP [**PLACE**]$_i$ **G-WH**
'Where does your friend sleep?'

(21)



→ In this case, the non-manual marking can be either on G-WH under Inter, or may spread over the whole FocP that has raised to SpecInterP.
→ Constructions in which the PLACE/TIME/NUMBER expression appears left adjacent to G-WH (20b) are treated as focused wh-questions where the associate phrase raises to SpecFocP to check its focus feature and then further to SpecInterP to check the EPP feature.
→ We further speculate that movement through SpecFocP triggers movement of the remnant FocP past SpecInterP to a higher position, say SpecTopP (Rizzi 1997; Aboh 2004); see the derivation in (22).

(22)



→ Here non-manual marking is expected to be either on the interrogative head (G-WH) only or on this head and on the phrase in its specifier. Note, however, that this analysis predicts that the non-manual cannot scope over the moved remnant FocP assuming the latter lands in SpecTopP, i.e. outside the c-command domain of Inter (cf. (11) above).

→ The proposed analysis has the advantage of capturing the apparent wh-splitting facts in a straightforward manner. In short, the difference between wh-questions with null wh-elements (15) on the one hand and PLACE/TIME/NUMBER wh-questions (20) on the other hand reduces to the distinction between a neutral versus a focused wh-question.
→ Based on the derivations sketched in (21) and (22), we also predict different interpretations for wh-questions with the associate phrase in situ compared to those with the associate phrase in focus. This prediction awaits further investigation.
→ In addition, a general pattern that seems to emerge from this description is that sentence-final particles in IndSL have scope properties that force their complement to their specifiers, with this being reflected in the spreading behavior of the non-manuals.

6. Conclusion

→ We have compared two approaches to wh-questions in IndSL. Following the traditional approach to wh-signs, the first analysis proposes that the general wh-sign G-WH is a phrase that is licensed in a specifier position within the C-system.
→ The alternative approach that we propose has it that G-WH is a wh-question particle that encodes the head of an interrogative phrase within the C-system which attracts either the whole focus phrase or the focused associate phrase into its specifier.
→ A consequence of this analysis is that IndSL allows for null wh-phrases, in neutral wh-questions, whenever these are contextually recoverable. In ambiguous contexts, however, an overt associate phrase (i.e. PLACE/TIME/NUMBER) is inserted that may further move to SpecInterP.
→ The existence of a sentence-final clause typing wh-particle in IndSL opens the issue of the typology of wh-questions and of clause typing morphemes in signed and spoken languages. We hope to return to these issues in future work.

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