

# Scope assignment: From *wh*- to QR<sup>\*</sup>

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Comments Welcome.

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<sup>\*</sup>Thanks to XXX YYY ZZZ....

# 1 Introduction

The notion of scope of an operator is fundamental for semantic computation. It is also one of the few notions that seems to have a direct translation between syntax and semantics. The syntactic structure is, in terms of scope assignment, transparent to the semantic interpretation. In other words, the scope of operators is equal to their C-command domain. As a result, insofar as syntax is driven by the need to satisfy interface requirements and in this case requirements of the syntax-semantics interface, a prime concern of syntactic theory is to get operators to their scope positions. From a general point of view, theoretical parsimony and economy have dictated a preference for the elimination of provably superfluous operations in the derivation of structure. Under the copy theory of movement (Chomsky 1993), links in a chain are copies. In fact under current assumptions they are not identical and independently merged at different positions, somehow identified as part of a chain. To make the maximal use of this formal representation we propose that certain cases of LF-movement<sup>1</sup> can be eliminated from a theory of grammar and replaced by a theory of selective spell-out (SSO), schematically shown as follows:

- (1) a. XP ... ~~XP~~ (moved construction)
- b. ~~XP~~ ... XP (in-situ construction)

A consequence of the schema in (1) is that the variation between an ex-situ vs. in-situ configuration is reduced to an issue of which copy is spelled out.

The primary burden that is placed on LF-movement is that of fixing scope; that is, the movement of a scope-taking operator to a position in the structure at which it must take scope. Two of the most common phenomena to be associated with this is that of certain wh-in-situ constructions and Quantifier Raising (QR).

In this paper, we argue that LF-movement in both wh-in-situ and QR can be eliminated in favour of SSO and the judicious application of unselective binding. As mentioned, SSO already comes for free by the copy theory, while unselective binding already exists as one of the core tools in explaining certain issues at

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<sup>1</sup>Ideally, to be maximally economical, the entire notion LF-movement should be eliminated, but our aims here are somewhat more modest.

the syntax–semantics interface; our approach, therefore, can be seen as a step towards further theoretical parsimony by reducing the existing pool of syntactic operations rather than replacing one with another, or adding a new operation.

The structure of this paper is as follows: in section 2, we overview the landscape of wh-typology and highlight the parameters necessary to unify the wide range of cross-linguistic variation we find in wh-constructions; in section 3, we show how an SSO approach allows us to explain the variation by formulating a typology expressed in terms of SSO parameters; section 4 addresses the issue of QR and explores the way it can be integrated with the ideas developed with respect to wh scope. Section 5 concludes.

## **2 Wh-Movement and wh-scope**

### **2.1 The independence of clause typing and wh-scope fixing**

It is well known that languages vary in terms of whether they are wh-movement or wh-in-situ languages (and in some cases in-between). The claim here is that at least some cases of this variation reflect a purely surface phenomenon; that is, some wh-in-situ languages are, in fact, wh-movement languages, and that what varies is which wh-copy is spelled-out. Let us consider first the question as to what wh-movement actually does:

- (2) a. What<sub>*i*</sub> did [John buy *t<sub>i</sub>*]?  
b. [John bought a book].

Wh-movement, in a sense, is the syntactic and semantic equivalent of bilocation because some part of the meaning of a wh-phrase needs to be interpreted in two places at once. A common assumption among scholars is that a wh-phrase in a wh-movement language is an operator, i.e. it expresses existential quantification. As such, it is necessary for the wh-phrase to move to a position in the clausal periphery such that it scopes over the entire proposition including the moved subject—this is why wh-movement involves movement to a position in the CP-layer, which is higher than the subject, which has moved to [Spec,TP]. At the same time, because the wh-phrase is also the argument of the verb, it

must be interpreted as such in the base position from which it moves. Syntactic displacement, therefore, gives rise to semantic displacement.

Moving the wh-phrase leaves a trace (or a copy) that is interpreted as a variable.<sup>2</sup> Wh-movement is necessary in order for the moved wh-phrase to bind the trace/variable resulting in existential quantification:

$$(3) \quad \exists x_{wh} [\dots x_{wh} \dots]$$

The expression in (3), however, is still not the meaning of a question. Given our theory of syntax, wh-movement also requires a syntactic trigger that is usually expressed in terms of an interrogative C: a functional head that encodes interrogative clausal force, or “clause type” in the sense of Cheng (1997). In semantic terms, this results in  $\lambda$ -abstraction over the existentially quantified proposition:

$$(4) \quad \lambda p.p = \exists x_{wh} [\dots x_{wh} \dots]$$

This straightforwardly follows from approaches to question semantics as involving a set of propositions (Hamblin 1973; Karttunen 1977). Such an approach is also compatible with well-known cases of languages that have wh-indefinites: wh-words that are interpreted existentially in declarative contexts. This follows from (3) and (4)—the lack of interrogative C precludes the availability of  $\lambda$ -abstraction as in (4), resulting in a declarative, existentially quantified proposition in (3), which is essentially a wh-indefinite construction, in other words it is interrogative C that triggers the abstraction. The upshot is that all languages, regardless of the syntactic means by which they derive a wh-construction, must converge on the question meaning expressed in (4).

Apart from interrogative C and the wh-phrase, it is becoming increasingly common to assume that a third player is involved in question formation. The empirical motivation for this is that in many languages, questions are formed using a Q(uestion) particle, and in the early days of GB and Minimalism, it was common to assume that Q was the realisation of an interrogative C head. However, from Watanabe (1992) to Hagstrom (1998), more recent (Cable 2007, Slade

<sup>2</sup>This raises a non-trivial issue: if links of movement chain are copies, why should the wh-phrase be interpreted as an operator at the top of the chain while it is interpreted as a variable at the bottom of the chain.

2011, Yeo 2010) analyses posit that Q is distinct from interrogative C, and that there are, in fact, three required elements in question formation: the wh-phrase, Q, and interrogative C.

Empirically, we find that the position of the wh-phrase and Q can vary along at least two dimensions:<sup>3</sup> first, the particle can occur in a clause-initial position, clause-final position or in a position adjacent to the wh-word (the wh-word and Q form a constituent); second, the wh-phrase can occur in a clause-initial (wh-movement) or base argumental position (wh-in-situ). For expository purposes, we will postpone discussion of optional wh-movement and partial wh-movement cases to section 3.

The broad typological distribution is as follows. Wh-movement languages that have initial, wh-adjacent and final particles are exemplified by Hopi, Tlingit and Vata, respectively:

- (5) ya haki-y 'im wiva'ta  
Q who-OBL you hit  
'Who did you hit?' [Hopi, Jeanne (1978)]
- (6) daa sá kéet axá  
what Q killerwhale he.eats.it  
'What do killerwhales eat?' [Tlingit, Cable (2007)]
- (7) àló<sub>i</sub> n̄ nĭ [zĒ<sub>j</sub> [à nyĒ-ḃŌ t<sub>i</sub> t<sub>j</sub>]] yì là  
who you NEG-AUX thing we gave-REL know Q  
'To whom don't you know what we have given?' [Vata, Koopman (1984)]

Likewise for wh-in-situ languages, we find initial, wh-adjacent and final particles in Tumbuka, Sinahla and Japanese, respectively:

- (8) kasi Sužo a-ka-p<sup>h</sup>ik-a viči  
Q Sužo SM-PST-cook-FV what  
'What did Sužo cook?' [Tumbuka, Kimper (2006)]

<sup>3</sup>There are other potential dimensions of variation that we do not discuss here. One is the headedness of the QP in languages that have clear QP constituents, e.g. Sinhala, Tlingit; another is the landing site of wh-movement, e.g. movement to Force vs. Focus position.

- (9) Sunil monəwa də kieuwe  
 Sunil what Q read.PST.E  
 ‘What did Sunil read?’ [Sinahala, Slade (2011)]
- (10) John-ga nani-o nomimasita ka  
 John-NOM what-ACC drank Q  
 ‘What did John drink?’ [Japanese, Hagstrom (1998)]

If it is true that all questions must essentially converge on the same meaning, as shown in (4), then the null hypothesis should be that all the relevant features interpretable at the interface which give rise to question meaning should be equally present in all of the above examples. Of course, other morphosyntactic properties such as case and agreement etc. can vary, but the core features responsible for question meaning (C, Q, wh, and perhaps focus) should not.

What this means for the syntax is that following the Clausal Typing Hypothesis of Cheng (1997),<sup>4</sup> clauses must be typed. We take this to mean only one thing, namely that some clause must be specified as being an interrogative (as opposed to say, a declarative) by the merging of an interrogative C in the clause. The central claim here is that clause typing itself is not contingent on anything else, e.g. wh-movement or the presence of a question particle. The clearest place to find evidence of this would be to take a slight detour to consider polar questions. The World Atlas of Language Structures Online (WALS) has a chapter (Ch. 116) on polar questions (Dryer 2013), which shows that there are 173 languages that distinguish polar questions (only) by interrogative intonation, and 1 language (Chalcantongo Mixtec) that has no interrogative-declarative distinction. Consider the following minimal example from Kayardild (with the gloss slightly modified for consistency), an Australian Tangkic language,<sup>5</sup> which

<sup>4</sup>In this paper, we agree with Cheng in saying that clauses must be typed. We think that to the extent that there is one, clause typing is the immutable syntactic universal that relates to question formation, regardless of the syntactic framework one chooses to adopt. We do not, however, subscribe to the specific predictions that the clausal typing hypothesis makes with respect to the strict connection between wh-in-situ and the availability of question particles. See Bruening (2007) for more substantial argumentation on this point.

<sup>5</sup>According to WALS, Kayardild is listed as only using interrogative intonation, but this is inaccurate. Evans (1995), from which the Kayardild data is drawn, shows that polar questions can be formed with or without an initial question particle. This does not change our main point that other than interrogative C, no other syntactic device is necessary for clause typing.

allows the formation of polar questions with only the use of question intonation but also optionally allows the use of a particle.

- (11) a. nyingka marri-j?  
           2SG.NOM hear-ACTUAL  
           ‘Do you understand?’  
       b. kara nyingka marri-j?  
           Q 2SG.NOM hear-ACTUAL  
           ‘Can you understand?’ (Evans 1995:364–365)

Evans states: “[polar questions] are formally identical with declaratives, except for a rising intonation contour centered on the questions word”. It is most plausible to assume that the “questioned word” in the examples here is *marri-j* ‘hear’, located at the end of the question, but note that the question particle *kara* in (11-b) is in an initial position. One approach would be to say that the question intonation is a PF-exponent of interrogative C, which is necessary in both (11-a) and (11-b). It follows that the particle cannot be necessary. The other approach would be to say that the particle is interrogative C and the question intonation simply a PF-phenomenon. In which case, (11-a) must involve a null version of *kara*. Either approach reduces to requiring only interrogative C for clause typing.

A wh-question differs in that there is an additional wh-phrase that needs accounting for. However, if we extend the reasoning for polar questions to wh-questions, then we can say that like polar questions, wh-questions only require an interrogative C to clause type, but independently require something else to handle the wh-phrase – specifically, there must be some mechanism by which the wh-phrase is made to scope over the relevant clause, for reasons stated at the beginning of this section. This is not up for debate, we think, because without a wh-scoping mechanism, the direct vs. indirect question distinction cannot be derived.

Incidentally, in wh-movement languages, these two properties collapse into a single cluster of operations because interrogative C also triggers the movement of the wh-phrase into [Spec,CP], which gave rise to the (mis)understanding of wh-movement as the mechanism for clause typing. However, recall the central claim that only clause typing is universal, not wh-movement. This is in accord

with our view that clause typing and scope fixing are independent mechanisms; it just so happens that in wh-movement, they obscure each other. This point is clearer in wh-in-situ languages, because without wh-movement to obscure scope fixing, we contend with the issue of semantic displacement – that is, the position at which a wh-phrase should be interpreted does not correspond to the syntactic position at which it appears. Note that even in wh-in-situ questions, clause typing must still involve the presence of interrogative C. Among the syntactic analyses of wh-in-situ, what differs is whether a particular approach treats the question particle (if it exists) as a realisation of interrogative C or not.

Therefore, if scope fixing is always required, and if wh-movement is the dominant way by which wh-scope fixing is accomplished, it is desirable to recast wh-in-situ in terms of SSO of the wh-phrase because it is a step towards unification – clause typing and scope fixing are the same in wh-movement and wh-in-situ languages; what varies is which wh-copy is spelled-out. This is in contrast with the traditional system of expressing the availability of wh-movement in terms of the presence of an EPP on interrogative C, which is effectively superfluous variation in both syntax and PF, because under these approaches, one would need yet another mechanism for scope fixing.

## **2.2 The empirical profile of SSO**

Since we are assuming a copy theory of movement it is not a necessary condition for SSO to also exhibit overt morphosyntactic effects other than the pronunciation of a lower copy. Having said this, there are three types of data that constitute compelling evidence for an SSO theory of wh-question formation. The first involves overt morphosyntactic effects that are linked to wh-movement but occur in a wh-in-situ construction. This is what we find with wh-agreement phenomena in Chamorro and Coptic (Reintges et al. 2006). The second involves what appears to be truly optional wh-movement, even in multiclausal structures, in Babine-Witsuwit'en (Denham 1997; 2000), which we see as straightforward SSO of the wh-phrase in different CP specifiers. The third involves partial wh-movement with scope markers (e.g. in German), which will ultimately reduce to a subtype of optional wh-movement and be evidence that the particle Q must also be involved in the SSO paradigm.



Let us consider the basic wh-agreement facts in Chamorro first. In Chamorro, a wh-question is formed by applying wh-movement to a declarative VSO clause, resulting in an SVO or OVS word order accompanied by corresponding case agreement on the verb:

- (12) ha-bendi si Maria i kareta  
 AGR-sell Maria the car  
 ‘Maria sold the car.’

In order to form a wh-question, wh-movement is required and a corresponding agreement marker must appear on the verb, which must agree in case with the moved wh-element:

- (13) a. hayi bumendi i kareta?  
 who WH[nom].sell the car  
 ‘Who sold the car?’  
 b. hafa bininde-*nña* si Maria?  
 what WH[obj].sell-AGR Maria  
 ‘What did Maria sell?’

A moved subject wh-phrase will trigger nominative case agreement on the verb, as shown by the *-um-* marking on the verb in (13-a). A moved object wh-phrase will instead trigger objective case agreement *-in-* on the verb and corresponding possessor agreement *-nña*. A similar pattern is also found in relative clauses, which involve an overt relative complementiser but no overt relative pronoun:

- (14) a. kao un-li’i’ i palao’an [ni bumendi i kareta]?  
 Q AGR-see the woman C<sub>REL</sub> WH[nom].sell the car  
 ‘Did you see the woman who sold the car?’  
 b. hu-fahan i kareta [ni bininde-*nña* si Maria]  
 AGR-buy the car C<sub>REL</sub> WH[obj].sell Maria  
 ‘I bought the car that Maria sold.’

To sum up, Chamorro has overt wh-movement and corresponding wh-agreement, which surfaces as case agreement on the verb. Evidence of SSO would therefore involve behaviour that is similar to what happens in Chamorro without any overt

signs of wh-movement. We turn now to Coptic Egyptian, which appears to show precisely this kind of behaviour.

Coptic Egyptian is predominantly wh-in-situ but crucially, when the wh-phrase is within a finite embedded clause, it does not take matrix scope and only an indirect question reading is possible:

- (15) awɔ n-ti-sown                      an [tʃe nt-a        u        ʃɔpe        mmo-s]  
          and NEG(-PRES)-1SG-know not C       REL-PERF what happen to-3SG:M  
          ‘And I don’t know what happened to her.’

The specific morphosyntactic effect that Reintges et al. (2006) claim to be wh-agreement is that of the relative tense marker. More specifically, the claim is that relative tense surfaces within the clause over which the wh-phrase takes scope. Consider a relative clause:

- (16) u-hɔβ                      [ere            p-nute            moste mmo-f]  
          INDEF:SG-thing REL(-PRES) DEF:SG:M-god hate    DO-3SG:M  
          ‘a thing that God hates’

Like Chamorro, the formation of relative clauses in Coptic Egyptian does not make use of a relative pronoun but instead uses special wh-agreement morphology. In this case, it is the surfacing of relative tense. Reintges et al. (2006) take this to mean that like Chamorro, Coptic Egyptian relative clauses involve wh-movement of a null operator and by extension, the presence of wh-agreement suggests the presence of wh-movement. Additionally, Coptic Egyptian also allows wh-movement for focus reasons but when this happens, no wh-agreement is triggered:

- (17) eβol tɔn        a-tetə-ei            e-peɪ-ma?  
          PCL    where PERF-2PL-come to-DEM:SG:M-place  
          ‘From where did you come here?’

Conversely, when the wh-phrase does not move, relative tense surfaces:

- (18) e-r-βek                      e-tɔn?  
          REL(-PRES)-2SG:F-go to-where

‘Where are you (woman) going?’

Finally, when a *wh*-in-situ in an embedded clause is to be interpreted with matrix scope, relative tense surfaces in the matrix clause:

- (19) eye əntəntən e-tetən-tšə əmmo-s ero-i [tšə ang nim]?  
 Q you(-PL) REL(-PRES)-2PL-say DO-3SG:F about-1SG C I who  
 ‘Who are you saying of me that I (am)?’

Reintges et al. (2006) explain this distribution in terms of a similarity to a Doubly Filled Comp Filter effect (Chomsky and Lasnik 1977) because in all cases, they argue, *wh*-movement takes place, but relative tense can only be pronounced when the lower copy – but not the higher copy – is spelled out. In sum, this is evidence for SSO of *wh*-phrases. They also further discuss participle agreement in relative clauses in Passamaquoddy, drawing from work done by Bruening (2001), which we do not include here for reasons for space. Instead, we turn now to Babine-Witsuwit’en, which exhibits a more straightforward effect of SSO.

Denham (1997; 2000) describes Babine-Witsuwit’en, an Athabaskan language, as allowing truly optional *wh*-movement, with no variation in morphosyntactic shape or discourse effects. The movement is also argued not to be focalisation, topicalisation or clefting, while obeying island extraction constraints as would be expected of overt movement. Compared to Chamorro or Coptic Egyptian, the facts in Babine-Witsuwit-en are very straightforward: *wh*-phrases can remain in its base position or move to and stop at any Spec,CP position just as long as there is no *wh*-movement across an island. This can be clearly seen in the following:

- (20) a. George [Lillian nditnī book yik’iyelhdic] yilhnī?  
 George Lillian which book 3SG.read.OPT.3SG 3SG.told.3SG  
 b. George [nditnī book Lillian yik’iyelhdic] yilhnī?  
 George which book Lillian 3SG.read.OPT.3SG 3SG.told.3SG  
 c. nditnī book George [Lillian yik’iyelhdic] yilhnī?  
 which book George Lillian 3SG.read.OPT.3SG 3SG.told.3SG  
 ‘Which book did George tell Lillian to read?’

One question that will immediately arise is whether Babine-Witsuwit’en allows

scrambling. It does not – non-wh NPs do not have the freedom of moving, perhaps because of a lack of case marking on NPs:

- (21) a. Lillian dus yunkët  
           Lillian cat 3SG.BOUGHT.3SG  
           ‘Lillian bought a cat.’  
       b. \*Dus Lillian yunkët  
           cat Lillian 3SG.BOUGHT.3SG  
           Intended meaning: ‘Lillian bought a cat.’

As shown above in (21-b), the object cannot be fronted, and (21-b) can only have the meaning that the cat bought Lillian. NPs can be fronted if focused, which requires the use of focus marker, which is notably absent in wh-constructions:

- (22) George ’en Lillian yunt’iy’  
       George FOC Lillian 3SG.LIKES.3SG  
       ‘It’s George that Lillian likes.’  
       ‘It’s George that likes Lillian.’

Finally, wh-phrases are subject to island constraints. As can be seen in the examples below, extraction is impossible from sentential subjects (23) and coordinate structures (24):

- (23) a. [George mbī yudīhye] Lillian yilhggü?  
           George who 3SG.know.3SG Lillian 3SG.surprised.3SG  
           ‘That George knows who surprised Lillian?’  
       b. \*mbī [George yudīhye] Lillian yilhggü?  
           who George 3SG.know.3SG Lillian 3SG.surprised.3SG
- (24) a. [George tl’ah mbī] hibin’ë’n?  
           George and who 2SG.saw.3PL  
           ‘You saw George and who?’  
       b. \*mbī [George tl’ah] hibin’ë’n?  
           who George and 2SG.saw.3PL

Denham takes this as evidence that wh-movement in Babine-Witsuwit’en, if it does occur, is overt wh-movement, and the optionality that follows is true op-

tionality in terms of where the wh-phrase moves to. As mentioned in section 2.1, this is a classic problem of wh-scope fixing. If the wh-phrase is not pronounced at the position at which it should take scope (matrix in all the examples here), then there needs to be some mechanism by which scope can be fixed. Denham's solution to the problem involves proposing an extra projection above C, the Ty(pe)P, which is responsible for clause typing and scope. TyP is always projected where scope needs to be marked. In direct questions, TyP is projected above the matrix CP, which hosts an operator that binds the wh-phrase. Crucially, optional wh-movement is couched in terms of whether a C is projected or not, with the wh-phrase moving to wherever C is projected. If no C is projected, the wh-phrase remains in-situ, if only embedded C is projected, there is (partial) wh-movement to embedded [Spec,CP], and if matrix C is projected, there is full wh-fronting. Schematically, the solution (simplified to remove Agr projections) is formulated as follows:

- (25) a. wh-in-situ = (20-a)  
            $[_{\text{TyP}} \text{Op}_i [_{\text{TP1}} \dots [_{\text{vP}} \dots [_{\text{TP2}} \dots [_{\text{vP}} \text{wh}_i ]]]]]]$   
       b. partial wh-movement = (20-b)  
            $[_{\text{TyP}} \text{Op}_i [_{\text{TP1}} \dots [_{\text{vP}} \dots [_{\text{CP}} \text{wh}_i \dots [_{\text{TP2}} \dots [_{\text{vP}} t_i ]]]]]]$   
       c. wh-fronting = (20-c)  
            $[_{\text{TyP}} \text{Op}_i [_{\text{CP}} \text{wh}_i \dots [_{\text{TP1}} \dots [_{\text{vP}} \dots [_{\text{TP2}} \dots [_{\text{vP}} t_i ]]]]]]$

We will not adopt this analysis; rather we claim that optional wh-movement of this sort is an exemplar of SSO. The analysis that we will propose in section 3 will be expressed in terms of a syntactic unity among all three constructions with wh-movement to the highest [Spec,CP] in all cases for wh-scope reasons. What differs is where the wh-phrase is spelled-out, which can only be links in the wh-movement chain. Typologically, languages differ in terms of what is allowed to spell-out where, while some languages allow several options, hence SSO.

The third type of construction we will consider is partial wh-movement with scope marking. Partial wh-movement is similar to what we find in Babine-Witsuwit'en, specifically when the wh-phrase moves to, and appears to stop at an intermediate [Spec,CP] with the corresponding surfacing of a marker at the scope marking position (usually matrix). This scope marker can take the form of

a wh-word or a particle. Fanselow (2006) provides a very detailed overview of the cross-linguistic profile of partial wh-movement shows the following examples from German and Albanian (citing Turano 1995):

- (26) a. was glaubst du wen Irina *t* liebt?  
 what believe you who-ACC Irina loves  
 ‘Who do you believe that Irina loves?’  
 b. was glaubst du was er sagt wen Irina liebt?  
 what believe you what he says who Irina loves  
 ‘Who do you believe that he says that Irina loves?’
- (27) a. a mendon se Maria thotë se çfarë ka sjellë burri?  
 Q think that Mary says that what brought her husband  
 ‘What do you think that Maria says that her husband brought?’  
 b. a mendon se çfarë thotë Maria se ka sjellë burri?  
 Q think that what says Mary that brought her husband  
 ‘What do you think that Maria says that her husband brought?’

In German (26), we see that *was* ‘what’ is used to mark scope, while the wh-word stays low in the embedded clause. In Albanian (27), we see the question particle *a* marking matrix scope, while the wh-phrase *çfarë* ‘what’ stays low. We will not go through the specifics of each language (although see Fanselow and Ćavar 2000 for a detailed account of German), but the main point is that these constructions are amenable to a SSO account of wh-constructions. Specifically, we claim that the scope marker can be viewed as the instantiation of the Q-particle, while the lower wh-phrase corresponds to the argumental wh-phrase. If we merge this line of thinking with the notion that a question particle forms a constituent with the wh-phrase that it associates with, then a theory of SSO extends to not only the spell-out position of the wh-phrase, but also that of the Q-particle. By varying the positions of where Q and the wh-phrase are spelled-out, along with whether or not Q is phonetically overt, we can unify the constructions that we have seen in this section: we can express a typology that describes the positions of both the wh-phrase and Q-particle we observed in (5)–(10); we can account for the optional wh-movement case in Babine-Witsuwit’en, and we can describe the partial wh-movement and scope-marking constructions that we have just

observed. We turn to this presently.

### **3 SSO and the interaction of C, Q, and wh**

#### **3.1 Theoretical preliminaries**

In section 2, we asserted that the only requirement for the clause typing of an interrogative is the presence of an interrogative C. The effect that C has at the interfaces is basically that of a set-former: it takes a proposition and turns it into a set of propositions, which corresponds to the denotation of a question. The function of wh-movement is to fix scope, and in languages that have wh-movement, interrogative C also triggers the movement of the wh-phrase to [Spec,CP], which gives rise to a matrix scope direct question. We further observed that in wh-in-situ languages, or languages that permit optional or partial wh-movement, the wh-phrase is not located in a position at which it takes scope, and there must be a separate mechanism by which this occurs, e.g. through the use of a scope marking element or the positing of an abstract typing head in the clausal periphery. Taken at face value, one might entertain the idea that languages are parameterised in terms of whether wh-movement is used for scope fixing or not, in which case a scope marker is present. The analysis that we are proposing here is that universally, the formation of wh-questions requires not just interrogative C and the wh-phrase but also the Q-particle. What varies crosslinguistically are the relative positions of the wh-phrase and Q, as well as the form that the Q-particle takes; it could be overt or null, or it could be a wh-word or an independent morpheme.

The view that wh-phrases are closely linked to the Q-particle (for ease of exposition, let us call this the QP-approach) is gaining traction in the recent literature, and such a view has been especially espoused by Hagstrom (1998), Cable (2007) and Slade (2011), who develop a detailed and formal account of the syntactic and semantic properties of Q. The specifics of each approach vary, but they converge more or less along the lines of the theoretical treatment of Q as a (variable over) choice functions. A choice function is a function that picks a member from a set of elements, and if the wh-phrase is seen as a set of enti-

ties (people for ‘who’, things for ‘what’ etc.), then the combination of Q and a wh-phrase yields an individual, what is commonly known in the literature as a wh-indefinite. Roughly as follows:<sup>6</sup>

- (28) a.  $\text{wh}' = \{a, b, c\}$   
 b.  $Q(\text{wh}) = x : x \in \{a, b, c\}$

Empirically, Japanese provides a very clear example of this (Hagstrom 1998):

- (29) a. John-ga nani-ka-o katta  
 John-NOM what-Q-ACC bought  
 ‘John bought something.’  
 b. John-ga nani-o kaimasita ka  
 John-NOM what-ACC bought.POLITE Q  
 ‘What did John buy?’

In (29-a), *nani-ka* ‘what-Q’ is interpreted as an indefinite ‘something’. Crucially, since (29-a) is a declarative, not a question, there is no interrogative C. However, (29-b) is interpreted as a question and therefore has interrogative C. Japanese is a wh-in-situ language, and scope marking must therefore be accomplished through the use of the particle. Now, suppose that we say that (29-b) is derived from (29-a), then it follows that the particle *ka* has moved from a clause internal position to the periphery. In other words, in Japanese, C types a clause as interrogative, while wh-scope is fixed by moving the Q-particle to the periphery of the clause over which the wh-phrase takes scope. In a sense then, Japanese is similar to languages that have partial wh-movement with a scope marker, with the difference that in Japanese, the lowest copy of the wh-phrase is spelled out.

So far, we have seen two ways of marking wh-scope: “standard” wh-movement to a scope taking position, and marking of scope through the use of a Q particle, with the wh-phrase moving to an intermediate position or staying in-situ. There is a third logical possibility, where there is no movement of both the wh-

<sup>6</sup>While the basic fact that a choice function picks a member from set remains unchanged, specific analyses vary. Cable (2007), for example, treats Q itself as a variable over choice functions, which needs to be bound by existential closure to yield indefinites, so (28) would more accurately be  $\exists f. f(\text{wh})$ , *f* a choice function.



phrase and Q-particle. In this case, neither element is a viable candidate to mark scope and the only remaining possibility that is interrogative C itself is somehow implicated in scope marking. Consider Sinhala (Slade (2011), citing Gair and Sumangala (1991) and Hagstrom (1998)):

- (30) a. mokak də wætuna  
           what Q fell-A  
           ‘Something fell.’  
       b. mokak də wætune?  
           what Q fell-E  
           ‘What fell?’
- (31) Sunil monəwa də kieuwe?  
       Sunil what Q read-E  
       ‘What did Sunil read?’

Like Japanese, the Q-particle *də* in Sinhala is merged in a position adjacent to the wh-phrase to yield an indefinite, as in (30-a). However, unlike Japanese, when forming a question, Sinhala does not resort to Q-movement to the periphery, which means that neither wh-movement nor Q-movement/marking can be responsible for fixing the scope of the wh-word. Instead, the verb ending *-e* is responsible for marking the scope of the wh-phrase. Slade (2011) analysis involves the observation that the *-e* verbal marking in Sinhala is also responsible for focus, which then triggers head movement of the verb from V to I to Foc. If we follow Rizzi (1997) in assuming that Focus is a head within the articulated CP layer, then this does not run counter to our claim that wh-questions are clause typed by interrogative C, whereas scope marking is divorced from clause typing, and languages differ in terms of the strategy they employ to do so.<sup>7</sup>

<sup>7</sup>Although this is something that we cannot address in detail here, a non-trivial follow-up to this issue is to what extent wh-movement is driven by focus. As far back as Huang (1982), it has been observed that wh-movement and focus movement interact in intricate ways; more modern analyses (Beck 2006) suggest that the set of propositional alternatives in wh-questions are focus alternatives. Empirically, the facts are rather complex. For example, in Babine-Witsuwit'en, Denham (2000) argues that wh-movement is not driven by focus, since there is a dedicated focus marker for overt elements that bear focus. For purposes of this paper, since we are primarily concerned with expressing a coherent system of interrogativity, with an emphasis on clause typing and scope marking, we will adopt the approach that wh-movement is driven by the need

Japanese and Sinhala are traditionally known as *wh*-in-situ languages, and it is certainly not the case that *Q*-particles and *QPs* only appear in *wh*-in-situ languages. Cable's (2007) work on Tlingit shows clear empirical evidence that even in *wh*-movement languages, *QPs* and *QP*-movement can coexist alongside *QPs* giving rise a *wh*-indefinite meaning. Tlingit is a Na-Dene language, a phylum to which the Athabaskan languages also belong. However, unlike Babine-Witsuwit'en, which is an Athabaskan language, it allows free word order variation in declarative sentences – there appears to be a rough preference of SOV, but any order is possible. Crucially, in *wh*-questions, the possible word orders are substantially restricted, such that the *wh*-phrase must always precede the predicate. Data from (Cable 2007:63–66):

- (32) a. aadóoch sá kgwatóow yá x'úx'?  
           who.ERG Q he.will.read.it this book  
           'Who will read this book?'  
       b. aadóoch sá yá x'úx' kgwatóow?  
           who.ERG Q this book he.will.read.it  
       c. yá x'úx' aadóoch sá kgwatóow?  
           this book who.ERG Q he.will.read.it  
       d. \*yá x'úx' akgwatóow aadóoch sá?  
           this book he.will.read.it who.ERG Q

As can be seen from the paradigm above, (32-d) is disallowed when interpreted as a question. However, *QPs* can follow predicates if they are interpreted as a *wh*-indefinite:

- (33) yá x'úx' akwgwatóow aadóoch sá  
       this book he.will.read.it who.ERG Q  
       'People will read this book.'  
       (34) kéet axá daa sá  
           killer.whale he.eats.it what Q  
           'A killerwhale will eat anything.'

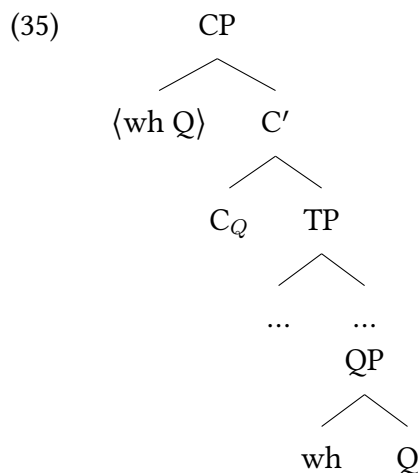
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to satisfy the EPP on some *C* head, and intentionally blur the distinction between as to whether the *C* head is "purely" interrogative, e.g. Force, or interrogative by means of focus alternatives.

Cable concludes that QP-fronting to a position preceding the predicate is obligatory and therefore, Tlingit must count as a wh-movement language. To summarise, then, we now have the following ingredients in our syntactic framework for questions: 1) an interrogative C, which must be universally present in questions for clause typing purposes by forming a set of propositions; 2) a Q-particle, whose job is to combine with the wh-phrase to form an existential indefinite; 3) a wh-scope mechanism, which varies from language to language. In what follows, we will focus on point 3 by expressing a number of parameters that allows us to capture the crosslinguistic variation we observed in the previous above.

### 3.2 Crosslinguistic variation of SSO

In order to express the parameters we need to capture the variation we observe, we first need to establish the dimensions of variation we need. We start out with a basic schematic for wh-questions:



The principal claim here is that in the configuration above, QP always moves to the periphery, and what varies cross-linguistically is how much of the QP is spelled out and where. Since spelling out is a syntax–PF interface effect, it stands to reason that there must be some information that is encoded in syntax that is interpretable at the PF-interface that basically states “spell-out this copy”. Given the system that we are developing here, it is necessary for us to reject a universal

rule of “spell-out highest copy”. If so, then there are four logical possibilities:

- (36) a. spell-out QP at the periphery
- b. spell-out QP in-situ
- c. spell-out Q in the periphery and wh in-situ
- d. spell-out wh in the periphery and Q in-situ

Note that (36) is expressed in terms of spelling out at the periphery, rather than simply in terms of movement. In general, there appears to be a preference for wh-elements, if they move, to be spelled-out at the left periphery. Recall the crosslinguistic distribution shown in (5)–(10). We observe the following possibilities in terms of the relative positions of the wh-phrase and particle:

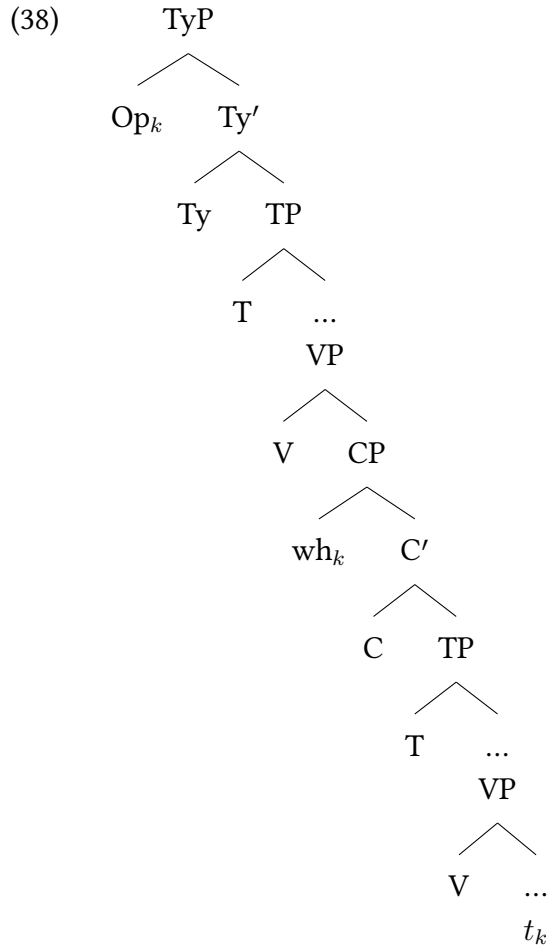
- (37) a. Q wh ...(Initial Q wh; Hopi)
- b. wh Q ...(Initial wh Q; Tlingit)
- c. wh ... Q (Initial wh, final Q; Vata)
- d. Q ...wh (Initial Q, wh-in-situ; Tumbuka)
- e. ... wh Q ...(In-situ wh Q; Sinhala)
- f. ... wh... Q (In-situ wh, final Q; Japanese)

Let us consider each option in turn. If we take into account the headedness of the QP, then a head initial QP that is spelled out in the left periphery will describe initial Q-wh configurations like Hopi as in (37-a). If the QP is head final and is spelled out at the left periphery, then we essentially arrive at Cable’s 2007 analysis of Tlingit as in (37-b). We briefly postpone discussion of (37-c), which involves a discontinuous structure. Initial Q, wh-in-situ languages like Tumbuka simply involve QP movement, followed by spelling out of Q in the periphery and wh in the lower position as in (37-d). QP-in-situ structures like (37-e) are found in Sinhala, and can be explained by spelling out of the entire lower QP copy. As mentioned above, Sinhala then resorts to verb movement and corresponding verbal morphology to mark scope; we will return to this. Finally, (37-f) corresponds to a very typical wh-in-situ language with a question particle, such as Japanese, which involves spelling out of the lower copy of wh but a higher copy of Q in the right periphery. The issue as to why languages choose to spell elements in the left versus right periphery is not something we will tackle in this

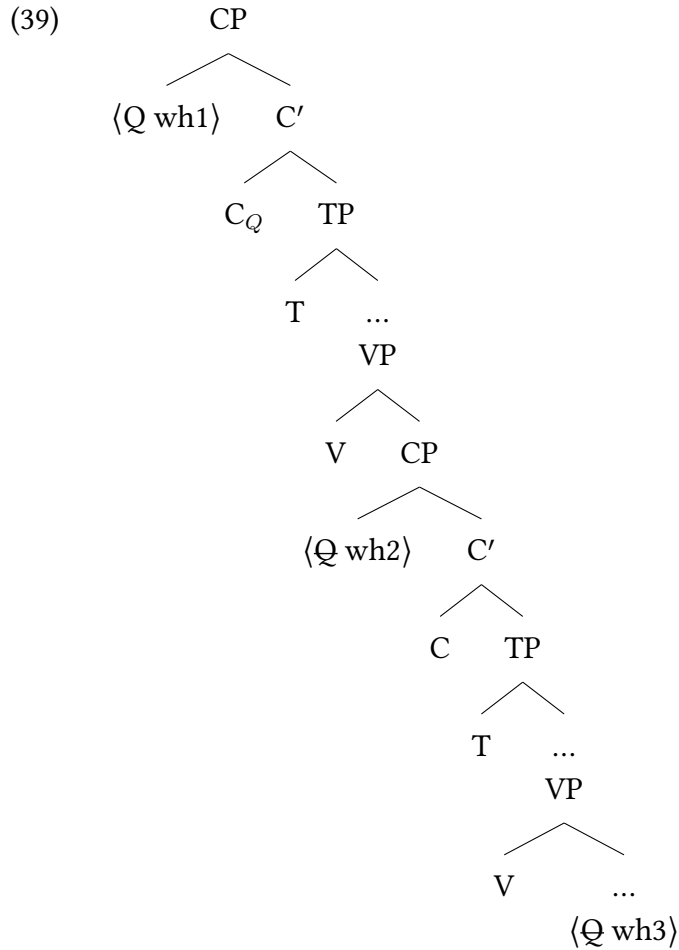
paper, although interested readers are pointed to Hagstrom (1998), who devotes a substantial part of his discussion to the phenomenon of “Q-migration”, which precisely involves movement of Q from a clause internal to a clause peripheral position.

Discontinuous structures like (37-c), exemplified by Vata, are slightly more complicated, but there is nothing inherent in our system that prevents spelling out the wh-phrase in the left periphery and followed by the abovementioned Q-migration of the particle to the right periphery. What is important is that scope marking is nevertheless achieved in such a configuration – assuming that both wh and Q are at the peripheries, then what is relevant for us is that scope is marked appropriately.

We have emphasised throughout this paper that the single unwavering requirement of clause typing is the presence of interrogative C. There is also a general requirement to mark scope, which we argued was the reason why Sinhala, which has the QP completely in-situ, resorts to verb movement and morphology for scope marking. However, while there is a crosslinguistic preference to mark scope overtly, it is by no means a language universal. While it is probably universal (and to an extent theoretically necessary) that the scope of a wh-phrase must be fixed, it is not the case that scope marking is universally overt. In the next section, we discuss the issue of Quantifier Raising, which in some sense is the opposite of scope marking – QR is precisely used to fix the scope of a quantifier that overtly is in the wrong place for interpretation. Returning to wh-constructions, many languages freely permit wh-in-situ constructions with no corresponding particle, such as Babine-Witsuwit'en, discussed above. In order to account for clause typing, Denham (1997; 2000) posited the existence of a Ty(ping)P, which hosts an operator that binds a wh-phrase. Wh-movement, in turn, is determined by the (optional) projection of C. The tree below shows a representative structure of a partial wh-movement case, which is a modified version of Denham's analysis updated to be more in-line with modern structures:



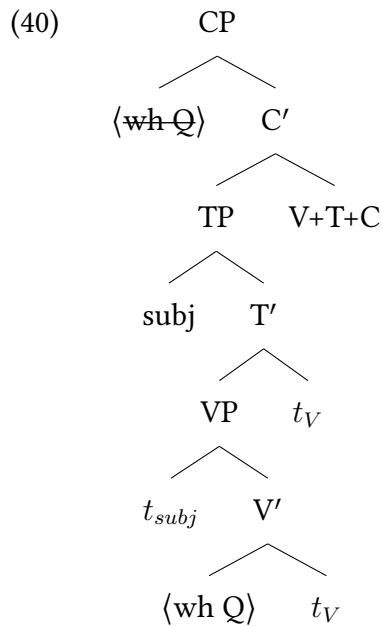
Essentially, Denham's analysis is a hybrid of *wh*-movement coupled with unselective binding. However, under current theoretical assumptions, an approach that allows the optional projection of *C* is untenable, specifically in the context of phase theory and feature inheritance of *T* from *C* (Chomsky 2008). Under Denham's system, the projection of *C* entails the movement of *wh*. SSO provides a simple answer to this problem:



Under our approach, the analysis for optional wh-movement, or any partial wh-movement construction would be as follows: assuming that the angled brackets denote copies, then QP must move to the highest [Spec,CP] to fix matrix scope. The wh-phrase can be spelled out at any of the positions labelled wh1, wh2, or wh3. Recall that languages differ in terms of the overttness of Q, so in a language like Babine-Witsuwit'en, it would simply be the case that Q is silent, since Denham does not note the existence of a question particle. In a sense, this is similar in spirit to Denham's analysis, without the need for positing the optionality of C or introducing unselective binding into a wh-movement structure. In the languages that do permit partial wh-movement with overt scope marking, then

the natural explanation would be that in these languages, we have spell out of the wh-phrase in the wh2 position, followed by the spell out of Q in the matrix position.

A consequence of our analysis is that in a language like Sinhala, where the entire QP is in-situ, we must posit that the QP also moves for scope reasons, but only the entire lower copy is spelled out. Although not universally necessary, Sinhala chooses to mark scope by verb movement to C:



Before we conclude this section, there is one final issue that we have not yet mentioned. A careful reader would have noticed that the logical possibilities of spell-out positions do not correspond to what we find empirically. These are repeated below:

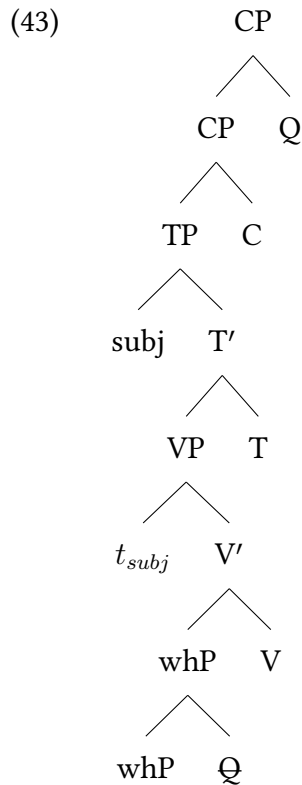
- (41)
- a. spell-out QP at the periphery
  - b. spell-out QP in-situ
  - c. spell-out Q in the periphery and wh in-situ
  - d. spell-out wh in the periphery and Q in-situ
- (42)
- a. Q wh ...(Initial Q wh; Hopi)



- b. wh Q...(Initial wh Q; Tlingit)
- c. wh ... Q (Initial wh, final Q; Vata)
- d. Q ...wh (Initial Q, wh-in-situ; Tumbuka)
- e. ... wh Q...(In-situ wh Q; Sinhala)
- f. ... wh... Q (In-situ wh, final Q; Japanese)

All of (42) can be explained by some version of (41-a)–(41-c) if we take into account the left vs. right periphery and the headedness of the QP. However, as far as we know, there is no language that instantiates (41-d) – that is, there is no language that spells out a wh-phrase in the periphery while spelling out Q in its base position.

The main reason for this is inherent in the QP-approach. In wh-questions, the reason why QP-fronting is even possible is because the syntactic relationship that is involved is one that holds between C and Q, rather than C and wh, as is the traditional assumption. This means that if the EPP on C is to be satisfied by Q, then the QP should move. This immediately raises the question as to how we can arrive at discontinuous structures, whereby only Q seems to move but the wh-phrase stays low. In our terms, this involves the spelling out of Q at the periphery but wh-in-situ, which is commonly found in language. We mentioned above Hagstrom's (1998) notion of Q-migration, which involves the movement of Q from a clause-internal position to a peripheral one. Cable (2007) develops this further by positing that wh-in-situ languages are typologically split between "Q-projection" languages like Sinhala, in which Q takes the wh-phrase as its complement, versus "Q-adjunction" languages, where Q adjoins to the wh-phrase, offering Q more mobility when triggered to move by interrogative C, giving rise to the movement of Q from to the periphery in a language like Japanese, shown schematically as follows:



A related tentative (though indirect) solution is also found in Chomsky's (2013, 2015) recent work on labelling. Under Chomsky's new system of labelling, Merge comes for free and is not feature-driven in the sense of earlier versions of Minimalism. The primary driving force in the interpretation of syntactic objects is the notion of labelling. Correspondingly, the inability to label some syntactic object gives rise to the need for displacement. Chomsky (2013) provides the following example: if merge applies to {H, XP}, H a head and XP a non-head, then the labelling algorithm will select H as label, the usual case. So, in the case of Q-complementation, then if merge applies to {Q, whP}, then resulting syntactic object must be labelled Q(=QP). One of the interesting consequences of Chomsky's system is that if merge applies to two items, both non-heads, e.g. {XP, YP}, then the resultant object is unlabellable, causing it to crash when sent to the interface. In order to remedy this, either XP or YP must move (internal merge) and the labelling algorithm then selects the residue as label. For example, if XP

moves, then *Y* is the label of the  $\{XP, YP\}$ , *XP* a (lower) copy. There is, however, one exception to the rule of labelling  $\{XP, YP\}$ : if *XP* and *YP* share relevant features such as  $\{\varphi, \varphi\}$  in the case of  $\{DP\text{-}subject, TP\}$  or more relevant for us,  $\{Q, Q\}$  in the case of questions. The upshot of this is that terminal point of the derivation of a question is to allow the resultant syntactic object to be labelled  $\{Q, Q\}$ .

Chomsky does not discuss this in any detail, but since labels can only be drawn from the pair of objects that undergo merge, this means that a *wh*-in-situ construction must involve a *Q*-bearing element to merge with interrogative  $C_Q$ . Assuming that  $C_Q$  contributes one of the *Q*-features in a  $\{Q, Q\}$  sharing structure, the other must come from somewhere. So if one is serious about adopting such a theory of labelling, one must either 1) merge a unselective binder with a *Q* feature with  $C_Q$ , or 2) internal merge an existing *QP* with  $C_Q$  and pronounce a lower copy to yield a *wh*-in-situ construction. In the case of *Q*-projection languages, the internal merging of *Q* must necessarily be the object  $QP (= \{Q, whP\})$ . This essentially boils down to *QP*-movement that we have already discussed for Sinhala and Tlingit.

In the case of a *Q*-adjunction language, which involves the adjunction of *Q* to *whP*. Crucially, since this is phrasal adjunction, *Q* cannot be a head that adjoins to a phrase, i.e. *Q* is a non-head. There are now two ways of considering this problem, both of which yields the desired result. Chomsky invokes pair merge in the case of adjunction (denoted by ordered pairs in angled brackets), which results in  $\langle whP, QP \rangle$ . For concreteness, let us assume that adjunction pair merged structures always result in the host as the first element of the pair, and the adjunct as the second, e.g.  $\langle host, adjunct \rangle$ . Since *PP*-adjuncts are clearly possible at the *vP* level, it must be the case that  $\langle VP, PP \rangle$  is labellable, unlike  $\{VP, PP\}$ . Presumably, it must be the host to which the adjunct attaches that projects – the labelling algorithm can select the first member of the pair merged structure as label. In this case, a syntactic object with  $\langle whP, QP \rangle$  will be labelled [*wh*], and the need to derive  $\{Q, Q\}$  can only target *QP* (not *wh*) for internal merge, yielding a Japanese type language.

The second approach is to assume that what Cable (2007) calls a *Q*-adjunction language is not adjunction in the true sense, since *Q* is a variable over choice functions and it is necessary for the syntax and semantics to converge, unlike

a true adjunct which, by definition, must be optional. Pursuing such a line of thinking the syntactic object would not be ordered pair  $\langle \text{whP}, \text{QP} \rangle$  but rather the unordered set  $\{\text{whP}, \text{QP}\}$ . This syntactic object is unlabellable. Recall that the resolution to an unlabellable structure is either feature sharing or internal merge. If we assume that Q-adjunction structures do not involve feature sharing in the relevant sense,<sup>8</sup> then the only way such an object can be labelled is through internal merge. Since we need the residue to be labelled  $[\text{wh}]$  (it is a wh-in-situ construction), and we need the root to be labelled  $\{Q, Q\}$ , the only possibility is that QP is forced to move, leaving whP behind.

To sum up this section, we have argued that in the presence of interrogative C, the QP must always move (internal merge) to the periphery for scope and labelling reasons.<sup>9</sup> Consequently, the availability of wh-in-situ or QP-in-situ must necessarily involve the spell-out of lower copies. We now turn to the issue of QR, which we explore as a parallel to a wh-in-situ construction in the sense of the spelling out of quantifier's lower copy that is not a scope taking position.

## 4 On Quantifier Raising

Assuming the mechanism of SSO for scope marking in cases of wh scope the question that naturally arises is whether there is something special about wh questions – perhaps linked to the fact that they introduce propositional alternatives and that this can only be achieved using certain syntactic technology – or, alternatively, whether the mechanisms described are general and apply to scope setting in a more general way. The latter would obviously be the preferred option. In this connection we need to turn, however briefly, to the question of QR. It is clear, to begin with, that the comparison between the ingredients involved in the cases of wh and in the case of QR are not the same. The main difference

<sup>8</sup>In any case, saying that there is feature sharing between whP and QP, say of  $[\text{wh}]$  or  $[Q]$ , which then projects, basically reduces the syntactic object into a contiguous string indistinguishable from QP, an undesirable result because what we aim to capture here is the detachability of wh and Q.

<sup>9</sup>A more general statement about this labelling approach might be to say that question scope is interpreted at the point at which the syntactic object is labelled  $\{Q, Q\}$ . This effectively allows us to derive scope as an epiphenomenon of the labelling algorithm. At this stage, it is unclear as to whether such an approach is tenable.

is that there is no equivalent of an interrogative C in scope assignment via QR. But this is arguably an independent property that follows from the requirements on question formation rather than scope assignment *per se*. We can thus set it safely aside. This makes the project of unifying the scope assignment mechanisms more promising. Turning to QR in some more detail it is clear that while a majority of scholars agrees that some rule with the effect of QR is required, taking this effect to be scope assignment and type mismatch repair, there is also widespread skepticism concerning whether QR is the right rule. The skepticism has several origins but primarily in the realisation that the unrestricted nature of QR ought to produce more scope combinations than what is actually observed. It is precisely this property of QR that Szabolcsi (1997) criticizes when she calls it *semantically blind rule of scope assignment*. She writes:

[this rule] ...roughly speaking “prefixes” an expression  $\alpha$  to a domain  $\mathcal{D}$  and thereby assigns scope to it over  $\mathcal{D}$ , irrespective of what  $\alpha$  means and irrespective of what operator  $\beta$  may occur in  $\mathcal{D}$ :

- 1      The semantically blind rule of scope assignment  
 $\alpha[\mathcal{D} \dots \beta \dots] \Rightarrow \alpha$  scopes over  $\beta$

(Szabolcsi 1997:109)

Secondly, save for a few relatively controversial cases where QR is argued to be overt (Fox and Nissenbaum 1999) QR is a covert operation. In our terms, it would appear that contrary to wh elements which, in wh movement languages, show a preference for highest-copy spellout, in cases of QR, there is a preference for *lower copy spellout*. QR and wh-scope are not the mirror image of one another, of course, since other movement may have taken place before QR, which explains why there is no *lowest copy spellout preference*. Yet another relatively unattractive property of QR as standardly formulated is that it targets only a specific type of constituent (QPs). This property, when combined with another one, namely that QR appears to obey special locality restrictions (essentially clause boundedness, and the fact that it targets essentially a position adjoined to IP, set it apart from other movement processes.<sup>10</sup>

<sup>10</sup>Beghelli and Stowell (1997:p.72) formulate a more general principle namely (i):

To summarise, QR seems to have the following properties:

- (44) a. As a rule of grammar, QR targets a specific type of element(s) (quantificational elements)
- b. It generally targets a single position (adjoined to IP)
- c. It has *dedicated* locality conditions (clause-boundedness).
- d. It always operates covertly.
- e. It is semantically blind

Even setting aside some of the properties in (44), empirically, it is well known that not all different possible scopes are derivable. Moreover, from a crosslinguistic perspective there are, arguably languages that lack QR altogether, at least insofar as scope shifting is concerned. These are the so-called *surface scope* languages such as Japanese or Korean where as established as early as Kuno (1973) scope ambiguities only arise if one scope bearing element has overtly moved over another. Now, lacking QR for scope shifting is unexpected. Given the fact that QR has no morphological effects for the language learner to observe, it is a prime candidate for a hardwired universal rule. It would not be inconceivable that a language just does not make use of this rule for scope shifting but it would be rather odd. We take, without further discussion, languages like Japanese and Korean (and surface scope languages more generally) as relatively clear evidence in favour of taking scope assignment in general to be regulated by SSO, deriving reconstruction, rather than classic QR, though in many cases there will be interfering factors that obscure the effects, e.g. scrambling.

Within the theory developed in this paper we can sketch an approach to QR along the following lines.

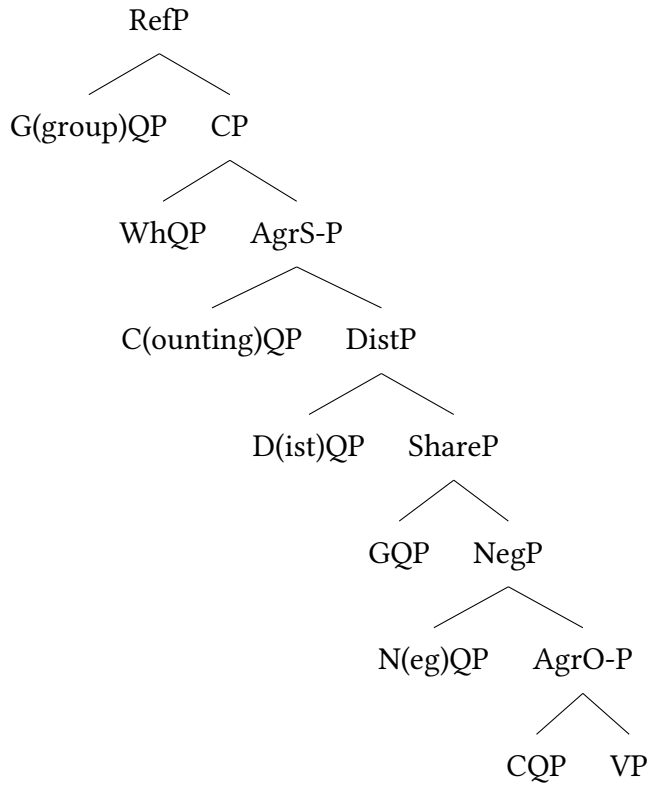
- 
- (i) **The Uniformity of Quantifier Scope Assignment**  
Quantifier Raising applies uniformly to all QPs. Neither QR nor any particular QP is landing-site selective; in principle, a QP can be adjoined to any (non-argument) XP.

This is more general but still not fully so.

## 4.1 Selectivity and Phrase Structure

We adopt the feature-based approach to scope assignment due to Beghelli and Stowell (1997) as an answer to the issue of overgeneration. The structure Beghelli and Stowell (1997) propose is given in (45):

(45)



Abstracting away from the precise identity of Agr nodes, this structure provides dedicated scope positions for different types of QPs. Scope for a particular QP is the result of movement of the QP to the spec of the relevant scope head. Extending the account we can suggest that positional scope at the relevant head can be achieved via the establishment of an AGREE relationship between the scope head and the QP. We can now sketch the general outline of the approach: Suppose that the scope-marking functional heads optionally project, unless somehow forced to do so. Suppose further, for simplicity, that subjects always move

out of the vP phase to Spec,TP, for independent reasons. As a result, for some object QP, if no scope head projects, QP-obj must remain in the vP -given the PIC- and has, as a result narrow scope or rather it has no scope to speak of. Suppose now that one of the scope heads, say DistP, does project, then QP-obj must move to the vP-edge in order to be able to enter into an AGREE relation with Dist. The QP-obj is then interpreted distributively with scope corresponding to the Dist head's position.<sup>11</sup> Take now the case where one of the scope heads, say Dist, is overt, then the QP must move to the vP-edge, since there is no longer the choice of optionally projecting DistP and the reading will always be a distributive one. For reasons that go beyond the reach of this paper, 'every' forces Dist to project, while 'all' allows Dist to optionally project.

To complete the picture, for non-universals, one option would be to suppose that there's some projection, say ExistP above IP, where existential closure usually applies Kratzer (2005). So in the case of 'Everyone loves someone', 'everyone' must always raise, since it's the subject. Then depending on whether or not ExistP is projected, wide/narrow existential scope can be derived.

While details remain to be worked out the idea is that an AGREE approach to scope derives the fact that QR was meant to derive, namely that a QP takes scope at a position where it does not appear. Sketchy though it is, the above account suggests that it is possible to unify the scope assignment mechanisms that are seen in detail in the case of wh scope with the way scope is assigned in general. Setting aside, for good reason, the role played by interrogative C, it appears that scope assignment both in the cases of wh and non wh QPs involves two parts: A scope marker/head, corresponding to the Q particle, and a QP, corresponding to the wh word. While, however, we have found a variety of languages where both the Q particle and the wh are overt. It would be important to be able to find cases where the same appears to happen with non wh QPs. We would like to suggest that such a case is the very widespread phenomenon of floating quantification. As noted by Dowty and Brodie (1984) floating quantifiers fix the scope of the DP that they associate with at the position of the floating quantifier. Tsoulas (2003) proposed to take floating quantifiers as actual scope markers which are generated

<sup>11</sup>We abstract away from details of phase theory. If we accept that the complement of the v phase is only spelled out when C is merged then there probalby is no reason for the QP-obj to move to the vP edge. The issue is immaterial here.



in the scope heads and establish long distance relations with various DPs. Here we would like to propose that the insight that floating quantifiers are in fact scope markers can be fruitfully combined with the more traditional stranding analysis (Sportiche 1988) and the connecting tissue is the analysis of *wh* scope developed earlier. In a nutshell, we propose to view the [Q+DP] constituent as exactly parallel to the [Q+*wh*] constituent and that the constituent is selectively spelled out across a number of positions.

## **5 Conclusions**

In this paper we have claimed that a careful consideration of the mechanisms of scope assignment to *wh* elements in questions shows that the best analysis is in terms of selective spellout rather than other mechanisms. When understood properly, the same mechanism extends naturally to scope assignment in general given relatively natural assumptions about the phrase structure of scope and the relations between scope markers and scope takers. If this analysis is on the right track, and there is no doubt a great deal remains to be done, scope mechanisms can be dispensed altogether as scope assignment can be achieved through other generally available means.

## References

- Beck, S. (2006). Intervention effects follow from focus interpretation. *Natural Language Semantics* 14, 1–56.
- Beghelli, F. and T. Stowell (1997). Distributivity and negation: The syntax of *each* and *every*. In A. Szabolcsi (Ed.), *Ways of Scope Taking*, pp. 71–107. Dordrecht: Kluwer Academic Publishers.
- Bruening, B. (2001). *Syntax at the edge: Cross-clausal phenomena and the syntax of Passamaquoddy*. Ph. D. thesis, Massachusetts Institute of Technology.
- Bruening, B. (2007). Wh-in-situ does not correlate with wh-indefinites or question particles. *Linguistic Inquiry* 38, 139–166.
- Cable, S. (2007). *The grammar of Q: Q-particles and the nature of wh-fronting, as revealed by the wh-questions of Tlingit*. Ph. D. thesis, Massachusetts Institute of Technology.
- Cheng, L. L.-S. (1997). *On the Typology of Wh-questions*. New York: Garland.
- Chomsky, N. (1993). A minimalist program for linguistic theory. In *The view from Building 20: Essays in Linguistics in honor of Sylvain Bromberger*, ed. by Kenneth Hale and Samuel Jay Keyser, 1–52 (reprinted as chapter 3 of Chomsky 1995). Cambridge, MA: MIT Press.
- Chomsky, N. (2008). On phases. In R. Freidin, C. P. Otero, and M. L. Zubizarreta (Eds.), *Foundational Issues in Linguistic Theory: Essays in Honor of Jean-Roger Vergnaud*, pp. 133–166. Cambridge, MA: MIT Press.
- Chomsky, N. (2013). Problems of projection. *Lingua* 130, 33–49.
- Chomsky, N. (2015). Problems of projection: Extensions. In E. D. Domenico, C. Hamann, and S. Matteini (Eds.), *Structures, Strategies and Beyond: Studies in honour of Adriana Belletti*, pp. 1–16. Amsterdam: John Benjamins.
- Chomsky, N. and H. Lasnik (1977). Filters and control. *Linguistic Inquiry* 8, 425–504.

- Denham, K. (2000). Optional wh-movement in Babine-Witsuwit'en. *Natural Language & Linguistic Theory* 18, 199–251.
- Denham, K. E. (1997). *A Minimalist Account of Optional Wh-movement*. Ph. D. thesis, University of Washington.
- Dowty, D. and B. Brodie (1984). A semantic analysis of 'floated quantifiers' in a transformationless grammar. In *Proceedings of WCCFL-3*, pp. 75–90. Stanford Linguistics Association: Stanford University.
- Dryer, M. S. (2013). Polar questions. In M. S. Dryer and M. Haspelmath (Eds.), *The World Atlas of Language Structures Online*. Leipzig: Max Planck Institute for Evolutionary Anthropology.
- Evans, N. D. (1995). *A grammar of Kayardild*. Berlin: Mouton de Gruyter.
- Fanselow, G. (2006). Partial wh-movement. In M. Everaert and H. van Riemsdijk (Eds.), *The Blackwell Companion to Syntax*, Volume 3, pp. 437–492. Oxford: Blackwell.
- Fanselow, G. and D. Ćavar (2000). Remarks on the economy of pronunciation. In G. Müller and W. Sternefeld (Eds.), *Competition in syntax*, pp. 107–150. Berlin: Mouton de Gruyter.
- Fox, D. and J. Nissenbaum (1999). Extraposition and scope: A case for overt QR. *Proceedings of WCCFL 18*, 132–144.
- Gair, J. W. and L. Sumangala (1991). What to focus in Sinhala. In G. F. Westphal, B. Ao, and H.-R. Chase (Eds.), *ESCOL '91: Proceedings of the Eighth Eastern States Conference on Linguistics*, pp. 93–108. Columbus: Ohio State University Working Papers.
- Hagstrom, P. A. (1998). *Decomposing Questions*. Ph. D. thesis, Massachusetts Institute of Technology.
- Huang, C. T. J. (1982). Move wh in a language without wh movement. *The Linguistic Review* 1, 369–416.

- Jeanne, L. M. (1978). *Aspects of Hopi grammar*. Ph. D. thesis, Massachusetts Institute of Technology.
- Kimper, W. A. (2006). Question formation in the Karonga dialect of Tumbuka. In O. F. Arasanyin and M. A. Pemberton (Eds.), *Selected proceedings of the 36th Annual Conference on African Linguistics*, pp. 75–79. Somerville, MA: Cascadilla.
- Koopman, H. (1984). *The syntax of verbs: From verb movement rules in the Kru languages to Universal Grammar*. Dordrecht: Foris.
- Kratzer, A. (2005). Indefinites and the operators they depend on: From Japanese to Salish. In G. N. Carlson and F. Pelletier (Eds.), *Reference and Quantification: The Partee effect*. Stanford: CSLI Publications.
- Kuno, S. (1973). *The Structure of the Japanese Language*. Cambridge, Massachusetts: MIT Press.
- Reintges, C. H., P. LeSourd, and S. Chung (2006). Movement, wh-agreement, and apparent wh-in-situ. In L. L.-S. Cheng and N. Corver (Eds.), *Wh-movement: Moving on*, pp. 165–194. Cambridge, MA: MIT Press.
- Rizzi, L. (1997). The fine structure of the left periphery. In L. Haegeman (Ed.), *Elements of Grammar: Handbook of Generative Syntax*, pp. 281–337. Dordrecht: Kluwer Academic Publishers.
- Slade, B. M. (2011). *Formal and philological inquiries into the nature of interrogatives, indefinites, disjunction, and focus in Sinhala and other languages*. Ph. D. thesis, University of Illinois at Urbana-Champaign.
- Sportiche, D. (1988). A theory of floating quantifiers and its corollaries for constituent structure. *Linguistic Inquiry* 19, 425–449.
- Szabolcsi, A. (1997). Strategies for scope taking. In A. Szabolcsi (Ed.), *Ways of Scope Taking*, pp. 109–154. Dordrecht: Kluwer Academic Publishers.
- Tsoulas, G. (2003). Floating Quantifiers as Overt Scope Markers. *Korean Journal of English Language and Linguistics* 3(2), 157–180.

Turano, G. (1995). On indefinite elements in Albanian. Unpublished ms., Florence.