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Chapter 4: The structure of the Left Periphery – Sentence types and topicalization

Sign languages do not only have their own rules to build plain (declarative or negative) sentences, but they also employ specific constructions to mark topicalizations, imperative and interrogative clauses. With respect to interrogative clauses, they often distinguish wh questions from polar (yes/no) questions. The presence of these phenomena, well known in spoken languages[72], suggests that sign languages have a full-fledged structure just as spoken languages do. In particular, they demonstrate that sign languages, too, have a left periphery, as will be argued in the following sections. As it happens in spoken languages, these constructions often involve changes in the word order of sign language sentences and the use of specific lexical markers. Yet, nonmanual markers also play an important role in marking these constructions.

In the following sections, the order of elements in the LIS and NGT left periphery will be compared, taking into account also the distribution of nonmanual markers. Although the two languages often pattern alike or in a similar way, crosslinguistic variation will be observed. This is expected because sign languages, being natural languages, share a similar basic structure, but also display parametric variation. In the first part of the chapter (§4.1), I will present data concerning topicalizations, imperative clauses, and different types of interrogative clauses. In the second part (§4.2), I will propose an account for these phenomena within an antisymmetric framework, extending to sign languages (and refining) some proposals put forward for spoken languages. General conclusions follow in §4.3.

[72] In spoken languages as Italian, Dutch or English, it may appear that wh questions are not marked differently from polar questions. More precisely, in these languages, wh questions (*Quando viene Marco?*, *Wanneer komt Marco?*, *When does Marco come?*) may appear to have just the form of a polar question (*Viene Marco?*, *Komt Marco?*, *Does Marco come?*) to which a wh element is added. However, there are spoken languages that distinguish polar from wh questions by using distinct markers for the two constructions. For example, polar vs. wh questions are indicated in the Copala Trique language by the sentence-final particle *nah* in yes/no interrogative clauses and the sentence-final particle *ga* in wh interrogative clauses (see Bradley & Hollenbach 1992).

4.1 Word order with respect to sentence type and topicalization

This first part of the chapter describes the word order encountered in topicalizations and in different types of sentence, such as imperative clauses, polar interrogative clauses, and wh interrogative clauses. It also describes both the lexical and the nonmanual markers that commonly accompany these constructions. It focuses on LIS data and NGT data proceeding both from other authors' works and from informants' grammaticality judgements. However, data from other sign languages and also from some less-known spoken languages are occasionally included when they are useful for the comparison to support the analysis or to shed some light on the similarities between the spoken, oral modality and the visual, signed one. The first part is organized as follows: §4.1.1 describes imperative clauses, §4.1.2 describes polar questions, §4.1.3 deals with wh questions, and §4.1.4 briefly describes alternative (content) questions. §4.1.5 presents different kinds of topicalization and describes the way they interact with imperative and interrogative clauses. §4.1.6 summarizes the data.

4.1.1 Imperatives

This section describes the imperative construction in LIS and NGT and compares them with imperative clauses of Indo Pakistani Sign Language (IPSL). It also introduces the idea of clause-typing morphemes, which underlies much of the discussion in the second part of the chapter. In sign languages, imperative clauses are usually indicated by nonmanual markers and often display a quicker and more tense movement of the signs than plain declarative sentences do. This is also the case in LIS and NGT: the imperative nonmanual marker of LIS is "furrowed brows and eyes wide open" (it. *sopracciglia corrugate e occhi sbarrati*, see Franchi 1987:168); the imperative nonmanual marker of NGT is "slight forward lean, squinted eyes" and a "head nod" (see Pfau 2006a:3). In both languages, imperative clauses are also marked manually by quicker and more tense signing. See, for instance LIS (166.a) and NGT (166.b), where imperative features marking is indicated with 'imp'. In other words, although 'imp' is glossed like a NMM here, 'imp' does not only represent the nonmanual modification, but also the manual imperative

features of movement. This 'imp' marker must not be confused with the lexical imperative marker glossed IMP (see further in this section).

166.
a. **imp.**
STUDY [LIS]

b. **imp.**
STUDY [NGT]
'Study!'

These imperative features are not restricted to the verb, but affect the whole sentence as in examples (167.a) and (167.b).

167.
a. **imp.**
(IX$_2$) BOOK $_2$GIVE$_3$ [LIS]
'Give him/her the book!'

b. **imp.**
IX$_2$ BOOK $_2$GIVE$_3$ [NGT: adapted from Pfau 2006a:3]
'Hey, give him/her the book!'

The two languages, thus, pattern alike: only nonlexical marking signals the imperative and, apparently, no special changes in the order of signs are observed. This is reminiscent of the behaviour of some spoken languages where only intonation distinguishes the imperative mood from the indicative mood, the verb bearing no special markers and the word order being unchanged (for instance, compare Italian *leggi questo libro* 'you read this book' with *leggi questo libro!* 'read this book!')[73]. On the other hand, in some sign languages, for instance, in IPSL, a sentence-final lexical marker glossed as IMP can appear in imperatives, as shown in (168).

[73] I thank Guglielmo Cinque for drawing my attention to the fact that imperative verbs of many spoken languages often have a reduced morphology, with only root+thematic vowel, with respect to indicative forms. Compare Spanish 2.SG indicative *habla-s* ('you speak') with 2.SG.imperative *habla!* ('speak!'). Also, compare the German indicative *du sprich-st* ('you speak') with the imperative *sprich!* ('speak!') and the Dutch indicative *jij lees-t* ('you read') with the imperative *lees!* ('read!'). Other imperative forms, however, may show the same endings as their indicative or subjunctive counterparts and rely only on intonation to encode imperativity.

168. IX$_2$ STUDY IMP [IndSL: Aboh, Pfau & Zeshan 2005:8]
'You have to study!'

Aboh & Pfau (2011) analyze such lexical markers as «clause-typing morphemes» which «assign a clause to a particular clause type or modality» as also observed in some spoken languages. In the following sections, we will see that lexical markers may occur also in interrogative clauses. As will become clear in the second part of the chapter, the presence of such particles plays an important role in the antisymmetric analysis that I propose for the left periphery and that I will extend also to the derivation of interrogative clauses that apparently require rightward movement of some elements.

4.1.2 Yes/No questions

This section describes the word order and both the lexical and the nonmanual markers of LIS and NGT polar questions.

As far as I could observe, polar questions, also called yes/no questions, are marked in both LIS and NGT by the nonmanual marker "raised eyebrows and head slightly bent forward", as in (169.a) and (169.b). Also, an index functioning as postverbal subject pronoun can occur[74].

169.
a. $\overline{\text{IX}_2\ \text{SCHOOL}_{\text{LFT}}\ {}_2\text{GO}_{\text{LFT}}\ (\text{IX}_2)}^{\text{yes/no}}$ [LIS]
'Do/did you go to school?'

b. $\overline{\text{TOMORROW PRESENT}_{3a}}^{\text{yes/no}}$ [NGT: Coerts 1992:191]
'Is he present tomorrow?'

From (169.a) and (169.b), it is apparent that the two languages behave similarly. Also, in both languages, a negative interrogative clause will have two markers: one for the yes/no interrogative and one for the negative. However, remember from §3.1.4 that LIS has a lexical (manual) negative marker as in (170.a), while NGT often employs only a

[74] In Franchi (1987: 168), LIS yes/no questions are reported without postverbal subject (TU CINEMA VAI? lit. *You cinema go?*) although informants claim that a postverbal subject index is frequently used. As already said, agreement and indexes are described, but not analyzed here.

nonmanual negative marker as in (170.b). Thus, in NGT two nonmanual markers are "layered" or "stacked".

170.

a. yes/no
IX$_2$ SCHOOL$_{LFT}$ $_2$GO$_{LFT}$ NOT [LIS]

b. yes/no
neg.
IX$_2$ SCHOOL$_{LFT}$ $_2$GO$_{LFT}$ IX$_2$ [NGT]
'Do/did you not go to school?'

Notice, finally, that in NGT, yes/no questions (171) can also be marked manually, that is lexically, by the sentence-final sign "palm-up", glossed as PU (following Coerts (1992)) or Q-PART, question particle, in Pfau (2006a). In Aboh & Pfau (2011) it is glossed as PU, but it is still treated as a question particle. It is important to notice that, according to Coerts (1992), this particle occurs only in a very limited set of polar questions. In §4.2.3 we shall see that not all analyses coincide in treating PU as a question particle, Q-PART. We may have to do with a sign that takes on different grammatical functions (due to polygrammaticalisation). Related to this is the possibility that there may be distinct, yet homophonous, PU signs, one of which functions as a question particle[75]. Here, as far as interrogative clauses are concerned, I will always use the gloss Q-PART in order to present the reader with homogeneous data and avoid confusion.

171. yes/no
IX$_3$ PARTY CANCEL Q-PART [NGT: adapted from Smith 2004:19]
'Is the party cancelled?'

In contrast, LIS seems to have no lexical element acting as Q-PART and sentences are only marked nonlexically, that is, only the NMM is observed. In other words, no LIS counterpart of (171) seems to exist.

[75]The hypothesis of distinct, though homophonous, functional elements is not trivial. In Italian, for instance, one of the masculine singular definite articles (*lo* 'the') is homophonous with the 3rd person singular masculine accusative clitic (*lo* 'him'). In English the complementizer (*that*) and one demonstrative (*that*) are also homophonous.

4.1.3 Wh questions

This section compares the word order and both the lexical and the nonmanual markers of LIS and NGT wh questions. It also compares the variations observed in the interrogative clauses of these two sign languages with the variety of wh interrogative constructions described for other sign languages and some spoken languages. It turns out that phenomena usually associated with rightward movement and final-headedness, such as clause-final wh elements, are attested also in languages with Spec-Head-Compl structure. This observation will turn out to be useful for the analysis, which is presented in the second part of the chapter.

Differences were already observed between LIS and NGT polar questions, and the same goes for wh questions. Both languages have specific wh signs[76] (e.g. WHO, WHAT, WHY, WHERE, and so on) to be used in wh interrogative clauses, usually in clause-final position. However, other markers must co-occur, which differ between the two languages. Crucially, LIS wh interrogative clauses are obligatorily accompanied by a "furrowed eyebrows" nonmanual marker (172.a), (173.a), while NGT (172.b), (173.b) has both a "furrowed eyebrows" nonmanual marker and the same particle Q-PART used for yes/no questions as (171). Since wh signs/words and the question particle can co-occur, they must not be confused with each other. Moreover, since NGT Q-PART is able to co-occur with both the wh NMM and the yes/no NMM, this particle must be analyzed separately from the NMMs in NGT. Thus, LIS sentences (172.a) and (173.a) have a wh sign and a NMM, whereas NGT sentences (172.b) and (173.b) include a NMM, a wh sign, and the sign Q-PART.

[76] For the moment, I use the generic labels "wh sign" or "wh element". The phrasal status of such signs will be discussed in the second part of this chapter.

172.

a. [LIS]

wh

IX$_3$ SAY WHAT

'What did (s)he say?'

b. [NGT: adapted from Aboh & Pfau 2011: 21]

wh

IX$_3$ SAY WHAT Q-PART

'What did (s)he say?'

173.

a. [LIS]

wh .

BIKE PIX$_2$ STEAL WHO

'Who stole your bike?'

b. [NGT: adapted from Aboh & Pfau 2011: 21]

wh

PIX$_2$ BIKE STEAL WHO Q-PART

'Who stole your bike?'

In some cases, the wh signs can be dropped. As noted by Aboh, Pfau & Zeshan (2005) and Pfau (2006a, 2006b), wh interrogative clauses in NGT sometimes have no overt wh sign, and only the wh NMM and the interrogative sign Q-PART, as observed in (174.b). Also in LIS wh interrogative clauses, it seems possible to drop the wh signs on some occasions, as in (174.a); in this latter case, only the NMM appears, given that no Q-PART sign exists in LIS.

174.

wh.

a. NAME PIX$_2$ (WHAT) [LIS]

'What is your name?'

wh

b. PIX$_2$ FRIEND NAME Q-PART [NGT: Pfau 2006a:6]

'What is your friend's name?'

In NGT, too, it is possible to have wh questions with only NMM, where both Q-PART and the wh sign are omitted. Thus, according to the data, NGT displays a broader range of alternatives than LIS. In (175.a) there is a "fully marked" NGT interrogative clause with wh sign, wh NMM, and Q-PART; in (175.b) we see an interrogative clause with wh sign and wh NMM only; in (175.c) there is an interrogative clause with Q-PART and wh NMM; and in (175.d) the sentence contains a wh NMM only, similarly to LIS (174.a).

175.

a. [NGT]

wh

IX$_2$ BUY WHAT Q-PART

'What did you buy?'

b. [NGT: adapted from Pfau 2006b:11]

wh.

YESTERDAY IX$_2$ BUY WHAT

'What did you buy yesterday?'

c. [NGT: adapted from Aboh & Pfau 2011:22]

wh

YESTERDAY IX$_2$ BUY Q-PART

'What did you buy yesterday?'

d. [NGT: adapted from Aboh & Pfau 2011:23]

top. wh.

SHOP IX$_3$ IX$_2$ BUY

'What did you buy in this shop?'

Two remarks are in order here. First, Pfau (2006a), quoting an example from Petronio & Lillo-Martin (1997), points out that wh interrogative clauses with only wh NMM (i.e. without lexical wh elements) are attested also in American Sign Language. Second, notice that (175.d) contains a topic nonmanual marker, in addition to the wh NMM. I will come back to this issue in §4.1.5. Crucially, however, the relevant part of this sentence, the interrogative part, does neither contain a wh sign, nor Q-PART. It is marked only by the wh NMM. For the moment, consider that, despite the

reported translation for (175.d), the presence of a topicalized constituent suggests a translation like "In this shop, what did you buy?".

As will become clear in §4.2.3, the use of generic signs partially similar to Q-PART is attested also in other sign languages. For the moment, however, I will continue to focus on LIS and NGT. NGT, in addition to the strategies described above, displays also two other constructions for wh interrogative clauses: either reduplication of the wh sign with NMM spreading across the whole clause, as in (177), or clause-initial wh sign with NMM only on the wh sign, as in (178). Reduplication of the wh sign means that NGT allows in clause-initial position a copy of the same wh element usually observed clause-finally. In this case, the wh sign thus appears twice in the NGT clause, once clause-finally and once clause-initially[77], yielding a double-wh question. To the best of my knowledge, no such constructions are attested in the literature on LIS. Thus, a final-wh construction occurs in both LIS and NGT (as seen previously), but in NGT also a double-wh option is available. Let us compare these two constructions. An example of the standard final-wh form is given for LIS (176.a) and NGT (176.b).

176.

a. **wh int.**
BOOK STEAL WHO [LIS]
'Who steals/stole the book?'

b. **wh int.**
BOOK STEAL WHO [NGT: adapted from Pfau 2006a: 7]
'Who stole the book?'

At this point, in NGT, the clause-final wh element WHO observed in (176.b) can be repeated once in clause-initial position, yielding the double-wh form (177).

177. **wh int.**
WHO BOOK STEAL WHO [NGT: adapted from Pfau 2006a:7]
'Who stole the book?'

[77] This is not the same type of reduplication as the one observed with nouns, demonstratives or verbs, where the repeated forms of the sign occur adjacently.

As for NGT initial-wh constructions, example (178.a) shows that the NMM affects only the wh sign in this case. In (178.b), however, the NMM spreads on the whole sentence.

178.

a. $\underline{\text{WHAT}}^{\textbf{wh.}}$ IX$_1$ *t* LIKE IX$_1$ [NGT: Van Gijn 2004:149]
'What do I like?'

b. $\underline{\text{WHO LANDLORD}}^{\textbf{wh.}}$ [NGT: Coerts 1992:203]
'Who is the landlord?'

In the second part of the chapter, we shall see that LIS, too, has some interrogative clauses in which the wh element appears clause-initially. These LIS and NGT cases will, however, be treated differently from each other. Similar facts have also been observed in ASL, even though they are under debate (Neidle et al. 2000; Petronio & Lillo-Martin 1997). For instance, both groups of authors report the existence of double-wh constructions, but according to Petronio & Lillo-Martin (1997:33) wh-phrases can appear only in the clause-initial position, while according to Neidle et al. (2000:136), this is impossible and a single wh-phrase can only appear clause-finally. It also appears that in ASL, the wh NMM can be restricted to the wh-element only if it is clause-final. A thorough discussion of ASL is beyond the aim of this dissertation, however. Notice also that according to Van Gijn (2004), the wh constituents mostly occur clause-initially in NGT. She offers an account of initial-wh constructions in terms of leftward raising of the wh element. At this point, I would like to point out that, although my analysis, too, is based on leftward raisings, it is not concerned with the frequency with which a given element occurs in a certain position.

For our purpose, it is only relevant to note that the co-occurrence, in one language, of final-wh construction, initial-wh construction, and double-wh construction is not peculiar to the visual modality, but is observed also in some spoken languages. In the following examples, different wh-constructions of different varieties of Veneto/Venetian[78] are

[78] *Veneto* is the local name for Venetian. However, Venetian may also refer just to the city of Venice. In contrast, Veneto is used here to refer unambiguosly to the whole group of varieties (not just to the Venetian variety spoken in Venice).

compared to each other. Examples (179.a) and (180.a) show the sentence-initial-wh option, which is the most common one. These examples contain a clause-initial wh word *(co)sa* ('what') or *chi/ci* ('who'). Examples (179.b) and (180.b) show the double-wh construction. The clause-initial *sa* co-occurs with a clause-final *che*, whereas the clause-initial *ci* is reduplicated by a clause-final *ci*. Finally, (179.c) and (180.c) display the sentence-final-wh construction. These examples contain only a clause-final *che* or a clause-final *ci*. The fact that languages in both the visual and the oral modality have such interrogative constructions at their disposal will prove to be important for the analysis presented in the second part of the chapter.

179.

a. (co)sa gało magnà? [Ven.sent-initial]
what have.3IND.PR-CLT.M.SG.INT. eaten
'What did he eat?'

b. [Ven. Illasi: adapted from Poletto 2006a:9]
sa alo magnà (che)?
what have.3IND.PR-CLT.M.SG.INT. eaten (what)
'What did he eat?'

c. [Ven. Bellunese: adapted from Poletto 2006b:2]
alo magnà che ?
have.3IND.PR-CLT.M.SG.INT. eaten what
'What did he eat?'

180.

a. chi xełо / chi èlo / ci èlo[79]? [Ven. sent.-initial]
who be.3IND.PR-CLT.M.SG.INT.
'Who is he?'

b. ci èlo ci ? [Ven. Verona]
who be.3IND.PR-CLT.M.SG.INT. who
'Who is he?'

c. èlo chi? [Ven. north]
be.3IND.PR-CLT.M.SG.INT. who
'Who is he?'

The wh word can be final even when it is a subject, which indicates that final wh words are not in situ since subjects usually precede the verb. For example, compare (181.a) with (181.b), which shows that both the initial and the final position are available for the interrogative subject. In (181.a) the wh element *chi/ci* preceds the interrogative-marked verb *ga(lo)/a(lo)*. In (181.b) the element *ci* appears twice: before and after the verb.

181.

a. [Ven. sent.-initial]
chi ga / ci ga(lo) / ci a(lo) magnà ła mé torta?
who has.3IND.PR(-CLT.M.SG.INT.) eaten the my cake?
'Who has eaten my cake?'

b. [Ven. Illasi: adapted from Poletto 2006b:10]
ci à magnà ci, la me torta ?
who has.3IND.PR. eaten who the my cake?
'Who has eaten my cake?'

[79] The form *ci èlo* is commonly used in Veneto variety spoken in Montecchia di Crosara, for instance, on the border between Verona and Vicenza provinces: this probably accounts for the fact that veronese *ci* is used, but its placement follows the more usual sentence-initial construction observed in the other varieties, rather than occuring in the double-wh construction of Verona (180.b)

Two remarks are in order here. First, Poletto's example (181.b) shows that the final wh position in Veneto is not properly sentence-final. Rather it follows the interrogatively-marked verb. However, as will become clearer in the second part of the chapter, the analysis is centered on the availability of multiple wh positions in the structure. The way in which projections are used and the material employed to fill them may well vary from language to language. The analysis does not aim to demonstrate and does not require that sign languages behave exactly like Veneto. Thus, for the sake of simplicity, I am using the terms "(sentence/clause-)initial" and "(sentence/clause-)final" for both Veneto and the sign languages. Secondly, the sentence quoted from Poletto (2006b:10) seems to exclude the interrogative subject clitic *–lo* with a subject wh element. Actually, if I think of myself speaking with my friends in the central variety, I would prefer the form *chi ga* without clitic. However, in my opinion, the co-occurrence is not entirely ruled out. As a native speaker, I do not perceive a question like *Ci (g)alo magnà la mé torta?* as ungrammatical, at least if I think of myself speaking with my grandparents in the Veneto variety of Montecchia di Crosara (prov. of Verona). My relatives that live there also accept the interrogative clitic. Anyway, regardless of the issue of the optionality of the interrogative clitic, Poletto's example in (181.b) shows that the final wh position is not in situ, because it can be occupied by a subject wh element *ci* ('who') which reduplicates the initial wh element. This variety of constructions will be investigated in more depth in the analysis in §4.2.3; there, we shall see that some hypotheses for spoken languages can also be applied to the analysis of sign languages.

Now, turning back to LIS and NGT, a couple of final remarks must be made. First, although the wh NMM usually spreads onto the whole interrogative clause, some material can fall outside the of the NMM as in (175.d). As that example shows, and as will become clear in §4.1.5, this happens when topicalization occurs. Secondly, I would like to draw attention to the possibility of having, at least in LIS, complex wh-phrases where the noun is split from the interrogative element WHICH that accompanies it (Cecchetto et al. 2004; Geraci 2009). In split forms, the sign WHICH occurs clause-finally, while the noun remains in situ (e.g. between verb and subject, if it is an object). Alternatively, complex wh-phrases behave like other wh phrases, appearing as a unit either in clause-final position or in situ. Thus, in (182.a) the whole complex WHICH BOOK occupies the standard clause-final position, in (182.b) the whole complex

is in situ (between subject and verb), and in (182.c) it is split, with the noun remaining in situ and WHICH appearing clause-finally. According to Geraci (2009), the split option is the preferred one in d-linked contexts. No NMM is given. I have not been able to determine whether split complex wh-phrases are available also in NGT.

182.

a. STUDENT BUY BOOK WHICH [LIS: Geraci 2009: 142]

b. STUDENT BOOK WHICH BUY [LIS in situ: Geraci 2009:142]

c. STUDENT BOOK BUY WHICH [LIS split: Geraci 2009:142]
'Which book did the student buy?'

From this comparison between the sign modality and the spoken modality, it appears that the relevant difference is only that LIS allows wh-phrases in situ, in addition to clause-final, clause-initial, and doubled wh elements. This difference, however, does not make the analysis problematic. The data presented in this section, although reflecting a large variety of constructions and despite proceeding from very different languages, are compatible with a unified account which will be proposed in §4.2.3. That analysis will also benefit from further data obtained from other sign languages.

4.1.4 Other interrogative clauses: alternative (content) questions

This brief section addresses constructions used for alternative content questions. The data presented here serve to shed some more light on the distribution of the so-called 'yes/no' nonmanual marker in order to suggest some speculations about its function and to refine the analysis of polar questions that will be proposed in §4.2.4.

Besides yes/no and wh questions, another kind of interrogative clause exists: it cannot be answered with "yes" or "no" because it requires a content answer (as wh interrogatives do), yet it resembles a yes/no question in that no wh phrase appears. Here a choice has to be made from two (or more) possible answers, see examples (183.a) and (183.b).

183.

a. y/n int.
IX$_2$ WORK (IX$_2$) STUDY [LIS]
'Do you study or do you work?'

b. y/n int.
head RGT head LFT
IX$_2$ WORK (IX$_2$) STUDY [NGT]
'Do you study or do you work?'

The answer to (183.a) and (183.b) cannot be "yes/no", but must be a content answer (WORK or STUDY). Unlike wh questions, the answer is usually restricted to the options explicitly stated by the speaker. A slight pause appears between the two options and the subject can be repeated before each verb. The suggested alternatives are often distinguished by a head tilt in different directions, to the left or right, for instance (a kind of spatial marking resembling that used to locate referents). I have not been able to determine whether head tilt is obligatory in these sentences. In (183.a) the break between the two alternatives was sufficient for the informant to understand the sentence. He did not claim that it was ungrammatical. However, the relevant fact here is that the 'yes/no' NMM is present even in alternative content questions. Crucially, these interrogative clauses require the same 'raised eyebrows' NMM as yes/no questions. This observation will turn out to be crucial in the analysis proposed later.

4.1.5 Topicalization

In this section, the position and marking of topicalized contituents in LIS and NGT will be addressed together with the interaction of topicalization with the imperative and the interrogative constructions described in §4.1.1, §4.1.2, and §4.1.3. This information will help refine the structure of left periphery proposed in the second part of this chapter. In addition, these data serve as a background for chapter 5, which deals with relative clauses, given that some of these constructions have features (position in the sentence and nonmanual marking) similar to those of topicalized constituents.

Topicalization marks (different kinds of) given or "already known" information in a sentence. It is indicated by nonmanual markers and sign

order changes in both LIS and NGT (see Coerts (1992) and Crasborn et al. (2009)). The topicalized constituents are usually accompanied by 'raised eyebrows' and are fronted, that is, they appear at the beginning of the sentence. They are also usually separated from the remaining part of the sentence by a slight pause, a "comma" break (**,**). LIS and NGT pattern alike with respect to this. However, many other languages, both signed and spoken, also have fronted topicalized arguments and employ nonlexical markers (intonation or NMM). In LIS and NGT, topicalized objects in (184.a, 184.b) and (185.a, 185.b) are easily detected since fronting yields an OSV order, different from the SOV sequence found in plain sentences (see chapter 3). As Crasborn et al. (2009:362) point out, 'raised eyebrows' marking is not obligatory on all NGT topics. In §4.2.5 we shall see that in LIS, too, not all topics may be marked with 'raised eyebrows', although this may depend on reasons different from those suggested by Crasborn et al. for NGT.

184.

a. **top.** [LIS: Bertone 2007: 134]
LIBRO IX_{Y} IX_{1} $PIETRO_{J}$ $_{1}REGALARE_{J}$
book ix I Peter give-as-present
'That book, I gave it to Peter as a present'

b. **top.** **cond** [NGT: Pfau 2006a:8]
BOOK **,** SUPPOSE SUNDAY IX_{2} $_{2}VISIT_{1}$ IX_{1} $_{1}GIVE_{2}$
'(As for) the book, if you visit me on Sunday, I will give it to you'

185. **top.**

a. SCHOOL IX_{LFT} **,** IX_{1} $_{1}GO_{LFT}$ NOT [LIS]
'(As for) The/That school, I don't go there'

b. BOEK IX_{RGT}**,** IX_{LFT} WEGGOOIEN (IX_{RGT})[NGT: rep. from (27.b)]
book that/there he throw away (it)
'He threw away the book'

Fronting of topicalized subjects is less visible since subjects usually precede verbs and objects also in plain sentences. Therefore, when they

are fronted, the surface order of elements may remain apparently unchanged. However, the fronting of topicalized subjects is visible with respect to some time adverbs. Recall from §3.1.1 that time adverbs are usually sentence initial, so that they precede the subject. In contrast, when a subject is topicalized as in (186.a) and (186.b), it comes to precede the time adverb. Again, an intonational break separates the topic from the rest of the sentence and the topic NMM signals the topicalized constituent, in this case the subject. A resumptive indexical pronoun may also appear in the sentence. In other cases, for instance in (186.c), the NMM and the intonational break are the sole indication of the topicalized subject.

186.

a. ____**top.**____ [LIS]
BROTHER PIX$_{1}$ IX$_{RGT}$, EVENING IX$_{RGT}$ $_{RGT}$VISIT$_{1}$
'(As for) My brother, he is visiting me this evening'

b. ____**top.**____ [NGT: repeated from (27.a)]
PIX$_{1}$ BROTHER IX$_{RGT}$, EVENING IX$_{RGT}$ $_{RGT}$VISIT$_{1}$
'(As for) My brother, he is visiting me this evening'

c. ____**top.**____ [NGT: Coerts 1992:223]
AIRPLANE FROM AMARIKA IX$_{3a}$, MUST $_{3a}$COME$_{1}$
'The airplane that comes from America, must come'

Topicalizations may co-occur with other phenomena described earlier in this chapter, such as imperative or interrogative clauses. For instance, sentence (175.d) in §4.1.3 contained a topic NMM and also a wh NMM. More examples from both LIS and NGT are given here. The two languages pattern alike as the sentences judged grammatical by LIS informants have the same linear order as the NGT sentences. For instance, in both LIS and NGT, the topicalized argument precedes the imperative (187.a), (187.b), the polar interrogative clause (188.a), (188.b), and the wh interrogative clause (189.a), (189.b). The NMM clearly indicates that the topicalized constituent is the first element of the sentence (as a noun, it can be accompanied by an index).

187.
a. top. imp
TICKET IX_{LFT} , EVENING $_2GIVE_1$ [LIS]
'The ticket, give it to me this evening!'

b. top. imp
TICKET , EVENING $_2GIVE_1$ [NGT: Pfau 2006a:7]
'The ticket, give it to me this evening!'

188.
a. top. y/n
TICKET IX_{LFT} , IX_2 BUY IX_{LFT} [LIS]
'(As for) The ticket, did/do you buy it?'

b. top. y/n NMM
TICKET , IX_2 BUY IX_{LFT} [NGT]
'(As for) The ticket, did/do you buy it?'

189.
a. top. wh
BOOK IX_{LFT} , STEAL IX_{LFT} WHO [LIS]
'As for the book, who stole it?'

b. top. wh
BOOK , STEAL WHO Q-PART [NGT: Pfau 2006a:7]
'As for the book, who stole it?'

Finally, in sign languages, more than one topic can occur in one sentence. In NGT (190.b) and in its LIS counterpart (190.a), there are two topics: they are distinct from the remaining part of the sentence, as the NMMs show, but they are also separated from each other by a pause and possibly[80] by the spreading of the NMM. The interrogative clause follows both topics.

[80] The break in the spreading of NMMs may be less visible if the sentence is signed quickly.

190.

a. [LIS]

top. top yn.

SCHOOL IX$_3$, TOMORROW EVENING MEETING , IX$_2$ LIX$_3$

'As for the school, as for the meeting tomorrow evening, will you be there?'

b. [NGT: Pfau 2006a: 12)]

top. top yn.

SCHOOL IX$_3$, TOMORROW EVENING MEETING IX$_3$, IX$_2$ BE-PRESENT$_3$ IX$_2$

'As for the school, as for the meeting tomorrow evening, will you be there?'

A similar phenomenon is observed in many spoken languages. In Italian, for instance, it is possible to have two co-occuring topics in the same sentence. Some examples are given and discussed briefly in the second part of the chapter, during the analysis in §4.2.5.

4.1.6 Summary

So far we have seen that sign languages make use of different constructions such as topicalizations, imperative clauses, polar and wh interrogative clauses, as well as alternative content questions. Although these constructions are mainly marked nonmanually, that is, nonlexically, there is some evidence that they involve the movement (or merger) of some material in(to) some specific positions. Data from LIS, NGT, and IPSL suggest that some of these positions are in the left periphery of the sentence, as observed also in many spoken languages. Topicalized arguments, for example, precede affirmative and negative clauses, imperatives, and polar and wh interrogative clauses in LIS and NGT (in the next chapter, additional phenomena such as conditionals and relative clauses will be described supporting this fact). Also, in both sign languages, a sentence can contain more than one topic and the topics precede the (affirmative, interrogative or negative) clause. Thus, in the vast majority of cases described here, the linear orders of LIS and NGT are alike.

The data presented also show that wh questions allow for various realizations: final-wh interrogative constructions, initial-wh interrogative constructions, double-wh interrogative constructions (where a clause-

final wh sign co-occurs with a clause-initial wh sign), interrogative constructions without specific wh signs, and constructions where complex wh-phrases are split (into a final wh element and an in situ noun). Final-wh constructions appear to be the most frequent option in LIS. Double-wh constructions and initial-wh construction are only observed in NGT (in the second part of this chapter, we shall see that LIS has some apparently initial-wh questions which, however, have a different structure than the ones in NGT). LIS, however, has split complex wh-phrases, which are not attested in the NGT data. In this respect, thus, LIS and NGT do display some crosslinguistic variation, in addition to similarities. However, this variety of data, which at first sight could appear to be specific to sign languages, shows interesting parallels with some spoken languages in which wh questions clearly involve leftward movement.

4.2 Analysis

In this section, a split-CP structure for the left-periphery of the sentence will be proposed (following Rizzi (1997, 2001)) in order to account for the different phenomena described in the first part of the chapter. On the basis of the comparison made in §4.1.3 between sign language and spoken language data, it proposes that some LIS and NGT constructions that apparently involve rightward movement, actually involve the left periphery of the sentence. Topicalizations, imperative clauses and different types of interrogative clauses are analyzed using an antisymmetric model.

4.2.1 Introduction

The fact that topicalized constituents in LIS and NGT are fronted to the left of the main clause and that sign languages (e.g. IPSL) may have a final imperative lexical marker can easily be incorporated in an antisymmetric approach, which assumes one and the same deep structure for all languages. This will be explained in the following sections of this chapter. We will also see that some accounts in terms of antisymmetry have successfully been proposed, even for some clause-final particles (e.g. NGT Q-PART in interrogative clauses). These accounts are, however, slightly modified in this dissertation.

The distribution of the fronted material and the fact that the sign languages investigated here share fronting of topicalized constituents with spoken languages strongly suggest an account in terms of Rizzi's (1997, 2001) split-CP. He proposed that the CP domain is made up of different projections merged according to a Spec-Head-Compl structure where leftward raising applies, as will become clearer throughout this chapter. The antisymmetric accounts given for clause-final imperative markers and for some clause-final interrogative particles imply that the split-CP hypothesis is compatible also with imperative constructions as well as with some interrogative clauses. This, in turn, suggests that it is possible to analyze also some other CP-related phenomena in terms of Spec-Head-Compl structures and leftward raising. Such phenomena, at least as far as LIS is concerned, have up to now been analyzed with structures involving a head on the right of the complement and possibly rightward movement toward a specifier located to the right of the head.

As a consequence of this, much of the following analysis will be devoted to the account of wh-questions, the only LIS (and NGT) phenomenon apparently at odds with leftward movement. Capitalizing on the observation that final-wh and double-wh questions of sign languages resemble those found in some spoken languages with leftward movement (§4.1.3), a leftward raising account will be proposed also for LIS and NGT (for a leftward raising account of NGT wh-questions, different from the present analysis, see Van Gijn (2004)). This account, although, at first sight requiring the postulation of unnecessary projections, is able to explain not only the similarities between LIS and NGT, but also the similarities between the two sign languages, on the one hand, and some less known spoken languages with a [Spec;CP] on the left, on the other hand. The seemingly unnecessary projections, thus, turn out to be independently motivated by phenomena observed also in spoken languages and are no longer ad hoc hypotheses made to force sign languages into an antisymmetric model. The second part of the chapter is structured as follows: §4.2.2 sketches the structure of the split-CP and accounts for imperatives and topics; §4.2.3 tackles wh questions; §4.2.4 discusses yes/no questions (exploiting some observations about wh questions and alternative content questions); and §4.2.5 discusses some residual phenomena concerning topics and the spreading of nonmanual markers in wh questions. It is important to note that the data about topicalization presented in §4.1.5 will be discussed partly in §4.2.2 and

partly in §4.2.5 because topicalization interacts with both imperative and interrogative clauses.

4.2.2 Structure and movement in topicalizations and imperatives

Imperative clauses and topicalizations in sign languages can be accounted for in terms of a very simple split-CP structure. Rizzi (1997) working on spoken languages proposed that the CP domain is made of some projections dedicated to topicalized and focalized material. Moreover, a projection for finiteness encodes the difference between finite clauses and infinite clauses. For instance, in Rizzi's view, FinP hosts prepositional, nonfinite complementizers in Italian (e.g. *di*) and finite complementizers in Irish (e.g. *go*). The topic projections were assumed to be recursive, framing the focus position. The first proposal of split-CP structure was thus:

191. Force…Top…Foc…Top…Fin (…IP)

Later, Rizzi (2001) separated the projection for interrogativity (hosting the Italian interrogative complementizer *se* 'if') from that of force, which ultimately should be reserved for the declarative complementizer. In this way the difference between matrix and embedded clauses is encoded.[81] The split-CP structure is thus reformulated as (192) with the interrogative projection above FocP. Notice that the interrogative projection is called IntP in Rizzi, but also the label InterP is used in the literature. In this dissertation, I will use InterP.

192. Force…Top…Int(er)…Foc…Top…Fin (…IP)

This structure was mainly proposed on the basis of data drawn from Italian, but it can also account for the linear ordering (and the nonmanual

[81] Alternatively, Haegeman (2004) and Bhatt & Yoon (1992) maintain that ForceP encodes interrogativity, but a higher SubP is dedicated to subordinators. Also, Poletto & Pollock (2004) and Munaro & Pollock (2005) assume ForceP as the projection encoding interrogativity. Further refinements are discussed in Benincà (2001) and Benincà & Poletto (2004). What is relevant for this dissertation, however, is that the projection for interrogativity is not the highest projection inside the split-CP.

marking) of LIS and NGT signs in a straightforward way, as will become clear in the following sections. As noted by Pfau (2006a, 2008a), this hierarchy of projections directly reflects the ordering of a number of constituents in NGT (some combinations of elements which in Pfau's account seem problematic for Rizzi's structure, will be discussed in chapter 5 showing that their incompatibility follows from independent, albeit unexplained, properties of NGT). In Pfau's view, the spreading of the topic NMM, the imperative NMM, and the interrogative NMM on these constituents reflects the fact that (part of) the sentence has been attracted to the specifier of the relevant projection, where nonmanual marking is assigned under spec-head agreement. Thus, the linear order of topicalized constituents, imperative-marked constituents, and interrogative-marked constituents in NGT reflects the fact that they occupy distinct projections, ordered according to Rizzi's hierarchy. Since, in this respect, LIS shows the same ordering of elements as NGT (see §4.1.6), Pfau's proposal can also be safely adopted for LIS. In fact, for instance, constituents marked as topic can precede interrogatively-marked constituents and imperative-marked constituents in both sign languages, as predicted by (192). Brunelli (2007, 2009) analyses some left periphery phenomena of LIS on the basis of Pfau's (2006a) proposals concerning NGT. This analysis forms the basis of this chapter.

Crucially, Rizzi's hierarchy assumes a Spec-Head-Compl phrase structure which branches from left to right and where leftward movement applies, that is, an antisymmetric structure. In this light, LIS and NGT topicalized elements, which are fronted to the left of the sentence, as in (184), (185), (186), reflect the leftward movement. Topics come to occupy [Spec;TopP] which is to the left of other projections. Here, they receive the topic NMM as argued by Pfau (2006a, 2008a). Notice that I do not address the question as to whether a given topicalized constituent is moved to or merged in a topic projection[82]. The relevant factor is the left position of the specifier where they are merged or moved to. Along

[82] The debate about topics being moved to or merged in TopPs is often related to the presence of resumptive clitics. As already pointed out, however, this dissertation does not analyze the distribution of clitics. I will restrict myself to the position (left or right) in which topics are located with respect to the sentence, regardless of them being moved to or merged in that position. As topics sit in specifiers, the fact that they precede other elements indicates that they occupy a specifier of TopP which is to the left of other projections, as predicted by Rizzi's split-CP.

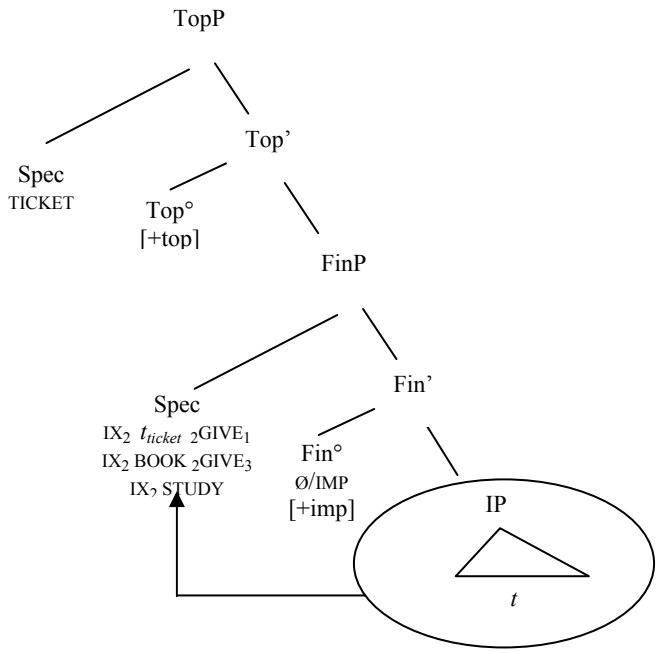
similar lines, sentence-final signs, among which the IPSL final lexical IMP marker of (168), are analyzed by Aboh & Pfau (2011) as clause-typing morphemes located in a head which has a Spec (on the left) filled by leftward movement of the remaining part of the sentence.

> «We therefore propose that these functional items surface in sentence-final position because they take scope over the proposition, which is attracted into their specifiers.» (Aboh & Pfau 2011:18)

Moving leftwards to this specifier, the clause not only comes to precede the imperative particle, if any, but also receives the imperative NMM (if the language has such a NMM). Just as topics receive the topic NMM in the specifier of TopP, imperatives receive the imperative NMM in the specifier of an imperative-mood-related projection where they come to sit. According to this view, in LIS (167.a) and NGT (167.b), the imperative NMM spreads over the whole clause because this has been moved to a specifier where it receives the nonmanual marker. The only difference between IPSL, on the one hand, and LIS and NGT, on the other hand, is that the imperative head is not overtly realized in these two latter languages. Consequently, no final particle is visible in LIS and NGT. As for which projection is the landing site of the imperative clause, Pfau (2006a) assumes that imperatives move leftwards to FinP, extending to sign languages Aboh's (2004) proposal based on spoken languages. The same derivation can be adopted for LIS, as suggested by the comparison of LIS and NGT. IPSL contrasts with LIS and NGT in that IPSL has the IMP particle in Fin° (168), according to Pfau (2006a) and Aboh & Pfau (2011), whereas Fin° is not lexically realized in LIS and NGT. The nonmanual marker, however, is always assigned under spec-head agreement to the (part of the) sentence that has raised to [Spec;FinP]. Thus, sentences like LIS (167.a), NGT (167.b), and IPSL (168) are explained with the same account and the same deep structure. The derivation of these sentences requires only one projection, namely Rizzi's FinP. However, the fact that Rizzi's hierarchy contains a number of topic projections above FinP accounts also for the fact that the moved imperative constituent can still be preceded by topicalized elements, as in LIS (187.a) and NGT (187.b). The structure of sentences as (187.a), (187.b), (167.a), (167.b), and (168) then looks as sketched in (193). Imperative clauses move leftwards to [Spec;FinP] where they receive the

imperative NMM and may come to precede the lexical IMP marker (as in IPSL), whereas topics occupy [Spec;TopP] which is higher and more to the left.

193. Derivation of NGT, LIS and IPSL imperative:
topic (if any) → Spec;TopP, and IP → Spec;FinP. Fin° = IMP or Ø



Thus, if we follow Pfau (2006a) and Aboh & Pfau (2011), the behaviour of imperatives and topics in LIS, NGT and IPSL proves to be easily compatible with an antisymmetric organization of projections in the CP-domain and parallels the behaviour of spoken languages, suggesting that this structure is indeed universal. I wish to conclude this section by anticipating some observations to be developed in the following sections. The fact that topic projections are high in the structure also explains why topicalized elements are observed to the left of interrogative clauses as (189.a) and (189.b) and even to the left of conditional clauses, themselves assumed to raise leftwards (see chapter 5). Finally, sentences like (190.a) and (190.b) prove that different topic projections exist because multiple topics may co-occur. In §4.2.5, attention will be drawn to the fact that

these topic positions may encode partially different types of (given) information.

4.2.3 Structure and movement in wh questions

In the previous section, a fairly simple structure of the CP domain could be adopted to account for topicalizations and imperatives. In this section, it will turn out that actually, a more complex structure of the CP domain has to be assumed to account for the various constructions used to form wh questions in LIS and NGT. Such an account must be assumed to hold for all other languages as well, given that the antisymmetric model presumes that all languages have one and the same structure. The analysis will be developed on the basis of data from both sign languages and spoken languages.

With respect to wh-questions in sign languages, there has been an extensive debate about the position of wh-signs. On the basis of the linear order of elements and the spreading of the wh NMM in the sentence, different authors (among others, Petronio & Lillo-Martin (1997), Neidle et al. (1997), and Neidle et al. (2000) for ASL; Cecchetto, Zucchi & Geraci (2004, 2006) for LIS) have suggested either a leftward or a rightward movement of wh-signs[83] such as WHO, WHERE, WHAT, and so on. Despite making different (in fact, opposite) claims, all these proposals have in common that they postulate a relation between the place of the wh-sign in the sentence and the point where the wh NMM starts to spread. In this respect, the presence of double-wh constructions has been a major challenge.

Yet, as Aboh, Pfau & Zeshan (2005) and Aboh & Pfau (2011) point out, wh-questions with wh NMM can occur without any specific wh-signs. Only an invariable generic wh-particle occurs instead (e.g. IPSL G-WH), which they call a clause-typing morpheme (in their view, it is not a wh phrase). Conversely, languages may employ specific wh-elements such as 'who, where, what…' in noninterrogative constructions, as is the case in relative clauses in some spoken languages. For example, in English the word 'who' can occur in relative clauses as *The person who*

[83] As said in the first part of this chapter, I am using the labels "wh sign", "wh word" or "wh element". For the moment, I simply distinguish "(specific) wh signs/words/elements" from "(generic) particles" (e.g. wh particles or question particles). The phrasal or head-like status of these two categories of elements will be discussed throughout this section.

is speaking now was Prime Minister in 1993. This shows that the "wh-ness" of an interrogative clause is partially independent from the actual occurrence of specific wh-signs (or words) in both sign languages and spoken languages. This, in turn, opens up the possibility that the spreading of the wh NMM in sign languages is not entirely dependent on the position and even the occurrence of these wh-signs.

Data from NGT and IPSL have also led Aboh (2004), Aboh, Pfau & Zeshan (2005), and Aboh & Pfau (2011) to observe an important parallelism between the NGT "palm-up" question particle Q-PART (also glossed PU, see §4.1.3) and the IPSL generic wh-particle G-WH. In fact, both G-WH and Q-PART appear in sentences which do not contain a specific wh sign. For instance, in NGT (194.a) and IPSL (194.b), both particles cover the function of 'what', while in NGT (195.a) and IPSL (195.b), they also cover the function of 'when' and 'where', respectively. Notice that the wh NMM of IPSL spreads optionally over the whole sentence and obligatorily onto G-WH (Pfau 2006b), even though in other examples, it appears only on this particle (Pfau 2006a; Aboh & Pfau 2011). However, Aboh & Pfau's analysis, on which the present discussion is based, does not rely on the optionality of NMM spreading[84].

194.

a. [NGT: repeated from (175.b)]

wh

YESTERDAY IX$_2$ BUY Q-PART

'What did you buy yesterday?'

b. [IPSL: adapted from Pfau 2006a:6]

wh.

YESTERDAY IX$_2$ PAY^TAKE G-WH

'What did you buy yesterday?'

[84] In fact, there is a whole group of IPSL examples, among which (194.b), which display optional spreading in Pfau (2006b) and no spreading in Aboh & Pfau (2011). Where possible, I report Pfau's (2006b) glosses, which illustrate the broader range of options available in IPSL for the realization of those sentences. I do so in order to avoid the impression that spreading of the IPSL wh NMM beyond G-WH is ungrammatical.

195.

a. [NGT: adapted from Aboh & Pfau 2011:22]

wh

TRAIN FRANKFURT LEAVE Q-PART

'When does the train to Frankfurt leave?'

b. ( ) wh. [IPSL: adapted from Pfau 2006b:8]

PIX$_2$ FRIEND SLEEP G-WH

'Where does your friend sleep?'

Aboh & Pfau point out that many spoken languages employ question particles, too, as, for instance, Lele *ga* and Japanese *ka*, and propose that these particles, as well as the particles Q-PART and G-WH, sit in Inter°, the head of the interrogative projection. According to the authors, these particles occur in final position because the proposition moves (leftwards) to the specifier of the interrogative projection (just as imperative clauses move to the specifier of the imperative projection, as argued in §4.2.1). It must be noted that there is no consensus over the fact that Q-PART occupies Inter°. The low frequency with which it appears in yes/no questions (see §4.1.2 and §4.1.3) seems at odds with its being a question particle. Crasborn et al. (2006) and Van der Kooij et al. (2006) propose an alternative account and treat it as a boundary marker which does not only appear in interrogative clauses[85], but rather depends partly on prosody and partly on syntactic factors. In fact, they employ the gloss PU, not Q-PART. Van der Kooij et al. suggest that it may also function as an

[85] See, for instance, the following example from Bos (1995):

1. [NGT: Bos 1995:132]

neg

SEE INDEX$_1$ PU2 NOT-YET REMEMBER(+) INDEX$_2$ PU

'I see that you still don't remember (how the computer works)'

If this is confirmed, it means that this sign is not interrogative *per se* but might rather mark uncertainty on the Speaker's part. Alternatively, two homophonous PU particles with distinct functions could be assumed. Further investigation is necessary on this issue. However, since the existence of interrogative marking is proved by other languages, I will follow Aboh & Pfau (2011) in taking Rizzi's interrogative projection to be active also in NGT interrogative clauses, and I extend this hypothesis to LIS.

evaluative marker. It is thus possible that further research brings conclusive evidence that Q-PART occupies a syntactic position different from Inter°. Given the different contexts in which this particle occurs, another possibility to explore is that we may have to do with homophonous particles which have distinct functions: only some of the signs glossed as Q-PART/PU would be Q-PART proper. Thus, determining the exact structural position(s) of Q-PART may require further research. However, given that Q-PART occurs in interrogative clauses and in order to avoid ad-hoc proliferations of projections, here I provisionally assume that, at least as far as interrogative clauses are concerned, it occupies Inter°, following Pfau & Aboh (2011). I will attempt at verifying whether this assumption is compatible with an antisymmetric structure. As Aboh & Pfau note, the IPSL particle G-WH marks only wh-interrogative clauses, whereas Lele *ga*, Japanese *ka*, and NGT Q-PART may appear in **all** interrogative clauses, yes/no questions included. See the NGT example (171), repeated here as (196), where Q-PART occurs in a polar question.

196. IX$_3$ PARTY CANCEL Q-PART [NGT: repeated from (171)]
(yes/no int.)
'Is the party cancelled?'

Moreover, the sign Q-PART is neutral as to which nonmanual marker is used because it can occur with either yes/no NMM or wh NMM. In contrast, according to the data, IPSL G-WH is strictly related to the wh NMM and to the "wh-ness" of the interrogative clause. It seems thus that the function of particles as G-WH is not only different from that of specific wh-signs (WHO, WHERE, WHAT, etc.), but also different from that of particles such as Q-PART, *ga*, *ka*. The particle G-WH has the function of a wh lexical marker (accompanied by a wh nonmanual marker). In contrast, the particles Q-PART, *ga*, and *ka* are really question particles, that is, (lexical) interrogative markers that occur in questions regardless of whether they are yes/no or wh questions. Crucially, the NGT counterpart of G-WH appears to be the wh NMM rather than Q-PART. In other words, the NGT wh NMM has more in common with IPSL G-WH (and its wh NMM) than NGT Q-PART has. Indeed, what really marks wh-questions in NGT is neither the specific wh-sign, which can be omitted as in (174.b), (175.d), (194.a), and (195.a), nor the Q-PART which occurs also in yes/no questions as (196) and, conversely, can be omitted in wh

questions as (175.d). In contrast, what marks wh-questions, that is, what must always be present in NGT wh-questions, is the wh NMM. The same holds for the wh NMM in LIS: in this language, there is no Q-PART, the specific wh signs can be omitted as in (174.a), but the wh NMM must always be present. Thus, the LIS and NGT wh NMM acts like the lexical G-WH marker of IPSL, which marks wh questions and is also accompanied by a NMM. This means that wh marking is only nonmanual in some languages (LIS and NGT), but involves also lexical material in other languages, which have a lexical generic wh marker (IPSL).

In light of this, wh marking is no longer simply a matter of spreading of nonmanual markers. Rather, it involves features which can be spelled out also lexically, at least in some languages. Because of this, however, the examples also give evidence that wh marking (G-WH and/or NMM) is partially independent from interrogative particles (*ga*, *ka*, Q-PART) and from specific wh signs (the questioned element 'who,what,where' and so on…). In fact, not only does wh marking occur without wh signs (see Aboh, Pfau & Zeshan 2005), but also interrogative marking (e.g. Q-PART) occurs without wh marking (in polar questions). We must therefore conlcude that in wh-questions three distinct elements must be always distinguished: *interrogative particle* (or interrogative marker)*, wh marker (lexical and/or nonmanual)* and *specific wh elements* (words or signs), henceforth SWH. Languages vary as to which of these elements are realized lexically. Two consequences follow from this. First, following Aboh's (2004) proposal for interrogative intonation in Gungbe[86] and Aboh & Pfau (2011), the wh nonmanual marker can be taken as the prosodic effect of a morpheme which is either phonetically null or **also** realized lexically (for instance the G-WH sign). According to this, when the NMM is visible and the language has no overt G-WH morpheme, a zero G-WH-like morpheme must be assumed in the clause. Second, the function of this morpheme is to specify that the interrogative clause is of the wh-type. Thus the morpheme realizes a feature different both from the one of interrogative markers (as Q-PART) and from that of SWHs.

[86] While Aboh (2004) dealt with an interrogative marker occurring in all interrogative clauses, the peculiarity of NGT and LIS wh nonmanual markers and the IPSL lexical G-WH marker is that they encode "wh-ness" rather than pure interrogativity, since they do not occur in yes/no questions. His proposal to relate lexical and non lexical marking of syntactic phenomena is still valid, however, and applicable to LIS and NGT.

Granted that interrogative particles realize a feature encoded in Inter°, the data suggest that the wh NMM and G-WH may sit in a projection[87] distinct from InterP, as well as distinct from the position of SWHs. This amounts to saying that wh questions may involve three distinct elements (interrogative particle, wh marker and SWH) because their construction involves three distinct projections. Wh questions, besides having a projection encoding the [+interr] feature, also have two wh positions, one related to the presence of SWHs and the other related to "pure" wh-marking (G-WH sign and/or wh NMM) which encodes only the "wh-ness" of the interrogative clause. Following this hypothesis, the wh NMM would be always related to this latter position, be it filled by a G-WH or lexically empty. This would explain why the wh NMM is not related to the position of SWHs.

This proposal does raise some questions as to how the two positions are represented structurally. First, if this hypothesis is correct, one would expect to find at least some language in which in wh questions the two wh-related positions are lexically filled at the same time, in addition to displaying interrogative marking. Until now, indeed, we only have on the one hand some languages where G-WH (and/or wh NMM) **acts** differently from both SWHs and pure lexical interrogative markers and, on the other hand, languages where lexical interrogative markers and wh-signs/words co-occur, thus indicating that each of them fulfils a distinct function. Admittedly, IPSL also has some wh questions where the G-WH is accompanied by more specific signs as, for instance, PLACE or FACE, to express more specific meanings (e.g. 'where', 'who'), but these signs are not wh elements and for this reason, I did not include them in the data. However, we lack direct evidence of three syntactic positions, corresponding to three distinct features, being **filled** at the same time. Secondly, the assumption of two different wh positions, although an attractive solution in order to separate out (the spreading of) wh NMMs from the position of wh-signs, could be seen as an ad hoc proliferation of projections, made to force the analysis of sign language syntax into an antisymmetric framework. Thirdly, how can one locate these projections in LIS and NGT given that these have only wh NMMs, that is, suprasegmental information which spreads over strings of signs?

[87] We will see later in this discussion whether the morpheme occupies the head or the specifier of this projection.

To be able to answer the first two questions, one should be able to observe languages where wh (lexical) marking, wh signs/words, and interrogative marking are all visible and all distinct from each other. In §4.1.3, it was shown that there are indeed some spoken languages where wh questions can have two visible wh positions, as in (197.b), (198.b), possibly filled by different lexical material. Crucially, in this case, wh questions also display both the initial-wh construction (197.a), (198.a) typical of Romance languages, which have [Spec;CP] on the left, and the final-wh construction (197.c), (198.c) observed also in LIS and NGT. The two distinct wh positions are highlighted in bold. Also, recall that neither the initial nor the final position is **in situ**.

197.

a. [Ven. sent-initial: rep. from (179.a)]
(**co**)**sa** gało magnà?
what have.3IND.PR-CLT.M.SG.INT. eaten

b. [Ven.Illasi: rep. from (179.b)]
sa alo magnà (**che**)?
what have.3IND.PR-CLT.M.SG.INT. eaten (what)

c. [Ven. Bellunese: rep. from (179.c)]
alo magnà **che** ?
have.3IND.PR-CLT.M.SG.INT. eaten what
'What did he eat?'

198.

a. [Ven. sentence-initial]

ndo/indove vałо ?
where go.3IND.PR-CLT.M.SG.INT.
'Where does he go?'

b. [Ven. Illasi: adapted from Poletto 2006a:10[88]]

ndo valo **andóe** ?
where go.3IND.PR-CLT.M.SG.INT. where
'Where does he go?'

c. [Ven. Bellunese: adapted from Poletto & Pollock 2004a:253[89]]

valo **(a)ndé**?
go-3IND.PR-CL.M.SG.INT. where
'Where does he go?'

The two different positions can be filled independently from one another in different varieties and can (but do not necessarily have to) host partially different material as shown, for instance, in (197.b) and (198.b). The forms *ndo* and *sa* never occur sentence finally, indeed, and are unstressed. The sentence-final position, in contrast, hosts stressed forms as *andoe* and *che*. Interestingly, the verb, which differs slightly depending on the variety (*alo*/*gałо*), incorporates a postverbal clitic which is typical of **all** interrogative clauses[90] (although not only of

[88] Poletto points out that these data are grammatical for the younger generation of Veneto speakers in Illasi, while the older generation only admits reduplication with *sa...che.* This difference shows that the use of reduplicated forms is spreading among the young, but this does not form an obstacle for Poletto & Pollock's analysis.
[89] Data originally from Munaro (1997), belonging to the Veneto variety of Tignes d'Alpago (prov. Belluno). Generally, the whole northern area of Veneto, i.e. the prov. of Belluno and part of Treviso, shows a final-wh pattern.
[90] The postverbal 3rd person masculine singular subject clitic *–lo* is different from the preverbal 3rd p.m.sg.clitic *el / l'*. In other words, the corresponding declarative sentences ('he ate X') would be: *el ga magnà X, l'à magnà X.* Also the 2nd person interrogative subject clitic *–to/tu* (*viento?* 'do you come?') is different from the 2nd person preverbal subject cilitic *te/ti* used in declarative clauses (*te/ti vien* 'you come'). Recall that interrogative clitics are optional when the subject is questioned (§4.1.3), but they are obligatory in all other interrogative clauses, polar questions included, throughout the region; only the eastern areas around Venice seem to prefer

interrogative clauses) because it occurs in both wh and yes/no questions, but not in plain declarative sentences. By comparing these data with data from French and different Northern Italian Dialects, Poletto & Pollock (2004a, 2004b) and Poletto (2006) explicitly argue for a universal Spec-Head-Compl deep structure with two wh-related functional projections, labelled WhPs (or operator phrases, OPs), which can be filled differently in different (varieties of) languages. Between these projections, they posit an additional projection which accounts for the interrogative verbal inversion with the postverbal clitic. In their analysis, the verb raises to this projection and appears thus between the two wh elements. We, thus, have evidence that at least three different syntactic positions are involved in the formation of wh-questions. Crucially, two of these positions host wh material. Consequently, there is evidence that languages allow for two lexically filled wh positions at the same time. The first question is thus answered.

More specifically, although Poletto & Pollock made use of quite a complicated sequence of movements to account also for the presence of auxiliaries and past participles, not observed in LIS and NGT, the fact that two wh positions can co-occur in one sentence (in addition to an interrogative position) suggests that not only in the visual modality, but also in spoken languages, there is a position for wh-marking, different from the one hosting specific wh-signs and different from the one where interrogativity is encoded. This is of great interest for the analysis of LIS and NGT data. The existence of final-wh and double-wh questions in Romance languages, which have a Spec-Head-Compl structure, is even more interesting because it means that these constructions are not necessarily evidence for specifiers and heads sitting to the right of the complements. Poletto & Pollock's analysis, indeed, assumes a universal Spec-Head-Compl structure where only leftward movement can occur. Also consider that the wh interrogative intonation is different from the yes/no intonation and is always present in wh questions regardless of the positions being lexically realized. A survey of the relations between syntax and prosody in Veneto lies outside the scope of this dissertation. However, although slight intonational differences exist among varieties, yes/no questions usually terminate with a raising/higher intonation as

preverbal clitics also in interrogative contexts (*ti vol* '(do) you want'). Occasionally, however, forms with postverbal clitic (*vos-tu* 'want-you') can still be heard from older people in Venice.

compared to wh questions. The wh interrogative intonation is like the wh NMM which co-occurs with either an overt or a nonovert G-WH of which it is the prosodic effect (as proposed in the spirit of Aboh (2004) and Aboh & Pfau (2011)).

At this point, interesting similarities emerge between languages, under the previous assumption that the wh nonmanual marking is the nonlexical marking associated with the position of the G-WH, which is different from the position of SWHs and also different from the position of Q-PART. As an example, I list together some of the previous Veneto, NGT, and IPSL interrogative sentences where double-wh and final-wh constructions appear. Italics are mine and show how the two types of wh elements involved in wh questions are realized in the spoken, oral modality and in the signed, visual modality. The italics do not necessarily reflect the linear order of these elements. The linear order will be discussed later in this section. Between parentheses, it is specified whether the two wh elements of the sentence are lexical (*lex*), zero (*ø*), or accompanied by a NMM (*nonman*). For the moment, we observe the following similarities. First, in both the oral and the visual modality, all the sentences have some wh feature to mark, either lexically or not, given that all the sentences are wh questions. Secondly, besides one position for SWHs (and that of interrogative markers), both modalities provide an additional wh position that I will provisionally gloss 'wh-'. In (199.a), two wh positions are lexically filled, while in (199.c), the additional position is visible through the nonmanual (nonlexical) wh marker, which is the effect of a nonovert G-WH-like morpheme (Q-PART is not considered because it is interrogative, not wh). However, not all sentences display both wh positions overtly. In (199.b) the initial wh element is not phonetically realized. Also, (199.d) and (199.e) display only the lexical wh marker (the generic morpheme G-WH accompanied by a nonmanual component), but no overt SWHs. Thus, both modalities provide two wh positions in all sentences, although these are not always overt. Moreover, as we have seen, in both modalities, interrogativity may be encoded overtly on a distinct element, such as the optional sign Q-PART (in NGT) or the verb (in Vèneto). Here, I focus only on the two wh positions.

199.

a. **Sa** alo magnà (**che**)? [Ven.Illasi: repeated from (179.b)]
wh- (lex) + what (lex / ø)
'What did he eat?'

b. Ø alo magnà **che**? [Ven. BL: repeated from (179.c)]
wh- (ø) + what (lex)
'What did he eat?'

c. YESTERDAY IX$_2$ BUY **WHAT** [NGT: cf. (175.b)]
wh- (ø + nonman.) + what (lex)
'What did you buy yesterday?'

d. IX$_2$ AGE **G-WH** [IPSL: Pfau 2006b:8]
wh- (lex.+ nonman.) + what (ø.)
'What is your age?'

e. IX$_2$ FRIEND SLEEP **G-WH** [IPSL: Pfau 2006b:8]
wh- (lex.+ nonman.) + where (ø)
'Where does your friend sleep?'

The similarities observed suggest that one of the two wh positions is related to wh-ness (hence wh lexical and/or nonmanual marking), in both spoken and sign languages. Given this, it is attractive to assume that wh marking is related to one and the same structural position across both modalities, although languages vary as to which slots can be filled lexically and which lexical material is employed. Also, notice that two wh positions can be filled lexically in both spoken and sign languages. This availability of two wh related lexical positions (in addition to interrogativity) accounts straightforwardly for double-wh constructions. It is sufficient to posit that one wh projection is able to host a copy of the element contained in the second wh projection, instead of being lexically empty or filled by a generic G-WH. In fact, as pointed out in §4.1.3, double-wh constructions with two identical wh elements are not peculiar

to the visual modality, but occur also in spoken languages. Compare (177), repeated as (200.a), and (180.b), repeated here as (200.b):

200.

a. [NGT: rep. from (177)]

wh

WHO BOOK STEAL **WHO**

'Who steals the book?'

b. [Ven.Verona: rep. from (180.b)]

Ci èlo **ci**?

who be-3IND.PR-SB.CLT.M.SG.INT. who?

'Who is he?'

Initial-wh constructions as (178), (179.a), and (180.a) are then analyzed as having the final position not lexically realized. These data mean that what I have labelled SWHs may actually occur in two instances, either as a SWH proper or as a sign homophonous to the SWH in place of the generic G-WH (that optionally accompanies the wh NMM). I will discuss this later. For the moment, the availability of two lexically filled wh positions in both the spoken and the visual modality allows us to conclude that assuming two wh-related positions to separate out the wh NMM from the distribution of wh signs is not an ad-hoc hypothesis. The second question is thus answered.

The issue is now which projection in the structure is associated with the additional wh position, given that wh marking has a dedicated projection, different from both the position of SWHs and from the position of interrogative marking (i.e. interrogative-marked verbs or interrogative particles, *ga*, *ka*, Q-PART). The problem is complicated by the fact that the examples display different linear orders, so that it is not easy to relate the different surface orders to one deep structure. At this point, locating the position of wh marking amounts to determining which of the two wh positions lexically visible in (199.a), (200.a), and (200.b) corresponds to the position of the wh NMM and the G-WH (if any). This immediately leads us back to the third question, as to how a projection in sign languages can be identified if its content surfaces in the sentence only as a suprasegmental feature, that is, as a nonmanual marker which makes the linear ordering of signs less clear. In this case, crosslinguistic variation brings only partial insight because some information is not

encoded lexically. For instance, LIS and NGT usually have lexical SWHs, but they do not co-occur with any G-WH-like lexical wh marker (remember that the Q-PART of NGT cannot be taken as the counterpart of G-WH). IPSL has a clearly lexical sentence-final G-WH (accompanied by a nonmanual component), but this sign does not co-occur with any SWHs. Finally, NGT does show two co-occurring wh-positions on some occasions, but these are filled with homophonous lexical elements (for example, the same SWH WHO). Consequently, it is not possible to determine which position is reserved for SWHs proper and which position is related to the wh marker, i.e. the wh NMM and/or G-WH (possibly replaced by a copy of the SWH).

However, the analysis can profit from the fact that in some languages the two wh positions can also host different SWHs, as *sa* vs. *che* in (199.a) = (197.b) and *ndo* vs *andóe* in (198.b). The distinct treatments of these SWHs in spoken languages provide a basis for the analysis of sign languages. We can thus start the analysis by observing the behaviour of SWHs and the way they have been analyzed in some studies on spoken and sign languages. What appears clear from crosslinguistic and intralinguistic data is that the sentence final SWHs of LIS and NGT occupy a position different from their *in situ* position inside IP, from the position of interrogative particles, and from the position of possible wh markers. SWHs are usually taken to be wh-phrases in a focus projection (see Rizzi 1997; Aboh 2004a; Lipták 2001), although Aboh & Pfau (2011) argue that focusing is not necessarily involved in all languages. Poletto & Pollock (2004a/b) and Munaro & Pollock (2005) mention different WhP*s* or operator projections without going into any detail about focus, though the existence of wh-phrases is assumed. Since in this dissertation, I do not have enough data about NGT and LIS to distinguish focus positions from other projections, I will follow the general assumption that usually[91] SWHs are wh-phrases in focus (except in-situ SWHs, which remain in their argumental position). I leave a deeper investigation of nonfocalized wh elements for future research[92].

[91] As argued later in this section, what I provisionally label "SWHs" (signs or words meaning 'who, what, where' and so on) are not always wh-phrases.

[92] Even though one takes wh signs to be without focus features, it seems to me that in any case, they imply at least some kind of contrast. In this light, it would be possible to analyze specific wh-signs as sitting in ContrP rather that in FocP (for an autonomous ContrP, see Frascarelli & Puglielli (2007), whose proposal is recalled

Notice that the focus projection is lower than the projection where interrogativity is encoded. This allows Aboh & Pfau (2011) to claim that both focalized and nonfocalized wh-signs (or words) are wh-phrases located lower than interrogative particles in the structure. In Aboh & Pfau (2011), nonfocalized elements are in situ within FinP/IP, hence lower than InterP. Focalized elements raise to FocP, but they are still lower than InterP because FocP is lower than InterP in Rizzi's hierarchy. In both cases, further raisings strand the interrogative particle in Inter° in clause final position. Thus, both focalized and nonfocalized elements come to precede the interrogative particle in the surface order, although with slightly different linear positions. Assuming that FocP is lower than InterP is also consistent with the distribution of wh elements in Veneto, which are able to follow the interrogative verb. Thus, one position occupied by SWHs is a focus position.

As for the other wh position, which I am relating to lexical and nonmanual wh markers (possibly homophonous to SWHs, if any), Poletto & Pollock (2004b) and Poletto (2006) extend to double-wh constructions the analysis of pronominal clitic doubling. They convincingly argue that clause-initial phonologically reduced forms *sa* (197), (199), *ndo* (198), and also French *que* are wh clitics which occupy the head of a projection higher than the projection which hosts clause-final wh-phrases. At this point, it is certainly not easy to tell at first sight if sign languages have wh clitics at their disposal and a study on (possible) clitics in sign languages is beyond the scope of this dissertation. Nevertheless, Poletto & Pollock's (2004b) observations and hypotheses about Romance languages show some interesting similarities with Aboh, Pfau and Zeshan's (2005) analysis of sign languages (later refined in Aboh & Pfau (2011)). Especially, the fact that both Poletto & Pollock's and Aboh & Pfau's analyses rely on the assumption of some head-like wh-element structurally higher than the projection of wh-phrases (which SWHs usually are), sheds some light also on the spreading of wh NMMs in LIS and NGT, which is apparently difficult to predict in an antisymmetric framework. Notice, at this point, that the NMM spreads over the whole sentence in many examples. This proves, in my opinion, that for the

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briefly also in §5.2.3). The nature of the projection, however, does not impede the analysis, which is based simply on the number of structural projections, one of which is assumed to be specific for final SWHs, and on their position with respect to the interrogative projection.

NMM, the clause is acting as a whole constituent. Aboh & Pfau (2011) do indeed propose that the clause moves to [Spec;InterP] whose head Inter° hosts Q-PART or G-WH, and assigns the NMM to the specifier. That wh questions involve head wh elements is thus a fair assumption, and this correctly predicts the spreading of the NMM. Yet, as already mentioned, G-WH is strictly related to wh marking (also wh NMM) unlike Q-PART, which is purely interrogative and neutral with respect to the NMM.

Thus, Aboh & Pfau's analysis is on the right track in arguing that wh questions are marked independently of the presence of SWHs, possibly by a head element, but, in my opinion, it cannot capture the fact that the wh feature of wh questions (related to the wh NMM) is also distinct from interrogativity. Their analysis, however, can be refined in light of Poletto & Pollock's (2004a/b) observation that one interrogative and two wh projections co-occur in wh questions, with the higher wh projection hosting head wh elements. This opens up the possibility that G-WH (or the zero morpheme) that accompanies the wh NMM is a head distinct from the Inter° which hosts Q-PART. Accordingly, the wh NMM would be assigned in the specifier of a projection different from InterP. Thus, Poletto & Pollock's observation meets both the claim that G-WH is a head and also the previous hypothesis that the wh NMM and G-WH occupy a dedicated projection (different from InterP, as well as from the position where SWHs usually occur).

In this light, I would like to pursue an hypothesis I already proposed in Brunelli (2007). There, I assumed a split-CP structure very similar to a simplified version of Poletto & Pollock's (2004b)[93] scheme and I also took the higher wh projection (WhP) to be the position where wh-marking occurs under spec-head agreement, while assuming the final SWHs to be wh phrases located in FocP (following the general assumption that wh-phrases bear focus features). I also assumed an interrogative projection positioned between the WhP and FocP. This corresponds to Poletto & Pollock's and Munaro & Pollock's analyses,

[93] Poletto & Pollock's (2004) structure is made of at least three projections: a higher WhP, ForceP (interrogativity), and a lower WhP. Here, I will assume interrogativity to be encoded in InterP, following Rizzi (2001) and Aboh & Pfau (2011). What is relevant is the fact that the projection of interrogativity is always positioned between a lower wh projection and a higher wh projection and is not the highest projection in the split-CP. The name chosen for the projection, thus, does not affect the process of derivation of wh questions described here.

according to which the higher WhP must be above the projection for interrogativity. It also matches Rizzi's assumption of an interrogative projection above FocP. Here, then, I will follow Aboh & Pfau (2011) in assuming that Q-PART occupies Inter° and that G-WH is a head, but in contrast to their account, I propose that G-WH sits in Wh° which also assigns the NMM to [Spec;WhP]. In other words, G-WH is a head higher than Q-PART and the wh NMM is assigned above Q-PART.

In addition to this, I will also follow Poletto & Pollock in assuming a TopP projection, which Aboh & Pfau invoked also for IPSL together with a FocP reserved for wh-phrases. If we take the higher projection WhP to be the place where wh-marking is encoded, then we can account for the fact that LIS and NGT interrogative clauses often bear a clause-long wh NMM by assuming that the whole clause moves to the specifier (on the left) of this WhP. While in Veneto the wh-feature can be encoded lexically by a clitic in Wh°, LIS and NGT do not have such an overt head and are forced to encode the feature by filling [Spec;WhP]. This happens by leftward movement of the whole InterP (containing FocP and TopP) and yields the NMM spreading on the whole sentence. In contrast, the IPSL clause-final generic wh lexical marker G-WH can be accounted for in this antisymmetric model by positing that G-WH spells out the head Wh°, of which the specifier [Spec;WhP] is filled through leftward pied-piping of the clause containing a silent SWH (again producing NMM spreading). Leftward raising to [Spec;WhP] would thus occur in IPSL just as in LIS and NGT, with IPSL having also Wh° filled. As for the NGT lexical interrogative marker Q-PART, it can be assumed that the clause raises to [Spec;InterP] as in Aboh & Pfau (2011), before InterP moves further to [Spec;WhP].

To sum up, the only difference between Aboh & Pfau's (2011) proposal and the present account is that here G-WH sits in Wh° rather than in Inter° (because G-WH is specifically related to wh questions, unlike "purely" interrogative markers hosted in Inter°). Consequently, Aboh & Pfau's movement to the left of G-WH is a leftward raising to [Spec;WhP], rather than to [Spec;InterP] (movement to [Spec;InterP] occurring for independent reasons).

WhP being higher than InterP accounts for the fact that the interrogative marker Q-PART, although sitting in Inter°, receives the wh NMM. It also accounts for the fact that this happens only when a wh question is built. If Q-PART were higher than WhP, it could not raise to

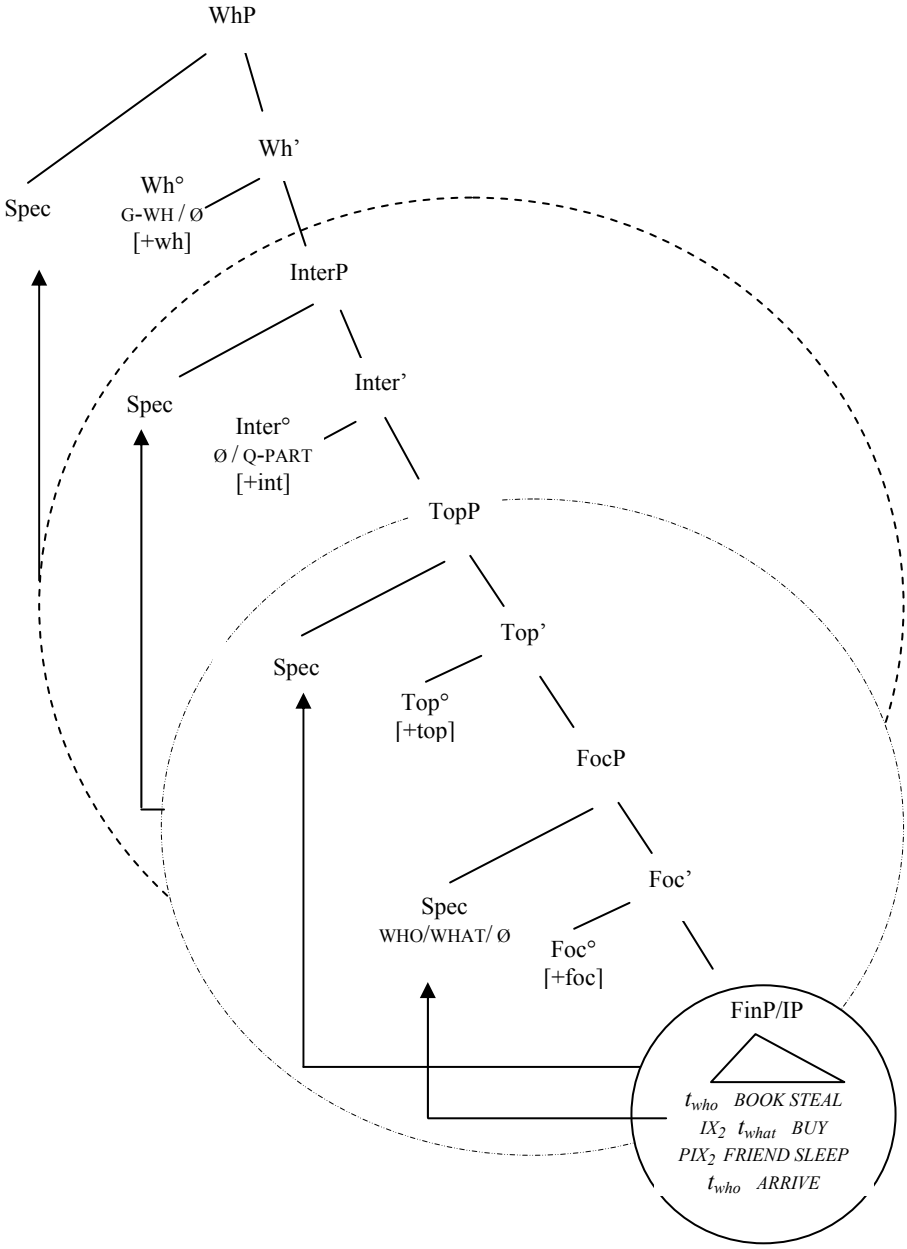
[Spec;WhP] and would never fall under the wh NMM. If WhP did not exist (or if Q-PART occupied Wh°), the wh NMM and Q-PART would come to occupy the specifier and the head of the same projection (either both in InterP or both in WhP). Consequently, the head Q-PART would always co-occur with the wh NMM, given that NMMs are assigned under spec-head agreement[94]. Thus, according to the present hypothesis, LIS, NGT and IPSL behave in basically the same way with only two differences. First, IPSL has an overt wh lexical head G-WH and nonovert SWHs, while LIS and NGT have overt SWHs, but no lexical G-WH marker. Second, NGT has an overt interrogative lexical head Q-PART, which LIS and IPSL do not have. The formation of wh-questions is thus realized through the following steps, which are required to encode interrogativity, the kind of interrogativity (here wh-ness), and the questioned element.

First the questioned element (i.e. the SWH which is a wh-phrase), if present, is moved leftward to [Spec;FocP] and then the remnant clause FinP/IP moves further leftward to [Spec;TopP]. This creates a relation of prominence between the questioned element and the rest of the clause, while the inversion yields the clause-final position of the SWH. Subsequently, the whole complex raises to [Spec;InterP] where it is marked as an interrogative clause under spec-head agreement with Inter°. If an element (e.g. Q-PART) occupies Inter°, it is stranded in final position. Finally, InterP (containing TopP and FocP) moves to [Spec;WhP] where the interrogative question is marked as one of the wh-type; this accounts for the fact that the whole clause, including possible interrogative particles, acts as one constituent (see 201) with respect to the wh NMM, which can spread across the whole string of signs. A lexical wh marker (e.g. G-WH) in Wh° surfaces clause-finally. This derivation accounts for the fact that both Q-PART and G-WH, though different from one other, follow the final SWH (if any). It also predicts that, if one of the sign languages investigated had both a lexical wh marker and a lexical interrogative marker, the wh marker should follow the interrogative one. Admittedly, Q-PART and G-WH do not occur in the same language. However, their behaviours and distribution (Q-PART in all questions, patterning with interrogative markers; G-WH only in wh questions, patterning with wh (nonmanual) markers) and the distribution of the wh

[94] Unless one hypothesizes that two homophonous Q-PARTs exist, one associated with the wh NMM and the other associated with the yes/no NMM.

NMM still suggest the universal deep structure represented in figure (201) with the four derivational leftward movements mentioned above. A leftward movement raises the SWH to [Spec;FocP]. A remnant movement raises the rest of the clause further leftwards, to [Spec;TopP]. A subsequent leftward movement raises everything to [Spec;InterP]. A final leftward movement raises InterP further leftwards to [Spec;WhP]. By way of example, figure (201) illustrates the formation of LIS (176.a) and NGT (176.b), which contain a clause-final SWH, of NGT (175.a), which contains SWH and Q-PART, and of IPSL (195.b), which contains only G-WH. Figure (201) also includes the derivation of LIS final-wh clause (202.a), which is described in the next pages and contrasted with LIS in-situ-wh clauses and NGT double-wh clauses.

201. Formation of wh interrogative clauses requires three different syntactic positions



Interestingly, if no element moves to FocP, as Aboh & Pfau (2011) propose for some IPSL sentences (or alternatively, if the whole clause were assumed to raise to FocP), the subsequent two raisings, to InterP and WhP, will still yield a wh interrogative clause marked by a clause-long NMM, but the order of elements will be partially different because the SWH will be really in situ. By "really in situ", I mean that the wh sign occupies the same argument position that it would occupy in the corresponding declarative sentence. It is different from wh elements which are sometimes called "in situ wh", but which Poletto & Pollock have shown not to be in situ (see the discussion of examples (179.a)–(179.c), (180.a)–(180.c), and (181.a), (181.b)). In LIS and NGT, for instance, a subject wh should be the first sign (*Swh*OV) and an object wh should be positioned between subject and verb (S*Owh*V). Accordingly, in SVO languages, the questioned object should appear after the verb (SV*Owh*), but before other signs. Although I do not have data about NGT, this prediction appears valid for the variation in LIS sentences (202.a), (202.b)[95], as well as for the variation in ASL sentences (203.a), (203.b). In LIS (202.b), the subject wh is able to precede the verb, as an alternative to the more common clause-final position shown in (202.a).

202.

a. ARRIVE WHO? [LIS]
'Who arrived?'

b. WHO ARRIVE? [LIS: Cecchetto et al. 2004b: ex. nr. 36]
'Which of them arrived?'

ASL, unlike LIS, is an SVO language and the object wh may indeed appear in situ, as predicted, between the verb and the adverb (203.b), besides the typical interrogative clause-final position (203.a):

[95] The authors provide no gloss of the nonmanual marker.

203. [ASL: Neidle et al. 2000:111]

a. _____wh_____
TEACHER LIPREAD YESTERDAY WHO

b. _____wh_____
TEACHER LIPREAD WHO YESTERDAY
'What did John buy yesterday?'

I do not discuss ASL in any detail in this dissertation[96], but notice incidentally that this hypothesis also predicts that *in situ* questioned subjects appear clause initally, while in situ questioned objects cannot, although both can be clause-final when they are not in situ. In fact, in (204.a) the subject is clause-initial, while, according to Neidle et al. (2000), the clause-initial object in (204.b) is ungrammatical.

204. [ASL: Neidle et al. 2000:110]

a. _____wh_____
WHO LOVE JOHN
'Who loves John?'

b. _____wh_____
*WHO JOHN LOVE
'Who does John love?'

The raising movement without focalization of the wh element also accounts for double-wh constructions in NGT. Recall from (200) that the two wh positions (corresponding to FocP and WhP) can host the same lexical material, but they are not contiguous (e.g. *ci èlo ci*). As previously said, Poletto shows that these constructions involve a clitic in the head Wh° of the higher projection: such wh clitics are the clitic counterpart of wh-phrases. In fact, in this position, unstressed forms (*sa, ndo, ci*) appear, which cannot occur clause-finally. These forms are often phonologically reduced. Repetition of the base form is not excluded if the word is monosyllabic (e.g. *ci* 'who' is always short), but only in final position can

[96] Also recall the debate about some ASL data (Neidle et al. 2000; Petronio & Lillo-Martin 1997).

the wh-element be pronounced with stress[97]. Phonological reduction and impossibility of receiving stress are typical features of clitics. The fact that in spoken languages, the higher head Wh° can be filled with wh clitics, possibly phonologically similar to wh-phrases, but unstressed and shorter, is of special interest for our analysis. The Romance languages analyzed by Poletto, Pollock, and Munaro lack a general G-WH word in Wh°, but can fill Wh° with clitic versions of specific wh-words[98]. Since NGT, too, lacks a general G-WH head to fill the Wh° position, it is quite possible that it has developed or is developing some other head element(s) which cover(s) this function, besides exploiting the remnant movement to [Spec;WhP]. From this perspective, NGT would thus be not very different from IPSL. Crucially, while IPSL has a G-WH in Wh° and assigns the clause-long wh NMM to the remnant under spec-head agreement in [Spec;WhP], NGT (200.a) would have a *ci*-like element in Wh° again assigning the clause-long wh NMM to the remnant in [Spec;WhP].

The hypothesis of wh clitics sitting in Wh° entails that not all SWHs are wh phrases. Rather, specific wh signs or words (meaning 'who, where, what' and so on) can also be wh heads in both spoken languages and sign languages. This may appear as an ad-hoc assumption, but in fact, it is not very different from the observation that personal pronouns can have also a clitic version in some languages.

At this point, however, the fact that in (200.a) the wh NMM can spread over the whole clause also in double-wh constructions of NGT appears to be a major problem. The problem with this proposal lies in the

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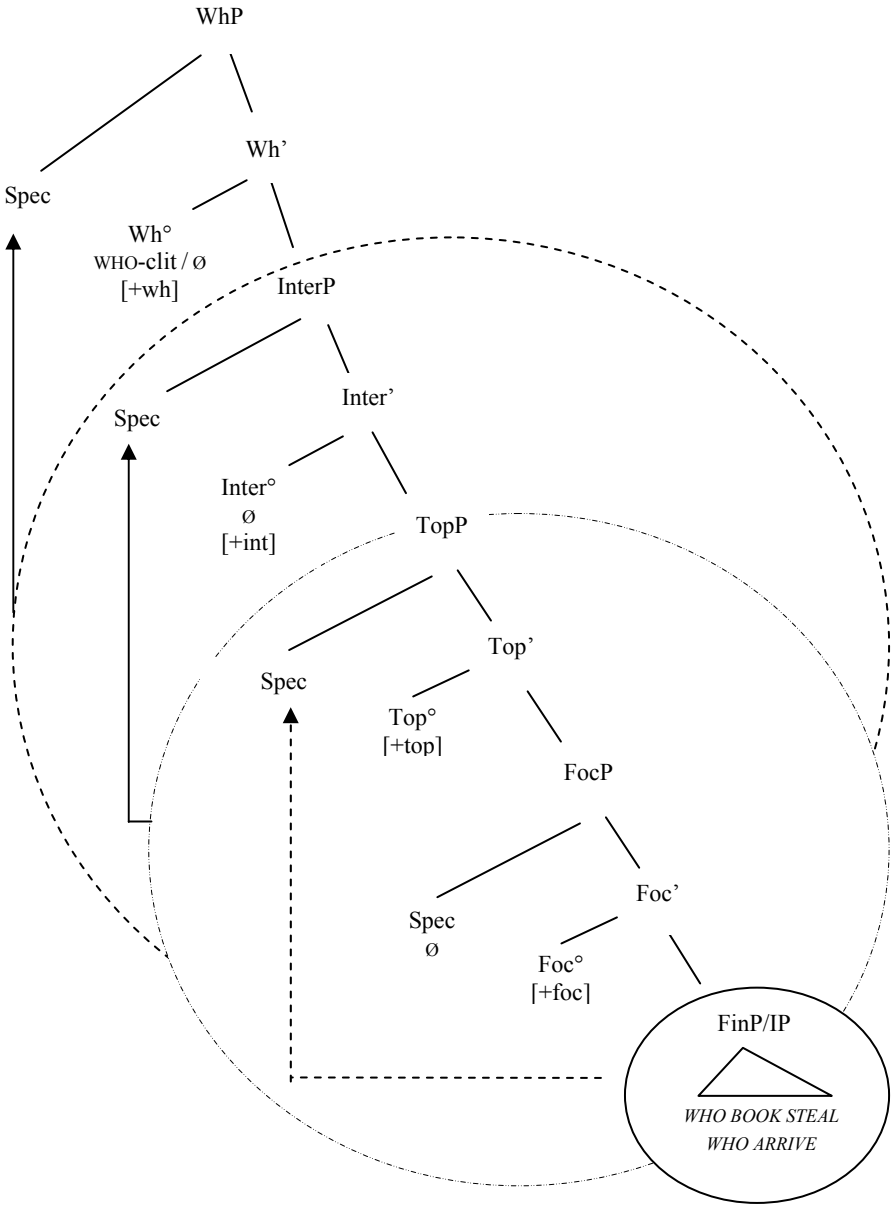
[97] The stress, represented here by underscore, is on the second wh (*ci èlo* <u>*ci*</u> , or possibly on the verb *ci* <u>*èlo*</u> without doubling), but not on the first wh (*<u>*ci*</u> *èlo ci, *<u>*ci*</u> *èlo*). Also the final interrogative *che* is stressed with respect to the homophonous complementizer *che*. For instance in Ven. Bellunese, forms like *èlo che che te disturba?* 'What is it that disturbs you?' (lit. 'is it what that...?' in Munaro & Pollock 2005) are pronunced with the stress on the postverbal wh element (*èlo* <u>*che*</u> *che...)* and not on the complementizer (**èlo che* <u>*che*</u>*...)*

[98] Notice, however, that under certain cirumstances and in some varieties of Veneto, the particle *'sa* ('what') can function as a general wh marker, which replaces specific wh phrases *quanto* ('how much') and *come* ('how'). See, for instance, *'sa còsteło / quanto còsteło* ('how much does it cost?') and *'sa te ciàmito / come te ciàmito* ('what is your name?'; lit. 'how do you call yourself'?). This observation holds partially also of "sloppy" regional Italian *cosa costa?* (used in Veneto), although **cosa ti chiami* is ungrammatical.

fact that in IPSL, there is just one clause-final G-WH, whereas NGT (200.a) has both a final and an initial element. Thus, the clause-final position of G-WH and the spreading of the wh NMM in IPSL are not in contradiction, but the clause-initial position of the wh element does contradict the spreading of the wh NMM in NGT in the following way. On the one hand, the NMM on the whole NGT clause shows that there is movement to [Spec;WhP] which strands the particle clause finally in Wh°, but, at the same time, the other leftward movements (to FocP and TopP) seen above should also strand the SWH clause-finally in [Spec;FocP]. In other words, one should observe a "… *WHO WHO" sequence with two clause-final wh signs. On the other hand, if no movement to [Spec;WhP] occurred, one would expect the wh NMM to occur only on the initial element (in Wh°), but not on the rest of the clause (because this would remain outside WhP). The NGT sentence (200.a) apparently contradicts the present proposal because it displays both a clause-long wh NMM and also an initial SWH.

However, (200.a) can be derived if we assume that a movement to [Spec;WhP] occurs in (200.a), as in LIS (202.b) and ASL (204.a), but without previous focalization of the wh phrase. This movement raises the clause to [Spec;WhP] with the in situ wh sign, so that the wh element in Wh° is stranded clause-finally and the in situ subject wh sign remains clause-initial. NGT sentences with optional double wh as (200.a) are thus accounted for assuming that raisings to InterP and WhP occur without previous extraction to FocP, as represented in figure (205). The optionality proceeds from the fact that Wh° may be not filled, in which case only the in situ subject wh element is visible before the verb. LIS sentences with in situ subject wh as (202.b) are derived along the same lines. The difference between NGT (200.a) and LIS (202.b) is due to the fact that NGT allows (but does not require) to fill Wh° with a clitic, while LIS has no clitic wh at all to fill Wh°. Hence in LIS no reduplication appears. The NMM, however, always spreads on the whole clause because this has moved to [Spec;WhP] in both languages. LIS (202.b) is then a subcase of NGT (200.a). Observe the two derivations in (205).

205. Formation of interrogative clauses with in situ wh (and possible double-wh)



In contrast to in situ wh subjects, a wh element in [Spec;WhP] prevents the sentence from receiving the wh NMM. If some wh element (a wh phrase) moves to [Spec;WhP], it is clause-initial, but it blocks the remnant movement of the clause. In this case, the clause remains lower, possibly in InterP, and only the wh sign in [Spec;WhP] falls under the wh NMM. The same happens if Wh° is lexically filled without pied-piping to [Spec;WhP], as Poletto & Pollock propose for cases like (199.a). This is borne out in (178) repeated as (206) below, provided that the lower wh position is not lexically filled.

206. $\overline{\text{WHAT IX}_1\ t\ \text{LIKE IX}_1}^{\text{wh.}}$ [NGT: repeated from (178)]
'What do I like?'

The present analysis also makes two interesting predictions. First, double-wh questions are possible with a wh-phrase in FocP and clitic-wh in Wh°, but if a language has only one general wh marker (head in Wh°), it should not display double-wh constructions (because nothing sits in [Spec;FocP]) nor in situ wh-particles (only phrases, such as wh-phrases or DPs, can occupy an argumental position[99]). Secondly, because double-wh questions involve a clitic in Wh°, it is not possible to build double-wh constructions by reduplicating wh phrases (phrases cannot sit in heads). Both predictions are borne out, as shown in (207.a), (207.b), and (207.c). On the one hand, IPSL has only one general wh marker head G-WH and does not allow double-wh questions as (207.a) nor in situ wh particles as in (207.b). On the other hand, LIS has complex wh-phrases, but does not allow these to be reduplicated as shown by the ungrammaticality of (207.c). In (207.c) one of the two BOY-WHICH should be a head, but this is not possible.

[99] For instance, in Italian, clitics occupy a different position than DPs:
1. Vedo un cane *vs.* Lo vedo *vs.* *Vedo lo
'I see a dog' *vs.* 'It-*cl* I see' *vs.* '*I see it-*cl*.'

207.

a. [IPSL: adapted from Pfau 2005b:5]
*G-WH FATHER IX SEARCH G-WH

b. [IPSL: adapted from Pfau 2005b:5]
*FATHER IX G-WH SEARCH
'What was/is father searching?'

c. [LIS: Cecchetto et al. 2004: ex. nr. 20]
*BOY-WHICH BOOK STEAL BOY-WHICH
'Which boy stole the book?'

At this point recall that complex wh-phrases can occur in a split form, at least in LIS, with the wh element in clause-final position, as usual, and an in situ NP as in (182.c). On the basis of the proposed extraction of wh elements to FocP, these constructions can be derived by focalization of the wh element alone, while the in situ NP raises with remnant movement as part of the remaining interrogative clause. In contrast, if WH+NP focalize together, the remnant movement strands the whole complex wh-phrase clause-finally as in (182.a) while, if no focalization occurs at all, the whole wh-phrase occurs in situ as in (182.b). Thus, languages vary as to the extent to which movement applies and as to which mechanism they employ to fill projections: lexical material in the head, lexical material in the Spec, no lexical material (but only nonmanual features), or both filling the head and raising to Spec. As a consequence, prosodic spreading associated with feature marking, as for instance NMMs in sign languages, is affected by the type and the position of the lexical material, but does not depend directly on the wh phrase. Accordingly, there may be crosslinguistic (and also intralinguistic) variation with respect to the relation between NMM spreading and linear order in wh questions.

Yet, natural languages, both in the oral and in the visual modality, can be assumed to have universally the same projections because they encode features necessary to build up a wh question in any language: the fact that a sentence is interrogative (not declarative), the fact that this interrogative is of the wh type (not polar), and finally, the need for specifying the questioned element. This hypothesis provides a unified account for the attested crosslinguistic and crossmodal variation, thus

accounting for phenomena (wh-questions) which have traditionally been explained using two different deep phrase structures: many sign languages would have a [Spec;CP] on the right whereas most spoken languages would have [Spec;CP] on the left. Moreover, the proposal put forward here offers a unified solution for some striking similarities (double-wh constructions and final-wh constructions) between languages which under previous proposals were structurally different. It also accounts for the observed intralinguistic variation in different ways. It relates different spreadings of the wh nonmanual markers to distinct positions and statuses (phrase/head) of the wh signs. Rather than ruling out constructions that have been attested, it predicts that they occur only under certain conditions, which depend on the parametrical setting of each language and also involve differences in the spreading of NMMs. It rules out only those constructions that show a basic, structural incompatibility as in, for instance, (207.a)–(207.c). In addition to this, it gives an answer to the otherwise puzzling observation that in the sign languages investigated here, wh-questions appear to be the only "rightward movement" phenomenon among CP-related constructions, which generally conform to leftward movement (topicalization, imperatives, yes/no questions, and, as will become clear in chapter 5, conditional clauses).

Finally, the fact that the proposal relies on observations made on both spoken languages and sign languages should make clear that it is not just a subterfuge to impose antisymmetry on sign languages, but rather a tool to capture really universal features which play a role in all languages, crossmodally. Notice, incidentally, that LIS has some relative clauses that apparently involve rightward movement, but, crucially, also has other relative clauses, which are compatible with leftward movement. In chapter 5, we shall see that both types of LIS relative clauses can be derived with a unified account based on an antisymmetric phrase structure similar to the one proposed for wh interrogative clauses.

4.2.4 Structure and movement in yes/no questions

In the light of what has been suggested in the previous sections, yes/no questions do not pose a problem for the present analysis. As was shown in §4.1.2, they go together with a "raised eyebrows" NMM, unlike wh questions, and in NGT, they optionally display the same Q-PART sign that may also occur in wh questions. As they are interrogative clauses, a

raising to InterP is entailed along the lines of Rizzi's split-CP and in the spirit of Aboh & Pfau (2011). As for the yes/no NMM, two explanations are possible. It can be taken as the overt manifestation of the interrogative feature that is encoded in Inter°. In this case, it is possibly overridden by the wh question NMM "furrowed eyebrows" which, according to the analysis in §4.2.3, is assigned in the higher wh projection. Alternatively, if one focuses on the fact that the yes/no NMM is the polar counterpart of the wh NMM, that is, the two NMMs are in complementary distribution, it follows that they are encoded in the same projection. In other words, the yes/no NMM is encoded in a projection different from InterP, namely in the one where "wh-ness" is encoded (see §4.2.3). At first sight, it may appear counter-intuitive to state that yes/no questions have to encode some feature in a projection dedicated to wh-ness. Indeed, although both wh and polar questions have an interrogative feature, they seem to be different, given that yes/no questions have no wh-like feature. The very fact that they are usually classified separately (wh vs. polar) suggests that they are different. Yet, the idea that yes/no questions are very similar to wh questions dates back to Katz & Postal (1964), who observed a strong parallelism between English yes/no and wh embedded questions.

208. I noticed ... When / Where / Whether he went [adapt. from Katz & Postal 1964:95]

In fact, the word 'whether' itself contains a 'wh' part exactly as other English wh-elements do. From a preliminary observation, the difference between whether-questions and other wh-questions lies in that the latter ask about arguments (subject, object, locative and time complements, etc.), whereas the former ask about the truth value of the sentence. In Katz & Postal's words:

> «[...] yes-no questions or simple truth-value questions are also wh-questions. They are naturally regarded as wh-questions in which the constituent 'questioned' is the Sentence Adverbial.» (1964:95)

Notice that in modern English, *whether* is only used in embedded yes/no questions, but in the past, it also occurred in root interrogative clauses (Katz & Postal 1964:97). This means that what is usually called a yes/no

question is in fact just a special kind of wh-question, where the variable is restricted to range over the Boolean set of values {yes=true, no=false}. In other words, there are two different "wh-type" markings, rather than wh marking vs. yes/no marking. That yes/no questions are not completely unrelated to (other) wh questions is also suggested by the existence, in some languages, of constructions comparable to Italian (209), where a wh element *cosa* ('what') appears in the first part which clearly refers to the yes/no particle(s) of the second part (relevant elements are in bold).

209. **Cosa** hai risposto? **Si** o **no**? [Ital.]
'What did you answer? Yes or no?'

In light of this, it is not surprising that, besides an interrogative projection which distinguishes interrogative clauses from declarative clauses, languages also have a projection where "standard" (i.e. open) wh-questions are distinguished from Boolean (i.e. closed, yes/no) wh-questions. This makes yes/no interrogative clauses very similar to other wh interrogative clauses because both have an InterP to mark interrogativity, and also a WhP to mark the kind of interrogativity. At this point, however, if one maintains this parallelism between (standard) wh interrogative clauses and Boolean (yes/no) interrogative clauses, two questions arise. First, one may wonder what element occupies FocP in a yes/no question. If yes/no questions are interrogative clauses in which the questioned constituent is the Sentence Adverbial, then there is no apparent reason for a FocP specifying the questioned constituent. In fact, in open wh questions, FocP is taken to give prominence to the questioned variable (e.g. the subject, the object, the temporal or the locative argument), as proposed in §4.2.3, but in yes/no questions, this should automatically be the truth-value of the sentence, so there is no need to focus on any element. Secondly, if yes/no questions are also a kind of wh question, one may also wonder why yes/no interrogative clauses need to be marked differently from all other wh interrogative clauses. This issue is also related to the nature of the features encoded by the WhP discussed in §4.2.3. To answer the first question, the English examples in (210) are relevant.

210.

a. Are you playing with *Anthony*?
No, (I am playing) with Susy

b. Are you *playing* with Anthony?
No, I am working (with him)

In both these examples, the answer is 'no' but it is related to different elements. Both question-answer pairs in (210) involve a truth-value, but in (210.a), this depends on the object (Anthony=no, Susy=yes) while in (210.b), it depends on the verb (playing=no, doing something else=yes). More precisely, although the whole sentence is a question (it asks for information), only the object 'Anthony' is questioned in (210.a) and only the verb is questioned in (210.b). Thus, yes/no questions, too, require the specification of the constituent on which the answer depends. Crucially, in other languages, these differences in meaning involve different word orders. The grammaticality judgements of some Sardinian[100] informants indicate that the element on which the yes/no questions (211.a)–(211.c) depend is fronted in much the same way as wh elements are fronted in open wh-questions like (211.d). The fronted constituents are in italics.

[100] The Sardinian variety is the one spoken in Baunei and Santa Maria Navarrese, on the central-eastern coast of Sardinia in the province of Ogliastra.

211.

a. [Sard.Baunese]
Giogando ses chin Antoni? – No, soe allegando
Lit. '*Playing* are (you) with Anthony? – No, I am speaking (to him)'

b. [Sard.Baunese]
Chin Antoni ses giogando? – No, chin Susanna
Lit. '*With Anthony* are (you) playing? – No, with Susanna'

c. [Sard.Baunese]
Giogando chin Antoni sese? – No, soe allegando chin Mariu'
Lit. '*Playing with Anthony* are (you)? – No, I am speaking with Mario'

d. [Sard.Baunese]
Chin chine ses giogando? – Soe giogando chin Antoni/Mariu/ Susanna'
Lit. '*With whom* are (you) playing? – I am playing with Anthony/ Mario/Susanna'

This strongly suggests that also yes/no questions require some constituent (e.g. the verb, the complement, or both) to be in FocP as wh questions do. In other languages, the surface order of elements does not change apparently, but different lexical forms are used to focus on the word on which the answer depends; see Dutch examples (212.a)–(212.c), for instance, where stressed forms are in italics.

212.

a. *Ga* je bodschappen doen? (of ga je niet?)
'Are you going shopping? (or are you not going?)'

b. Ga **je* bodschappen doen? (of gaat iemand anders?)

c. Ga *jij* bodschappen doen? (of gaat iemand anders?)
'Are *you* going shopping? (or is somebody else going?)'

The pronoun 'you' has two forms: *jij* and *je*. Only the pronoun *jij* can receive focus stress as in (212.c), whereas *je* cannot, as shown by the ungrammaticality of (212.b). If *je* is used, the stress falls on other elements, for instance on the verb, as in (212.a). Depending on which element is focalized, the yes/no question has different meanings and may trigger partially different answers. The parallelism between open wh questions and yes/no wh questions is thus not only maintained for theory-internal reasons, but is also motivated by the fact that both kinds of questions require a projection marking the clause as interrogative (InterP) and a projection which gives prominence to the constituent relevant for the question (FocP). The difference is that in open wh-questions, the focused element is also the questioned element, whereas in yes/no (wh-) questions, the focused element is distinct from the questioned one (always the truth value). Yet, this leads to the second issue, as to whether a third projection (WhP) is really necessary to distinguish yes/no questions from all other wh questions, if yes/no questions are **also** wh questions. In other words, this amounts to asking which is the relevant feature triggering (and motivating) the different marking of yes/no questions as compared to wh questions.

My answer here is more tentative. One possibility is that the different marking of yes/no as compared to other wh questions is related to the fundamental difference seen above. Only in open wh questions, the focused element is also the questioned one. On the one hand, open wh questions propose a sentence with a variable (e.g. *Gianni eats x*) and a truth value for that sentence (*[Gianni eats x] = yes* or *[Gianni eats x] = no*) and ask for which value of the relevant (questioned) variable the answer gets the same truth value as that proposed by the speaker (e.g. positive questions, *which x* such that *[G. eats x] = yes* or negative questions, *which x* such that *[G. eats x] = no*). In contrast, yes/no questions provide a sentence with all its values and a "truth variable" *([Gianni eats bread] = x* or *[Gianni eats cheese]= x*) and then ask which truth value is applicable to the truth variable of the proposed sentence. In this light, open wh questions and yes/no questions are the inverse operation of each other. However, every question (asking for the value of a variable) is also an inverse operation of an affirmative clause (which

simply provides all values)[101]. Under this view, both open wh questions and yes/no wh questions have the same basic distinct elements (interrogativity, relevant/questioned constituent, marking of the open or yes/no "wh-type") and the same derivational steps. Marking interrogativity in InterP reflects the fact that **all** questions are inverse with respect to declarative clauses. Marking the distinct "types of wh" (i.e. open vs. yes/no) in WhP encodes the fact that open wh questions and yes/no wh questions are two inverse operations, the former **based** on the truth value, the latter **asking** for the truth value.

Alternatively, some clue can be derived from the observation made in §4.1.4 that the yes/no NMM is also used with some content questions as in (213), which actually cannot be answered with "yes" or "no". These are content questions which themselves explicitly provide a range of variation for the answer to be given by the hearer.

y/n int.

head RGT **head LFT**

213. IX$_2$ WORK (IX$_2$) STUDY [LIS/NGT: repeated from (183.b)]
'Do you study or do you work?'

The fact that yes/no questions and alternative (content) questions share the same NMM is not surprising since it is widely conceded that yes/no questions entail an alternative question (i.e. *do you work?* roughly means *tell me: yes, you (do) work or no, you don't work?*). This suggests that the yes/no NMM might not serve to distinguish yes/no interrogatives from wh interrogatives, but rather that it marks some other feature which is related to alternative questions and is different from open wh questions. Namely, what distinguishes alternative questions from open wh questions is the fact that alternative questions explicitly provide a closed range of choices (the range of variation of the questioned variable) to the hearer who has to answer. Open wh questions, on the contrary, do not. Crucially, yes/no questions do indeed entail a closed range of answers: either yes or

[101] Roughly, we can compare this with the situation in mathematics, for example, where *root calculation* and *logarithm* are both inverse of *exponentiation*. Yet, root calculation returns the base value which must be raised to a given exponent, whereas logarithm returns the exponent to which the base must be raised in order to obtain the desired result. Thus, in a sense, root calculation and logarithm are inverse operations of each other, as well as being both the inverse of exponentiation.

no. From this point of view, yes/no questions (169)–(171) can thus be seen as closed wh questions asking for the truth value of the sentence (*what? Either yes or no*) much in the same way as (other) alternative questions like (213) are closed wh questions asking for one variable within a finite range of variation (*what? Either work or study*). One can thus speculate that the difference between an **open** vs. **closed** range of variation is the relevant feature which groups yes/no and alternative content questions together, differentiating them from open wh questions. In other words, the difference between open vs. closed range of variation is the feature triggering yes/no vs. wh NMM. At this point, notice that Munaro & Pollock (2005) take the higher wh projection as hosting a disjunctive operator and assume wh-phrases to consist of an existential operator and a disjunctive operator yielding an infinite disjunction. Infinite disjunction, within an infinite set of values, is opposite to finite disjunction, which only acts within a closed set of values. Under this view, then, the fact that the higher WhP encodes the difference between open wh questions (i.e. infinite disjunction) and closed (yes/no or alternative) questions (i.e. finite disjunction) is compatible with the present analysis.

Clearly, further investigation is necessary to understand the function of the yes/no NMM. However, regardless of the exact function of the yes/no NMM, the unified structure proposed in this chapter for wh questions and yes/no questions turns out to be independently motivated by requirements shared by all interrogative constructions: the necessity to mark interrogativity, the necessity to mark the relevant element of the question, and the necessity to mark the type of interrogativity.

4.2.5 Structure and movement of topicalization with respect to nonmanual marking of questions

As mentioned in §4.1.5 and §4.2.2, the presence of topic projections, some of which are very high in the structure, explaines why topicalized constituents occur to the left of material that has already been raised leftwards, such as imperatives or (wh or polar) interrogative clauses. This section relates the presence of different TopPs to some residual issues concerning the spreading of NMMs in interrogative clauses. It discusses some wh questions in which the wh NMM spreads only on a part of the sentence, but no topic NMM occurs, thus apparently contradicting the analysis proposed so far. It suggests that the topic NMM is associated

only with some TopPs, just as in spoken languages distinct topics have distinct intonations.

In §4.2.3 an account was given for the fact that the nonmanual markers of wh questions can spread across the whole clause, albeit independently from the presence of overt wh-phrases. So far, data have been discussed and analyzed assuming that the interrogative NMMs were **always** sentence-long or that they always cover at least the first position in the sentence, as in (206). Yet, as observed in some examples, this is not always the case: sometimes the spreading of NMMs seems to be optional and, so to speak, more flexible. According to the data described, parts of the sentence may be unaffected by the wh nonmanual marker. In some of these cases, the sentence shows the topic NMM on some constituents that precede the interrogative-marked part, as in (175.d), (188.a), and (188.b). It was immediately suggested that the phenomenon has to do with topicalization. Some elements are not part of the wh-interrogative marked string because they are in a topic projection, which assigns the topic NMM. However, on some other occasions, the elements unaffected by the wh NMM show no topic marker. See the IPSL example (194.b), repeated here as (214).

wh.
214. YESTERDAY IX$_2$ PAY^TAKE G-WH [IPSL: rep. from (194.b)]
'What did you buy yesterday'

Similar facts are attested also in LIS and, possibly, in NGT. Unfortunately, I have not enough data do discuss IPSL and NGT. More accurate data are available for LIS, however. Cecchetto et al. (2004) report the sentence in (215) where the wh NMM occurs on part of the sentence, namely only on the direct question and not on its complement clause.

wh.
215. PAOLO ARRIVE AFTER SAY WHO [LIS: Cecchetto et al. 2004b:3]
'Who said that Paolo arrived later on?'

My LIS informants, however, agreed that there are some interpretive differences, related to the fact that some constituents fall outside the NMM. For instance, they tend to consider (216.a) below as unmarked, while (216.b) and (216.c) were judged to be compatible with contexts in

which *Gianni* has been mentioned previously or it is known that *Gianni has eaten* (the examples are taken from Brunelli (2009)).

216.

a. wh
GIANNI EAT WHAT [LIS]
'What did Gianni eat?'

b. wh
GIANNI EAT WHAT [LIS]
'(Gianni) What did he eat?'

c. wh.
GIANNI EAT WHAT [LIS]
'(Gianni ate) What?'

It is difficult to accurately test such interpretive differences, but the data above suggest that the constituents outside the NMM may represent presupposed or given material and are thus a kind of topic. As the example (217) shows, these "presupposed topics" are clearly different from "raised-eyebrow" topics and, crucially, can co-cur with them.

217. [LIS: adapted from Brunelli 2007: ex.nr. 24]

top. wh
EXAM LIS **,** PAOLO ARRIVE AFTER SAY WHO
'As for the LIS exam, who said that Paolo arrived later on?'

Notice, at this point, that in the literature about topics, a distinction is usually made between different kinds of topics (among others, Givón (1983); Frascarelli & Hinterhölzl (2007); Benincà & Poletto (2004)). On the one hand, there are lower topics, representing presupposed, given, familiar information. On the other hand, higher topics represent either given information which the discourse is about or known information newly (re)introduced as central for the discourse. Thus, although all topics are somehow known or given information, it seems that at least a rough distinction must be made between information given due to world knowledge (and brought into the discourse) and information given explicitely in the (previous part of the) discourse. Crucially, in spoken languages, different topics have different intonational features

(Frascarelli & Hinterhölzl 2007): lower topics are marked by a low tone whereas higher topics bear a raising, low plus high, tone. For the purpose of the present dissertation, I will not go into detail about topics, but will restrict myself instead to the observation that different kinds of topic exist, which may bear distinct intonations. As the Italian example (218.a) shows, a lower topic *Gianni* may precede the interrogative clause. In fact, as shown in the Veneto example (218.b), the lower topic can precede Poletto & Pollock's (2004b) higher WhP, which is filled by *'sa*.

218.

a. [Ital.]
A proposito di/Quanto alla verdura, Gianni, cos'ha mangiato ieri?
'As for vegetables, Gianni, what did he eat yesterday?'

b. [Ven.]
Ciò, parlando de verdura (deso), Giani, 'sa gało magnà ieri?
'Hey, speaking (now) about vegetables, Gianni, what did he eat yesterday?'

In (218.a) and (218.b), 'Gian(n)i' is interpreted as previously mentioned in the discourse and cannot be a new topic just introduced or shifted to. Because of this, it is different from the higher topic 'as for vegetables' which can mark a shift in the discourse: the higher topic, indeed, cannot be swapped and placed after 'Gian(n)i' without receiving a different intonation, a parenthetical very low tone. We thus have evidence that different topics may precede the interrogative clause and that not all topics are marked in the same way. Extending this observation to sign languages, it is quite possible that they, too, have different kind of topics in front of interrogative clauses and that not all topics bear a "raised eyebrows" NMM.

In this light, I would maintain the proposal made in Brunelli (2007, 2009) that the variation in the extent of interrogative NMMs is possibly related to discourse properties. By virtue of these, presupposed or d-linked material occupies a low topic position, which is not associated with any NMM and is located above the higher wh projection WhP where the "lower eyebrows" wh NMM and the polar "raised eyebrows" NMM are encoded. This low topic is also different from Aboh & Pfau's (2011) topic (below FocP and without NMM). In contrast, higher topics

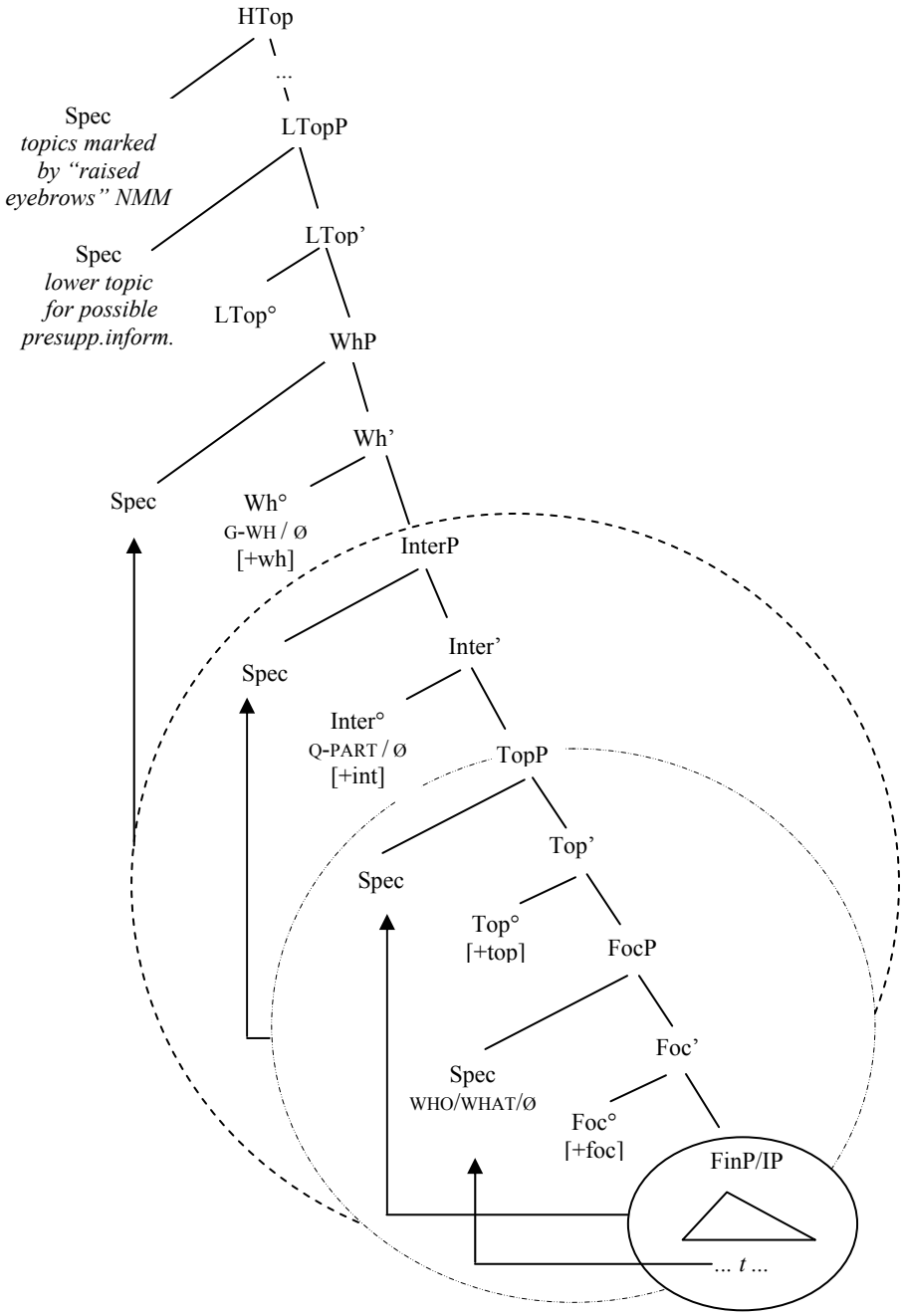
are hosted in a yet higher projection which assigns the "raised eyebrows" topic NMM to its specifier. A clarification is in order here. Brunelli (2007, 2009) tentatively employed the label GP (Ground Phrase) for this "presupposed-information" projection above WhP, drawing on Poletto & Pollock (2004a/b). Crucially, however, Poletto and Pollock's GP, which hosts postverbal clitics such as *–ło* in *gało* ('has he'), sits below interrogativity and below the higher wh. Thus, data shows that the low topic discussed here is hosted in a projection different from Poletto and Pollock's GP. Frascarelli & Hinterhölzl (2007) distinguish a higher topic (which I refer to in this section), a familiar topic (FamP, below FocP), and a GP (referring to Poletto & Pollock). They also propose a ContrP between higher topics and FocP. However, they do not discuss the position of topics with respect to a WhP such as the one proposed here. Thus, it is not possible to determine whether the low topic discussed here corresponds to some of Frascarelli and Hinterhölzl's projections.

However, apart from the label chosen for the low topic, the relevant observation put forward here is that in addition to the projections strictly necessary for interrogative clauses (including Aboh and Pfau's TopP) and in addition to higher topics (marked by "raised eyebrows"), there is also a topic projection which is not associated with "raised eyebrows". This low topic is located between the wh-zone and the raised-eyebrows-marked, higher topics. In other words, the fact that raised eyebrows mark topics does not necessarily mean that all topics must bear "raised eyebrows". Only higher topics have the "raised eyebrows" NMM. This proposal is nothing more than Frascarelli and Hinterhölzl's observation that in spoken languages, distinct types of topic have distinct intonational patterns.

Following this line of reasoning, figure (219) contains the same focus and topic projections of (201), plus a higher topic associated with "raised eyebrows" and a lower topic (still higher than WhP and InterP) related to d-linked material which does not bear any NMM. Sentences as (175.d) employ only the higher topic (with brows raised). Sentences as (217) employ both topics, while sentences (216.b) and (216.c) make use of the lower topic only. Sentences as (216.a) and the others discussed here neither use the higher nor the lower topic. I do not address the question here whether these topics are moved to or merged in the relevant projections. Notice also that this proposal entails that the "raised eyebrows" NMM has two distinct functions, marking high topics and

marking polar questions (in WhP). Interestingly, in some spoken languages, e.g. Italian, we can observe that a somewhat raising or high intonation is associated to (some) topics as well as to interrogativity. Let us then have a look at the topic projections involved in the formation of wh questions in (219)

219. Different topic projections above WhP



Although the structure in (219) is suggested by the behaviour of LIS and Italian topics in interrogative clauses, it must still be tested against NGT data. However, for ASL, Janzen (2007: 183, 186) also suggests that not all topics are necessarily marked by "raised eyebrows" (on ASL, see also Todd (2008); see Sze (2008, 2011) on Hong Kong Sign Language).

4.3 Conclusions

In conclusion, topicalization, imperatives, and interrogative clauses do not show much crosslinguistic variation between LIS and NGT. Both languages place topics to the left of the sentence and both accompany it with the "raised eyebrows" NMM. In both languages, this facial expression also fulfils the function of yes/no interrogative NMM, while wh questions are marked by "lowered/furrowed eyebrows" in both LIS and NGT. Imperative clauses display a more tense movement of the signs of the sentence and are marked by "furrowed eyebrows and eyes wide open" in LIS and "furrowed eyebrows and squinted eyes" in NGT. In wh questions, the wh phrase is usually clause-final, but can also appear in situ.

The only remarkable differences between these two sign languages concern the optional presence of the question marker Q-PART, which appears at the end of both yes/no and wh questions in NGT and has no counterpart in LIS. NGT can also display double-wh interrogative clauses, with NMM spreading, and sometimes allows for initial-wh interrogative clauses, with the NMM restricted to the wh phrase. LIS allows for the splitting of complex wh-phrases: along with the clause-final and the in situ position of the whole wh-phrase, this language can position the sign WHICH clause-finally and strand the noun in situ.

The data about topicalization, imperatives and yes/no questions from both LIS and NGT can easily be accounted for within an antisymmetric approach, since the order of elements "transparently" reflects the order of projections within the split-CP proposed by Rizzi (1997, 2001). Also data from a third sign language, IPSL, strengthen this hypothesis. Thus, optional lexical markers observed in some languages can be taken as the overt realization of functional heads within CP. For instance, the NGT interrogative marker Q-PART, which appears in yes/no and wh questions, occupies Rizzi's Inter°, following Aboh & Pfau (2011). The IPSL imperative marker IMP occupies Fin°, following Pfau (2006a) and Aboh

& Pfau (2011). NMMs which spread on topicalized constituents, on imperative clauses, and yes/no questions, are assigned in the specifiers of the relevant projections under spec-head agreement with the heads. The constituents raise leftwards to these specifiers and thus come to precede the lexical markers, which appear then clause-finally as the NGT sign Q-PART and the IPSL sign IMP. In other cases, the NMM is assigned in the specifier of a head which is not overtly realized so that the NMM is not accompanied by any lexical marker. This is the case in LIS interrogative clauses (which have no counterpart of Q-PART), in LIS and NGT imperatives (lacking IMP), and in LIS and NGT topics (which also have no lexical marker). Crucially, topicalized contituents, marked by "raised eyebrows" precede interrogative and imperative clauses, thus supporting Rizzi's claim for a TopP to the left of InterP (where interrogativity is marked) and FinP (where the imperative is marked). Questions with in situ wh do not per se require any rightward movement. They can be derived without major difficulties with leftward movement following Aboh & Pfau (2011). The whole interrogative clause containing the in situ wh sign raises leftwards to the specifier of a projection where it receives the NMM. If the head of this projection is lexically realized, it surfaces clause-finally as is the case with NGT Q-PART and IPSL G-WH.

However, some wh questions, namely final-wh ones, seem to pose a major challenge to this hypothesis, since their wh element in clause-final position apparently requires rightward movement. With respect to double-wh questions, which display both an initial wh and a final wh at the same time, there is still some controversy, especially concerning the spreading of NMMs, as the literature on this issue proves. Also the fact that in some languages, general wh signs (IPSL G-WH) behave differently from "pure" interrogative markers (NGT Q-PART) contributes to a high degree of crosslinguistic variation, which is apparently difficult to explain with one and the same antisymmetric structure. While general wh markers are strictly associated with the wh NMM, interrogative markers co-occur with both wh NMM and yes/no NMM. Yet, strikingly, double-wh and final-wh constructions show interesting similarities with some spoken languages which also allow the more common initial-wh construction generally accounted for by leftward movement (i.e. English *what are you doing* t_{what} *?*). Also, as Aboh & Pfau (2011) noticed, in sign languages, wh questions can be found without any signs corresponding to

wh-phrases: these wh questions only have the general G-WH or the wh NMM.

On the basis of these observations, a universal antisymmetric structure of projections inside the split-CP is proposed to account for this variation. Three partially independent factors are taken to contribute to the formation of wh questions in all languages: *interrogative marker*, generic *wh marker*, and *specific wh* word or sign (*SWH*, a wh element as 'who, where, what' and so on, which, according to Poletto & Pollock (2004), can be a phrase or a clitic). It is assumed that languages vary as to whether these features are encoded lexically or nonlexically. Consequently, Aboh & Pfau's (2011) hypothesis of an interrogative projection for the question particle and a possible (not obligatory) focus movement for the wh phrase is enhanced following Poletto & Pollock's (2004a/b) and Munaro & Pollock's (2005) leftward-movement account of double-wh and final-wh questions. Two wh-related projections are assumed to "sandwich" the interrogative projection as proposed in Brunelli (2007, 2009). The higher wh projection (here labelled WhP) is taken to host the lexical G-WH marker of IPSL in its head and to assign the wh NMM of LIS and NGT under spec-head agreement. Occasionally this head can host a SWH in clitic form. The lower wh projection (FocP), in contrast, is assumed to host the lexical wh-phrases (when present). The interrogative projection is assumed to host the NGT interrogative marker Q-PART in its head.

Building on this, the final position of general wh markers and interrogative particles is derived by means of subsequent leftward movements, whereas the presence vs. absence of movement to FocP accounts for the possible clause-final vs. in situ position of SWHs. If an in situ wh-phrase co-occurs with its clitic counterpart in the higher WhP, double wh constructions appear in sign languages as they do in spoken languages. Also, the behaviour of LIS complex wh phrases (WHICH+NP) is explained in terms of optional movement to FocP. If the complex wh phrase is focalized, it surfaces clause-finally. If it does not focalize, it occurs in situ. If only the sign WHICH undergoes focalization, the complex wh phrase appears in a split form: the sign WHICH occurs clause-finally while the accompanying NP remains in situ. However, the wh NMM is always assigned by the head Wh° and its spreading depends on the amount of material that occupies [Spec;WhP].

The present analysis relates the NMM to one wh position, which can (but need not) be filled by a SWH. The position of SWHs is thus partially separated from the spreading of the wh NMM which seems to be able to occur on the whole clause regardless of the SWH being final, in situ or not lexically realized. Namely, data suggest that the NMM can occasionally coincide with the SWH, but this does not always have to be the case. The analysis also accounts for the fact that the interrogative particle Q-PART is independent from a specific NMM (it appears in both yes/no and wh questions), and yet receives the wh NMM in the appropriate situation. The proposed leftward movements also make it possible to account for an ASL asymmetry in initial-wh questions where only in situ subject SWHs can appear clause-initially while in situ object SWHs cannot. The hypothesis that the wh NMM is assigned in the higher wh projection (WhP) also accounts for some apparently less common NGT initial-wh constructions resembling those of "usual" spoken languages: an object wh-phrase does indeed appear clause-initially, surfacing in the higher WhP rather than in focus, but in doing so, it prevents the NMM from spreading over the rest of the clause. Thus, an antisymmentric approach, with only leftward movements applying inside the split-CP, although appearing unnecessary at first sight, accounts for the considerable crosslinguistic and intralinguistic variation observed in sign languages and captures some interesting characteristics that they share with spoken languages while also providing an explanation for the fact that in LIS and NGT, only wh questions seem to require rightward movement.

Yes/no questions are accounted for along the same lines, drawing on Katz & Postal's (1964) observation that yes/no questions are a kind of wh question and considering the possibility of focusing some constituent of the yes/no interrogative clause. I then argue for a parallelism between (open) wh questions and yes/no (wh) questions, proposing that both kinds of interrogative imply the presence of InterP and FocusP. On the basis of the fact that the yes/no NMM is also used in alternative content questions, I also suggest a tentative conclusion about the presence of the higher WhP and the possible need for it to mark yes/no questions differently from open wh questions. One possible explanation can be seen in the fact that both yes/no and alternative questions involve a finite disjunction where open wh questions involve an infinite disjunction. Following Munaro & Pollock's (2005) proposal that the higher WhP is related to a

disjunction operator, it is speculated that the different interrogative markers, sitting in WhP, may reflect the distinction between finite and infinite disjunction rather than marking yes/no interrogative clauses *per se*. On this last issue, however, further research is needed.

This analysis also assumes that different topic projections exist, with distinct nonmanual markers (e.g. "raised eyebrows" or no NMM) and distinct functions. Thus, *TopP* is used as a generic label. For instance, here a generic Top projection is assumed below InterP, following Aboh & Pfau (2011), but in Poletto & Pollock (2004a), some projections below InterP are related to «shared or presupposed information» (2004a:284), thus behaving quite differently from other topics (associated with topic shift). Also, recall Frascarelli & Hinterhölzl's (2007) hierarchy of topics which distinguishes an Aboutness/Shift topic from one or more Familiar topic(s), while Benincà & Poletto (2004a) argue for a yet finer subdivision of topic (and focus) projections. It is not my intention, here, to delve into the classification and distribution of topics in LIS and NGT[102]; rather, I restrict myself to the observation that different topics behave differently from each other. The presence of distinct topic projections with distinct features accounts for some interrogative clauses in which the wh or the yes/no NMM spreads only over a part of the sentence, while the rest of the sentence is either marked by a topic NMM or bears no NMM. It is argued that two topic projections are located above the interrogative zone, that is, above WhP and InterP. The higher topic is associated with the well known topic NMM, which is indeed encountered to the left of the interrogative-marked clause. The lower topic, which hosts d-linked material, has no overt marking (neither lexical nor nonmanual). This accounts for the fact that some interrogative clauses, especially those containing a subordinate clause before the interrogative clause, display only a partial spreading of the wh NMM without showing any topic NMM on the string of signs that precedes the wh NMM.

While the presence of topic projections both above and below InterP is not in contrast with Rizzi's (1997, 2001) assumptions, in particular the fact that distinct topic may bear different nonmanual markers according to their function will turn out to be relevant in chapter 5.

[102] The analysis of distinct types of topics often relies on the ability to detect subtle interpretive differences. In my opinion, such an analysis is best carried out by researchers that are native signers.