

A CROSS-LINGUISTIC TYPOLOGY OF QUESTION FORMATION AND THE ANTISYMMETRY HYPOTHESIS*

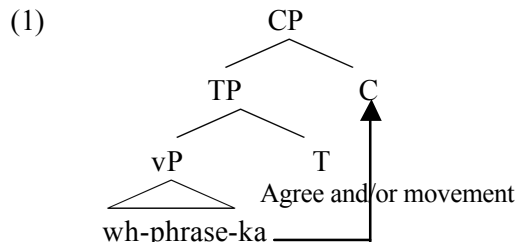
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1. INTRODUCTION: THE Q- AND WH-FEATURES

This paper proposes a typology of question formation strategies in line with the *antisymmetry hypothesis* articulated in Kayne (1994), (2005). I hope to show that head-final languages like Japanese possess a left peripheral focus head with an EPP feature. As a result, the complement of Focus⁰ is pied-piped to its specifier, giving rise to a linear head-final configuration.

There is a group of analyses of a non-antisymmetric nature that assumes some kind of feature attraction to a right-headed C. Among them are Miyagawa's (2001), Watanabe's (1992) and Hagstrom's (1998, 2004).

Hagstrom (1998) and Miyagawa (2001) propose that wh-question formation in several descriptively head-final wh-in-situ languages involves movement of a Q particle to C. This operation, labelled Q-Movement, is illustrated schematically for Japanese in (1).



Watanabe (1992) argues that Japanese wh-questions involve movement of a phonologically empty operator to Spec CP in overt syntax and in this way Japanese parallels English. However, under such an analysis English and Japanese differ minimally in that in the former, it is the entire wh-phrase that is attracted to C, whereas in the latter it is an empty operator originating in Spec DP that raises to Spec CP. The head C is filled by the Q-particle.

In more recent work, Watanabe (2001) suggests the possibility of wh-feature movement in overt syntax for Japanese.

In Hagstrom's (1998) original proposal the Q-particle originates with the wh-element, thus accounting for the ambiguous status of the wh-element, i.e. either an existential quantifier or a wh-phrase. In a wh-question the Q-feature on the C head attracts the Q(uestion)-particle which raises to C, whereas the wh-phrase remains in-situ.

With Miyagawa's proposal (2001), the two features relevant to wh-question functioning are the Q-feature and the wh-feature. In English the two features situated on C determine

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pied-piping of the *wh*-phrase to Spec CP, whereas in Japanese the two features are morphologically separated. In this latter case, the Q-feature on C agrees with the Q-particle and the EPP associated with Q-feature triggers raising of the Q-particle to C. In Miyagawa's approach, the *wh*-feature is not on C but on T and satisfies the EPP-feature on T by moving to Spec TP.

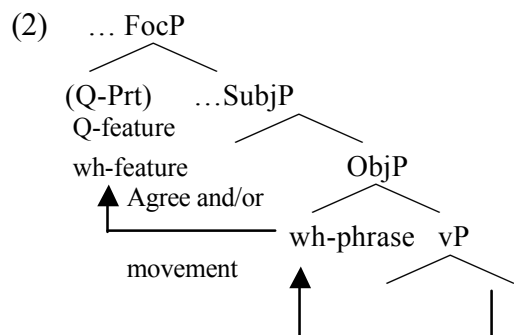
Therefore, the above-mentioned analyses postulate movement of the Q-particle into C, which may be covert, as in Sinhala, or overt, as in Japanese.

What I retain from these analyses is the idea that there are Q- and *wh*-features but I will deploy them in a different, i.e. antisymmetric framework.

This paper is organised as follows: In section 2, the proposal is made. Section 3 enlarges upon the proposal and contains a discussion of the implications of Kayne's analysis of the lack of *wh*-movement in *wh*-in-situ languages. Based on six options, a typology of question formation is put forward in Table 2. In section 4 some speculative remarks about syncretic Focus (i.e. Q- and *wh*-features are fusional) languages are put down. Section 5 contains a discussion of some non-syncretic languages in relation with the Q-feature and its option of being specified or not for an EPP. The languages to deal with are non *wh*-movement languages like Japanese, Sinhala and Chinese, and a *wh*-movement language like Vata, all exhibiting an overtly realized particle. Section 6 concentrates on non-syncretic languages and the *wh*-feature, in its turn, having or not an EPP. The predictions that the typology makes are discussed and shown to fall from the analysis proposed. Some remarks about the locality of selection are put down in section 7. Section 8 is the conclusion.

2. THE PROPOSAL

Within the cartographic approach (Belletti 2004, Cinque 1999, 2002, 2006, Rizzi 1997, 2004a) adopted here, I suggest a typology of question formation based on the abstract morphological split between the Q-feature and the *wh*-feature. In addition to the distinction between the Q-feature and the *wh*-feature, I also assume universal overt/covert merge of a Q-particle in the left peripheral Focus head. Furthermore, the two features, Q and *wh*, on Focus, have each a potential EPP-subfeature. It ensues that there are languages with syncretic Q- and *wh*-features and variation among them is explained in terms of the presence or absence of an EPP-feature. Similarly, other languages show a non-syncretic split head hosting the two features: the Q-feature, which is assumed to be responsible for clausal typing, is realized as a Q-particle, and the *wh*-feature on the Focus head, which enters into AGREE or AGREE+MOVE with the corresponding feature on the *wh*-phrase inside IP/TP. One major implication is that *wh*-questions in *wh*-fronting languages and *wh*-questions in at least some so-called '*wh*-in-situ' languages get a unified analysis. Specifically, a *wh*-question has the structural character represented in (2) below. For the time being we mention that SubjP and ObjP roughly correspond to the former AgrSubjP and AgrOP.



The interaction of the six options giving rise to four language types is schematically represented in Table 1. It will be enlarged upon in the sections below. The languages that spell-out these options are put down in Table 2 in the section below.

	<i>Q-</i> <i>feature</i>	<i>Wh-</i> <i>feature</i>
+EPP/Agree+Move		
-EPP/Agree		

Table 1

3. THE PROPOSAL AT WORK: SYNCRETIC VS. NON-SYNETIC FOCUS AND THE TYPLOGY OF QUESTION FORMATION

In this paper I follow Kayne's (1994) antisymmetry hypothesis and the cartographic approach to the clause architecture, such as has been put forth by Belletti (2004), Cinque (1999, 2002, 2006) and (Rizzi 1997, 2004a), where the CP (the *Vorfeld*) and IP (the *Mittelfeld*) are areas rich in functional projections, roughly represented in (3).

$$(3) \quad [ForceP [TopP^* [FocP [TopP^* [FinP \dots [MoodP [ModeP [TP [AspP [VoiceP \dots]]]]]]]]]]]$$

It is obvious that previous analyses of the Japanese clause structure (Saito 1989, 1992, Miyagawa 1996, 2001, Ura 1996, etc.) are incompatible with Kayne's (1994, 2005) antisymmetry theory. To my knowledge, rather few attempts have been proposed in the literature to analyze Japanese in terms of Kayne's antisymmetry. One case in point is Whitman's (2001) account of negation in Japanese and Korean in terms of verb raising to adjoin to Neg, whose complement VP moves beyond NegP in Japanese. Hoshi (2005) proposes pied-piping and remnant movements for his analysis of association with Focus in Japanese and Endo (2006) accommodates Japanese to the framework of the cartography. Another analysis along the antisymmetry hypothesis is that of Koopman's (2005) who provides a syntactic account of Korean and Japanese morphology by showing that inflected words are derived from head-initial structures by phrasal movement and that agreement can be triggered under pied-piping.

More generally, other SOV languages have been analysed along the antisymmetric hypothesis. Thus, Bhattacharya & Simpson (2003) argue in favour of an underlying SVO analysis of Bangla thus providing empirical support for a Kaynean account of strongly-head-final languages.

Kayne (1994) argues against the existence of syntactic projections whose complements intervene between head and specifier, as has long been assumed for languages like Japanese. With regard to wh-movement, Kayne's view is that languages with clause-final question particles lack visible wh-movement. More precisely, in a wh-question, the whole IP moves to Spec CP, to the left of, e.g., the Japanese *no* question particle.

I return to this below in section 5 and explore the idea that Japanese merges *no/ka*, question particles, heading a Focus projection which takes a (TP) complement and attracts it into its specifier due to the presence of an EPP feature associated with *no/ka*. I argue that since there is no EPP feature associated with the wh-feature also present on the Focus head able to trigger XP movement, Japanese does not display wh-movement. The wh-phrase is in

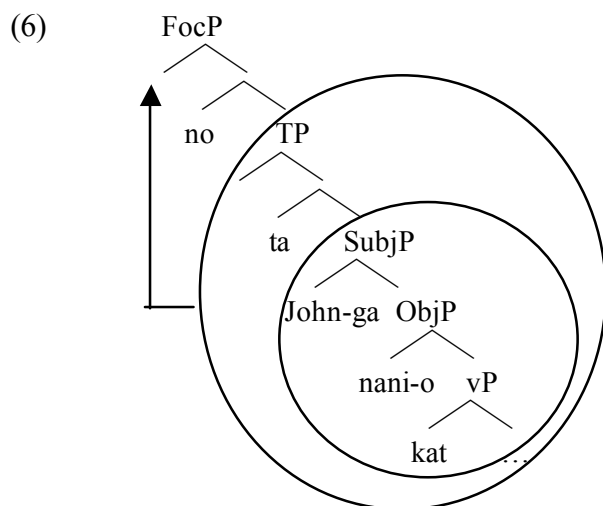
fact included into a larger pied-piped subclausal constituent which gets attracted to Spec Focus.¹

Kayne's antisymmetric analysis of Japanese has the implication that the notion of 'final head' characterizing Japanese needs reinterpreting and that, more generally, languages are not consistent in being only 'final head' or 'initial head'. Thus, Kayne (1994:143, fn.3) proposes that particles like *ga* and *wa* are actually 'initial' heads whose overt complements follow them and attract a DP/PP. More precisely, he suggests that *wa* may be a Top head in Rizzi's (1997) sense (see Endo 2006 for an argument that *wa* may represent the head of distinct projections). A 'final' head is reinterpreted as a head whose entire complement has moved past it to a higher position. The Q-particles *ka/no* are therefore 'final' heads. Whitman (2001) has expanded on Kayne (1994) and shown that, for instance, the genitive particle *no* in a multiple genitive structure illustrated in (4) is the result of the merge of *no* into the D head with a lower DP projection, the argument DP moving into Spec of *no* (this is Whitman's example 10 bracketed here).

- (4) [DP_i[DP yuubokumin_i [D no [DP tosi_j [D no [t_i t_j [NP hakai]]]]]
 nomad Gen city Gen destruction
 'the nomads' destruction of the city'

Coming back to wh-questions, as in (5) below, *no* is the overt realization of the Q-feature on the Focus head in the left periphery of the clause, which also hosts a wh-feature. The wh-object *nani-o* 'what' vacates the VP domain and so does the subject DP. A TP headed by the past tense morpheme *-ta* is assumed to be above what I call here SubjP (see below; also see footnote 2). Since the high T head has an associated EPP feature, the large constituent SubjP containing the wh-phrase undergoes pied-piping to Spec TP, and is subsequently attracted into Spec Focus by the EPP on the Focus head. This is shown in (6).

- (5) John-ga nani-o katta no?
 John-Nom what-Acc bought Q
 'What did John buy?'



¹ The implication is that by virtue of being included into a larger pied-piped constituent, the wh-phrase escapes Criterial Freezing (Rizzi 2006, Rizzi and Shlonsky 2007). Thus it potentially gets subextracted in order to satisfy a higher Top-like feature in the left periphery.

SubjP and ObjP as they are used throughout this paper are to be understood as the equivalent of the former AgrSP and AgrOP to which an Information Structure-feature/value corresponds, which renders them interpretable at the syntax-IS interface.²

I follow Hagstrom (1998) in assuming that the split among languages like English and those like Japanese is morphological in nature, i.e. it has to do with the split between the Q-feature and the wh-feature. Adopting such a split, Hagstrom (1998, 2004) and Miyagawa (2001) show that whereas in English both features are located on the wh-element, hence the entire wh-phrase must pied-pipe to Spec CP to satisfy EPP, in Japanese the wh-feature is on the wh-phrase and the Q-feature is located on the Q-particle, hence movement of the Q-particle to satisfy the EPP-feature on C.

Miyagawa suggests an answer to the question of why Japanese-type languages do not have the option of raising the wh-phrase to Spec CP, as in the case of English. Precisely, he suggests that along the lines of Alexiadou and Anagnostopoulou (1998) either phrasal or head movement may satisfy the EPP-feature, Japanese choosing the latter option for reasons of economy.

Given the analysis of Japanese in terms of particle external merge in the Focus head and pied-piping of the TP/SubjP complement, I adopt Hagstrom's and Miyagawa's feature split but will assume that cross-linguistically there is external merge of an interpretable unvalued overt or covert Q-feature on the Focus head at the left periphery of the clause. This Q-feature is relevant to the interpretation of the clause. The Focus head also hosts an interpretable unvalued wh-feature.^{3,4}

The idea that the Q-feature is relevant to typing the sentence as interrogative is highly reminiscent of the Clausal Typing Hypothesis proposed by Cheng (1991). Cheng's hypothesis is accomplished either by wh-movement or by a question particle. Put differently, a language will have either wh-movement or a question particle. No language will have both or neither. As argued by Bruening (2007), these predictions are not correct in the sense that there is no direct relation between question particles and wh-in-situ, on the one hand, and between wh-indefinites and wh-in-situ, on the other. Further, still preserving the idea of the role of the question particle, it will be shown in the sections below that the existence of languages with

² I suggest that the EPP feature driving movement is related to IS-feature valuation and that the Japanese Mittelfeld contains Topic and Focus features which are parasitic on distinct phi/Case projections. I propose that in the Numeration besides Case and phi-features an object DP also has an interpretable IS-feature, be it Top or Foc. The EPP feature on the ObjP head selects a Goal with the appropriate feature make-up, i.e. Accusative case, phi and an iS-feature and attracts it to its specifier position. A somewhat similar proposal is made by Aboh (2007), who in dealing with features such as Topic, Focus, Interrogative, claims that they are optional formal features that are added as lexical items enter the numeration.

³ Positing an interpretable unvalued feature on the probe is reminiscent of Pesetsky and Torrego's (2004) account. It is well-known that in many so-called wh-in-situ languages, a wh-word is ambiguous between an indefinite interpretation and a wh-interpretation. In this respect, the behaviour of the Japanese *ka* in such cases is similar to the Sinhala *də* (see Hagstrom 1998). In the analysis suggested here it may be considered that the wh-feature on the wh-element in languages like Japanese and Sinhala is an uninterpretable feature that is valued, i.e. the DP/AdvP has a valued *wh-feature* and not a *wh indefinite-feature*. Since Focus c-commands the wh-element in IP/SubjP, the wh-feature on the former must be the probe. Consequently, the wh-feature on Foc must be an interpretable feature that is unvalued and acts as a probe. A similar mechanism is envisaged for the suggested Q-particle in order to distinguish between a particle contributing an interrogative interpretation or a yes/no interpretation or else a disjunction one in the two languages mentioned.

I do not indulge into the semantics for wh-words and wh-indefinites in any of the languages discussed in this paper. See Reinhart (1997), Hagstrom (1998), Kratzer & Shimoyama (2002), Beck (2006), among others.

⁴ Cable (2006) also suggests an analysis in terms of the wh-feature and universal overt/covert Q-feature and argues that cross-linguistically a Q-particle accompanies the wh-phrase covertly, as in English, or overtly as in Japanese, Sinhala, etc. Crucially, in his approach, the Q-particle is either adjoined to a wh-phrase, as in Japanese, or takes it as complement, as in English and Tlingit. In the proposal made based on universal Q merge in Focus it is the size of the clausal substructure that gets attracted to the left periphery that accounts for the parametric variation among these languages.

both a Q particle and wh-movement emerges from the system to be proposed below. This paper does not consider the issue of wh-indefinites.

Positing a Q-feature in the Focus at the left periphery captures the standard idea that in Japanese-type languages, which realize the Q-feature, the wh-phrase must be c-commanded by the Q-particle. Irrespective of its Force/Foc merge position, the Q-particle c-commands the wh-part of the wh-phrase before movement of the latter, if any, takes place.

Since cross-linguistically there is a Q-feature in the Focus head, the parameter that distinguishes among languages regards its overt or covert realization, on one hand, and its having an EPP-subfeature or not, on the other. The presence or absence of an EPP-subfeature gives rise to the parametrisation AGREE vs. AGREE + MOVE.

I argue that a wh-feature is universally merged on the Focus head, in addition to the Q-feature. The same parametrisation AGREE vs. AGREE + MOVE also holds of the wh-feature.

Universal overt/covert Q-particle merge in the Focus head solves the problem of the strict locality of head movement that an analysis in terms of Q-movement to the left periphery would pose. More precisely, an analysis like Hagstrom's in which the question particle moves via head movement is in conflict with the Head Movement Constraint.⁵ The proposal of the present article, namely, that the Q-particle externally merges in the Focus head does not require any special condition on Q movement insensitivity to the feature content of other intervening heads.

Of course, there are languages that do not operate a split between the two features. These are syncretic Focus languages. The above-mentioned parametrisation AGREE vs. AGREE + MOVE holds in this case, too. The typology of question formation is given in the table below.

⁵ The solution that Hagstrom (1998) proposes is to claim that the HMC does not actually apply in this case and adopts feature-sensitive head movement.

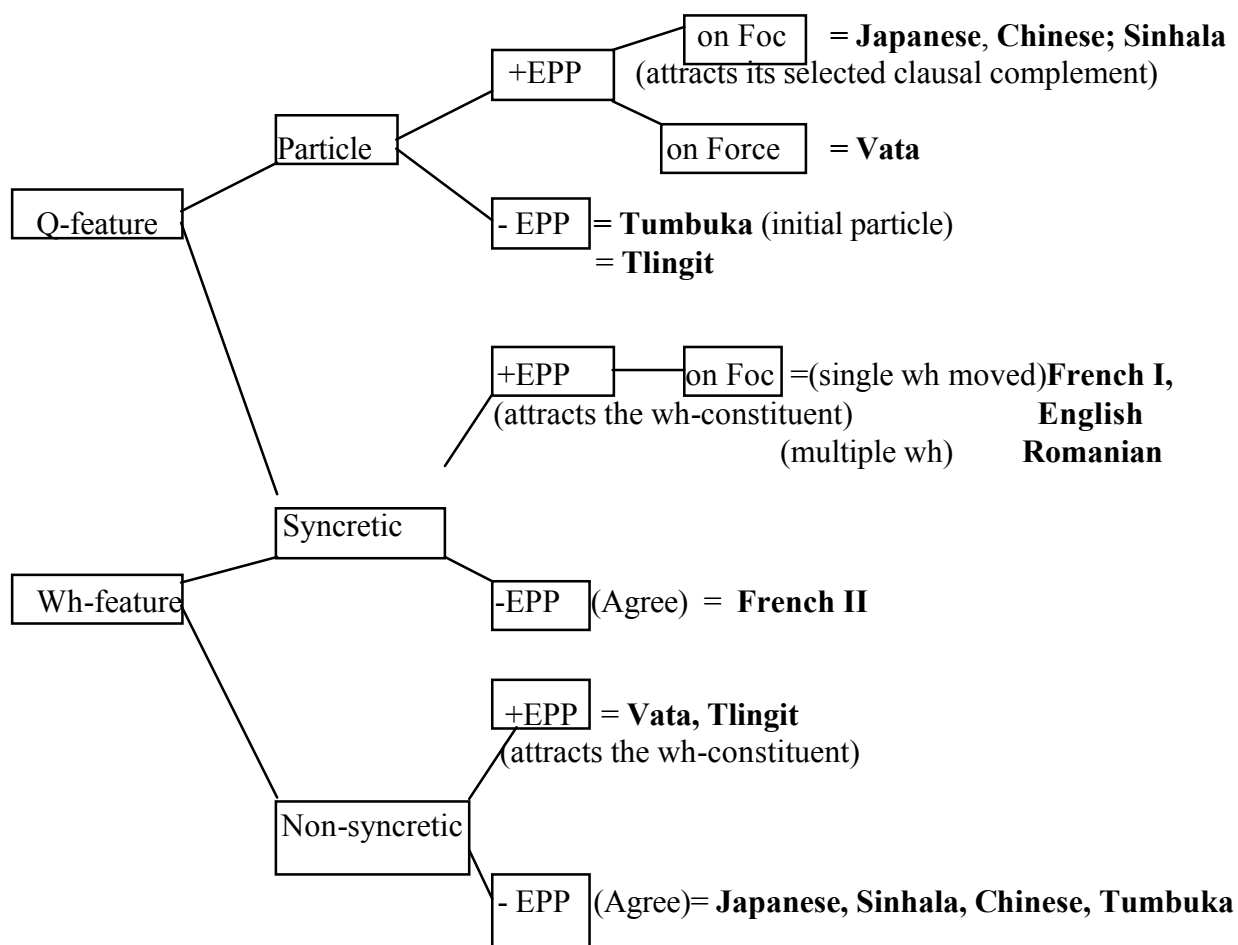


Table 2

In what follows this typology will be discussed in detail with exemplifications from each language type.

4. SYNCRETIC FOCUS LANGUAGES

As shown at the middle of the table, there are languages that do not operate a split between the Q- and the wh-features. In other words, the two features are syncretic on the same head and pattern differently according to the presence or absence of an EPP-feature, i.e. AGREE + MOVE vs AGREE. The parametrisation reads as follows:

- (i) If there is an EPP feature on the Focus head, languages branch into single wh-movement languages, French I (on its movement strategy), and English, and multiple wh-movement languages, like *Romanian* and *Bulgarian*;
- (ii) If there is no EPP feature on the Focus head, only the AGREE relation obtains, such a language being what is termed *French II* (see below).

Examples of French I and English are provided below.

- (7) Qui as-tu vu?
Who have-you seen
'Who did you see?'

(8) Who did you see?

As known French exhibits the optionality of moving a *wh*-phrase to the left periphery of the clause (what is termed here French I) or leaving it in situ (what is termed here French II), as in (10) below. However, within current minimalist ideas doing away with optionality, Mathieu (2004) among others shows that French exhibits no optionality at all and that the EPP feature on C is always strong. Rather, optionality resides with the fronting of the nominal part with which the phonologically null *wh*-operator is associated in a split DP analysis. In his analysis, the moved *wh*-element correlates with one reading, whereas the in-situ *wh*-element may but need not correlate with another. Interpretively, his approach to (a certain) in-situ variety of French goes against that of Chang (1997) and Cheng and Rooryck (2000). More precisely, Mathieu shows that whereas the default interpretation associated with the in-situ is non-specific, whereas the moved *wh* strategy favours a specific interpretation. Nonetheless, concentrating more on the mapping between the syntax, prosody and interpretations of the *wh*-in-situ, Baunaz (2007) partly relying on Starke (2001) arrives at the conclusion that the interpretations induced by the *wh*-in-situ are retrievable with moved *wh*-phrases, ultimately suggesting that such optionality may have to do with register (i.e. colloquial French vs. formal French).

I do not enter into the complex issue of the possible interpretations associated with the moved *wh* in French I, and whether there is a one-to-one mapping between the syntax and interpretation of the in-situ and the moved *wh*-phrase. Given the proposal made above, in both French I and English, the complex Q+*wh* feature hosted on the Focus head in the left periphery has an EPP feature and attracts the higher *wh*-element into its specifier.

Whereas languages like French I and English exhibit a syncretic Focus head hosting a *wh*-feature and an invisible Q feature, and an EPP-feature associated with this complex head, which thus probes and attracts the higher *wh*-phrase, Romanian and Bulgarian display the same syncretic head but front all their *wh*-phrases.

(9) Cine ce a făcut?
Who what has done
'Who did what?'

Romanian has been analyzed as involving *wh*-chunk movement (i.e. movement of a substructure containing all and only *wh*-phrases) to the sole Spec Focus available in the left periphery (Laenzlinger & Soare 2005). The complex Q-*wh* feature on the Focus head attracts the *wh*-chunk into Spec Focus.⁶

⁶ The suggestion to be made at this point is that in order to capture multiple feature-checking in (9), Hiraiwa's (2000) mechanism of MULTIPLE AGREE may be adopted.

(i) Hiraiwa's MULTIPLE AGREE (2000:69):

MULTIPLE AGREE (multiple feature checking) with a single probe is a single simultaneous syntactic operation; AGREE applies to all the matched goals at the same derivational point *derivationally simultaneously*.

This definition relies on Chomsky's (2000) Matching Condition:

- (ii) Match (Chomsky 2000:122)
- a. Matching is feature identity.
 - b. D(P) is a sister of P.
 - c. Locality reduced to 'closest c-command'.

Consider the case below for what is termed here French II.

- (10) Tu as vu qui?
 You have seen who
 ‘Who did you see?’

As mentioned, adopting a split-DP analysis for *wh* in-situ in French, Mathieu (2004) argues that what moves in (10) is the phonologically null operator to satisfy the strong EPP feature on C, while in the movement case in (7), the associated nominal is no longer stranded but moved with the operator. Within the framework put forth here which does away with the feature strength, it may be suggested that the Focus head hosts the complex Q+*wh* feature and in the absence of an EPP, only the AGREE relation between this head and the *wh*-element obtains. If such an analysis of French is on the right track, it would be interesting to explore the implications of AGREE and AGREE+MOVE on intervention effects and on interpretation. This issue is left open. However, another line of approach is that of Shlonsky (class lectures 2007) who shows that *wh*-in-situ in French fills Belletti’s (2004) low Focus position.

5. NON-SYCRETIC FOCUS LANGUAGES AND THE Q-FEATURE

Besides syncretic languages, there are languages that operate a split between the Q-feature, realized as a Q-Particle, and the *wh*-feature. They further divide as to the AGREE vs. AGREE + MOVE relation instantiated by the Q-feature, i.e. the presence or absence of an EPP-feature associated with the Q-feature. The ensuing parametrisation reads as follows:

- (i) if an EPP-feature is associated with the Q-feature, the language has AGREE+MOVE, i.e. the selected complement SubjP/TP moves to Spec FocP; these are *Japanese, Korean*⁷ and *Chinese; Sinhala*.

Let us consider how such a system works for these languages. Consider Japanese first. Example (5) is repeated below.

- (5) John-ga nani-o katta no?
 John-Nom what-Acc bought Q
 ‘What did John buy?’

It has been pointed out in section 2 that the Q-feature on the Focus head in the left periphery has an EPP-feature that attracts its complement, i.e. TP, containing the *wh*-phrase *nani-o* into

Consider α , β and γ where α is a probe and both β and γ matching goals for α . In his system, once the probe P has been merged, it searches down for the closest matching goal feature within its c-command domain and matches with the closer goal β but no AGREE takes place. Being [+multiple], P searches down for all matching goals, in this case for γ , until the matching is completed within an ‘accessible’ domain. At this point of the derivation, AGREE applies to all the matched goals derivationally simultaneously.

So in order to account for (9), the probe multiply agrees with *cine* ‘who’ and *ce* ‘what’ simultaneously. Subsequently, given that Romanian has only one Foc position, the *wh*-chunk constituted of the two *wh*-elements is attracted to Spec Foc.

⁷ Korean will not be discussed in this paper as it patterns quite closely to Japanese. Thus, as in Japanese, different questions markers are employed, such as *-((n)u)nka*, *-(n)u**ni*, *-((n)nya)*, *-((u)pni)kka*, *-nayo* and *-ni*, which behave as scope markers. However, although Japanese and Korean are SOV scrambling languages, Choe (1995) argues for Korean that the operation of moving *wh*-elements to positions licensed by Q_[+wh] is not scrambling, but *wh*-movement and that it is the *wh*-question marker that triggers such movement. I will not pursue this possibility for Korean any further.

Spec FocP. Movement of the clausal structure thus accounts for the final sentence position of the Q-particle.

Consider next the more complex case of a wh-island with a wh-adjunct introduced by *kadooka* ‘whether’.

- (11) * Kimi-wa [John-ga doo Mary-o nagutta kadooka] sitte-imasu ka?
 You-Top John-Nom how Mary-Acc hit whether know-Polite Q
 ‘How do you know whether John hit Mary?’ Ura 1993, (5b)

Given the proposal that the Q-feature on the Focus head in the left periphery has an EPP-feature, its complement containing the wh-adjunct should overtly move into Spec Focus. Movement of an island to the CP domain somewhat resembles Richards’ (2000) and Pesetsky’s (1987) analysis but crucially differs in that I argue in favour of overt movement of the larger pied-piped constituent (i.e. the island) containing the wh-phrase.

In order to see why AGREE does not function in the case of the island in (11), some remarks must be made about *kadooka* ‘whether’. I suggest that *kadooka* is decomposed into *ka* Q + *doo* how + *ka* Q. The higher *ka* fills the head Focus. I also suggest that the lower *ka* heads a projection of its own, similar to the Italian *si* or the English *if* called IntP (Rizzi 2001), situated below FocP, in whose specifier *doo*, the yes/no operator, sits.⁸ At the Spell-Out to the phonological component, the three elements are interpreted as a phonological unit.⁹ Derivationally, AGREE establishes between the wh-feature on Focus and its counterpart on the wh-element inside TP across IntP. This is a clear instance of intervention effect (Rizzi 2004b).¹⁰ Thus on assumption that *-doo-* of *kadooka* is the yes/no operator in Spec IntP, and given that it has the [-Argument] feature-content, it intervenes on the AGREE relation between the wh-feature on Foc and the corresponding uninterpretable wh-feature on the adjunct *doo*, specified as [-Argument].

Essentially, since AGREE from the wh-feature on the Focus head fails, no island movement driven by the EPP associated with the Q feature takes place.

⁸ In Rizzi (2001), it is shown that IntP is higher than FocP. Such ordering cannot be tested in Japanese. However, since *-doo-* is taken to be the yes/no operator of a projection headed by one *-ka-* and since Spell-Out to the phonological component interprets the three elements as a unit, it cannot but be the specifier of a lower dedicated projection, namely IntP. This way, the other *ka* functions as the head of FocP.

⁹ I thank Christopher Laenzlinger for this suggestion.

¹⁰ Here is Rizzi’s (1990, 2004b) definition of Relativized Minimality, which is a condition on chains (i), defined in terms of Minimal Configuration (ii).

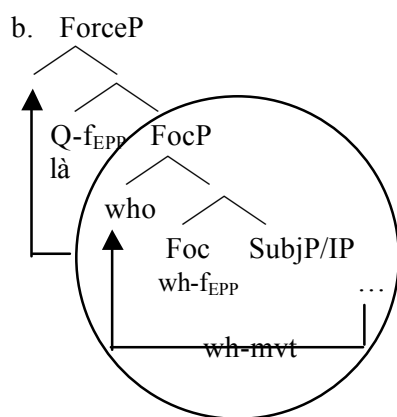
- (i) (A_1, \dots, A_n) is a chain iff, for $1 \leq i < n$
 (i) $A_i = A_{i+1}$
 (ii) A_i c-commands A_{i+1}
 (iii) A_{i+1} is in a Minimal Configuration with A_i
- (ii) Y is in a Minimal Configuration with X iff there is no Z such that
 (i) Z is of the same structural type as X, and
 (ii) Z intervenes between X and Y.

The ‘structural-type’-based definition of RM is replaced by ‘feature type’, where the features relevant for the computation are those of Rizzi (2004b):

- (i) Argumental: person, number, gender, Case, ...
 (ii) Quantificational: Wh, Foc, Neg, measure...
 (iii) Modifier: evaluative, epistemic, Neg, frequentative, celerative, measure, ...
 (iv) Topic.

It is worthwhile pointing out that there are languages which realize the Q-particle and also have wh-movement. This is in obvious violation of Cheng's (1991) typology. A case in point is Vata, a Kru language spoken in the Ivory Coast which exhibits wh-movement in addition to a Q-particle filling the clause-final position (Koopman 1984). Within the analysis suggested here, the wh-phrase moves to Spec Foc at the left periphery of the clause. Such movement is followed by remnant movement of FocP into Spec Force, in whose head the Q-particle *là*, associated with an EPP, has been merged. This is shown in (12) below.

- (12) a. àlÓ_i Kòfì yE t_i yé là
 Who Kofi saw Prt wh
 'Who did Kofi see?' Koopman 1984, (45a)



Therefore, Vata allows a split of the two relevant on two distinct heads, the Foc head for the wh-feature and the Force head for the Q-feature.¹¹

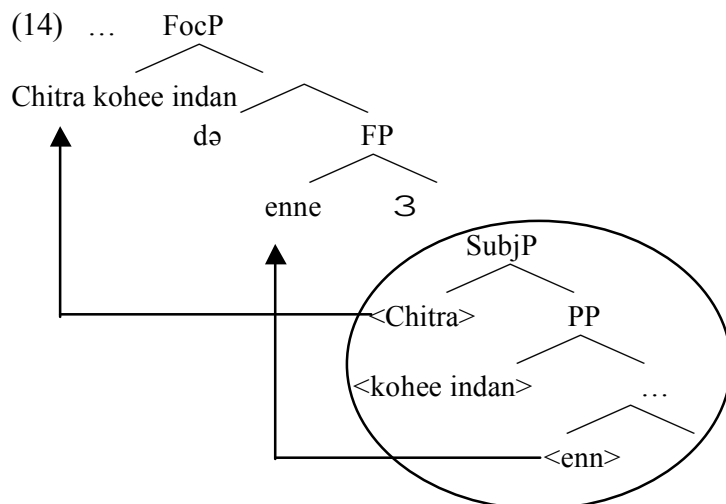
Another language that falls within the above-mentioned typology is Sinhala, an SOV language, which I consider in more detail. As the examples in (13) show, the Q-particle appears adjacent to the wh-word in a matrix context and an 'E' suffix occurs on the verb. Though not shown here, any material between the wh-phrase and the Q-particle would lead to ungrammaticality. As pointed out by Hagstrom (1998), 'E' suffixing contributes scope marking for the wh-phrase, much as the *ka/no* Q-particle in Japanese does.

- (13) a. Chitra mokak də kieuwe?
 Chitra what Q read-e
 'What did Chitra read?' Hagstrom 2004, (4)
- b. Ranjit [kaa-ge potə] də kieuwe?
 Ranjit who-Gen book Q read-E
 'Ranjit read whose book?' Kishimoto 1992, (1)
- c. Chitra [kohee indan] də enne?
 Chitra where from Q come-E
 'From where did Chitra come?' Kishimoto 1992, (5)

On assumption that *də* is the realization of the Focus head in the left periphery, its Q-feature associated with an EPP-feature triggers remnant SubjP containing the wh-DP/PP/Adv into Spec Focus. Prior to remnant SubjP movement the wh-object in (13a,b) leaves the vP domain. As emerges clear from the examples in (16), the verb moves as remnant VP to the left

¹¹ As pointed out to me by Luigi Rizzi, it may be the case that more generally split languages check/value the wh- and Q-feature on two distinct heads. I do not explore this possibility here.

periphery in the specifier of a projection the labelled FP situated between FinP, which may be filled by the complementizer, and the FocP. The derivation of (13c), whose mechanics also hold of (13a) and (13b) is given below.



In the case of an island, such as the CNP island in (15) below, the Q-particle cannot appear inside (15b) but at the edge of the clause (15a) (Kishimoto 1997, Hagstrom 1998). Hagstrom argues that in the case of strong islands, there is covert movement of the *də*-particle from the base-generated position as a sister to the *wh*-word to a position external to the island, which he labels covert ‘Q-migration’.

- (15) a. Oyaa [Chitra kaa-te dunnə potə] də kieuwe?
 You Chitra who-Dat gave book Q read-E
 ‘You read the book that Chitra gave to whom?’ Kishimoto 1997, 33
 ‘To whom did you read the book that Chitra gave t?’ (our glosses)
- b. * Oyaa [Chitra kaa-te də dunnə potə] kieuwe?

The analysis predicts that the entire island is pied-piped to the embedded Spec Foc and further moves to matrix Spec Foc. Such movement results in E-suffixing on the matrix verb.¹² Pied-piping of the island containing the *wh*-phrases to the matrix Foc with a substantive Q-feature allows matrix scope interpretation of the *wh*-phrase.

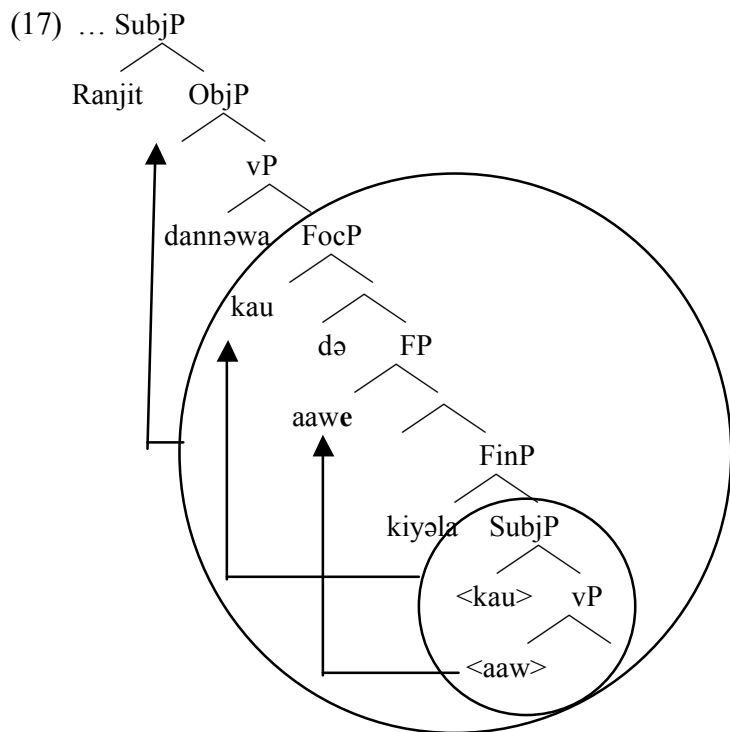
One case discussed in Hagstrom where movement of *də* is optional and overt though generally he argues it to be covert is with a *wh*-island under the factive verb *dannəwa* ‘know’.¹³ Consider the examples below.

¹² As discussed in Hagstrom (1998), (2004) and Kishimoto (1997), the Sinhala ‘E’ suffix occurring on the verb is an unchecked feature that gets deleted once movement of the interrogative *də*- or of the focus *tamay*-particle has taken place. However, the approach suggested here brings Sinhala in line with other languages (French past participle agreement) in that movement results in suffixation on the verb. In the matrix clause (13c), having the representation (14), the verb leaves the IP/SpecFP domain and moves to the projection labelled FP in the left periphery. Subsequent remnant SpecFP across the verb induces E-morphology. The configuration which renders E-suffixing possible is fairly local in that it concerns the adjacency FocP-FP and some sort of mechanism of transitivity from Spec-head Focus to FP may be envisaged to result in marking on the moved verb.

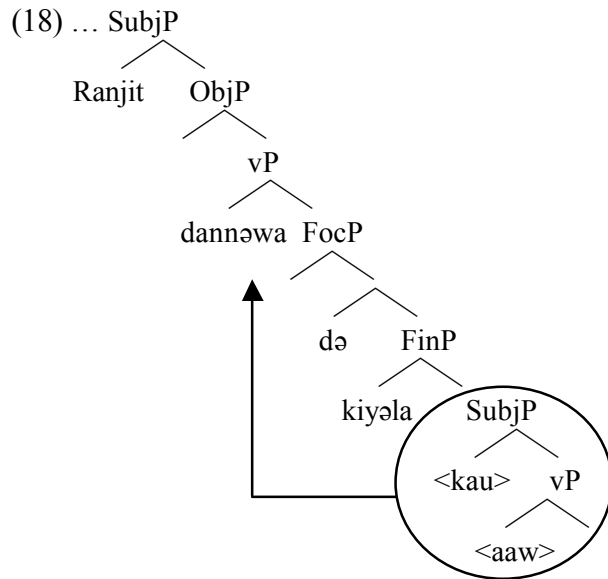
¹³ As first discussed in Kishimoto (1997) and then in Hagstrom (1998), other verbs displaying the same selectional properties include *doubt* and *look into* but exclude *ask* and *say*.

- (16) a. Ranjit [kau də aawe kiyəla] dannəwa.
 Ranjit who Q came-E that know
 ‘Ranjit knows who came.’
 b. Ranjit [kauru aawa də kiyəla] dannəwa. Kishimoto 1997, (6-7)

The Q-particle which appears adjacent to the wh-word in (16a) overtly ‘migrates’ to the clause periphery of the embedded clause in (16b) if we are to use Hagstrom’s terms. Note that it is no longer the E-morphology that marks the embedded scope of the wh-phrase but the position of the Q-particle. Under his analysis, the Q-particle undergoes HMC-violating head-movement into the interrogative C head. Cast in terms of the analysis suggested here, Hagstrom’s optionality of overt də ‘migration’ reduces to the type of the moved constituent, whether it is an XP or a (sub-)clausal structure. Consequently, no stipulation about the head-particle feature insensitivity is needed. Such an analysis also overcomes the problem of the head locality that the Q-movement analysis poses. As the derivations in (17) and (18) show, either remnant VP-movement to the left-peripheral FP occurs and subsequent remnant SubjP is attracted to Spec Foc, or no remnant verb movement takes place and SubjP gets attracted to the left periphery.¹⁴



¹⁴ If this analysis is on the right track, remnant SubjP movement to Spec Focus results in E-morphology on the verb and following Hagstrom, E-morphology is indicative of scope marking, the expected embedded scope is obtained.

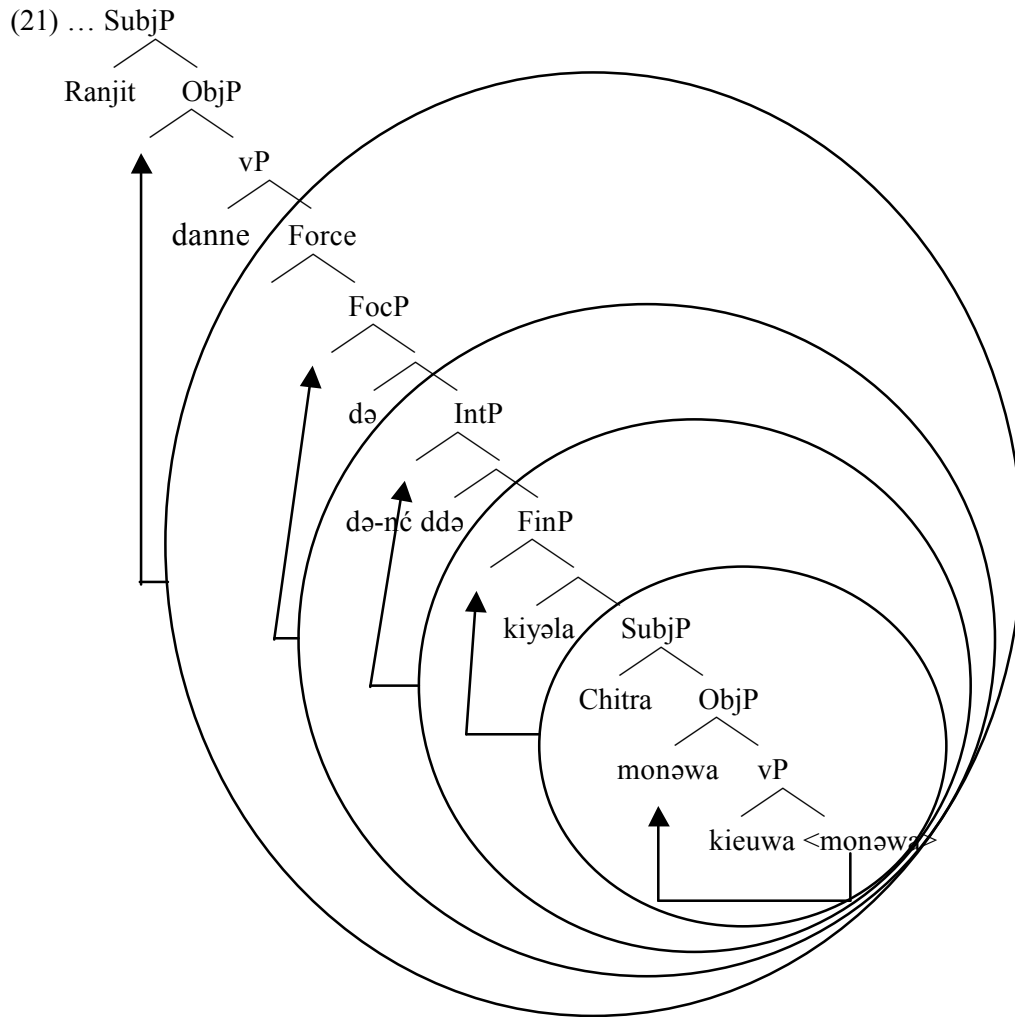


On a Kaynean analysis of the clause structure, Sinhala has a low *that* complementizer which I assume to fill Rizzi's (1990, class lectures 2007) FinP position. However, as illustrated in (19), Sinhala also exhibits the co-occurrence of a declarative complementizer and an interrogative one but as opposed to (16) above, this is an instance of what Hagstrom calls Q-migration outside the complementizer *kiyəla*. The co-occurrence of the two complementizers is highly reminiscent of Dutch, illustrated in (20) where a *wh*-phrase can co-occur with the interrogative complementizer *of* and the declarative one *dat*.

- (19) a.? Ranjit [Chitra monəwa kieuwa də-né ddə kiyəla] də danne? Kishimoto 1997
 Ranjit Chitra what read whether that Q know-E
 'Ranjit knows whether Chitra read what?'
 b. ?* Ranjit [Chitra monəwa də kieuwa də-né ddə kiyəla] danne?

- (20) Ik vraag me af wie of dat er morgen komt.
 I wonder who if that there tomorrow comes
 'I wonder who comes tomorrow.'
 Koopman 1996 (20a)

Both the Sinhala case in (19a) and the Dutch example in (20) are accounted for by positing a richer left periphery (see Koopman 1996, Rizzi 2001). Consider the representation of (19a) in (21).



In the derivation in (21), *kiyəla* ‘that’ heads its own projection, FinP. I suggest that the interrogative complementizer occupy the head of the interrogative projection IntP in the sense of Rizzi (2001). After movement of the *wh*-object *monəwa* ‘what’ from the postverbal position to the appropriate ObjP, successive pied-piping is involved: the head *kiyəla* ‘that’ selects its complement and attracts it into its Spec. Similarly, the head *də-né ddə* ‘whether’ selects its complement and attracts it into Spec IntP. On assumption that there is an EPP feature associated with the Q-feature on the Focus head, its IntP complement is attracted into Spec Focus.

Example (19a) above showing an interrogative complement containing ‘whether’ embedded under ‘know’ behaves like the strong island in (15a), repeated below.

- (15) a. Oyaa [Chitra kaa-te dunnə potə] də kieuwe?
 You Chitra who-Dat gave book Q read-E
 ‘You read the book that Chitra gave to whom?’
 ‘To whom did you read the book that Chitra gave t?’ (our glosses)

The interrogative particle cannot surface inside the island, as the ungrammaticality of (19b) clearly shows. This reduces to the fact that in the case of an island, it is the entire island that must be pied-piped to Spec Focus, as in (15a), not just the remnant SubjP, as in (19b). Such an account does away with Hagstrom’s stipulation that though attracted to each

complementizer, successive Q-migration to the periphery of the clause, an instance of head movement, is insensitive to the feature content of the two intervening complementizers (kiyəla ‘that’ and də-ńc ddə ‘whether’, respectively). In his account this stipulation about the Q head ‘migrating’ to the C domain accounts for the lack of intervention effects. Put differently, the analysis suggested here says that once AGREE holds, successive-cyclic pied-piping of ever larger clausal structures takes place. Such an analysis also does away with the idea that ‘Q-migration’ contributes no semantic value, applying vacuously.

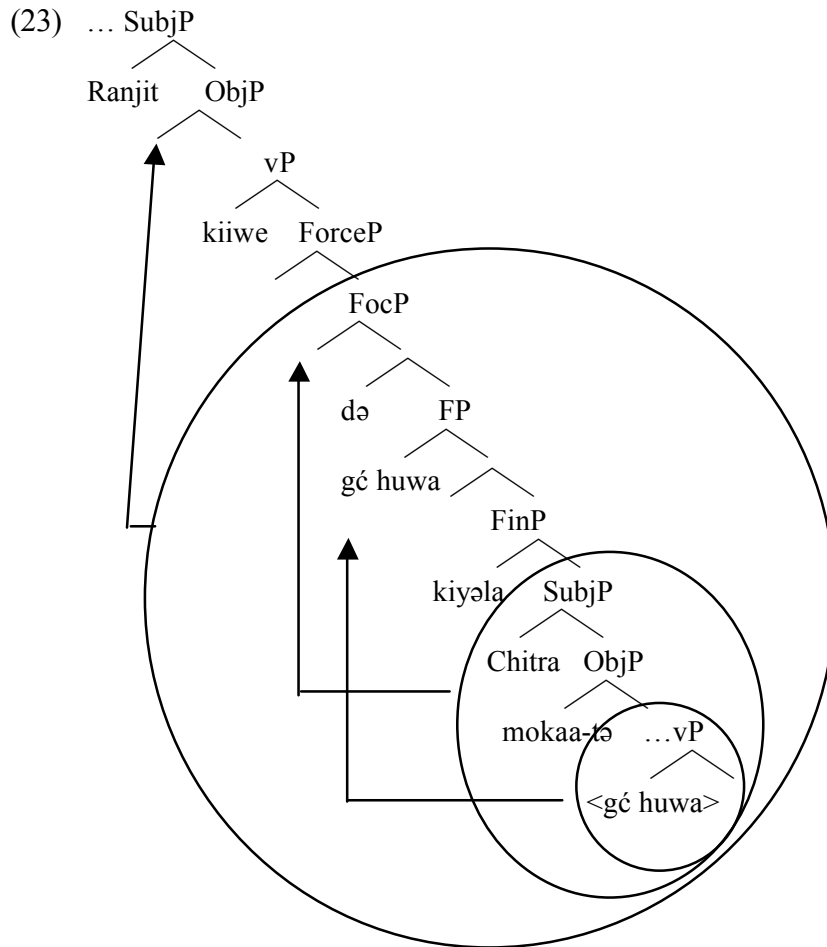
One advantage of the proposal made is that it preserves the widely assumed locality of head movement. As discussed in the beginning of this section, the examples considered so far indicate that Sinhala heads have an EPP-feature which attracts the complement into the specifier position of the respective projection.

It has been seen so far that with strong islands, the Q-particle cannot survive next to the *wh*-word and undergoes therefore the so-called covert migration. As with the factive verb *know* in (16) above, a bridge verb also allows optionality of *də*-movement, i.e the Q-particle may structurally appear either inside the clause, or at its periphery. Consider (22) below:

- (22) a. Ranjit [Chitra mokaa-tə gć huwa kiyəla] də kiiwe? Hagstrom 1998, (36)
 Ranjit Chitra what-Dat hit that Q said-E
 ‘Ranjit said that Chitra hit what?’
 b. Ranjit [Chitra mokaa-tə-də gć huwa kiyəla] kiiwe?

Cast in terms of the analysis suggested, such optionality comes down to either SubjP movement to Spec Foc, followed by movement of ForceP to the matrix Spec ObjP, as in (22a), or remnant SubjP movement to Spec Foc, as represented in (23) for (22b). Once remnant SubjP movement to Spec Foc has taken place, the entirety of the ForceP complement is attracted to the matrix Spec ObjP.¹⁵

¹⁵ The observation is made that with bridge verbs, remnant SubjP movement across the already moved verb does not result in the ‘E’-morphology on the verb. It is the movement of the embedded ForceP across the matrix verb that has such an effect. I do not investigate this any further.



Compare (22) to (24):

- (24) a. Ranjit [Chitra monəwa gatta kiyəla] də kendiruwe? Hagstrom 1998, (37)
 Ranjit Chitra what bought that Q whispered-E
 ‘Ranjit whispered that Chitra bought what book?’
 b. ?? Ranjit [Chitra monəwa də gatta kiyəla] kendiruwe?

The observation to make here is that Sinhala does not allow remnant VP-movement to the left periphery.

Multiple questions as in (25) can be analyzed exactly as the simple questions in (13), namely, as movement to FP of the remnant VP containing *kieuw* ‘read’ followed by movement of the remnant SubjP containing the two wh-elements to Spec Foc.

- (25) a. Kauru mokak də kieuwe?
 Who what Q read-E
 ‘Who read what?’
 b. * Kau də mokak kieuwe? Hagstrom 1998, (3)

On face value, such movement resembles Romanian, where a chunk made up of wh-elements only targets Spec Focus (Laenzlinger & Soare 2005). That the verb in Sinhala moves to a fairly low position in the left periphery of the clause is also suggested by Hagstrom (2004) within a head-final analysis of Sinhala: “...the verb moves up in standard fashion to a position quite

close to the Focus^o head, close enough that the feature on the Focus^o head responsible for the E-morphology can be spelled out as a suffix on the verb when present...”

As the typology in Table 1 shows, Chinese may also be considered a language allowing the Q-wh feature split. As pointed out in Li (1992), the presence of a question marker requires the co-occurrence of a wh-element.¹⁶ This is illustrated below, where the Q-particle *ne* co-occurs with the subject wh-phrase *shei* in (26a) and with the object wh-phrase *shenme* in (26b).

- (26) a. Shei xihuan ni ne?
Who like you Q
‘Who likes you?’ Li 1992, (36b)
- b. Hufei chi-le shenme ne?
Hufei eat-Asp what Q
‘What did Hufei eat?’ Cheng 1991, 112 (1)

Though Chinese uses wh-words as indefinites which require a licenser (a nonfactive verb, negation, a yes/no question particle, a modal or a conditional), the presence of the question particle *ne* forces the wh-interpretation. This is illustrated in (27) and (28).

- (27) a. Ta yiwei shei xihuan shenme.
He think who like what
‘He thought somebody liked something.’
- b. Ta yiwei shei xihuan shenme ne?
‘Who(x), what(y), he thought x likes y?’
- (28) a. Yaoshi shei xihuan shenme, ta jiu gaoxing le.
If who like what he then happy
‘If somebody likes something, he would be happy.’
- b. Yaoshi shei xihuan shenme, ta jiu gaoxing ne?
‘Who(x), what(y), if x likes y, he would be happy?’

In (27a), the presence of the non-factive verb determines the indefinite interpretation of the wh-words. The presence of an overt Q-particle forces the wh-interpretation in (27b). Similarly, in (28a), both wh-words in the conditional clause are wh-indefinites but get the wh-interpretation in (28b) due to the Q-particle *ne*.¹⁷

In the beginning of this section, I proposed that there are languages showing AGREE+MOVE instantiated by the Q-feature on Foc. The expectation is that there should be a language type that exhibits only AGREE without the MOVE component. This expectation is indeed justified by a language like Tumbuka, a Bantu language spoken primarily in Malawi, and Tlingit, a Na-Dene language, spoken primarily in British Columbia. This amounts to the parametrization in (ii) below which complements (i) in the beginning of this section.

¹⁶ However, there are cases where the question particle is absent. In the matrix clause (i) below, the wh-words can only have wh-interpretation. It may be assumed that even in such cases an invisible Q-particle is merged in the Focus head. The issue of the restrictions under which the interrogative interpretation obtains in the absence of an overt Q-particle falls outside the scope of this paper.

(i) Shei/Shenme ren xihuan shenme?
Who/What man like what
‘Who likes what?’

Li 1992 (7)

¹⁷ For such cases with two wh-phrases in their canonical order, the mechanism of MULTIPLE AGREE is assumed to be involved (see footnote 6).

- (ii) in the absence of an EPP-feature associated with the Q-feature, the language has only AGREE between Q on Foc and its c-commanded SubjP/TP; this are *Tumbuka* (particle-initial language); *Tlingit* (non-particle initial language and wh-movement language).

Consider (29) and (30) below.

- (29) Kasi Suzo a-ka-p^h ik-a vici
 Q Suzo SM-pst-cook-fv what
 ‘What did Suzo cook?’ Kimper 2006, (4)
- (30) Kasi u-ka-rut-a koci
 Q SM-pst-go-fv where
 ‘Where did he go?’ Kimper 2006, (6)

As discussed by Kimper (2006), *Tumbuka* exhibits the Q-particle *kasi* at the left periphery of the clause and the wh-object in (29) or adjunct in (30) remains in situ. If such data are taken at face value, *Tumbuka* would represent the counterpart of French II. However, it also patterns with *Sinhala* in that the Q-particle *kasi* is also used in yes/no questions.

Examples from *Tlingit* will be dealt with in section 6 below which considers the bottom part of the table in 2.

6. NON-SYNCRETIC FOCUS LANGUAGES AND THE WH-FEATURE

Therefore, the languages considered above allow the distribution of the two features on two morphologically separable items. Besides the Q-feature, the wh-feature on Foc which is an unvalued interpretable one also enters into AGREE. The ensuing parametrisation reads as follows:

- (i) if a language has only AGREE between Foc and the wh-phrase within SubjP/IP, it has ‘wh-in-situ’, a case in point being *Japanese, Chinese; Sinhala; Tumbuka* (all non-wh movement languages).
- (ii) if a language has AGREE+MOVE, it has wh-movement of a wh-XP to Spec Foc, as in *Vata* (wh movement language).

It may have emerged obvious by now that in the languages listed in (i), before pied-piping of a (sub-)clausal structure takes place (except for *Tumbuka*) AGREE must be established for the wh-feature valuation on the Focus head. For illustration, reconsider the simple *Japanese* case in (5) and the wh-island in (11) repeated below.

- (5) John-ga nani-o katta no?
 John-Nom what-Acc bought Q
 ‘What did John buy?’
- (11) * Kimi-wa [John-ga doo Mary-o nagutta kadooka] sitte-imasu ka?
 You-Top John-Nom how Mary-Acc hit whether know-Polite Q
 ‘How do you know whether John hit Mary?’

In (5), the wh-feature on Foc probes down into its c-command domain and AGREES with its valued uninterpretable feature on the wh-element inside SubjP. Likewise, recall that in (11),

- (32) a. Daa sá i éesh aawaxáa?
 What Q your father he.ate.it
 ‘What did your father eat?’
 b. * Sá i éesh daa aawaxáa? Cable 2006, (60b)

The examples below are cases of Superiority effects in the matrix Tlingit sentence.

- (33) a. Aa sá daa sá aawaxáa?
 Who Q what Q they.ate.it
 ‘Who ate what?’
 b. * Daa sá aa sá aawaxáa? Cable 2006, (24)
- (34) a. Aa sá goodéi sá woogoot?
 Who Q where.to Q they.went
 ‘Who went where?’
 b. * Goodéi sá aa sá woogoot? Cable 2006, (25)

In order to account for the cases of multiple *sá* with multiple wh-elements, thus making Tlingit different from Sinhala (recall that in a sequence of two wh-elements *də* in Sinhala follows only the first wh-element; see 25), one needs to investigate whether Tlingit has multiple Foci hosting the wh-elements. If this should be the case, such *sá* elements would head the Focus projections.

Without further investigating the wh-movement operation, Tlingit seems to be the counterpart of multiple wh-movement languages like Romanian and Bulgarian, which do not realize a Q-particle. As in Romanian and Bulgarian, besides wh-movement and Superiority effects, Tlingit also exhibits island effects.

- (35) a. * [[Waa sá kligéiyi] xáat] i tuwáa sigóo?
 How Q it.is.big.REL fish your spirit it.is.glad
 ‘How big a fish do you want?’
 (A fish that is how big do you want?)
 b. [[Waa kligéiyi] xáat] sá i tuwáa sigóo? Cable 2006, (67-68)

As was the case in Sinhala, the Q-particle in the relative clause must be located outside the island and not adjacent to the wh-word. The analysis suggested correctly predicts the contrast between (35a) and (35b). The impossibility of (35a) is a straightforward result of the fact that the Q-particle is merged in the head Foc and attracts the entire island containing the wh-element (i.e. the Criterial Goal) into its Spec. Extraction of the wh-phrase alone results in ungrammaticality because of Barriers/Subjacency.

7. A NOTE ON THE LOCALITY OF SELECTION

A few remarks about the locality of selection in the cartographic model are in order at this point. As known, it cannot be straightforwardly expressed in terms of sisterhood or local government. In (3) repeated below, the highest projection in the split CP domain is ForceP, while the wh-operator sits in a lower Spec Foc and the question one has to answer is how the locality of semantic or categorical selection across intervening categories is ensured. As observed by Rizzi (1997), the minimal contents of the CP layer are the specification of Force and its paired finiteness feature.

- (3) [ForceP [TopP* [FocP [TopP* [FinP ...]]]]]

If the verb *know* in the Sinhala sentences (19a) above selects (and attracts) its sister, then it selects (and attracts) ForceP. Since the Q- and wh-features are represented on the Foc head, some mechanism must be devised to allow the Force head to ‘see’ FocusP across the intervening projections, be they Top or others. Besides, along the lines of this approach, the interpretation of the clause as interrogative (i.e. clause typing) is realized by the specification on the Force head. As suggested, a language like Vata has the Force head realized as *lá*. The others, if the analysis here is on the right track, do not exhibit the Q-particle on the same head, but lower, in Foc. One way out is to resort to Shlonsky’s (2006) proposal of copy and remerge of C which is specified for a series of precompiled features. Such features correspond to Rizzi’s Fin, Foc, Top, etc. Essentially, as he argues, information about the feature contents travels up and down the extended C projection independently of the particular order of the projected features. The suggestion to make here is that at some point in the derivation, once C is remerged, its leftmost Q-feature, responsible for interrogative interpretation, is activated. Though valued, such a feature is not deleted but remains active and ‘communicates’ with the next hierarchically compiled feature, Force. In this analysis, the wh-feature is intimately connected to the Q-feature and I remain agnostic as to their order of compilation. However, their being tightly connected may suffice to designate the semantic interpretation. Thus, once Focus activated and upon copy and remerge of the next leftmost feature, corresponding to Force, the already existing information regarding the interpretation leads to valuation of Force and deletion, the only remaining interpretable feature being on Focus. It may be speculated that in Vata no such syncretic-like operation of Force-Focus valuation and deletion occurs, the question interpretation is realized on Force, whereas a wh-feature is interpreted on Focus.

To sum up this section, I have put forth a typology of question formation based on an abstract universal morphological split between the Q- and wh-features and covert/overt merge of a Q-particle, responsible for clausal typing, in the left peripheral Foc head though the latter is realized in Vata on the Force head. Languages differ in several respects: (i) there are languages in which the two feature are syncretic, others in which they are not; (ii) the Q-feature is associated with an EPP feature or not; (iii) if so, the size of the moved constituent differs, in the sense that it is either the head’s selected complement that moves in an SOV language like Japanese thus accounting for the Q-particle’s final position in the clause, or an XP-wh or else a larger remnant constituent containing the wh-element, as in Sinhala, and thus the wh-/island-Q adjacency obtains; (iv) the wh-feature may also be associated with an EPP-feature; (v) if so, again, the size of the moved constituent differs, in the sense that it may be an XP-wh, or even an entire clause containing a wh-element already moved at the edge of the clause; (vi) languages that exhibit syncretic Q-wh features also branch into those which may or may not display an EPP-feature; (vii) if such an EPP exists, they further divide according to the type of the moved constituent, either an XP-wh phrase, or a larger clausal portion containing several wh-elements.

8. CONCLUSION

This paper has suggested an antisymmetric typology of question formation based on the cartographic framework. Two features, Q and wh, are universally present on the left-peripheral Focus head. I have argued that language variation in the domain of wh-movement and Q-particle realization can be captured in the following way.

First, in some languages, the Q particle is realized overtly and in some languages it is covert. Secondly, either one of the features, or both, can be endowed with the EPP property.

This determines the type of constituent which raises to the Spec of the head hosting the feature.

In other words, what distinguishes among the languages considered is the mechanism of AGREE vs. AGREE+MOVE instantiated by the Q-feature or by the wh-feature. These six-way combinatorial possibilities account for the existence of wh-movement in non-syncretic languages like Vata (and Tlingit), on the one hand, and syncretic languages like French and Romanian, on the other, and its absence in Japanese, Sinhala, Chinese, Tumbuka and French II.

The analysis distinguishes between movement of an XP to Spec Focus, which is wh-movement, characterizing Vata (and Tlingit), and (heavy) pied-piping characterizing Japanese, Chinese and Sinhala. The latter type of movement is governed by very strict locality constraints.

Two broader conclusions can be drawn. First, that there is overt movement in at least some of the so-called wh-in-situ languages and second, that the so-called wh-in-situ languages do not constitute a homogeneous class.

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