What's a wh-word got to do with it?

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1. Introduction*

Cross-linguistic studies on question formation suggest that yes/no-questions and wh-questions have different syntax even though they may appear to share certain morphosyntactic properties, such as the presence of a question particle, auxiliary insertion, or word order alternation (Cheng 1991).

Examples from Gungbe, an SVO language spoken in Benin, appear to support the view that yes/no-questions and wh-questions involve different derivations.[1] The minimal pair under (1) indicates that direct yes/no-questions require the presence of a sentence-final floating low tone affecting the last syllable of the sentence and triggering a question reading. The only morphological difference between the two sentences is the high tone on the verb in the declarative (1a) versus the high-low tone that affects the verb of the yes/no-question (1b). The latter derives from a combination of the lexical high tone of *wá* ('come/arrive') and the sentence-final floating low tone that encodes interrogation.

(1) a. Sɛ́tɔ̀ kò wá [Gungbe]
Seto already come
'Seto arrived already.'

b. Sɛ́tɔ̀ kò wâ?
Seto already come.INTER
'Has Seto arrived yet?'

In the embedded indirect question (2a), the sentence-final floating tone triggering interrogation is used in combination with the conjunction *ní* roughly comparable to French *si* or English *if* which encodes irrealis (Aboh 2006). Example (2a) contrasts with the declarative example (2b) which includes the Gungbe declarative complementizer *dɔ̀* and lacks the sentence-final floating interrogative tone.

* We thank the editors of this volume as well as three anonymous reviewers, whose comments and suggestions helped improve this paper significantly.

[1] Gungbe is a language of the Gbe family, a sub-group of Kwa. These tone languages are spoken on the West coast of Africa between Ghana and Nigeria. In this paper, we use Gungbe as representative of the Gbe family, except when explicitly mentioned. See Capo (1991), Aboh (2004a) and references cited there for discussion.

(2) a. Ùn kànbíɔ́ **ní** Sɛ́tɔ̀ kò wâ? [Gungbe]
1.SG ask if Seto already come.INTER
'I asked whether Seto has already arrived.'

b. Ùn sè **ɖɔ̀** Sɛ́tɔ̀ kò wá
1.SG hear that Seto already come
'I heard that Seto has already arrived.'

The sentences under (1) and (2) therefore suggest that Gungbe (in)direct yes/no-questions are expressed by the sentence-final floating low tone that encodes interrogation. Data from other Gbe languages (e.g., Fongbe) support this characterization. For instance, example (3) from Fongbe illustrates a full morpheme that expresses interrogation and occurs sentence-finally, similarly to the Gungbe toneme shown in (1b) and (2a).[2]

(3) Kɔ̀kú yrɔ́ Àsíbá **à**? [Fongbe]
Koku call Asiba INTER
'Did Koku call Asiba?'

In contrast to yes/no-questions, Gbe wh-questions do not involve the sentence-final interrogative morpheme. Instead, they require displacement of the wh-phrase to the left of a focus marker as the Gungbe examples under (4) show. Note from sentence (4b) that the focus marker is located to the right of the complementizer *ɖɔ̀* ('that').

(4) a. Mɛ́nù **wɛ̀** wá? [Gungbe]
who FOC come
'Who arrived/came?'

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[2] Similarly, Gungbe displays a floating low tone in progressives and negation where other Gbe languages (e.g., Gengbe) systematically exhibit a sentence-final full morpheme. Contrast the following examples where the (a) variants correspond to Gungbe and the (b) ones to Gengbe.

(i) a. ùn tò nú ɖù [Gungbe]
1.SG PROG thing eat.PTCL
'I'm eating'

b. ùn lè nú ɖù *(ɔ) [Gengbe]
1.SG PROG thing eat PTCL
'I'm eating'

(ii) a. ùn má ɖù nú [Gungbe]
1.SG NEG eat thing
'I did not eat'

b. Nyɛ̀n mú ɖù nú *(o) [Gengbe]
1.SG NEG eat thing PTCL
'I'm eating'

Given this systematic behavior among these closely related languages, it is obvious that there has been a development in Gungbe that reduced the distinct sentence-final particles to a floating tone. Based on this, Aboh (2004a) argues that the relevant Gungbe tonemes derived from full morphemes that have been partially deleted as the language evolved. Under this view, these tonemes should be seen as expressions of distinct markers that encode different syntactic positions in the structure.

b. Ùn kànbíɔ́ **ɖɔ̀** mɛ́nù **wɛ̀** wá?
1.SG ask that who FOC come
'I asked who came?'

Put together, these facts straightforwardly illustrate the apparent asymmetry between yes/no-questions and wh-questions. Similar asymmetries can be easily reproduced in typologically different languages and may seem to provide a solid ground for the conclusion that yes/no-questions and wh-questions relate to different portions of the clause structure.

Not much is known about the syntax of yes/no-questions proper, but most authors explicitly or implicitly assume that they relate to a functional head that encodes the feature [interrogative] within the complementizer system (Cheng 1991). With regard to wh-questions, the common assumption is that, in wh-movement languages, the wh-phrase must front to a position within the left periphery in overt syntax. On the other hand, in-situ languages are assumed to involve movement of the wh-phrase to its scope taking position in covert syntax (e.g., Horvath 1986; Cheng 1991; Rizzi 1990, 1997; Kiss 1998).

Recent studies within the cartographic approach further establish that question particles realize the head of InterP that is taken to be located between the complementizer corresponding to *that* and the topic/focus articulation. In contrast, it has been proposed that matrix wh-phrases move to the specifier of a focus projection cross-linguistically (Rizzi 2001; Aboh 2004a, b). We may therefore conclude that yes-no operators (or particles) and wh-operators activate different articulations within the C-system, InterP and FocP, respectively.

If we take a strong view of the cartographic approach where functional projections are the locus of 'interpretable' features that are visible at the interfaces, this conclusion leads to a paradox: two functional heads with different properties (Inter, Foc) end up encoding the same discourse information (i.e., interrogative force). Note that the head Foc is not inherently interrogative, since it unselectively attracts both wh-operators and focused constituents (e.g., DPs, AdvP, AdjP, VP, see Aboh 2004a). In principle therefore, Foc cannot attract wh-operators just for the sake of interrogative force.

Using data from spoken and signed languages, the present paper tries to resolve this paradox and proposes a unified analysis for wh-questions and yes/no-questions as being expressed by Inter. We take as a starting point Cheng's (1991: 30) Clausal Typing Hypothesis (CTH), which reads as follows:

> "Clause Typing Hypothesis
> Every clause needs to be typed. In the case of typing a wh-question, either a wh-particle in C^o is used or else fronting of a wh-word to the Spec of C^o is used, thereby typing a clause through C^o by Spec-head agreement."

In our terms, this would mean that questions uniformly involve Inter, that is, the locus of the feature [interrogative] that is visible at the discourse-syntax interface. Following Cheng, we assume that languages only vary as to whether they express the interrogative head Inter overtly or not and whether this head attracts a constituent into its specifier or hosts a question operator (distinct from wh-phrases) that merges there. However, our proposal significantly differs from that of Cheng in showing that, even in so-called wh-movement languages (e.g., French, English) wh-phrases do not participate in clause-typing. We thus show that wh-movement does not result from the CTH, as suggested in Cheng's (1991) formulation, but from the structural make-up of the wh-phrase that makes it a potential attractee for various probes (including Inter). This implies that there is nothing inherently interrogative about wh-phrases.

The paper is organized as follows. In section 2, we are concerned with the structure of yes/no- and wh-questions. We start by discussing yes/no-questions in Gungbe and Nweh in section 2.1, where we lay down the foundations for the analysis of questions advocated in subsequent sections in terms of the split-C hypothesis (Rizzi 1997). In section 2.2., we propose to extend this analysis to wh-questions in general. In so doing, we show that various types of wh-phrases move to various positions in the clause. This leads us to conclude that current analyses of wh-questions which assume that wh-movement is a requirement for interrogative clause-typing cannot be maintained. On the assumption that InterP embeds the interrogative feature, we suggest that although wh-phrases contribute to the interpretation of the content of a question, they do not express interrogative force.

Section 3 discusses data from Lele and Nweh which further support this view. It is shown there that these languages involve genuine wh-phrases. However, these wh-phrases do not move for clause-typing in wh-questions, which require the presence of a question marker in sentence-final position. In section 4, we present data from sign languages (Indian Sign Language and Sign Language of the Netherlands) as well as from the spoken language Oro Nao indicating that, when possible, wh-phrases may be left unexpressed in a wh-question. In contrast, interrogative force must always be encoded by means of a particle, sometimes overt, sometimes null. In some cases, such null particles are made visible by their prosodic effect on the sentence (e.g., rising vs. falling intonation in spoken languages, particular facial expressions in sign languages) indicating that such prosodic effects are a direct consequence of a syntactic structure. This leads us to conclude that the CTH must be dissociated from the structure and syntax of wh-phrases. Hence, the traditional *ex-situ* versus *in-situ* distinction that has been so central to the analysis and typology of wh-questions appears orthogonal to the syntax of questions proper. We argue that Inter, the locus of the feature [interrogative], determines the syntax of both yes/no- and wh-questions because it has scope over the proposition, which in some cases, is attracted into its specifier.

At this stage of the discussion, the question naturally arises what forces wh-movement in wh-questions. Section 5 tackles this issue and proposes that wh-movement primarily

depends on the internal structure of the wh-operator.[3] Put another way, *ex-situ* versus *in-situ* wh-questions derive from the structural make-up of wh-operators that may incidentally be bound or attracted by the relevant head in the clausal left periphery. In many languages, the focus head binds the wh-operator to which it sets a value as new information. Assuming a direct match between the clausal periphery C and the nominal periphery D (Szabolcsi 1994), we propose that moved wh-phrases embed the feature [focus] or [q] located in a corresponding projection within the D system (Aboh 2004b). The absence of these projections inside DP forces in-situ sequences. These are interpreted as questions due to the interrogative force of Inter which takes scope over the focus head that binds the in-situ wh-phrase. Section 6 concludes the paper.

2. Yes/no- vs. wh-questions

This section motivates a unified approach to yes/no- and wh-questions on the basis of comparative data. We start with the discussion of yes/no-questions in Gungbe and Nweh (see Nkemnji 1995; Aboh 2004a, and references cited there).

2.1. Yes/no-questions in Gungbe and Nweh

As illustrated in examples (1b) and (2a), repeated here under (5), Gungbe direct yes/no-questions (5a) involve the question marker (i.e., a floating low tone) in sentence-final position. Indirect yes/no-questions, as in (5b), include both the question marker and the irrealis conjunction *ní*.

(5) a. Sɛ́tɔ̀ kò wâ ? [Gungbe]
Seto already come.INTER
'Has Seto arrived yet?'

b. Ùn kànbíɔ́ ní Sɛ́tɔ̀ kò wâ
1.SG ask if Seto already come.INTER
'I asked whether Seto has arrived yet.'

Adopting the cartographic approach, Aboh (2004a, c) proposes that interrogative force in Gungbe is a specification of the functional head Inter^{o} encoding the feature [interrogative] that projects between ForceP and FinP (6a). The derivation in (6b) shows that in Gungbe yes-no questions Inter^{o} attracts the questioned proposition FinP into its specifier.[4]

[3] See Hagstrom (1998) and Cable (2007).
[4] In this paper, Force is taken to be the highest projection that closes off the complementizer system upward and whose head hosts the declarative complementizer (e.g., Gungbe *ɖ̀ɔ̀* 'that'). One could further propose, in the

(6) a. Force….> Inter….> Topic….> Focus….> Finiteness

b. [$_{\text{ForceP}}$ [$_{\text{Force°}}$ [….[$_{\text{InterP}}$ [Sétɔ̀ kò wá]$_i$ [$_{\text{Inter°}}$… [$_{\text{FinP}}$ t$_i$]]]]]]

Accordingly, the Gungbe question marker under Inter is a 'scope taker' that has scope over the proposition. The latter is attracted to SpecInterP where it checks the interrogative feature under Inter. Empirical evidence supporting this view includes example (7a), which indicates that the topic/focus articulation to the right of the complementizer *dɔ̀* involves topic and focus phrases headed by topic and focus markers that attract the topic and focus constituents into their specifier positions as in (7b).

(7) a. Ùn sè **dɔ̀** [Sétù] **yà**, [xwé dàxó dé] **wɛ̀** é gbá! [Gungbe]
1.SG hear that Setu TOP house big DET FOC 3.SG build
'I heard that as for Setu, he built A BIG HOUSE!'

b. [$_{\text{ForceP}}$ dɔ̀ [$_{\text{TopP}}$ Sétù [$_{\text{Top°}}$ yà [$_{\text{FocP}}$ xwé dàxó dé [$_{\text{Foc°}}$ wɛ̀ [$_{\text{FinP}}$ é$_{\text{[Sétù]}}$ gbá t$_{\text{[xwé dàxó dé]}}$]]]]]]

These markers may have scope over a proposition whose content is topicalized or focused. In such cases, the topicalized or focused proposition is attracted into the specifier of the relevant marker which consequently occurs at the right edge as in (8a). Interestingly, topicalization, focusing, and interrogation of a propositional content can be realized cumulatively in Gbe. Such structures lead to the sequencing in (8b) with the markers clustering in sentence-final position.

(8) a. [Đé Àsíbá wá] **yà**, [Sétù hɔ̀n trólóló] **wɛ̀** [Gungbe]
as Asiba come TOP Setu flee immediately FOC
'As Asiba returned [i.e., as presupposed], SETU FLED IMMEDIATELY.'

b. Àsíbá kò wá **wɛ̀** **yà** ?
Asiba already come FOC TOP.INTER
'HAS ASIBA ALREADY RETURNED [i.e., as expected/planned]?'

Note from example (8b) that when the topic and focus markers scope over the proposition, they occur in inverse order. In example (7a), topic precedes focus contrary to example (8b), where the focus marker precedes the topic marker, which in turn bears the interrogative floating tone. According to Aboh (2004a, c), the inverse order results from snowballing movement of the proposition to SpecFocP, followed by FocP movement to SpecTopP, in turn

spirit of Benincà & Polleto's (2001) work on Finiteness, that Force represents a domain that could be split into discrete functional projections (including Inter) that are responsible for encoding various clausal properties such as clause-typing and modality; see Aboh (2006) for the latter.

followed by TopP movement to SpecInterP as represented in (9), where '∅' stands for the Gungbe low tone.

(9) [$_{\text{ForceP}}$ [$_{\text{InterP}}$ [Àsíbá kò wá wɛ̀ yà] [$_{\text{Inter}^{\circ}}$ ∅ [$_{\text{TopP}}$ $t_{[\text{Àsíbá kò wá wɛ̀ yà}]}$ [$_{\text{FocP}}$ $t_{[\text{Àsíbá kò wá wɛ̀}]}$ [$_{\text{FinP}}$ $t_{[\text{Àsíbá kò wá}]}$]]]]]]

Additional empirical evidence that Gbe yes/no-questions are determined by the presence of a question marker under Inter that attracts the proposition into its specifier comes from indirect questions. In the following Gungbe and Fongbe pair, the embedded question is sandwiched between the complementizer and the question marker. Further, notice from the Fongbe sentence (10b) that, unlike Gungbe, this language employs the declarative complementizer *dɔ̀* in both declarative and interrogative sentences.

(10) a. Ùn kànbíɔ́ ɛ̀ **ní** àvún étɔ̀n kò kû ? [Gungbe]
1.SG ask 3.SG if dog 3.SG.POSS already die.INTER
'I asked him whether his dog already died.'

b. Ùn kànbíɔ́ ɛ̀ **dɔ̀** cùkú tɔ̀n kò kú **ají** ? [Fongbe]
1.SG ask 3.SG that dog 3.SG.POSS already die INTER
'I asked him whether his dog already died.'

These data support the view that the question particle and the complementizer realize different positions (i.e., Force and Inter) within the complementizer system. Under the sequencing in (6a), the fact that the questioned sequence occurs between Force and Inter (10) further suggests the movement analysis proposed here.

The example in (11) supports this characterization. In the subordinate clause (11a), the question marker occurs in sentence-final position even though it relates to the matrix clause. Under the proposed analysis, the pied-piped higher FinP embeds the matrix verb introducing the embedded clause. Movement of the complement to SpecInterP therefore appears obligatory in the Gbe languages. This is compatible with the ungrammaticality of sentence (11b) in which the question marker occurs between the two clauses.

(11) a. À sè dɔ̀ Sɛ́tɔ̀ kò wâ ? [Gungbe]
2.SG hear that Seto already come.INTER
'Did you hear that Seto arrived already?'

b. * À sɛ̀, dɔ̀ Sɛ́tɔ̀ kò wá ?
2.SG hear.INTER that Seto already come
'Did you hear?…That Seto arrived already.'

The data discussed thus far support the proposed analysis of yes/no-questions in Gbe, where Inter hosts the feature [interrogative] and attracts the questioned element (or proposition) into its specifier. The generalization therefore seems to be that Inter encodes the [interrogative] feature that must be checked before spell-out by the relevant attractee. In yes/no-questions, the attractee is the proposition content presumably expressed by the event head. In languages of the Gungbe-type where such an event head cannot be extracted, generalized pied-piping rolls the complement up to SpecInterP. As a result, the yes/no-question particle occurs in sentence-final position even though it first merges in a left peripheral position.

The facts discussed for Gungbe are quite similar to those reported for Nweh, an SVO Grassfield Bantu language spoken in Cameroon. In what follows, we review Nkemnji's (1995) discussion of Nweh question formation. Yes/no-questions in Nweh resemble those in Gungbe in that they involve either the sentence-final question particle *ŋ* (12a) or vowel lengthening of a final segment (12b) (Nkemnji 1995: 154).

(12) a. Njikèm à kɛ̀ʔ npfét akèndɔ̀ŋ ŋ̄ [Nweh]
Njikem AGR TNS eat plantains INTER
'Did Njikem eat plantains?'

b. ŋúa à kɛ̀ʔ ndé ē
child AGR TNS sleep INTER
'Did the child sleep?'

Like in Gbe, Nweh indirect yes/no-questions involve sentence-final marking as well as a complementizer. In particular, Nweh – similarly to Fongbe (10b) – exhibits the same complementizer *ŋɣú lē* ('say that') in both declaratives and indirect yes/no-questions.

(13) Atem à kɛ̀ʔ ntšʉ̀ɔté agí **ŋɣú lē** ŋúa à ló pfɛ́t akendɔ̀ŋ̄ **ŋ**
Atem AGR TNS ask him COMP child AGR TNS eat plantain INTER
'Atem asked him whether the child will eat plantains?'

As we have argued for previously, the fact that Nweh indirect yes/no-questions involve both the question particle and a declarative complementizer is a strong argument for assuming that these two elements express two distinct positions within the complementizer system. In addition, the observation that the embedded clause is sandwiched between the complementizer and the question particle supports the proposed pied-piping analysis where the proposition is moved to the specifier of InterP. This is actually the analysis argued for by Nkemnji (1995). Accordingly, Nweh yes/no-questions involve the derivation in (14) on a par with Gbe languages (ignoring topic and focus projections).

(14) [$_{\text{ForceP}}$ [$_{\text{Force}}$ **ŋɣú lē** [$_{\text{InterP}}$ [ŋúa à ló pfét akendɔ̀ŋ̄] [$_{\text{Inter°}}$ **ŋ** [$_{\text{FinP}}$ t$_{[ŋúa à ló pfét akendɔ̀ŋ̄]}$]]]]]

It therefore appears from the discussion of Gungbe and Fongbe (Kwa) and Nweh (Bantu) that yes/no-questions involve a question particle that occurs sentence-finally because it merges in an interrogative functional head Inter that attracts the proposition (i.e., FinP) into its specifier. From this we conclude that interrogative force requires the presence of Inter cross-linguistically.[5] We may further conjecture that languages with a sentence-initial question particle resort to merge of an operator in SpecInterP or else to long distance Agree between Inter and the Event head (see section 4.3 for discussion on Oro Nao).

2.2. Wh-phrases do not clause-type

While the above conclusion concerning yes-no questions meets Cheng's (1991) CTH (section 1), the CTH cannot be easily extended to wh-questions in general. Recall from the Gungbe examples under (4), repeated here for convenience, that wh-questions lack the sentence-final question marker. Instead, the wh-phrase fronts to the left of the focus marker.

(15) a. Mɛ́nù **wɛ̀** wá ? [Gungbe]
who FOC come
'Who arrived/came?'

b. Ùn kànbíɔ́ ɖɔ̀ mɛ́nù **wɛ̀** wá ?
1.SG ask that who FOC come
'I asked who came?'

The ungrammatical examples in (16) further indicate that wh-phrases and focused constituents are mutually exclusive both in matrix and embedded clauses.

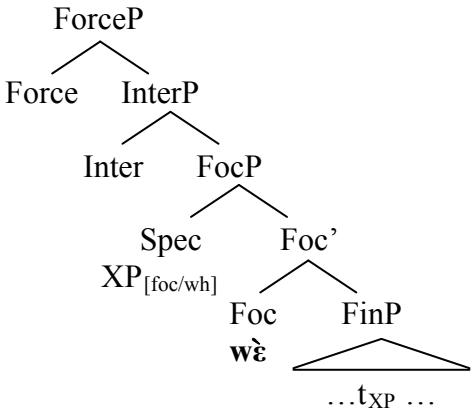
(16) a. * Fítɛ́ **wɛ̀** Súrù **wɛ̀** yì ? [Gungbe]
where FOC Suru FOC go
'Where did SURU go?'

b. * Ùn kànbíɔ́ ɖɔ̀ fítɛ́ **wɛ̀** Súrù **wɛ̀** yì ?
1.SG ask that where FOC Suru FOC go
'I asked where did SURU go?'

Following Rizzi (1997) and much related work, Aboh (2004a) proposes that wh-questions as well as focused expressions derive from movement of the wh-phrase or the focused constituent to the specifier of the focus phrase as illustrated in (17). This analysis assumes that Inter precedes Foc as already sequenced in (6a).

[5] Prosody of languages without a question particle could be a cue to the activation of Inter. French for instance, could be equated with Nweh and Gungbe in that the clause-final intonation rise could be attributed to the effects of a non-overt question particle; see Cheng & Rooryck (2000) for an interesting proposal along these lines.

(17)



Under the CTH (Cheng 1991: 30), where clause-typing may be obtained by Spec-head agreement between the fronted wh-phrase and the head it is adjacent to (i.e., here Foc°), representation (17) would suggest that wh-questions, in Gungbe and similar languages (e.g., Hungarian (Lipták 2001), Italian (Rizzi 1997, 2001)), do not involve Inter because clause-typing is realized under FocP. This in turn would lead to the following generalization.

(18) a. (In)direct yes/no-questions are introduced by Inter, which encodes [interrogative] force and may trigger movement of the proposition to SpecInterP.

b. Wh-phrases and focus phrases target the same surface position SpecFocP where they check the [focus/wh] feature under Foc° and clause-type the sentence by Spec-head agreement.

This generalization is not uncontroversial though because wh-phrases appear to target various positions cross-linguistically and most crucially, not all wh-phrases within a language compete for the same position. Consider the following French examples. The questions under (19) involve non-argumental wh-phrases for which we use the cover term adjunct wh-phrases. In contrast, the sentences under (19') involve argument (i.e., subject versus object) wh-phrases.

(19) a. ✓/? Comment, demain, ferons-nous face à cette nouvelle crise ?
how tomorrow, do.FUT-1.PL face to that new crisis
'How are we going to face this new crisis tomorrow?'

b. ✓/? Pourquoi, en 2007, irais-je voter pour Sarko ?
why in 2007, go.FUT-1.SG vote.INF for Sarko
'Why should I vote for Sarko in 2007?'

(19') a. ✓/? Qui, demain, dirigera la France ?
who tomorrow rule.over.FUT the France
'Who will rule over France tomorrow?'

b. * Qui, demain, inviterons-nous ?
who tomorrow invite.FUT-1.PL
'Who are we inviting tomorrow?'

Even though subtle, the judgments of our informants can be summarized as follow: speakers find examples like (19a-b), where certain adjunct wh-phrases (e.g., *pourquoi* 'why', *comment* 'how', *où* 'where') precede a topic in a question involving complex inversion, acceptable (✓), or marginal (?). The same holds true of (19'a) where the fronted wh-phrase is the subject. However, our informants unanimously consider example (19'b) with a fronted wh-object preceding the topic ungrammatical.[6] Interestingly, according to the Italian and English speakers we contacted, the same judgments seem to hold for the English and Italian counterparts of (19) and (19').[7] Examples of such English sentences are given in (20). Contrast (20a) with (20b-c):

(20) a. Why, in 2007, should I vote for Sarko?
b. ?? Who, tomorrow, will do the dishes?
c. ?? Who, tomorrow, are you going to visit?

These facts lead us to the following generalisation: adjunct wh-phrases (and for some speakers subject wh-phrases) may move to a position preceding the topic, while the same position is unaccessible for object wh-phrases. In addition, the distribution of subject and object wh-phrases (at least in French) suggests that these two might not target the same position either, since subject wh-phrases may precede the topic for some speakers, while sentences with an object wh-phrase preceding the topic are ungrammatical for all speakers. From this, one could conclude that the subject targets a higher position than the object. We are therefore left with the characterization in (21) as the sequencing of wh-phrases within the left periphery.

(21) [$Wh_{adjunct}$ … $Wh_{subject}$ … Topic … Wh_{object} … [$_{IP}$ …]

It follows from this characterization that the interrogative reading that is assigned to wh-questions is not dependent on the surface position of the wh-phrase that they may involve. Put differently, whether a wh-phrase moves to SpecFocP, as suggested in (17) for Gungbe, or to some other designated position within the left periphery as in (21), does not seem to affect the expression of interrogative force. We therefore reach the paradoxical conclusion that even though Gungbe, French, English, and Italian are well-behaved wh-movement languages in the sense of Cheng (1991), wh-movement does not seem to be triggered by clause-typing in these

[6] One speaker found (19'a) ungrammatical but mentioned that it looked better than (19'b) to which she assigned two stars.
[7] In fact, various studies on wh-questions in dialects of Italian show that not all wh-phrases target the same positions across and within these dialects (see Munaro & Obenauer 2002; Munaro, Poletto & Pollock 2001)

languages. In order for Cheng to be right, one would have to assume that any head within the left periphery that may host a wh-phrase in its specifier can also clause-type the sentence as interrogative by inheritance (i.e., Spec-head agreement). This would make wh-phrases quite unique, since clause-typing morphemes in general tend to target specific positions cross-linguistically. Yes-no question particles, for instance, are generally found in sentence-initial or sentence-final positions. In addition, the idea of clause-typing by agreement further obscures the fine-grained analysis of the left periphery as called for within the cartography approach.

We will therefore not follow this line of reasoning. Instead, we propose that wh-movement in the so-called wh-movement languages derives from reasons independent of interrogative clause-typing. This view has two immediate consequences: (i) we dissociate features like [focus] and [wh] from the interrogative clause-typing functional head Inter^{o}, which we assume embeds the interrogative only, and (ii), we discard Inter^{o} as an attractor of wh-phrases for the purpose of clause-typing. In so doing, we disentangle wh-movement from clause-typing proper.

We conclude from this that in simple Gungbe wh-questions like (15a), or their English translation *Who came?*, clause-typing (i.e., interrogative force) is expressed by a null morpheme under Inter^{o}, whose presence often correlates with intonation change cross-linguistically (e.g., declarative vs. interrogative). Therefore, both wh-in-situ and wh-movement languages involve a question particle (distinct from wh-words) that clause-types interrogative sentences. In the following sections, we argue for such a strong version of Cheng's (1991) Clause Typing Hypothesis. In order to do so, we first show that wh-phrases are not required for the interpretation of interrogative force.

3. Question particles in wh-questions

In this section, we present data showing that wh-phrases, although they help in interpreting the *content* of a question (i.e., what a question is about) do not clause-type the sentence as a question.[8] We provide supporting empirical evidence from Lele (Chadic) and Nweh (Bantu).

As extensively discussed in Cheng (1991), not all languages involve wh-movement. In many wh-in-situ languages, wh-questions are typed by a question particle. Lele, a Chadic SVO language, is a case in point. As the minimal pair under (22) indicates, Lele yes/no-questions require the question marker *gà* in sentence-final position (Frajzyngier 2001: 217). These questions appear similar to Gungbe and Nweh yes/no-questions, which we analyze as

[8] See, for instance, example (47) where we show that wh-movement is not unique to wh-questions but also occurs in non-interrogative sentences (see also Cheng (1991) and references cited there on wh-phrases as indefinites).

involving movement of the proposition to the specifier of InterP within the clausal left periphery. The derivation is sketched in (22c).

(22) a. Dì dí kàre [Lele]
eat 3.SG sauce
'He ate the sauce.'

b. Dì dí kàre gà
eat 3.SG sauce INTER
'Did he eat the sauce?'

c. $[_{\text{ForceP}}\ [_{\text{Force}}\ [_{\text{InterP}}\ [\text{Dì dí kàre}]_i\ [_{\text{Inter}^\circ}\ \text{gà}\ [_{\text{FinP}}\ t_{[\text{Dì dí kàre}]}]]]]]$

Similarly to yes/no-questions, Lele wh-questions involve a wh-phrase combined with the sentence-final question marker *gà*. Yet, the language displays an interesting subject-object contrast. In subject questions, the wh-phrase must front to the left of the focus marker *ba* as in (23a). The wh-phrase cannot remain in situ, hence the ungrammatical (23b) (Frajzyngier 2001: 282).[9]

(23) a. **Wéy** ba é gà ? [Lele]
who FOC go INTER
'Who went away?

b. * **Wéy** é gà ?
who go INTER

Object wh-phrases, however, exhibit in-situ and ex-situ strategies. Example (24a) illustrates the in-situ context: the wh-phrase follows the verb and precedes the sentence-final question marker. In example (24b), however, the wh-phrase fronts to the clause periphery where it occurs to the left of a focus marker (Frajzyngier 2001: 284, 286).

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

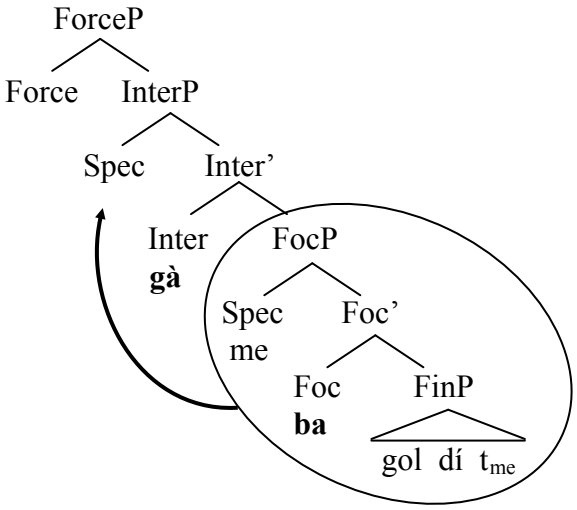
b. **Me** ba gol dí gà?
What FOC see 3.SG INTER
'What did he see?'

In terms of Cheng (1991), Lele is a well-behaved in-situ language in that it involves a question particle within the left periphery, which binds the wh-phrase in its merging site. In such contexts, however, the wh-phrase may have to move for other licensing purposes, for

[9] This asymmetry appears quite common in various Niger-Congo and Afro-Asiatic languages (Aboh, Hartmann, and Zimmermann 2007).

instance, when attracted by the focus head realized by *ba*, as illustrated in (23a) and (24b). Under our analysis of Lele yes/no-questions as in (22c), we conclude that the proposition containing the wh-phrase must raise to SpecInterP, leading to example (24a). In cases like (23a) and (24b), however, the wh-question involves movement of the wh-phrase to SpecFocP followed by movement of FocP to SpecInterP, as illustrated in (25), topic projections ignored.

(25)



It appears from the analysis of Lele in (25) that the formal licensing of InterP does not bear on wh-phrases. Cross-linguistic data lend further support to this view. Recall from the discussion in section 2 that yes/no-questions in Nweh involve a sentence-final question particle as illustrated in (12), repeated under (26) for convenience.

(26) a. Njikèm à kɛ̀ʔ npfɛ́t akèndɔ̀ŋ ŋ̄ [Nweh]
Njikem AGR TNS eat plantains INTER
'Did Njikem eat plantains?'

b. ŋúa à kɛ̀ʔ ndé ē
child AGR TNS sleep INTER
'Did the child sleep?'

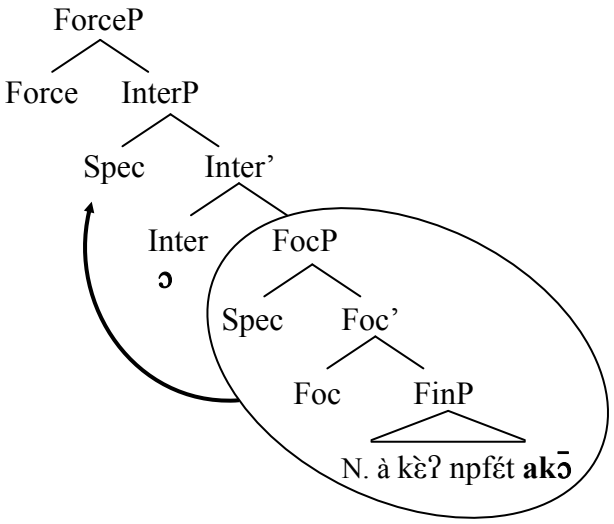
In accounting for wh-questions in Nweh, Nkemnji (1995) further indicates that these must involve the sentence-final question particle, too. Unlike Lele, however, Nweh exhibits wh-in-situ in all arguments, as shown in (27) (Nkemnji 1995: 168).

(27) a. Njikèm à kɛ̀ʔ npfɛ́t akɔ̄ ɔ [Nweh]
Njikem AGR TNS eat what INTER
'What did Njikem eat?'

b. Awɔ́ à kɛ̀ʔ npfɛ́t akèndɔ̀ŋ ŋ̄
who AGR TNS eat plantains INTER
'Who ate plantains?'

According to Nkemnji (1995), these sequences involve a derivation where the wh-phrase remains IP-internally and the proposition is fronted to SpecInterP. In (28), we sketch the derivation for (27a).

(28)



Put together with the previous discussion (see examples (19) and (20)) on various landing sites for wh-phrases in wh-questions, the Lele and Nweh facts lead us to conclude that the expression of interrogative force in wh-questions must be dissociated from wh-phrases. In the following section, we provide additional empirical evidence from sign languages and spoken languages showing that wh-questions can do without wh-phrases, but may not lack question morphemes.

4. On missing wh-phrases

The discussion in the previous sections indicates that even though wh-phrases participate in the meaning of questions cross-linguistically, they do not seem to be involved in clause-typing which is formally expressed by Inter. In the following paragraphs, we further show that, in some languages, sequences which are comparable to wh-questions in languages like English, Lele, or Gungbe, do not involve wh-phrases in the traditional sense. Put differently, these languages display wh-questions without wh-phrases even though they involve a question particle. We start with Indian Sign Language (IndSL). Here, we mainly review the findings reported in Aboh, Pfau & Zeshan (2005).

4.1. 'Wh-questions' in Indian Sign Language (IndSL)

IndSL is the sign language (SL) used in the deaf community all over India, and across the border in Pakistan.[10] IndSL is a verb-final language (29a) (Zeshan 2003: 170). Commonly, D-linked arguments are dropped in discourse and sentences do not often include more than one overt non-pronominal DP constituent (29b) (Zeshan 2000: 138). Aboh, Pfau & Zeshan (2005) concluded from this that IndSL makes frequent use of null arguments, presumably *pro*. When overtly realized, however, arguments as well as adjuncts occur in various positions depending on their discourse-properties. Example (29c), for instance, illustrates a topic construction where the topicalized internal argument is fronted. In (29d), it is the time adjunct which is topicalized (Zeshan 2000, 2003; Aboh, Pfau & Zeshan 2005). These examples suggest that topicalization is not sensitive to a particular type of constituent, but targets both arguments and adjuncts.[11]

(29) a. CLUB INDEX DEAF HELP [IndSL]
'The club (here) helps the deaf people.'

hs
b. SEE UNDERSTAND NOT
'(We) don't understand (what we) see.'

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

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

Contrary to what has been observed in other SLs (see Zeshan 2004 for a typological overview), IndSL has a minimal question sign paradigm. In fact, there is only one non-compositional question sign which we label G-WH (general wh-question sign). This sign only appears in wh-questions, not in yes/no-questions. In addition to the manual sign G-WH, wh-questions are marked non-manually by raised eyebrows and a backward head position with the chin raised (see figure 1). Note that such non-manual expressions are generally assumed to be the sign language equivalent of intonation (Sandler 1999; Wilbur 2000).[12]

[10] Although this is not clear at present, it seems that the same SL is also used in other parts of the subcontinent, for instance, in Nepal, Bangladesh, and Sri Lanka (Woodward 1993).

[11] Following common conventions, SL examples are given in small caps. Lines above the glosses indicate the scope (i.e. onset and offset) of a particular non-manual marker (e.g. a headshake marking negation in (29b)). Subscripts refer to points in the signing space, i.e. localizations of present referents (e.g. INDEX$_1$ in (29d) pointing towards the signer's chest) or localizations that have been established for non-present referents by means of a pointing sign (e.g. INDEX$_3$ in (29d) establishing a localization for DELHI).

[12] In SLs, the prosodic structure of an utterance may not only be characterized by non-manual domain markers such as eyebrow position and head and body movements, but also by non-manual punctual markers such as eye

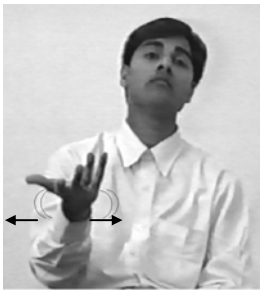


Figure 1. General wh-question sign (G-WH)

The following examples show that the sign G-WH covers the whole range of question words in other languages (e.g., argument, adjunct, event), which is why the interpretation of the content of such questions crucially depends on the context.

(30) a. CHILD ANGRY **G-WH** [IndSL]
wh
'Why is the child angry?'

b. FATHER INDEX$_3$ SEARCH **G-WH**
wh
'What is/was father searching?'

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

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

To express more specific meanings, G-WH may combine with other non-interrogative signs, as e.g. the sign TIME shown in (31), to express the meaning 'when' (see below for further discussion).

(31) INDEX$_3$ TRAIN GO **TIME G-WH** [IndSL]
'When is the train leaving?'

Finally, notice from these examples that, unlike many other sign languages where wh-phrases may occur in various positions, G-WH must occur sentence-finally.[13] This last property is

blinks (marking a prosodic boundary; see e.g. Wilbur 1994) and by manual cues such as phrase-final lengthening, reduplication, pauses and weak hand spreading (Sandler 1999; Brentari & Crossley 2002).

[13] See e.g., Petronio & Lillo-Martin (1997) and Neidle et al. (1997, 2000) for ASL, Coerts (1992) for SL of the Netherlands, Dubuisson et al. (1994) for Quebec SL, and Šarac et al. (in press) for Austrian SL and Croatian SL; see Zeshan (2004) and Sandler & Lillo-Martin (2006) for an overview.

particularly interesting, since IndSL manifests other clause-typing morphemes together with which G-WH appears to form a paradigm. Indeed, all such signs appear in sentence-final position, assign a clause to a particular clause type or modality, and have scope over the whole clause as shown by the imperative sign in (32a), the negative sign in (32b), and the existential sign in (32c).

(32) a. INDEX$_2$ STUDY **IMP** [IndSL]
'You have to study!'

b. INDEX$_1$ WORK **NEG**
'As for me, I am not working.'

c. STUDY USEFUL **EXIST**
'Education is really useful.'

According to Zeshan (2000: 97), these clause-final signs "have a relatively simple structure as compared to other signs", and form a closed class. Following the traditional characterization of functional items (Abney 1987) and Aboh's (2006) analysis of certain modal particles as expressions of functional heads within the clausal left periphery, we further conclude that G-WH belongs to the class of clause-typing morphemes that express properties of distinct functional projections within the C-system, such as interrogative force, mood, or negation.

We therefore propose that these functional items surface in sentence-final position because they take scope over the proposition, which is attracted into their specifier (Aboh 2004a, c). This hypothesis is compatible with Zeshan's (2000, 2003) observation that, when associated with non-manual markers, these markers typically spread leftward from the right edge of the sentence.[14] For instance, as far as wh-questions are concerned, the non-manual marker is always associated with G-WH but may spread leftwards onto the verb and the object. Still, the non-manual marker is always most pronounced on G-WH, that is, on the position that hosts the relevant feature. We conclude from this that G-WH is a question particle that clause-types the sentence as a question. Put differently, IndSL, Lele, and Nweh belong to the same typological class, with the only difference that IndSL exhibits no overt wh-phrase.[15] As a consequence, a sequence like (30b) is considered to involve a silent phrase in the object position, as is indicated in (33a). The representation in (33b) shows that IndSL simple wh-questions involve generalized pied-piping of FinP to SpecInterP.

[14] Spreading, however, does not proceed at random. Rather, it is constrained by syntactic (and possibly prosodic) constituency. Spreading of the non-manual wh-marker, for instance, targets either the entire VP or the whole clause. Topics always fall outside of the spreading domain; they may be accompanied by a different non-manual marker.

[15] This characterization is compatible with the fact that IndSL freely uses null arguments whenever these are unambiguously recoverable from the discourse.

(33) a. FATHER INDEX$_3$ <what> SEARCH **G-WH** [IndSL]
'What is/was father searching?'

b. [$_{\text{ForceP}}$ [$_{\text{Force°}}$ [….[$_{\text{InterP}}$ [FATHER INDEX$_3$ <what> SEARCH]$_i$ [$_{\text{Inter°}}$ **G-WH** [$_{\text{FinP}}$ t$_i$]]]]]]

More precisely, we argue that wh-questions in IndSL involve a sentence-final particle G-WH that is associated or combined with an associate phrase to form the wh-question. The latter is often silent, unless it cannot be properly retrieved from the context. In such cases, IndSL resorts to generic or indefinite associate phrases that combine with G-WH to form the wh-question. Such combinations include FACE G-WH ('who'), PLACE G-WH ('where'; cf. figure 2), TIME G-WH ('when'; cf. figure 3), and NUMBER G-WH ('how many"). However, no such combinations are available for expressing 'what', 'why', and 'how'. These meanings can only be encoded by the general wh-sign G-WH alone, suggesting that these always have to be recovered from the context.

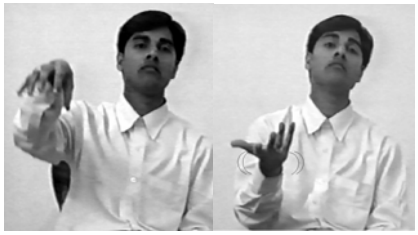


Figure 2. PLACE G-WH ('where')

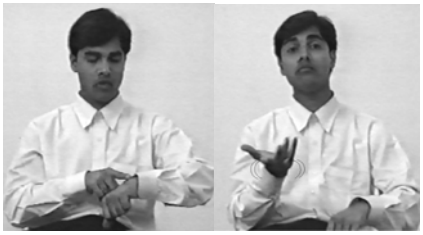


Figure 3. TIME G-WH ('when')

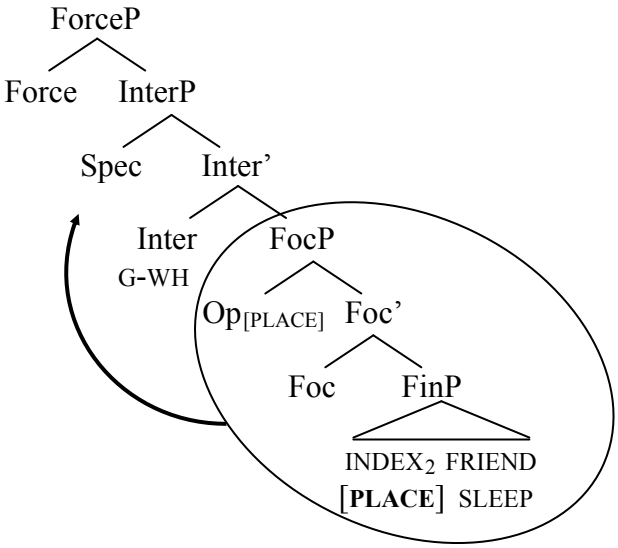
Following Cheng (1991), the associate phrases could be considered indefinites unselectively bound by a relevant head inside the proposition which, in turn, is within the scope of the wh-question particle. In this regard, it is interesting to note that these associate phrases may occur in situ or ex situ as illustrated in (34). According to our informant, these constructions receive a focus reading on the associate.

(34) a. INDEX$_2$ FRIEND **PLACE** SLEEP **G-WH** [IndSL]
'How many books will you take?'

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

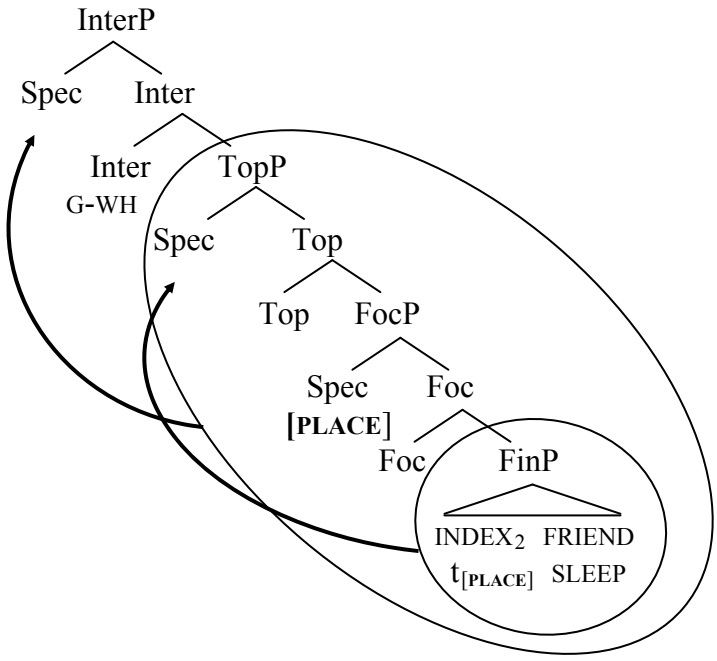
We assume that the in-situ or ex-situ associate phrase receives focus reading because it is either bound by an operator that is merged in SpecFocP or because it moves to SpecFocP in syntax. We therefore propose that in-situ IndSL wh-questions like (34a) involve the derivation in (35) where G-WH first merges in Inter and attracts FocP containing the focus binder of the associate into its specifier (see section 5 and Aboh, Pfau & Zeshan (2005) for discussion).

(35)



In contrast, we suggest that wh-questions including an ex-situ associate phrase (34b) involve the derivation sketched in (36) where the associate moves to SpecFocP, followed by pied-piping of FinP to SpecTopP, followed by TopP-movement to SpecInterP where it enters into a Spec-head relation with Inter. The combination of these two movements results in the associate phrase occurring left adjacent to the question particle even though it is within the specifier of the focus phrase that itself moved to SpecTopP.[16]

(36)



While it is clear that focus is the distinguishing factor between wh-questions with and without an associate phrase (in cases where both options are available), for the time being, it is not clear what factors determine the in-situ versus ex-situ derivation. We hope to return to this issue in future work. What is crucial for our argument, though, is that IndSL appears to have

[16] Note that this analysis is minimally different from the one proposed in Aboh, Pfau & Zeshan (2005: 37)

no wh-phrases in the traditional sense. Instead, this language resorts silent or overt DPs that are bound by a relevant operator inside the proposition and are therefore interpreted as the content of the question. On the other hand, the interrogative force is expressed by the sentence-final particle G-WH. Similar facts have been described for other sign languages as well as for certain spoken languages. In the following section, we discuss constructions from SL of the Netherlands in which the wh-phrase is missing.

4.2. SL of the Netherlands (NGT)

In contrast to IndSL, SL of the Netherlands (*Nederlandse Gebarentaal*, NGT) has a full paradigm of wh-signs. While it has been noted (Coerts 1992; van Gijn 2004) that wh-elements in NGT may appear in sentence-initial position and may be doubled (i.e., appear sentence-initially and sentence-finally), the most common position for wh-signs is the sentence-final position, as is shown in (37a) for a wh-subject and in (37b) for a wh-object (van Gijn 2004: 148f). Given that NGT is underlyingly SOV, we must assume that both these wh-phrases surface ex-situ, which means that NGT is a wh-movement language in terms of Cheng (1991).

(37) a. wh
BOOK STEAL WHO [NGT]
'Who steals the book?'

b. wh
INDEX$_2$ DRINK WHAT
'What do you drink?'

Nevertheless, NGT displays properties similar to those found in Lele and Nweh. Frequently, in wh-questions, the wh-sign is followed by a question particle, glossed as PU (palms up), as is illustrated in (38a,b). Similar to what has been observed in Nweh and Lele, but contrary to IndSL, the question particle PU also appears in yes/no-questions as shown in (38c) (Coerts 1992: 198).

(38) a. wh
INDEX$_3$ SAY WHAT PU [NGT]
'What did s/he say?'

b. wh
INDEX$_2$ BIKE STEAL WHO PU
'Who stole your bike?'

c. yn
INDEX$_1$ OFTEN USE PU
'Do I use it often?'

These NGT examples are reminiscent of the Lele examples under (23a) and (24b), repeated here as (39a,b), where the wh-question involves a question particle and a moved wh-phrase in focus position.

(39) a. **Wéy** ba é gà ? [Lele]
who FOC go INTER
'Who went away?

b. **Me** ba gol dí gà?
what FOC see 3sg INTER
'What did he see?'

At present, it is not clear to us whether the NGT wh-phrases also move to a focus position.[17] Yet, these data constitute an additional piece of evidence that there is no direct correlation between wh-movement and clause-typing (see Bošković (2002) for Slavic languages and Kiss (1998) and Puskás (2000) for Hungarian). Instead, wh-movement seems to be related to other factors such as focus. This would suggest that the relevance of a wh-phrase in a wh-question is more dependent on the meaning of the question (i.e., information structure) than on its syntax.

This view appears to be supported by the fact that, in appropriate contexts, the wh-sign may be dropped. This strategy gives rise to wh-questions that are only marked by the sentence-final particle (together with non-manual marking). The target wh-phrase, however, is missing as shown in (40).

(40) a. wh
YESTERDAY INDEX$_2$ BUY PU [NGT]
'What did you buy yesterday?'

b. wh
TRAIN FRANKFURT LEAVE PU
'When/where does the train to Frankfurt leave?'

In case the sentence-final particle is dropped, too, interrogative force is expressed only by non-manual intonation (41), in this case, furrowed eyebrows and a slight forward head tilt (see endnote 12). The missing wh-phrase, however, is recovered from context as in normal cases of wh-phrase drop ((41b) is from Coerts 1992: 204).[18]

[17] The role of focus in sign language wh-questions has been discussed for ASL by Petronio & Lillo-Martin (1997) and Neidle (2002) and for Brazilian SL by Nunes & de Quadros (2004). While Petronio & Lillo Martin (1997) and Nunes & de Quadros (2004) assume that focus is involved in wh-doubling constructions, Neidle (2002) claims that ASL wh-questions with a sentence-final wh-element receive a focus reading.

[18] Wh-questions without wh-elements have also been described for other SLs. The examples in (i) are from ASL (Petronio & Lillo-Martin 1997: 36; Aarons 1994: 111), the example in (ii) is from Japanese SL (Fischer 2005).

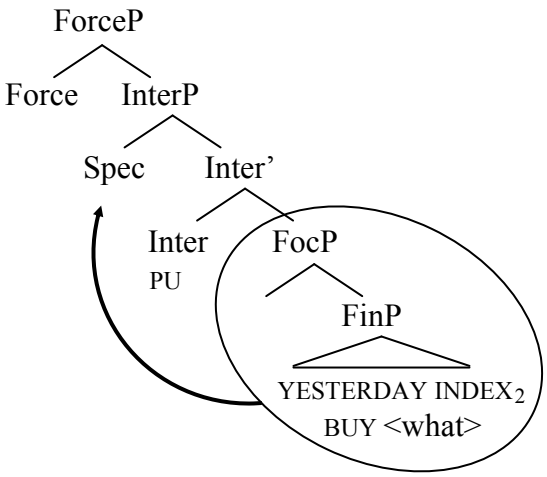
(41) a. top wh
SHOP INDEX$_3$ INDEX$_2$ BUY [NGT]
'What did you buy in this shop?'

wh
b. INDEX$_1$ SUITCASE
'Where is my suitcase?'

This last piece of data suggests to us that when a language (signed or spoken) has a means of retrieving the wh-phrase from context, the wh-phrase may not be overtly expressed. Inter, however, cannot be elided and seems to always be present, be it in the form a full morpheme, as in (40), or in the form of a null morpheme resulting in a prosodic cue, as in (41).

Under the proposed analysis, we argue that in NGT, just as in IndSL, Nweh, and Lele, a question particle (PU in NGT) spells out the head of InterP and attracts its complement (containing the target phrase) into its specifier position (42). We assume that in such wh-questions additional movement (e.g., V(P)-movement) applies inside the pied-piped phrase, which is why the target phrase occurs in post-verbal position.

(42)



We therefore conclude from the above that elements that are traditionally defined as wh-phrases are not necessary for the realization of 'wh-questions' even in languages where they typically move to some peripheral position. In the following section, we provide further

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wh
(i) a. FATHER LEAVE <e> [ASL]
'Why/how/when did father leave?'

wh
b. JOHN BUY YESTERDAY
'What did John buy yesterday?'

wh
(ii) COLOR LIKE [Japanese SL]
'What color do you like?'

examples from a spoken language, namely Oro Nao, indicating that wh-phrases do not contribute in any way to interrogative force anchored on Inter.

4.3. 'Wh-questions' in Oro Nao (Wari')

Oro Nao is a dialect of Wari', a Chapakuran language spoken in Brazil by approx. 1,800 people living on the Pacaas Novos River along the Bolivian border. In what follows, we draw on data from Everett & Kern's (1997) description of the language, focusing on aspects of Oro Nao that are relevant for the discussion.

According to Everett & Kern (1997), Oro Nao displays word order variations that are mainly determined by pragmatic considerations. Two configurations are of interest here, simple (or neutral) sentences and wh-questions. The former (43a) (Everett & Kern 1997: 19) follow the sequencing in (43b).[19]

(43) a. Pa' mi' nonon con hwam mana panxicaca
kill give 3PL.RP/P.3PL.M PREP.3SG.M fish COLL child-3PL.M
mon tarama' pain xec ca' ne
COLL man PREP.3SG.N day this.N REC.P
'The men killed fish for their sons this morning.'

b. Verb > VIC (> $NP_{[object1]}$) (> $PP/NP_{[object2]}$) (> $NP_{[subject]}$) (> $SFP_{[Tense]}$)

We observe from this example that Oro Nao is a VOS language with the interesting particularity that the verbal inflectional clitic (VIC) following the verb expresses person, number, and gender (i.e., phi-features) of both subject and object, as well as tense specifications.

In clause-typed sentences such as subject (44a) and object (44b) wh-questions, however, the argument that is being questioned is missing from its normal position and the general question particle *ma'* (derived from a demonstrative) introduces the sentence. The question particle precedes an Infl element that signals gender and tense (Everett & Kern 1997: 19f). Further observe that the difference between subject and object questions is that the VIC following the verb is tensed in the former but not in the latter.

(44) a. Ma' co pa' nana hwam pain xec ca' ne
that.PROX.H M/F.RP/P kill 3PL.RP/P fish PREP.N day this.N REC.P
'Who killed fish this morning?'

b. Ma' carawa ca pa' caca mon tarama'
that.PROX.H animal N.RP/P kill 3PL.M COLL man
'What thing/animal did the men kill?'

[19] RP/P = realis past / present, REC.P = recent past , PL = plural; SG = singular; COLL = collective; M= masculine; F = feminine; N = neutral; PROX = proximal; H = hearer; SFP = sentence-final (tense) particle.

c. Ma' xec ca pa' caca hwam mon tarama'
that.PROX.H day N.RP/P kill 3PL.M fish COLL man
'When did the men kill fish?'

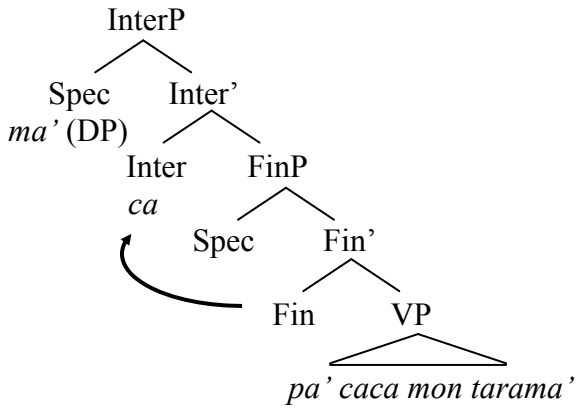
These examples suggest that Oro Nao wh-questions can be sequenced as in (45).

(45) Inter > $\text{Infl}_{[\text{Gender/Tense}]}$ > Verb > VIC (> $\text{NP}_{[\text{obj1}]}$) (> $\text{PP/NP}_{[\text{obj2}]}$) (> $\text{NP}_{[\text{subj}]}$) (> SFP)

The sentences (43b-c) indicate that when questioning the object or a temporal phrase, the question marker *ma'* can be combined with an associate phrase, *carawa* ('animal') and *xec* ('day'), respectively. This is reminiscent of the situation described above for IndSL (see example (34)). In addition, it appears that in sentences introduced by the clause-typing morpheme *ma'*, Infl is attracted into a position higher than the verb.

In accounting for these Oro Nao facts, we suggest that the clause-typing morpheme *ma'* is hosted by SpecInterP. More precisely, we propose that the demonstrative *ma'* is part of a DP which may include the associate phrase (e.g., *carawa*) and which sits in a Spec-head relationship with the Infl element attracted in Inter. The concord between the question operator in SpecInterP and the 'chain' involving Infl under Inter and the VIC following the verb determines the target of the question. Example (44b) is derived as in (46).

(46)



Under this view, the situation in IndSL and Oro Nao is similar in that the two languages lack proper wh-phrases and resort to generic DPs bound or attracted by a higher element in the clausal left periphery. However, while IndSL involves a question particle that merges in Inter, we propose that Oro Nao involves a question operator in SpecInterP. This difference is compatible with the fact that the question particle surfaces sentence-finally in IndSL, due to pied-piping of the proposition to SpecInterP. In contrast, in Oro Nao, pied-piping to SpecInterP is impossible because the latter hosts the question operator, which occurs sentence-initially.

Put together, the discussed data from spoken and sign languages lead us to conclude that Inter must be active in all question types. This would mean that wh-phrases are not the triggers of wh-questions. Rather, it is Inter that determines the question reading. This conclusion obviously raises the question of how wh-questions are interpreted. We turn to this issue in the next section.

5. Interpreting wh-questions

The data discussed thus far indicate that there is no direct correlation between interrogative clause-typing and wh-expressions, and therefore between clause-typing and wh-movement, contrary to what is often assumed. This conclusion correlates with the fact that even in languages like English, wh-phrases are not inherently interrogative. In this regard, the relative clauses in (47) clearly illustrates that wh-movement is not necessarily triggered by interrogative clause-typing.

(47) The man who I saw this morning was arrested by the police.

The facts in (47) are compatible with our observation in section 2.2 that a wh-phrase does not clause-type the sentence even in wh-movement languages like English. We therefore reach the conclusion that even in apparently uncontroversial cases such as "*What have you prepared*?" in English, interrogative force is achieved thanks to a (null) question marker in InterP. The presence of this marker, in English and similar languages, can be detected through intonation or some other morphosyntactic phenomena that typically characterize questions, such as, for instance, subject-auxiliary inversion.

Since wh-phrases do occur in wh-questions, we conclude that they do so for interpretive reasons. Put another way, we propose, following Cheng (1991) and Cheng & Rooryck (2000), that wh-questions involve essentially two operations: clause-typing and interpretation of the wh-phrase or indefinite phrase. We further suggest that the two operations are properties of distinct heads. Clause-typing is a property of Inter, while identification of the wh-phrase or the indefinite is a property of Foc[20]. We refer to the latter process as q-identification.

However fulfilling such a requirement does not provide any interpretation other than interrogative force, which we could informally characterize as the search for 'new information'. We propose that languages use other devices deriving from information structure that allow for interpretation of the content of the question, that is the identification of the target about which new information is sought. This would mean that while Inter clause-

[20] See Kiss (1998) for the distinction between identificational focus and new information focus. According to Kiss, the former is related to FocP but not the latter.

types the sentence, Foc hosts an operator that assigns a range to the variable that represents the target. We therefore get the following description:

(48) a. Clause-typing: Inter ➔ sets interrogative force (i.e., search for new information).

b. q-identification: Foc ➔ ranges over variables (e.g., argument, event, adjunct) and provides a value to new information.

Given this formulation, we further propose that the default interpretation of interrogative force (48a) roughly corresponds to that of yes-no questions. In such cases, Interº is activated, but Focº only ranges over the propositional content. In wh-questions, however, Focº probes over a range of variables one of which, the wh-phrase, becomes its target. The latter combines with Interº, thereby providing a content to the question.

While this characterization points to the often observed interaction between focus and wh-questions, it also allows us to conclude that languages with wh-movement and languages with in-situ wh-phrases differ, not so much because of the clause-typing mechanism that they adopt, but due to the nature of the wh-phrases that they involve. More precisely, we argue that ex-situ wh-phrases and in-situ wh-phrases differ with regard to their structural make-up, that is, whether they embed a quantificational feature that forces movement to SpecFocP or some other relevant position in overt syntax or not (Cheng 1991; Cinque 1990; Rizzi 1997, 2001). In probe and goal systems à la Chomsky (2001), this would mean that only wh-phrases or associate phrases that bear a q-feature are visible to a higher probe. The next section discusses French wh-questions that appear to support this view. The analysis builds on Cheng & Rooryck's (2000) work on French wh-phrases.

5.1. French moved wh-phrases

Like English, French is commonly assumed to be a wh-movement language because wh-phrases generally move to the left periphery of the sentence as illustrated in (49) (but see Section 5.2 for instances of wh-in-situ in French).

(49) a. **Qui** as-tu vu au marché ?
who have.2.SG-you see.PART at.the market
'Who did you see at the market?'

b. **Qui** est allé au marché ?
who be.3.SG go.PART to.the market
'Who went to the market?'

c. **Où** es-tu allé ?
where be.2.SG-you go.PART
'Where did you go?'

d. **À qui** as-tu donné l'argent ?
to who have.2.SG-you give.PART the money
'To whom did you give the money?'

In terms of the cartographic approach, the above examples suggest that French wh-phrases move to the specifier position of a designated functional projection within the left periphery. In terms of Cheng's (1991) CTH, therefore, both English and French display wh-movement because the raised wh-phrase serves to clause-type the sentence. In this regard, it is interesting to note that English and French are similar in involving direct yes-no questions without a question particle (unlike Lele, Nweh, and NGT). Instead, such questions display complex inversion as illustrated in (50a-b) or *est-ce que* expressions as in (50c).

(50) a. Pierre est-il parti?
Peter is.3.SG-he leave.PART
'Did Peter leave?'

b. Est-il parti?
is.3.SG-he leave.PART
'Did he leave?'

c. Est-ce que Pierre est parti?
Q Peter is.3.SG leave.PART
'Did Peter leave?'

Leaving aside details of the analysis of yes/no-questions in French, it appears that the trigger of question reading in the above examples is either complex inversion (Rizzi 1996) or the presence of *est-ce que*. Yet, French displays a third strategy with no word order alternation (51). Instead, this case requires rising intonation (Cheng & Rooryck 2000).

(51) Pierre est parti?
Peter is.3.SG leave.PART-[Interrogative rising intonation]
'Did Peter leave?'

In their analysis of such yes/no-questions, Cheng & Rooryck (2000) propose that these French examples are reminiscent of yes/no-questions in languages with a question particle. Under this analysis, rising intonation could be seen as the mere reflection of a syntactic requirement: the CTH.

We therefore reach the generalization that French is similar to the Gungbe, Lele, Nweh, and NGT examples discussed above, where yes/no-questions also involve a question particle. We further conclude that the only (apparent) variation between these languages is that in French the question morpheme is realized by a null morpheme that triggers rising intonation.

5.2. French in-situ wh-phrases

Adopting the CTH, Cheng & Rooryck (2000) convincingly show that the presence of such a question morpheme in French correlates with the existence of wh-in-situ questions in certain contexts. Therefore, unlike English, French allows wh-questions of the type in (52) (Cheng & Rooryck 2000: 3).

(52) Jean a acheté quoi?
John have.3.SG buy.PART what
'What has John bought?'

Under Cheng's (1991) original CTH, such French in-situ examples are expected if clause-typing is being taken care of by some other mechanism. This proves to be the right characterization because these French wh-in-situ questions require the same rising intonation as the yes/no-questions in (51), unlike the wh-questions in (49) which do not trigger such an intonation. This would mean that in ex-situ wh-questions, there is no clause-typing morpheme and the wh-phrase must move to the left periphery due to clause-typing. With respect to in-situ cases, however, the question morpheme determining rising intonation clause-types the sentence as a question. As a consequence, the wh-phrase need not and cannot move due to economy.

Even though the conclusion that the question morpheme determining rising intonation in French is a property of Inter appears compatible with the analysis proposed in this paper, the discussion in previous sections clearly shows that wh-movement cannot be tied to clause-typing.[21] Instead, we suggest that wh-movement must derive from other properties, namely the structural make-up of the wh-phrase itself. In this regard, Cheng & Rooryck (2000: 16f) further report that French exhibits wh-in-situ questions involving wh-*ça* wh-phrases as in (53), in addition to wh-movement questions of the type in (49).

(53) a. Tu as vu qui ça (cet après-midi)?
you have.2.SG see.PART who that (this afternoon)
'Who did you see/meet (this afternoon)?'

b. Context: Paul has invited some colleagues for dinner. His wife knows this and asks him:
Tu as invité qui ça ce soir?
you have.2.SG invite.PART who that this evening
'Who did you invite tonight?'

[21] See Bruening (2004) for a similar conclusion.

In their discussion on wh-questions of this type, Cheng & Rooryck (2000) indicate that they differ from French in-situ wh-questions illustrated in (52) in various respects. As indicated in (53a), the in-situ wh-phrase is marked by the French deictic pronoun *ça*, which can occur independently in sequences such as *donne-moi ça*-(*là*) ('give me that-one (there)'). As the example under (53b) shows, this marker endows the wh-phrase with a strong discourse-anaphoric feature such that wh-*ça* questions require an answer from a set that has been pre-established in discourse. Put differently, wh-*ça* questions are D-linked in the sense of Pesetsky (1987) and require a D-linked answer.

In addition, wh-*ça* phrases are immobile as shown by the ungrammatical examples under (54) (Cheng & Rooryck 2000: 16).

(54) a. * Qui ça as-tu vu?
who that have.2.SG-you see.PART
'Who did you see/meet?'

b. * Qui ça est-ce que tu as vu?
who that Q you have.2.SG see.PART
'Who did you see/meet?'

Finally, and most crucially for our discussion, wh-*ça* questions do not require the question particle that triggers rising intonation, even though they do not exclude it.

Put together, these facts indicate that wh-*ça* phrases are subject to a constraint that forces them to remain in situ in questions which do not require the presence of a question particle. Cheng & Rooryck (2000: 17) conclude that

> "besides a morpheme that can check the Q-feature in C°, other factors may be operative in determining wh-in-situ […] These examples may make clear, however, that the choice between wh-movement and wh-in-situ in a language like French is strongly correlated with differences in interpretation that cannot be simply accounted for in terms of the strength of attraction or the moment of insertion of the Q-morpheme in C."

This conclusion is clearly compatible with the analysis that we put forth here where clause-typing is formally dissociated from wh-movement. Under our analysis, the in-situ property of wh-*ça* phrases is expected. Indeed, we contrast French in-situ wh-*ça* questions in (53) with movement wh-questions under (49) and propose that whatever clause-typing mechanism triggers question reading in (49) is also operative in (53). In this regard, it is worth mentioning that ex-situ wh-questions of the type (49) are not incompatible with rising intonation either, a point that indicates that these two strategies are parallel with regard to clause-typing. This suggests the schema under (55) as typology of French wh-phrases.

(55) a. Inter-Q……wh……..

b. Inter-Q……wh-*ça*

We further conclude from (55) that French moved wh-phrases do not target SpecInterP, but some lower position in the vicinity of the topic phrase as indicated by sequences such as (56). These examples are the variants of sentences (19a,b) with the wh-phrase following the topic phrase.

(56) a. Demain, comment ferons-nous face à cette nouvelle crise ?
tomorrow, how do.FUT-1.PL face to that new crisis
'Tomorrow, how are we going to face this new crisis tomorrow?'

b. En 2007, pourquoi irais-je voter pour Sarko ?
in 2007 why go.FUT-1.SG vote.INF for Sarko
'In 2007, why should I vote for Sarko?'

With regard to wh-*ça* phrases, Cheng & Rooryck (2000) suggest, along the lines of Pesetsky (1987), that they are strongly D-linked, and therefore exempt from movement (see also Bošković 2001). Building on this, we propose, following Aboh's (2004a, b) split D-hypothesis, that such strongly D-linked wh-phrases involve a topic phrase inside the DP, presumably headed by the deictic *ça*, whose specifier is filled by the DP-internally fronted wh-phrase. Adopting a framework where the clausal left periphery C and the nominal left periphery D interact as interfaces, Aboh (2007) further concludes that constituents that function as topic, focus (or as Q-elements) and are attracted in the clausal left periphery can only be so attracted if they embed the relevant [topic], [focus], or [q] feature that is formally checked DP-internally but remains visible at the clausal level where it is valued at the relevant topic or focus position for interpretive reasons.[22]

Given this view, wh-*ça* phrases embed the feature [topic] that is checked internally to the DP. At the clausal level, such DPs are bound by a discourse-anaphoric operator, hence their D-linked nature. Interestingly, French DPs headed by the topic marker *ça* can be topicalized at the clausal level where they behave like the demonstrative *cela*.[23] Consider the following examples.

(57) a. Ça, je l'ai fait ce matin
that 1.SG CL.3.SG'have done this morning
'That, I did it this morning.'

[22] Keeping to the nominal versus clausal parallels where D represents the equivalent of clausal C (i.e., the left periphery, Szabolcsi 1994, Aboh 2004a, b, 2007), we assume that features such as [topic], [focus] or [q] are not inherent to the noun but rather represent properties of the nominal periphery D which embeds the nominal predicate.

[23] According to certain speakers *ceci* refers to an unknown referent that is being introduced in discourse (i.e., the focus, while *cela* refers back to a referent already present in discourse (i.e., a topic).

b. Ça alors, je ne l'accepterai jamais
that well 1.SG NEG CL.3.SG'accept.FUT never
'As for that/this, I will never accept it.'

c. Cela, je l'ai fait ce matin
that 1.SG CL.3.SG'have done this morning
'That, I did it this morning.'

Under this characterization, and assuming that topics are non-quantificational unlike focus, strongly D-linked wh-*ça* phrases are not variables and do not qualify as a legible target for the focus head. As a consequence, wh-*ça* phrases cannot front in questions, unlike simple bare wh-phrases, which are variables and can be attracted by the focus head.

This analysis leads to an interesting symmetry between French and IndSL. Indeed French wh-*ça* questions appear parallel to IndSL null phrases in wh-questions. Recall from the previous discussion that these are strongly D-linked and therefore can be realized as null. However, when such null phrases cannot be non-ambiguously recovered from discourse, the wh-question particle combines with an associate phrase that may occur in situ or in the focus position. These associates appear to behave like French normal wh-phrases, which, as we have shown can occur in situ (52) or ex situ (49). In both cases, the wh-phrase is not involved in clause-typing, instead a question particle merges under Inter.

6. Conclusion

What, then, has a wh-word got to do with interrogative force? Our answer is "nothing". We show that wh-phrases are not inherently interrogative and do not participate in clause-typing in any way. In terms of the proposed analysis, wh-phrases do not embed an interrogative feature that can be checked against Inter. Instead, we argue that the outer functional layer of yes-no questions and wh-questions involves InterP, which encodes interrogative force and clause-types the sentence as required by the Clausal Typing Hypothesis (Cheng 1991). More precisely, we suggest that wh-questions involve a question particle (distinct from wh-phrases) that merges in Inter or in SpecInterP. It appears from this discussion that clause-typing encodes, among other things, speech act modality.

The proposed analysis therefore dissociates wh-movement from clause-typing in suggesting that, in languages where wh-phrases occur in wh-questions, they do so for interpretive reasons other than clause typing. More specifically, wh-phrases may be required cross-linguistically for the identification of the content of the question. Following this line of reasoning, we further demonstrate that wh-movement per se is dependent on the structural make-up of the wh-phrase, that is, whether it embeds a quantificational feature that can be

attracted by the focus head or not. We therefore conclude that wh-movement does not depend on the interrogative force of Inter.

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