CHAPTER 5

WH-QUESTIONS IN ENGLISH

5.0 Introduction

So far I have considered those languages in which a *wh*-phrase and a focus phrase to some extent exhibit a similar behavior. In those languages a *wh*-phrase and a focus phrase move to the same landing site, i.e. SPEC-Foc. In chapter 3 I considered focus languages such as Hungarian, Basque, and Serbo-Croatian. I argued that a functional head relevant to an exhaustive interpretation, i.e. Foc, agrees with a *wh*-phrase or a focus phrase, and that the agreed *wh*/focus phrase undergoes movement to SPEC-Foc to delete its EPP-feature. In consequence, a *wh*-phrase and a focus phrase exhibit the same syntactic movement. In chapter 4, I considered Japanese data, observing that Japanese *wh*-phrase undergoes `focus' movement at least in certain situations. Japanese *wh*-phrases optionally bear EPP-features, hence undergoing optional movement to SPEC-Foc. Based on this observation, I accounted for various properties observed in Japanese *wh*-questions, such as scrambling effects, anti-superiority effects, and locality in scope-taking out of a *wh*-island.

In this chapter I take up English *wh*-question data. A standard assumption is that *wh*-phrases in English move to SPEC-C, attracted by an EPP/strong feature on C. In this regard, English exhibits no direct evidence for the relation between a *wh*-phrase and Focus Phrase. Nevertheless I would like to propose in this chapter that English

wh-phrases enter into an agreement relation with Foc, as observed in Hungarian and Japanese. Although supporting evidence to be presented here will all be indirect, it is shown that the relevant data can receive a consistent account under the present analysis. The discussion to be developed in this chapter then provides further evidence for a foc-feature and its syntactic realization Foc, even in a language that does not have overt indication of Foc projection.

The organization of this chapter is as follows. In section 5.1 I consider what structure and agreement relation English *wh*-questions should bear. Section 5.2 considers the (im)possibility for a *wh*-phrase and a focus to cooccur. This is originally presented in Kuno and Takami (1993), though they provide a different explanation. I point out problems with their explanation and show that the present analysis allows us to give a rather straightforward account. In section 5.3 I consider English multiple *wh*-questions. According to Hornstein (1995), a nominal *wh*-phrase and an adverbial *wh*-phrase of the same scope never cooccur in English. Moreover, according to Bošković (1998b), English multiple *wh*-question cannot take an SP reading. PL is the only possible interpretation. I show that those properties are consistently accounted for under the present analysis. Section 5.4 considers a locality constraint on *wh*-extraction out of islands. I limit my concern to weak islands and show that compositional asymmetry between nominal and adverbial *wh*-phrases has to do with the weak island phenomena.

5.1 Agreement Relation for C and Foc

5.1.1 Obligatory *Wh*-Movement and Superiority Effects Are Attributed to Obligatory EPP on C

In this section I consider what agreement relation the present analysis assumes for

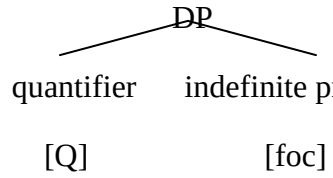
English *wh*- and focus constructions. It is generally assumed that a *wh*-phrase in English uniquely undergoes movement to SPEC-C.

(1) a. *What* did John buy *t*?

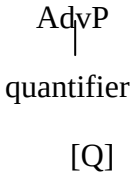
b. *Why* did John come to the party *t*?

As shown in (1), English *wh*-phrases are moved to a clause-initial position, regardless of whether they are nominal or adverbial. Therefore, EPP should be associated with some feature that both nominal and adverbial *wh*-phrases bear. The present thesis assumes that the features relevant to interrogative quantification should be associated in the following way:

(2) a. a nominal *wh*-phrase



b. an adverbial *wh*-phrase



Since the feature both *wh*-phrases share is [Q], an EPP-feature must be associated with a Q-feature on a probe or a goal. If so, when a Q-feature of a *wh*-phrase enters into an agreement relation with a Q-feature on C, the agreement is followed by *wh*-movement to SPEC-C, motivated by EPP associated with a Q-feature.

The question to ask now is, with which Q-feature is EPP associated, a probe (C) or a goal (*wh*-phrase)? We can answer it by observing the presence/absence of superiority effects. Following Bošković (1998a), I have proposed in chapter 3 that a superiority effect arises when EPP appears on a probe and hence attracts the closest agreed goal. On the other hand, no superiority effect arises when EPP appears on

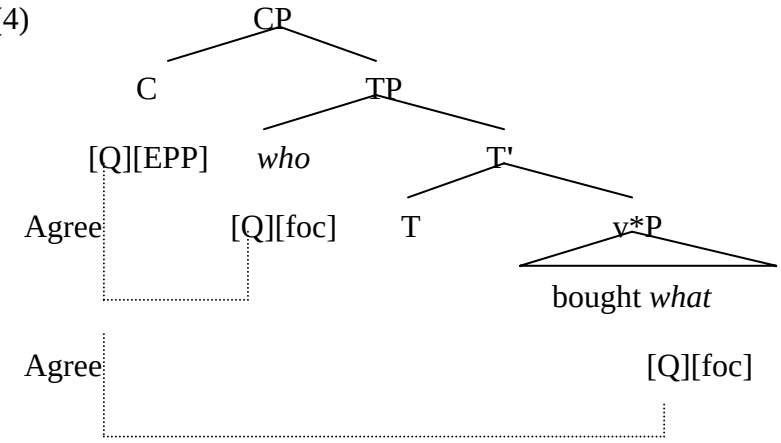
goals. Since each goal must move to delete its own EPP, CHL does not decide which goal to move first. Since English does exhibit superiority effects, it can be said that an EPP-feature appears on C. Observe the following examples:

(3) a. *Who*$_1$ t_1 bought *what*$_2$?

b.**What*$_2$ did *who*$_1$ buy t_2?

In (3), the attraction by an EPP-feature on C is illustrated as below:[1]

(4)



(Although the uninterpretable feature (i.e. (part of) [Q]) on C is deleted after the first agreement with *who*, the deleted feature is still accessible to computation until the phase level, and undergoes the second agreement with *what*. See note 5 in chapter 3.)

Since the Q-feature on C agrees with the two *wh*-phrases, the EPP-feature on C has the two candidate attractees, i.e. subject *who* and object *what*. However, under the economy principle (such as the MLC), the probe C can see only the closest candidate. Therefore, *who* is attracted to SPEC-C, yielding the grammatical (3a). Since there is no room for the other option, the attraction of *what* always results in crashing, as the deviant (3b) shows.

To sum up, we have obtained the following properties in English *wh*-questions.

(5) a. A *wh*-phrase does not bear an EPP-feature.

b. Interrogative C obligatorily bears an EPP-feature.

c. Therefore, C always attracts one *wh*-phrase to its SPEC position, under the agreement relation of a Q-feature.

d. Since an EPP-feature on C attracts the closest candidate, the highest *wh*-phrase is always moved to SPEC-C. (Superiority)

5.1.2 Optional Focus Movement Is Attributed to Optional EPP on a Focus Phrase

Let us proceed to consider what properties are observed in English (syntactic) focus sentences. It has been suggested that English focus phrases undergo covert movement to its quantificational position (cf. Chomsky (1976)). Evidence for covert focus movement is a WCO effect in a focus construction. Compare (6b) with (6a):

(6) a. *Who_1 does his_1 mother love t_1?

b. *His_1 mother loves $JOHN_1$.

c. Cf. His_1 mother loves $John_1$.

Overt *wh*-movement over a bound pronoun *his* in (6a) causes a WCO effect, yielding a deviant sentence. The same holds for (6b), where a focus phrase *JOHN* undergoes covert movement over a bound pronoun *his*. Therefore (6b) as well as (6a) bear the following LF representation which is excluded as a violation of the WCO constraint.

(7) OP_1 [his_1 mother loves x_1]

Although the above explanation has been considered reasonable, É. Kiss (1998) argues against the WCO account for (6b). She suggests that (6b) should sound odd for pragmatic reasons. That is, the sequence of 'pronoun (〖John〗 as old information) - focus (〖John〗 as new information)' causes the oddness of (6b). If her argument is correct, (6b) does not constitute evidence for 'focus' movement in English. In fact, (6b) should not be regarded as a syntactic focus phrase. Newness is not a sufficient condition for a phrase to become a syntactic focus. The present thesis has assumed that only foci responsible for an *exhaustive reading* are regarded as syntactic focus phrases.

If so, what kind of foci are regarded as syntactic focus phrases in English? . Kiss (1998) suggests that *it*-cleft sentences involve a syntactic focus, as exemplified below:

(8) It was *a hat* that Mary bought.

In (8), *a hat* is a syntactic focus since it conveys exhaustive information as to what Mary bought. The proposition (8) is false if Mary bought something else. I do not deal with this kind of focus construction. (See Kim (1997) and É. Kiss (1998) for a suggested analysis.)

There is another kind of focus construction that is relevant to the discussion below. Observe the following examples:

(9) a. *Under no circumstances* would he help me.

b. *At no time* did they reveal what they wanted. (McCawley (1998:582))

When a negative phrase is emphasized, it is fronted to a clause-initial position. The

fronted focus phrases above convey exhaustive information. For instance, example (9a) is false if there is a possible circumstance under which he would help me. Therefore, the fronted phrases can be regarded as a syntactic focus.

However, focus-fronting is not a common operation in English. Although focus-fronting of non-negative phrases, as exemplified below, is possible, it can take place only in limited contexts, according to Fukuchi (1985):

(10) a. 'What do you like to eat?' – '*Fried eels* I like to eat.'

b. 'What did Sam give Helen?' – '*A book* he gave her.' (Fukuchi (1985:77))

Moreover, a focus phrase of an exhaustive reading can remain in situ, as shown below:

(11) a. 'What did Mary buy?' – 'Mary bought *a hat*.'

b. 'What did the child break?' – 'The child broke *his leg*.'

(Bush and Tevdoradze's (2000) (16))

The italicized focus phrases above are pronounced with a rising intonation. With the intonation assigned, according to Bush and Tevdoradze (2000), the foci convey exhaustive information. For instance, (11a) is false if Mary bought something else.

To generalize, then, syntactic focus phrases in English can be moved to a clause-initial position, or remain in situ. In this regard, an EPP-feature associated with a focus is optional in English, unlike Hungarian and Japanese. An optional EPP-feature induces an optional focus movement in English.

The questions to ask now include the following:

(12) a. Where is FocP projected in English?

b. Where does an EPP-feature appear, on a probe (Foc) or a goal (focus)?

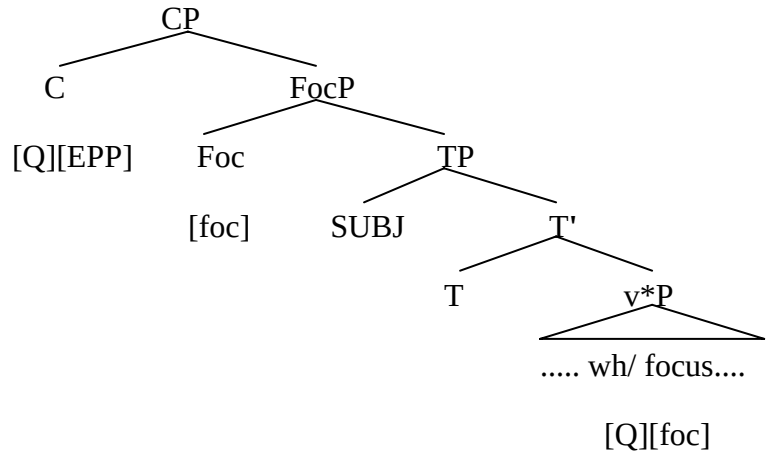
Let us consider the first question. In Hungarian and Japanese, I have suggested that FocP be projected immediately above v*P. However, it must not be the case in English, since the fronted focus moves across the subject, as shown in (9) and (10). Hence FocP must be at least above TP. Moreover, a fronted focus appears below *wh*-phrases in SPEC-C, as we will see in the next section. In consequence, FocP must be between CP and TP in English.

Now let us turn to the second question (12b). It is hard to answer this question. Although the presence/absence of superiority effects can be a diagnosis of the location of EPP, it is not applicable to focus sentences, since multiple-focus constructions are universally prohibited.

Here I assume that EPP is optionally associated with a foc-feature of a focus, rather than that of Foc, since it makes a parallel assumption with what I have assumed for Hungarian and Japanese focus constructions in chapters 3-4. This choice does not affect the following discussion.

To sum up, I suggest the following phrase structure for English:

(13)



When a sentence contains a (nominal) *wh*-phrase, it firstly agrees with Foc under matching of foc-features. The agreement relation is not overtly reflected since there is no EPP-feature involved. Then, the *wh*-phrase enters into the second agreement with C, under matching of Q-features. It is followed by *wh*-movement to SPEC-C in order to delete an EPP-feature on C. If there are two *wh*-phrases which agree with C, an EPP-feature on C attracts the closer one, hence yielding a superiority effect.

On the other hand, when a sentence contains a focus phrase, the focus bears a foc-feature and agrees with Foc. If the focus bears an optional EPP-feature, it moves to SPEC-Foc. If not, the focus remains in situ.

I have suggested in chapters 3-4 that the obligatoriness of EPP associated with a (nominal) *wh*-phrase and a focus is parameterized in each language. Summing up the variation across languages, we can obtain the following table:

(14)

		Obligatoriness of EPP (= obligatory movement to SPEC-Foc)
a. Serbo-Croatian	focus	○
	wh-phrase (single Q)	○
	wh-phrase (multiple Q)	○
b. Hungarian	focus	○
	wh-phrase (single Q)	○
	wh-phrase (multiple Q)	one obligatory, one optional
c. Japanese	focus	○
	wh-phrase (single Q)	optional
	wh-phrase (multiple Q)	optional
d. English	focus	optional
	wh-phrase (single Q)	*
	wh-phrase (multiple Q)	*

With the assumption (14d) in mind, I proceed to consider the (im)possibility of cooccurrence of a *wh*-phrase and a fronted focus phrase in section 5.2.

5.2 (Non)-Cooccurrence of a *Wh*-Phrase and a Fronted Focus Phrase

5.2.1 Data

It is generally observed that a *wh*-phrase and a focus cannot cooccur (cf. Culicover (1991), Kuno and Takami (1993), Rizzi (1995), Tsai (1999)). Following is such an example from Italian:

(15) a. *A GIANNI *che cosa* hai detto (, non a Piero)?
to Gianni what have-2sg. told not to Piero
'TO GIANNI what did you tell (, not to Piero)?'
b. **Che cosa* A GIANNI hai detto (, non a Piero)?
what to Gianni have-2sg. told not to Piero (Rizzi (1995:9))

The same holds for English: a *wh*-phrase and a fronted focus cannot cooccur, as the following examples show:

(16) a. *Who *in Harvard Square* did you see?
b. *Where *yesterday* did you meet Mary?
c. *Where *with Mary* did you go?
d. *When *with Mary* did you go to Boston? (Kuno and Takami (1993:91))

(17) *I wonder what movie *never* did you want to see.

(18) Cf. *The play* where did you see? (Fukuchi (1985:56))

Example (18) is considered a topic construction. A topic can precede a *wh*-phrase. What is of our interest now are those sentences in (16) and (17), where a fronted adjunct phrase *follows* a *wh*-phrase. Rizzi (1995) argues on Italian data that since a *wh*-phrase is a focus, it cannot cooccur with another focus phrase. His argument may be extended to English sentences in (16) and (17). Those fronted prepositional/negative phrases should be foci, and hence they cannot cooccur with a *wh*-phrase.

The fronted elements in (16) and (17) are surely qualified as foci from a semantic point of view. As we will see directly in (19), the same (permissible) sequence as in (16) usually appears in a focus construction, where a fronted PP is contrasted with the other PP. Also, the fronted negative adverb in (17) must be a focus, since a negative phrase can never be a topic. Having assumed that those fronted adjuncts in (16) and (17) should be foci, we can conclude that a fronted focus cannot cooccur with a *wh*-phrase.

However, the cooccurrence is possible when an *adverbial wh*-phrase is involved. Consider the following examples.

(19) a. Why *in 1960* did you come to the United States?

b. Why *in the summer of 1960* did you go to Mexico?

c. How *in five minutes* can you solve the problem?

d. How *in the midst of the depression* did you get such a lot of food for your family?

e. How *in such a short time* can you drink hot coffee?

(Kuno and Takami (1993:91))

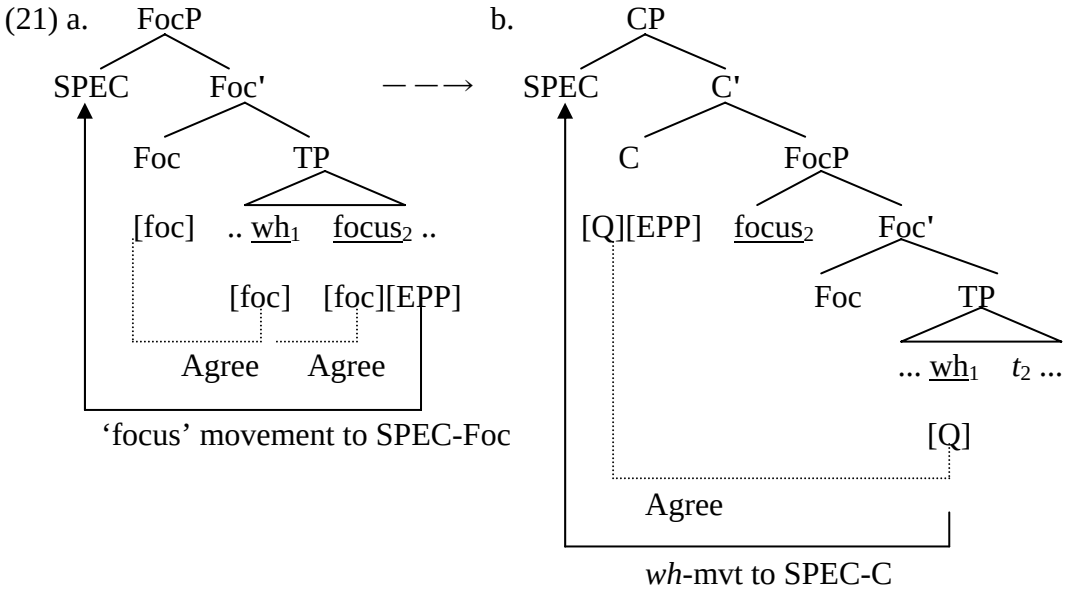
(20) Lee wonders why *in no way* would Robin volunteer. (Culicover (1991:12))

In each example, there emerges a sequence `adverbial wh - focus'. The foci in (19) are all prepositional phrases, and the focus in (20) is a negated phrase.

It is now clear that a focus cannot appear with a *nominal wh*-phrase, but can occur with an *adverbial wh*-phrase. Rizzi's argument is insufficient in this respect. What is in conflict is a property which a focus and a *nominal wh*-phrase both bear. The common property is identified as a foc-feature under the present analysis. An adverbial *wh*-phrase does not conflict with a focus since the former does not bear a foc-feature. I provide a detailed account in the next section.

5.2.2 An Account

Following the assumption in section 5.1, we can schematize the structure and the agreement relation of (16) and (17) as follows:

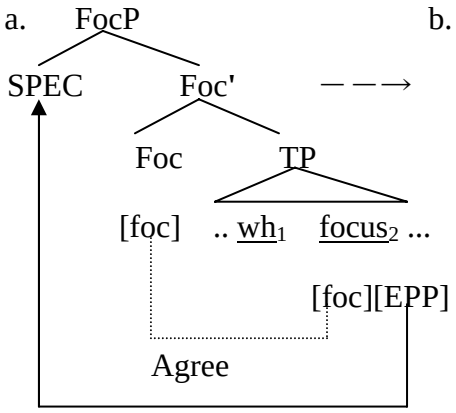


As shown in (21a), Foc agrees both with the nominal *wh*-phrase and the focus. Since

the focus bears an optional EPP-feature, it raises to SPEC-Foc, as shown by the arrow there. When the derivation proceeds to (21b), C agrees only with the *wh*-phrase, under matching of Q-features. Then the EPP-feature on C attracts the *wh*-phrase to SPEC-C.

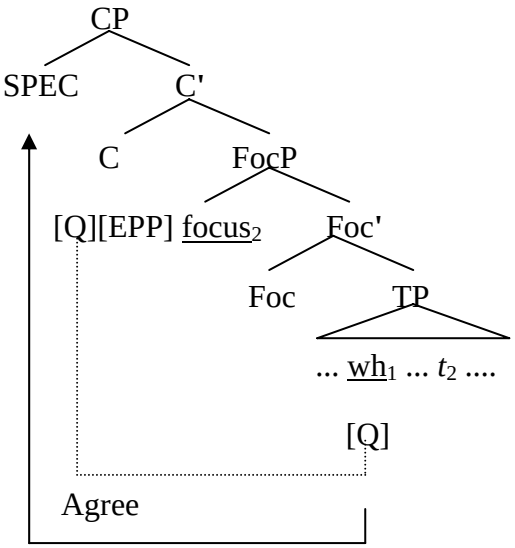
On the other hand, the structure and the agreement relation of (19) and (20) are schematized as follows:

(22) a.



‘focus’-movement to SPEC-Foc

b.



wh-movement to SPEC-C

In this case, Foc agrees only with a focus, as shown in (22a), since the adverbial *wh*-phrase lacks a foc-feature. Since the focus bears an optional EPP-feature, it raises to SPEC-Foc, as shown by the arrow there. When the derivation proceeds to (22b), C agrees with the *wh*-phrase under matching of Q-features, and the EPP-feature on C causes obligatory *wh*-movement to SPEC-C.

Then let us consider what is the difference between deviant (21) and acceptable (22). The only difference seems to be the agreement relation that Foc creates. In (21a), Foc agrees both with a *wh*-phrase and a focus, whereas in (22a), Foc agrees only with a focus. To capture this difference, let us assume the following constraint on interpretation:

(23) Exhaustive interpretation is not cumulative.

Constraint (23) has been tacitly assumed in the discussion so far. First of all, it prohibits the multiple-focus construction. I discussed the relevant Japanese and Italian data in chapter 4 (section 4.1.2.2). The ban on multiple foci can be explained by (23). Since each focus phrase must be assigned an exhaustive reading, they cannot cooccur. The interpretation of multiple *wh*-questions can also be explained with the constraint (23). Since it is not possible that each of the two *wh*-phrase in SPEC-Foc can bear an exhaustive reading separately, they undergo Absorption and get interpreted unifiedly, which contributes to a PL reading.

To put it differently, Foc cannot tolerate more than one agreement relation. If this assumption is on the right track, then we can explain the contrast between (21) and (22). In (21), Foc agrees both with the nominal *wh*-phrase and the focus phrase. However, unlike *wh*-phrases, focus phrases cannot be subject to any unifying operation such as Absorption (which is also detected by the ban on multiple foci). Then an LF representation like (21) would violate the interpretation condition (23) and be excluded. In (22), on the other hand, such unification is not needed. Since the adverbial *wh*-phrase agrees only with C and the focus phrase agrees only with Foc, there is no overlap between the two quantifiers. Hence (22) is interpreted without posing any problems.

To sum up, the (im)possibility of cooccurrence of a *wh*-phrase and a focus is assimilated to the (im)possibility of the unification of exhaustive information. A nominal *wh*-phrase and a focus cannot cooccur since their exhaustive readings fail to be unified, and the failure leads to uninterpretability. On the other hand, an adverbial *wh*-phrase and a focus can cooccur since their quantifying forces do not overlap and therefore no unification is needed.[2]

In the next section let us consider an alternative account. I review Kuno and Takami's (1993) syntactic account, and show that the present analysis is conceptually and empirically superior to their analysis.

5.2.3 Kuno and Takami's (1993) Syntactic Account

5.2.3.1 An examination of their account It is Kuno and Takami's observation that a nominal *wh*-phrase cannot appear with a fronted PP, whereas an adverbial *wh*-phrase can. As representative examples, I take up (16a) and (19a), repeated here as (24a) and (24b), respectively.

(24) a. *Who *in Harvard Square* did you see?

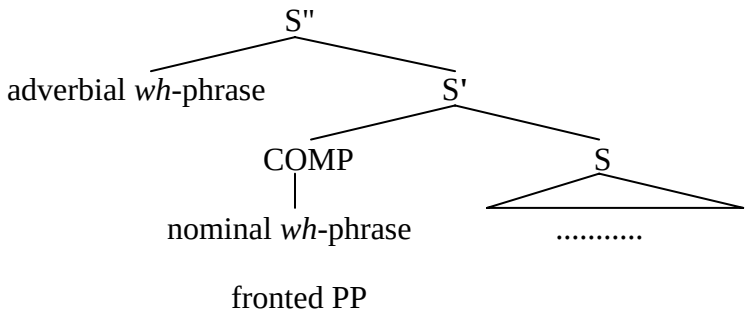
b. Why *in 1960* did you come to the United States?

In the previous section I have shown that the quantificational conflict as to the agreement with Foc induces uninterpretability in (24a), while no conflict arises in (24b). In this regard, mine can be said to be a semantic approach.

However, there is a logical possibility to account for the contrast in (24) from a syntactic point of view. That is, (24a) is deviant since the nominal *wh*-phrase and the fronted PP compete over the same syntactic position, while (24b) is acceptable since there is no such competition: assuming that fronted PPs in (24a) and (24b) occupy the same position, then the landing site of a nominal *wh*-phrase in (24a) is different from that of an adverbial *wh*-phrase in (24b). This is what Kuno and Takami proposed. I review their syntactic analysis, and show that the present analysis can also explain the relevant examples without stipulations which are required in their analysis.

According to Kuno and Takami, the landing sites for a nominal *wh*-phrase, an adverbial *wh*-phrase, and a fronted (verb-phrasal) PP are as follows:

(25)



Given (25), the account for the contrast in (24) is straightforward: (24a) is deviant since the nominal *wh*-phrase and the PP conflict over the same landing site COMP.

Crucial to their account is the assumption that a verb-phrasal PP is fronted to COMP. They provide the following examples as evidence for the assumption:

(26) a. In John's office, who is an absolute dictator?

b. *In John's office, who placed a new brass bed? (Kuno and Takami (1993:91))

The fronted PP in (26a) is sentential, whereas that in (26b) is verb-phrasal. They assume, following Reinhart's 1983 work, that the contrast in acceptability is syntactic. Example (26b) is deviant since the fronted verb-phrasal PP and the *wh*-phrase compete over the same landing site, i.e. COMP.

It should be noted that Kuno and Takami do not care about whether the PP is fronted as a focus or as a topic. They regard any fronted PP as a topic, regardless of whether the PP is fronted *before* or *after* the *wh*-phrase. Hence they assume that a fronted (verb-phrasal) PP always occupies COMP both in (24) and (26b). If a fronted (verb-phrasal) PP always occupies COMP, the acceptability of (24a) should be accounted for as follows: since an adverbial *wh*-phrase does not occupy COMP, no conflicts occur between the adverbial *wh*-phrase and the PP.

Now let us evaluate the logic of their discussion. The validity of their analysis

depends crucially on the assumption that a fronted PP should occupy COMP. Is it true that a verb-phrasal PP should *always* be fronted to COMP? Consider the following sentences:

(27) a. *In his office*, what did Ben place?

b. *In his apartment*, what did John smoke?

c. *In his box*, what did Ben put?

d. Cf. **To her*, what did you talk about?

(Yasui (1998: (a, b) adapted from p.87, (c, d) from p.69))[3]

(28) a. *The play* where did you see? (=(18))

b. ?And *this book*$_1$, to whom should Bill give t_1?

(Watanabe (1993: appendix to chap. 2 (A.7))

Examples (27a-c) and (28a, b) indicate that a fronted verb-phrasal PP/DP *can* cooccur with nominal *wh*-phrases. These examples throw discredit upon Kuno and Takami's assumption that PPs are always fronted to COMP, since COMP is already occupied by the nominal *wh*-phrases in (27) and (28). The above examples show that PPs can appear somewhere else, and this fact undermines Kuno and Takami's account based on (25). (The deviance of (26b) and (27b) should then be attributed not to the syntactic conflict, but to some other violation.[4])

The other problem is that Kuno and Takami do not distinguish between a topic and a focus. While they regard any fronted phrase as the same, say, a topic, it has been repeatedly claimed that there are two types of topics, i.e. a genuine topic as a theme of the sentence and a focus, or a 'contrastive' topic. (Cf. Kitagawa (1982), Fukuchi (1985), and works cited there.) Previous analyses have identified a fronted PP/DP

before a *wh*-phrase (as in (26)-(28)) as the first type of topic. However, there is no reason to believe that those fronted PPs/DPs *after* a *wh*-phrase (as in (24)) should also be a topic. Rather, if we follow Watanabe's (1993) syntactic analysis of a topic construction, such a succeeding PP/DP might not be a topic. According to Watanabe, in a matrix topic construction, a `topic-wh' sequence is guaranteed by syntactic conditions, i.e. *wh*-criterion and economy principle. Although I do not review the argument here, his analysis entails that the reversed sequence, 'wh-topic' should be impossible: therefore, the fronted PPs in (24) must not be a topic. Following Rizzi's (1995) assumption that there are several IP-periphery positions to each of which a different element is moved, then topic PPs in (26)-(27) and non-topic PP in (24) should occupy distinct positions. Therefore, Kuno and Takami's assumption based on (26a) (topic construction) cannot be extended to the explanation of (24) (focus construction). In this regard, too, the validity of their assumption (25) is weakened.

Now that the validity of (25) is weakened, Kuno and Takami's analysis based on (25) should be weakened, too. That is, since a fronted PP (topic or focus) does not (necessarily) occupy COMP, the cooccurrence of an adverbial *wh*-phrase and a fronted PP does not mean that the adverbial *wh*-phrase should occupy some position other than COMP.

Let us now turn to empirical evidence presented by Kuno and Takami. They argue that given (25), we can explain various kinds of *wh*-data. I examine each piece of their evidence below and show that it can be accounted for in the present analysis. It in turn indicates that their evidence does not exclusively support their syntactic argument.

5.2.3.2 An examination of their empirical evidence As a first argument for the syntactic analysis above, Kuno and Takami present the following contrasting examples.

(29) a. *When *with Jane* did you have a great time and *with Mary* you didn't?

b. Why *with Jane* did you have a great time and *with Mary* you didn't?

(30) a. *Tell me where *with Jane* you went last Sunday and *with Mary* you went last Saturday.

b. Tell me why *Jane* you like so much and *Mary* you don't at all.

(Kuno and Takami (1993:92))

The coordinate structure also shows the same kind of 'nominal-adverbial' asymmetry as shown in (24). Kuno and Takami thus apply the same approach to the above sentences and assume that fronted PPs/DPs in the above examples all occupy COMP. Thus, such *wh*-phrases as *when* compete with the fronted element over the same landing site, and consequently examples (29a) and (30a) are deviant. On the other hand, adverbial *wh*-phrases exemplified as *why* here do not compete with the fronted element, since the *wh*-phrases occupy a daughter position of S", which is higher than COMP. Therefore, the cooccurrence is acceptable, as grammatical (29b) and (30b) show.

Let us now consider how the above examples are accounted for by my analysis. Each of the fronted PPs/DPs in the above examples obviously works as a focus, since it makes a contrast in the coordinate structure. Hence the (im)possibility of cooccurrence can be explained as follows. In each sentence in (29) and (30), since the fronted PP/DP serves as a focus of the conjunct, it bears a foc-feature and enters into the agreement relation with Foc. This poses a problem in (29a) and (30a), since the nominal *wh*-phrase also bears a foc-feature and agrees with Foc. Since a focus rejects any unifying operation, the two agreement relations of Foc map to the logical interpretation separately, violating constraint (23), which causes the sentence to be deviant. On the other hand, there arises no such problem in (29b) and (30b): an

adverbial *wh*-phrase lacks a foc-part, so it never enters into an agreement relation with Foc. Therefore, Foc agrees only with the fronted PP/DP and hence observes constraint (23).

The second piece of their evidence is the following contrast in sluicing:

(31) Why so?/ Why not?/ Why a duck?/ Why yesterday?/ Why in Boston?

(32) a. *Where so?/ *Where not?/ *Where a duck?/ *Where yesterday?
b. *When so?/ *When not?/ *When a duck?/ *When in Boston?
c. *Who so?/ *Who not?/ *Who a duck?/ *Who yesterday?/ *Who in Boston?

(Kuno and Takami (1993:96))

Assuming that the remnants after the *wh*-phrase in the above examples all occupy COMP, they provide the following explanation. Since *why* appears in a daughter position of S", which is higher than COMP, *why* and the remnant can cooccur, as shown in (31). On the other hand, the nominal *wh*-phrases in (32) occupy COMP. Therefore those *wh*-phrases and the remnant compete over the same landing site, hence crashing the derivation.

However, these kinds of data can also be accounted for by the present analysis. According to Yagi (1998), the remnants in (31) and (32) are regarded as foci. That is attested by the following statement-question correspondence:

(33) I am going to Tokyo by Shinkansen with him tomorrow.

(34) a. Why bother? (=Why do you bother to go to Tokyo by Shinkansen with him tomorrow?)

b. Why you?

c. Why to Tokyo?

d. Why by Shinkansen?

e. Why with him?

f. Why tomorrow? (Yagi (1998:291-2))

As the correspondence between (33) and (34a-f) shows, the remnants in (34a-f) are highlighted as a focus of the question: the speaker of each utterance in (34) regards the proposition (33) as true, takes up some particular situation of the proposition, and asks the reason why the event is to happen under *that* situation. Take (34b) for instance. The speaker wants to know why it is the hearer who undertakes the event, but not anyone else. In this sense, the remnant *you* is contrastively focused in question (34b).

If this discussion is on the right track, then (31) and (32) are accounted for in the way suggested in this section. Since each remnant in (31) and (32) is a focus, they bear a foc-feature and enters into an agreement relation with Foc. However, the relation between Foc and a *wh*-phrase differs between (31) and (32). In (31), adverbial *why* does not agree with Foc since it lacks a foc-feature. That is, agreement of the adverbial *wh*-phrase does not overlap with that of the remnant focus. With no quantificational overlap, each sentence in (31) receives an appropriate interpretation. In (32), on the other hand, the nominal *wh*-phrases as well as the remnant foci bear an foc-feature. Therefore, Foc agrees both with the focus and the *wh*-phrase. I have shown in section 5.2.2 that a focus resists any unifying operation, which causes the two quantifiers to be mapped to the C-I processing as separate quantifiers. This of course violates the condition (23), and the sentence is excluded as uninterpretable. In this way, this piece of evidence can be accounted for by the present analysis, without recourse to Kuno and Takami's syntactic assumptions.[5]

Kuno and Takami further present a different kind of evidence, which is based on Greenberg's 1984 work. It is the distribution of the interjection *man* in colloquial speech. According to them, it can occur following left-dislocated constituents (LD), but not topicalized constituents. The following examples confirm the point:

(35) a. Bill, man, I really hate him.

b. *Bill, man, I really hate. (Kuno and Takami (1993:94))

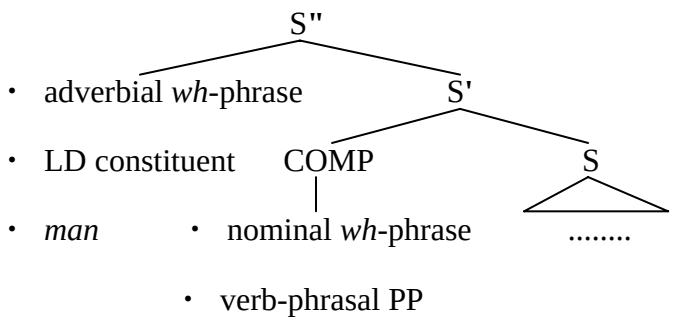
Kuno and Takami account for the contrast as follows. Based on the discussion of (31), they hold that topicalized (verb-phrasal) constituents should move to COMP. In contrast, based on the observed differences between topic and LD in (35), they assume that the LD should occupy a daughter position of S", which is the position which *why* and *how also occupy*. Moreover, they assume that the interjection *man* also occupies a daughter position of S", since it can precede the LD.

(36) a. Man, Bill, I really hate him. (Kuno and Takami (1993:94))

b. [$_{S"}$ man [$_{S"}$ Bill [$_{S'}$ [$_{S}$ I really hate him]]]]

To sum up Kuno and Takami's assumptions, IP-peripheral elements are distributed as shown below:[6]

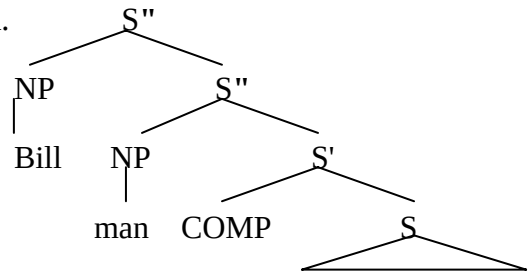
(37)



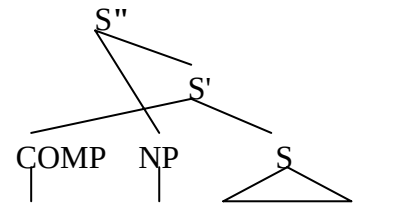
(A daughter position of S" can be constructed recursively.)

Given these assumptions, the contrast in (35) follows straightforwardly. The structure for (35a) and (35b) are demonstrated as (38a) and (38b), respectively:

(38) a.



b. *



(Kuno and Takami (1993:94))

Structure (38b) is excluded as a violation of 'no crossing branches' constraint (cf. Radford (1988)): *man*, a daughter of S", follows the topicalized element, a daughter of S'. There is no such problem in (38a) since LD and *man* are generated in daughter positions of distinct S"s. In this way they explain the contrast in (35) based on the syntactic assumptions.

With this discussion in mind, let us consider the following contrast:

(39) a. Why, man, did you come to the United States?

b. How, man, can you drink hot coffee so quickly?

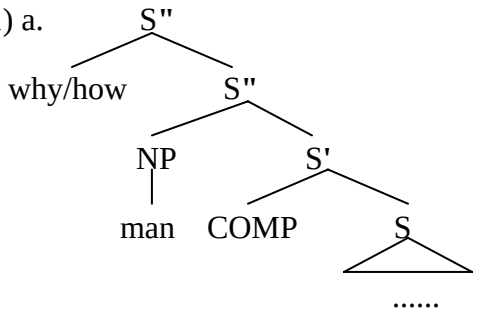
(40) a. *Where, man, did you gone to the United States?

b. *Where, man, did you meet Mary? (Kuno and Takami (1993:95))

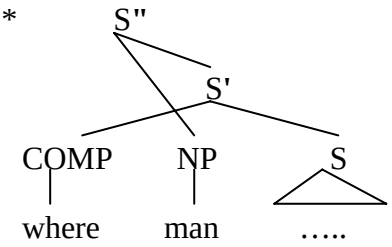
The contrast above is predicted by Kuno and Takami's analysis. First, the interjection *man* occupies a daughter of S". Second, adverbial *wh*-phrases such as *why* and *how*

occupy the same position. Third, nominal *wh*-phrases occupy COMP. Therefore, the structures for (39) and (40) are demonstrated as (41a) and (41b), respectively:

(41) a.



b. *



Structure (41b) is excluded as a violation of no crossing branch constraint. In (41a), on the other hand, no such problem arises since each of *why/how* and *man* occupies a daughter position of distinct S"s. To sum up, given an additional assumption that the interjection *man* occupies a daughter position of S", Kuno and Takami provide a syntactic account for the grammaticality contrast in (39) and (40).

The question I raise here is this: Are the sentences in (40) really excluded for a syntactic reason? According to Yagi (1998), the cooccurrence of *man* and a nominal *wh*-phrase is actually possible in the following usage:

(42) a. *Where in the world*, man, did you find it?

b. *When on earth*, man, did you meet her? (Yagi (1998:194))

Given the acceptable examples in (42), we have to consider what the difference is between the acceptable (42) and the deviant (40). If we stuck to Kuno and Takami's syntactic assumptions summed up in (37), and yet wanted to account for the acceptability of the examples in (42), we would have to assume that in certain usages nominal *wh*-phrases can occupy an adverbial site, i.e. a daughter position of S": a

nominal *wh*-phrase can cooccur with the interjection *man* only when that option is available. However, it raises a number of questions: Is it really a reasonable consideration? Why is it possible? What are the 'certain usages'? To answer the last question, we would have to take a semantic consideration into account, which would in the long run weaken Kuno and Takami's purely syntactic account.

It seems that the acceptable (42) and the deviant (40) differ in that the *wh*-phrases in (40) are 'D-linked', whereas the same *wh*-phrases in (42) are 'non-D-linked', associated with 'aggressively non-D-linked' elements such as *in the world*, and *on earth*. Let us now consider what this difference means for the present approach.

It has been observed that aggressively non-D-linked *wh*-phrases behave in the same way as adverbial *wh*-phrases in locality or interpretation (cf. Pesetsky (1987), Lasnik and Saito (1992)). Let us assume then that such non-D-linked *wh*-phrases lack their foc-part to agree with Foc, just like adverbial *wh*-phrases. Then, an explanation like the following might be possible:

(43) a. Assumption I: *man* is not inserted after anything that agrees with Foc.

b. Conclusion I: examples (40) are excluded since *man* is inserted after nominal *wh*-phrases which necessarily agree with Foc.

c. Conclusion II: examples (39) are acceptable since *man* is inserted after adverbial *wh*-phrases which never agree with Foc.

d. Conclusion III: examples (42) are acceptable since *man* is inserted after aggressively non-D-linked *wh*-phrases which never agree with Foc.

Given (43a), we can account for the full range of the relevant data, and this assumption would be much simpler than Kuno and Takami's assumptions ((37)).

To sum up, every piece of evidence Kuno and Takami present for their syntactic

analysis can be accounted for by the present approach as well. I have also shown that there are problems with their analysis. First, they do not distinguish between a topic and a focus, which leads to both conceptual and empirical problems. Second, their analysis cannot explain such data as (27), (28) and (42). These problems do not arise in the present analysis: all of the relevant data are accounted for as the presence/absence of quantificational conflict which violates the condition on interpretation (23).

5.3 The Interpretation of *Wh*-in-Situ in Multiple *Wh*-Questions

In the previous section I have shown that the (im)possibility of cooccurrence of a *wh*-phrase and a focus is straightforwardly accounted for under the present analysis. This section shows that the two major properties regarding a multiple *wh*-question receive a unified account under the present analysis. Now let us consider the two properties in turn.

The first property is that adverbial *wh*-phrases such as *why* and *how* cannot appear in multiple *wh*-questions, as exemplified in the following:

(44) a. **What* did John buy *why/how*?

b. **Why/How* did John buy *what*?[7]

Adverbial *wh*-phrases are not allowed, regardless of whether they move to SPEC-C, or remain in situ.

The second property is that multiple *wh*-questions in English must have a PL reading. This fact has been pointed out by Hornstein (1995), Bošković (1998b), McCawley (1998), for example.[8] Take (45) for the illustration of this point.

(45) Who bought what?

According to Bošković, example (45) cannot be uttered to elicit a single pair answer even in the following situation. The questioner 'is in a store and off in the distance sees somebody buying an article of clothing, but does not see who it is and does not see exactly what is being bought' (Bošković (1998b:1)).

I show that these two properties are accounted for in a uniform way under the present analysis. Specifically, I argue that English only allows 'unselective binding' by Foc to interpret multiple *wh*-questions. The absence of an SP reading is then accounted for since the obligatory unselective binding by Foc assigns the bound *wh*-phrases exhaustive information, which yields a PL reading of the sentence. The deviance of (44) is accounted for since the unselective binder Foc cannot see adverbial *wh*-phrases that do not make any relations with Foc.

5.3.1 An Explanation

5.3.1.1 A parameter of *wh*-unification: Absorption or unselective binding

There have been two major proposals in previous studies that attempt to account for the unifying operation in multiple *wh*-questions, as mentioned in chapter 1. One of them is Absorption originally proposed by Higginbotham and May (1981), and the other is unselective binding originally proposed by Baker (1970). Absorption requires all *wh*-phrases in a question sentence to move to the same position overtly or covertly, and to be unified there. Unselective binding does not require such movement but licenses an in-situ *wh* through binding. The difference between Absorption and unselective binding is that Absorption is a unifying operation among moved *wh*-phrases, whereas unselective binding is a unifying operation from a certain unselective binder to *wh*-phrases. Therefore, asking whether Absorption or unselective binding is a better

account for *wh*-unification is equal to asking whether apparent 'in-situ' *wh*-phrases need to move covertly or literally remain in situ and get interpreted there.

However, do we really need to choose between Absorption and unselective binding? Logically, we can imagine that the choices are parameterized so that certain languages, say Japanese, choose Absorption and other languages choose unselective binding as a unifying operation of *wh*-phrases. I stipulate the following parameter to that effect:

(46) The unification operation of *wh*-phrases is done at an LF representation either by (a) or (b);

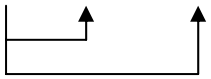
a. Absorption: the lower *wh*-phrase makes all of its subparts referentially dependent on those of the higher *wh*-phrase. (See section 4.3 for detail.)

b. Unselective binding: an unselective binder Foc unifies the two *wh*-phrases by binding them.

The differences between the two operations are schematized as follows:

(47) a. Absorption: C ... Foc... wh_1.... wh_2 ....

b. Unselective binding: C ... Foc_x... wh_{1x} .... wh_{2x} ....



Under Absorption in (47a), the two *wh*-phrases are unified by their own unifying operation. Under unselective binding in (47b), on the other hand, the two *wh*-phrases are unified by being bound by the same binder, Foc.

I propose in this section that English selects the parameter (46b), and that the two

properties unique to English multiple *wh*-questions result from this parameter-setting. Before going into a detailed account, however, it should be noted that the definition of unselective binding is somewhat divergent from the standard one. A standard assumption is that an unselective binder, C or OP_{wh}, licenses an in-situ *wh*-phrase, unifies it with a moved *wh*-phrase, and assigns a PL interpretation to the question. Unselective binding in the present analysis differs from a standard one in two points. First, an unselective binder is Foc. Second, unselective binding is irrelevant to syntactic licensing of an in-situ *wh*-phrase: the uninterpretable features of an in-situ *wh*-phrase are deleted during the syntactic derivation through Agree (but see note 1). 'Unselective binding' means here (I) that Foc unifies *wh*-phrases through binding them, and (II) that the unified *wh*-phrases are marked to be mapped to an exhaustive reading in the C-I processing, as discussed below.

With regard to 'unification of *wh*-phrases', there is no difference between Absorption and unselective binding. However, there are at least two differences that emerge from the distinct parameter-setting between Absorption and unselective binding. The first difference concerns the behavior of adverbial *wh*-phrases in a multiple *wh*-question. The second difference concerns the interpretational possibility of a multiple *wh*-questions. Let us consider them in turn.

5.3.1.2 The impossibility of adverbial *wh*-phrases in a multiple *wh*-question In English, adverbial *wh*-phrases never appear in multiple *wh*-questions. Consider (44), repeated here as (48) once again:

(48) a. **What* did John buy *why/how*?

b. **Why/How* did John buy *what*?

It is not the case in Japanese. In Japanese, adverbial *wh*-phrases can appear as long as the question sentence observes the anti-superiority condition:

(49) a. John-wa *nani-o* *naze/donoyooni* katta no?
John-top what-acc why/how bought Q
'(Lit.) What did John buy why/how?'

b. *John-wa *naze/donoyooni nani-o* katta no? (Anti-superiority violation)
John-top why/how what-acc bought Q
'(Lit.) Why/How did John buy what?'

I show that this cross-linguistic difference in the tolerance of adverbial *wh*-phrases is well-accounted for given the different parameter-setting between the two languages.

As discussed in chapter 4, Japanese employs Absorption. Absorption is an asymmetric operation, and the lower *wh*-phrase is absorbed into the higher *wh*-phrase. Hence, the direction of Absorption is opposite in (49a) and (49b). In (49a), the adverbial *wh*-phrase is absorbed into the nominal *wh*-phrases, while in (49b), the nominal *wh*-phrase is absorbed into the adverbial *wh*-phrase, as demonstrated below:

(50) a. ..... nominal wh adverbial wh .....
quantifier restriction quantifier
Absorption

b. * ..... adverbial wh nominal wh .....
quantifier quantifier restriction
Absorption cannot find its absorber

In (50a), since the lower, absorbed *wh*-phrase is adverbial, it contains a quantifier but

lacks a restriction part. When the *wh*-phrase relates the sole subpart to the relevant part of the higher nominal *wh*-phrase, Absorption completes and hence the multiple *wh*-question has a proper interpretation. In (50b), on the other hand, since the lower, absorbed *wh*-phrase is nominal, it consists of two subparts: a quantifier and a restriction. Therefore, in order to complete Absorption, both of the two subparts must find their absorbers in the higher *wh*-phrase. The quantifier part can be related to the relevant part of the higher adverbial *wh*-phrase. However, the restriction part of the lower *wh*-phrase cannot find its absorber, since the higher adverbial *wh*-phrase lacks the part. Hence Absorption fails to complete, and the sentence (49b) is excluded as uninterpretable.

The situation is quite different when a language selects unselective binding ((46b)) as a unifying operation. Under unselective binding, it is predicted that adverbial *wh*-phrases can never appear in multiple *wh*-questions. This is the case with English, so let us consider how this is predicted.

Parameter (46b) stipulates that Foc, not C, is an unselective binder. Foc is a head that relates the interpretation of the restriction of a variable to the context: e.g. an exhaustive reading of identificational foci, or a PL reading of *wh*-phrases. Therefore, Foc can unselectively-bind nominal *wh*-phrases that bear their restriction parts, but not adverbial *wh*-phrases that lack such parts. In other words, since an unselective binder Foc binds the restriction part of in-situ *wh*-phrases, only nominal *wh*-phrases can be licensed in multiple *wh*-questions in English.

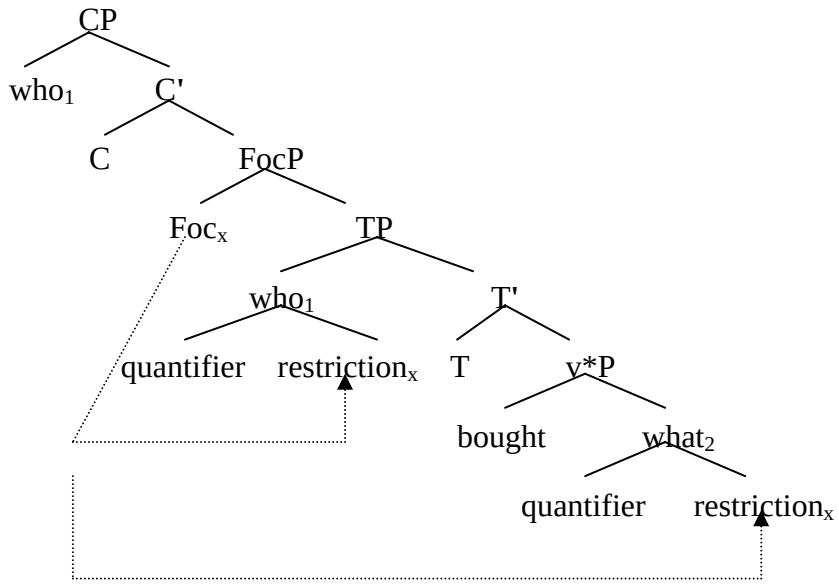
Let us confirm how unselective binding works observing real data. Consider the following examples:

(51) a. Who bought what? (=(45))

b. *What did John buy why/how (=(48a))

Let us first consider grammatical (51a), where the two *wh*-phrases are both nominal. At the LF representation the two *wh*-phrases are unified through unselective binding by Foc. Unselective binding is undertaken as follows:

(52)

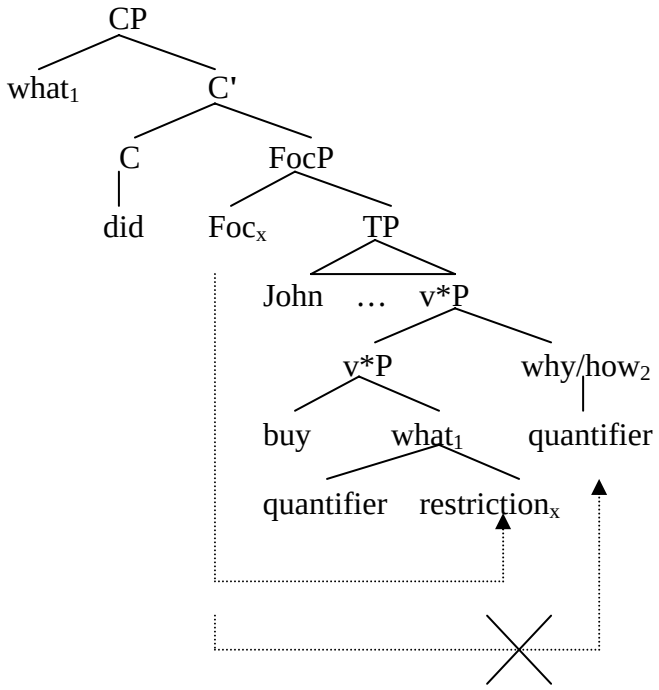


(I assume that phasal minimality is irrelevant to an LF representation since a phase is a unit for derivation, but not for a representation. Hence Foc can bind *what* in the domain of the lower v*P phase.)

Foc binds the restriction parts of *who* and *what*, and completes unselective binding without posing any problems. Since the two *wh*-phrases are unified legitimately, sentence (51a) gets a proper interpretation.[9]

Let us now consider the ungrammatical (51b). Its LF representation and unselective binding will be demonstrated as below:

(53)



Of the two *wh*-phrases to be bound by Foc, *what* bears a restriction part to be bound by Foc. However, since *why/how* is adverbial and lacks the part, it is left unbound. In consequence, unselective binding fails to unify the two *wh*-phrases, and sentence (51b) is excluded as uninterpretable.

In this way, the unacceptability of adverbial *wh*-phrases in English multiple *wh*-questions can be accounted for as a failure of unselective binding. Adverbial *wh*-phrases lack a restriction part, which makes unselective binding by Foc impossible. The failure of *wh*-unification renders the multiple *wh*-question uninterpretable. Therefore adverbial *wh*-phrases are never allowed in a multiple *wh*-question, either in situ ((48a)), or in SPEC-C ((48b)).

5.3.1.3 The obligatory PL reading in English multiple *wh* questions Let us now turn to the second property: English multiple *wh*-questions only allow a PL reading. This fact also receives an account from the present assumption. I have assumed that *wh*-phrases are unified together at an LF representation through being bound by Foc.

Foc is a head that relates the interpretation of the restriction of a variable to the context, hence yielding an exhaustive reading. Given this assumption, *wh*-phrases bound by Foc may not only be unified into one quantifier, but also assigned an exhaustive interpretation. If this assumption is correct, then English multiple *wh*-questions always have a PL reading since the *wh*-phrases involved are always unified by unselective binding.

The situation is quite different between English and Japanese. In Japanese, *wh*-phrases are unified by Absorption. As discussed in chapter 4, Absorption is just a unification operation, and does not affect the possible interpretation(s) of a multiple *wh*-question. For a question to have an exhaustive (i.e. PL) reading, the position in which the *wh*-phrases are interpreted must be arranged. Specifically, the *wh*-phrases must occupy SPEC-Foc in order to be mapped to an exhaustive reading. The `scrambling' effect in Japanese thus arises: the *wh*-phrases in a multiple *wh*-question must `scramble' out of v*P in order to contribute to a PL interpretation.

In English, on the other hand, both *wh*-unification and mapping to the interpretation are determined by unselective binding. The *wh*-phrases are unified through unselective binding, and the unified *wh*-phrases are automatically mapped to an exhaustive reading. Consequently, an in-situ *wh*-phrase in English need not scramble out of v*P to contribute to a PL reading.

The operations that work for the interpretation of a multiple *wh*-question in Japanese and English are summed up as follows:

(54)

		wh-unification operation	a mapping schema to interpretation
a.	Japanese	Absorption	*Wh*-phrases in SPEC-Foc are mapped to an exhaustive interpretation.
b.	English	Unselective binding by Foc → The bound *wh*-phrases are mapped to an exhaustive interpretation.	

To sum up, the second property -- an obligatory PL reading -- can also be accounted for given the unselective-binding parameter (46b) which English employs. Since obligatory unselective binding by Foc makes an obligatory relation with Foc and *wh*-phrases, the bound *wh*-phrases are obligatorily mapped to C-I processing to yield a PL reading.

5.3.1.4 Conclusion In section 5.3.1, I have argued that the two major properties in English multiple *wh*-questions are accounted for given one assumption as to the unifying parameter. That is, a universal grammar provides both Absorption and unselective binding as possible unifying operations, and the different selection leads to the different behavior between Japanese and English multiple *wh*-questions.

We can summarize the relevant properties as below:

(55)

	an operation for unifying *wh*-phrases	an operation for a PL reading
Japanese	Absorption	movement to SPEC-Foc
	→ anti-superiority effects	→ 'scrambling' effects
English	unselective binding by Foc	(PL is automatically gained.)
	→ *adverbial *wh*-phrases	→ obligatory PL reading

Japanese employs Absorption. Since Absorption is an asymmetric operation, the

c-commanding relation between *wh*-phrases must be taken into account. Specifically, adverbial *wh*-phrases can be absorbed by nominal *wh*-phrases, but they cannot absorb nominal *wh*-phrases. Therefore, so-called 'anti-superiority' effects emerge, as noted in section 5.3.1.2. Moreover, since Absorption is just a unifying operation between *wh*-phrases, it does not relate the *wh*-phrases with Foc. Therefore, to bear a PL reading, the *wh*-phrases must move to SPEC-Foc. In consequence, a 'scrambling' effect obtains.

On the other hand, English employs unselective binding by Foc. Since Foc can see only nominal *wh*-phrases which bear restriction parts, Foc cannot bind adverbial *wh*-phrases. Therefore, adverbial *wh*-phrases are not properly licensed by Foc, and a multiple *wh*-question that contains an adverbial *wh*-phrase is always deviant. Moreover, when unselective binding takes place, *wh*-phrases automatically establish a relation with Foc. Therefore, the automatically-established relation is mapped to C-I processing, and hence yields a PL reading. Since unselective binding is an obligatory operation to unify *wh*-phrases, the *wh*-phrases are obligatorily related to Foc and contribute to a PL reading of the question.

In this way, if we assume a parameter as to unifying *wh*-phrases, i.e. (46), we can account for not only intra-linguistic properties observed in Japanese and English multiple *wh*-questions, but also cross-linguistic differences in the behavior of adverbial *wh*-phrases and the interpretation possibility.

5.3.2 Is There a Relation between *Wh*-Movement and a PL Reading?

The explanation I developed in section 5.3 is based on the presumption of Foc. In English multiple *wh*-questions, the *wh*-phrases are automatically related to each other through unselective binding by Foc. Since unselective binding obligatorily takes place in multiple *wh*-questions, the *wh*-phrases are obligatorily related to Foc, hence yielding

a PL interpretation obligatorily. Moreover, given that an unselective binder Foc can see only nominal *wh*-phrases that bear a restriction part to agree with Foc, adverbial *wh*-phrases are not allowed to appear in multiple *wh*-questions since they cannot be licensed by Foc.

On the other hand, in Japanese multiple *wh*-questions, the *wh*-phrases are unified by Absorption. As defined in (46a), Absorption is an operation between the *wh*-phrases, and Foc is not involved in Absorption. Therefore, adverbial *wh*-phrases can be contained in multiple *wh*-questions as long as it is licensed by Absorption, i.e. it is subject to the anti-superiority condition. Since Absorption is irrelevant to relation-making with Foc, the *wh*-phrases need to move to SPEC-Foc in order to be assigned an exhaustive interpretation and contribute to a PL reading of the question. In this way, 'scrambling' effects emerge.

I have suggested that the choice between Absorption and unselective binding be parameterized. Also, I have shown that the selection of the parameter correctly predicts some properties of multiple *wh*-questions in a given language, as shown below:

(56)

	Parameter-setting		Derived properties of multiple *wh*-questions
a. Japanese:	Absorption	→	・ anti-superiority effects
			・ two possible readings, i.e. SP and PL
			・ 'scrambling effects
b. English:	unselective binding by Foc	→	・ *adverbial *wh*-phrases
			・ PL as the only possible reading

However, one question remains. Is a language given a free hand in setting the parameter? In other words, is a different parameter-setting between Japanese and English just an accidental choice or a necessary consequence from some other cause?

Bošković (1998b) claims that the interpretation possibility of multiple *wh*-questions results from the presence/absence of syntactic *wh*-movement to SPEC-C. Specifically, in languages like English where (at least) one *wh*-phrase must move to SPEC-C, C does not serve as an unselective binder at LF, since C cannot c-command the moved *wh*-phrase in its SPEC position. Since Bošković regards C as an existential binder, the failure of unselective binding from C leads to the absence of existential reading of a multiple *wh*-question. That is, in such a language, multiple *wh*-questions never have an SP reading.

Bošković provides Serbo-Croatian and French data as evidence for his claim. In these languages, according to Bošković, *wh*-movement targetting C (with a strong feature) can be suspended until the covert syntax since the probe, i.e. phonologically-null C, can be merged into syntactic derivation at the covert syntax. In this case, all *wh*-phrases occupy a position that is c-commanded by C, hence yielding an SP interpretation. However, this process is not possible in certain constructions. In an embedded multiple *wh*-question, for instance, the merger of C must take place at the overt syntax, since otherwise derivational cyclicity would be violated. Hence embedded C is merged at the overt syntax, and its strong Q-feature overtly attracts *wh*-phrase(s) to its SPEC position. (According to Bošković, the presence of syntactic *wh*-movement to SPEC-C is attested to by superiority effects (Serbo-Croatian) or obligatoriness of *wh*-movement (French).) Therefore, it is predicted that in embedded questions, embedded C cannot bind the moved *wh*-phrase in its SPEC, so the embedded questions never have an SP interpretation.

In Bošković's analysis, the presence/absence of *wh*-movement to SPEC-C determines the interpretation possibility of a multiple *wh*-question. If a *wh*-phrase moves to SPEC-C, it cannot be bound by C and therefore cannot be assigned an existential reading. The only reading available is therefore a PL reading. This is the

case with English. On the other hand, if all the *wh*-phrases in a multiple *wh*-question remain in situ, C can bind them and assign an existential interpretation, yielding an SP reading of the question. Therefore, Japanese multiple *wh*-questions have an SP reading as well as a PL reading. It is very tempting to combine his claim with the present analysis. For instance, the absence of *wh*-movement in Japanese somehow forces its grammar to choose Absorption, hence yielding SP as a possible reading and other properties shown in (56a).

However, it seems difficult to integrate Bošković's analysis into the present analysis. Bošković assumes that a phonetically-null element need not be merged in the overt syntax, since it has no effect on PF. As long as it does not violate strict cyclicity, such an element can be merged in the covert syntax and trigger covert movement by its attracting feature. This is not possible in Chomsky's (1998, 1999) framework, since there is no covert syntax any longer. All lexical items are merged together phase by phase, and procrastinating the merger of C is not allowed. Therefore, the question I have raised in this section is left unanswered. It is not clear whether the parameter between Absorption and unselective binding is set in each language freely, or determined by other factors. I leave this question for future research.

5.4 On Locality of *Wh*-Extraction in English

This last section is devoted to a discussion of weak island effects in English. As discussed in chapter 2, there are two possibilities for the explanation of locality. One is to attribute locality to syntactic design. The syntactic derivation proceeds by 'phase', and each phase serves as a kind of barrier in syntax. Although the concept of phase might be able to account for locality in head- and/or A-movement, it does not constrain

A'-movement at all, since ‘active’ phrases can cross a phase by way of its edge position. See section 2.4 for the relevant discussion.

The other is to attribute locality to a representational constraint. The LF representation of a quantificational sentence involves an operator-variable relation. It has been a standard assumption since the GB framework that the relation should be ‘local’. The locality has been constrained by such principles as Bijection Principle or Relativized Minimality. Intuitively, an operator-variable relation is legitimate only if there are no intervening operators of the same type between them. The present analysis has adopted Beck's (1996) QUIB notion as an LF locality constraint in the minimalist framework. A QUIB constraint works well for constraining A'-dependency. I demonstrated in section 4.2 how the QUIB analysis can account for locality effects observed in Japanese *wh*-island constructions.

In this section I consider how the QUIB analysis accounts for locality effects in English. Section 5.4.1 observes the relevant English data. In section 5.4.2, I propose that weak-island effects are accounted for as cases of QUIB-violation. The discussion to be developed in section 5.4.2 crucially depends on the presence of Foc and its related features. Therefore, the existence of Foc phrase in syntax will be further supported if the present analysis can account for the relevant data. Although the present thesis does not discuss strong island phenomena, I refer to some properties of strong islands in section 5.4.3.

5.4.1 Islands in English

Islands are constituents from which extraction is prohibited. Islands that do not allow extraction of nominal *wh*-phrases as well as adverbial *wh*-phrases are called `strong' islands, whereas islands that prohibit extraction of adverbial *wh*-phrases are called `weak' islands. Let us survey what kinds of strong/weak islands there are in

English.

Strong islands are exemplified in (57)-(60) below:

(57) Subject island

a. **Which books* did [talking about *t*] become difficult?

b. **How* would [to behave *t*] be inappropriate? (Ando and Ono (1993:134))

(58) Adjunct island

a. **To whom* did you leave [without speaking *t*]?

b. **How* was he fired [after behaving *t*]? (Ibid. pp.134-5)

(59) Complex NP island (I): [$_{NP}$ N + complement CP]

a. **To whom* does John believe [the rumor that Mary spoke *t*]?

b. **How* does John believe [the rumor that Mary behaved *t*]?

(60) Complex NP island (II): [$_{NP}$ antecedent N' + relative clause]

a. **To whom* have you found [someone who would speak *t*]?

b. **How* have you found [someone who would fix it *t*]? (Ibid. p.134)

Weak islands are shown below:

(61) *Wh*-island

a. (??)*To whom* do you wonder [whether John spoke *t*]?

b. **How* do you wonder [whether John behave *t*]?

(62) Inner island, or Negative island

a. *To whom* [didn't you speak *t*]?

b. **How* [didn't you behave *t*]? (Ando and Ono (1993:135))

(63) Factive island

a. *To whom* do you regret [that you could not speak *t*]?

b. **How* do you regret [that you behaved *t*]? (Ibid. p.135)

(64) Extraposition island

a. *To whom* is it time [to speak *t*]?

b. **How* is it time [to behave *t*]? (Ibid. p.135)

Whereas adverbial *wh*-phrases such as *how* and *why* cannot undergo *wh*-movement out of weak islands, nominal *wh*-phrases are free to move out of weak islands.[10,11]

The present thesis limits its concern to weak islands shown in (61)-(64). I argue that all of these weak islands contain an operator that serves as a QUIB for a Q-dependency. The QUIB blocks the Q-dependency of an adverbial *wh*-phrase, and hence excludes the extraction of an adverbial *wh*-phrase. The story is the same for the extraction of a nominal *wh*-phrase: an intervening QUIB blocks a Q-dependency of the *wh*-phrase. However, a nominal *wh*-phrase creates one more dependency, i.e. a foc-dependency created by Agree with Foc. Since the dependency is not blocked by the intervening QUIB, the dependency is judged legitimate at the LF representation. Hence the extraction of a nominal *wh*-phrase out of a weak island is allowed. This line of explanation depends on the existence of Foc and the agreement relation with Foc. Therefore the success of the explanation will add further support for the present analysis.

5.4.2 Weak Islands and a QUIB Account

Let us consider what is responsible for weak island phenomena in (61)-(64). It is often suggested that islands involve some kind of operator (cf. Rizzi (1990), Manzini (1992), Szabolcsi and Zwarts (1993)). Such operators are shown in the table below.

(65)

Weak islands	OPs involved
a. *Wh*-island	*wh*-phrase
b. Inner island	Neg operator
c. Factive island	event operator
d. Extraposition island	temporal operator

(65a) is a most obvious case: the operator involved in a *wh*-island is a *wh*-phrase occupying SPEC-C. As for (65b), Rizzi (1990) argues that *not* occupies some A'-SPEC position since it blocks A'-dependency, but not a X^0-dependency. Pollock (1989) and Manzini (1992) argue that *not* occupies SPEC-Neg. A factive island is assumed to have an event operator which links a clausal complement to a factual event (cf. Manzini (1992)). Finally, an extraposition island is assumed to have a temporal operator. Endo (1995) argues that a temporal adjunct clause should bear a temporal operator.

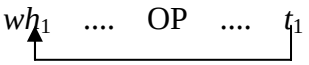
(66) I saw Mary in New York [before $OP_{1/2}$ [she claimed t_1 [that she would arrive t_2]]]. (Endo (1995:58))

The ambiguity of the adjunct clause above is accounted for by assuming that an invisible operator moves to the operator position and takes scope over the whole clause. His argument extends to an extraposition island. An 'extraposed' clause is a temporal

clause selected by a nominal predicate *time* and base-generated in its complement position. Being a temporal clause, it should bear a temporal operator by which the temporal status of the clause is determined.

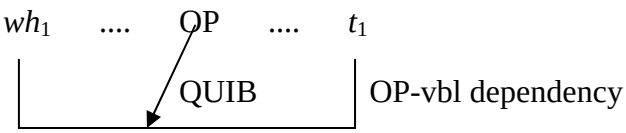
If the table (65) is correct, then each OP of the weak islands should serve as a QUIB. A QUIB is a kind of barrier which blocks the dependency of the same kind at the LF representation. I briefly recapitulate how a QUIB works with the following abstract structures.

(67) a. Derivation:



OK if wh_1 moves minimally by way of the edge position of each phase.

b. LF representation:



'*' if wh_1 and OP are of the same kind of quantifier.

In the syntactic derivation movement is constrained by phases. However, long-distance movement is possible since each phase provides an edge position by way of which a moved element can cross the phase locally. Even if there intervenes some OP in the edge position, as shown in (67a), wh_1 can move past it, dropping in at the outer SPEC of that phase. Therefore the phasal minimality does not sufficiently constrain A'-movement.

Locality of A'-movement is constrained at the LF representation, as shown in (67b). All quantificational dependencies should be judged at the LF representation, and a dependency is illegitimate if there intervenes a QUIB of the same kind. The dependency of *wh* 1 in (67b) will therefore be judged illegitimate if *wh* 1 and OP are

of the same kind.

The question to ask now is: What kind of QUIB do the OPs in the weak islands in (65a-d) become? I propose that they all become QUIBs for a Q-dependency. Notice that a Q-dependency is established between [+wh] C and a *wh*-phrase and determines the semantic type of the clause, i.e. interrogation. Those operators in (65a-d) are considered to be the same kind of operator, since they also contribute to determining the semantic type of its clause. A *wh*-phrase ((65a)) is responsible for interrogation, a Neg operator ((65b)) for negation, an event operator ((65c)) for factuality (i.e. limiting the denotation of a clause to the factual world), and a temporal operator ((65d)) for limiting the denotation of a clause to a certain temporal relation with the matrix predicate.

The operators in (65a-d) are considered to serve as QUIBs for a Q-dependency. However, they do not constitute QUIBs for a foc-dependency which is created between Foc and a nominal *wh*-phrase/focus: a foc-dependency is responsible for an exhaustive reading, and the reading is irrelevant to the operators in (65a-d).

Let us now consider how these QUIBs work for *wh*-extraction. I take up (62a, b), repeated here as (68a, b) respectively, as representational examples.

(68) a. *To whom* [didn't you speak *t*]?

b. **How* [didn't you behave *t*]?

Let us consider why the extraction of *to whom* is legitimate. The *wh*-phrase is merged with V, with two kinds of uninterpretable features, i.e. [Q] and [foc]. The uninterpretable features make the *wh*-phrase *active*, which means that it has to Agree with some appropriate probe and delete those features.

Suppose that the derivation has constructed the following structure.

(69) [$_{v*P}$ you v* [$_{VP}$ speak *to whom*]]

[Q][foc]

The *wh*-phrase *to whom* moves to outer SPEC-v*, forming (70):

(70) [$_{v*P}$ *to whom*$_1$ you v* [$_{VP}$ speak t_1]]

[Q][foc] ~~[EPP]~~

Suppose that the derivation has constructed the following structure.

(71) CP phase (under construction) v*P phase

[$_{FocP}$ Foc [$_{TP}$ you T [$_{NegP}$ not Neg [$_{v*P}$ *to whom* ....]]]]

[foc] [Neg] [foc][Q]

Agree

Since *to whom* occupies the edge of the lower v*P phase, it is visible for the probe in the (immediately) upper phase. Foc and *to whom* therefore enter into an agreement relation under matching of foc-features. The agreement is not blocked by the intervening Neg operator *not*, since it does not contain a foc-feature. The agreement between Foc and *to whom* is not followed by movement of *to whom* since Foc has no EPP-feature.

Merger of C to FocP forms the following structure.

(72) CP phase (under construction) v*P phase

$[_{CP}$ C $[_{FocP}$ Foc $[_{TP}$ you T $[_{NegP}$ not Neg $[_{v*P}$ *to whom* ....]]]]

[Q][EPP] ~~[foc]~~ [Neg] ~~[foc]~~ [Q]

C and *to whom* enter into an agreement relation under matching of a Q-feature. Again, the agreement is not blocked by the intervening Neg operator *not*, since it does not contain a Q-feature. This agreement is followed by Move of *to whom* to SPEC-C, forming the following structure:

(73) $[_{CP}$ *to whom*$_1$ C $[_{FocP}$ Foc $[_{TP}$ you T $[_{NegP}$ not Neg

$[_{v*P}$ t_1 t_{subj} v* $[_{VP}$ speak t_1]]]]]]

Since each step of Agree and Move has been legitimate, the derivation converges.

At the LF representation, the dependencies which *to whom* has created must be evaluated. I have made the following two proposals in section 2.3: (I) the edge position created by an optional EPP-feature is not reflected in the occurrence list of an LI, and (II) the relation of Agree is also reflected in the occurrence list of an LI. Given (I), the outer SPEC-v* is not contained in the occurrence list of *to whom*. Given (II), `FocP' is contained in the occurrence list of *to whom* since *to whom* agrees with Foc. The occurrence list of *to whom* in the above derivation will therefore be (74):

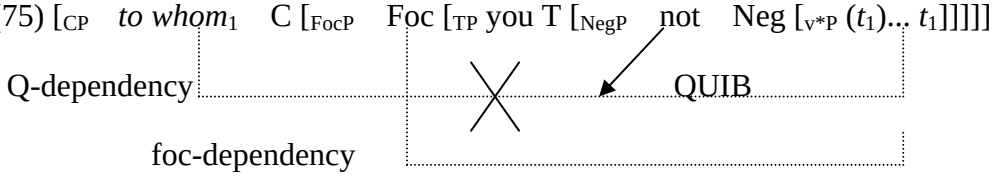
(74) (CP, FocP, VP)

'VP' is a base-generated position, 'FocP' is an agreed position, and 'CP' is the final landing site.

The QUIB constraint is applied to the occurrence list (74): the list is illegitimate if

there intervenes a QUIB of the same kind between each local dependency in (74). Given that a Neg operator serves as a QUIB for a Q-dependency, the Q-dependency between C and (the trace of) *to whom* is blocked by the intervening Neg operator.

(75) [$_{CP}$ *to whom*$_1$ C [$_{FocP}$ Foc [$_{TP}$ you T [$_{NegP}$ not Neg [$_{v*P}$ (t_1)... t_1]]]]]



However, the Neg operator does not block the foc-dependency between Foc and *to whom*. Therefore the foc-dependency between 'FocP' and 'VP' in (74) survives across the intervening Neg operator. The dependency between 'CP' and 'FocP' also observes locality since there intervenes no QUIB. Since each local dependency in the occurrence list (74) observes the locality constraint, the occurrence list (74) is judged legitimate. Hence the grammatical (68a) is obtained: the nominal *wh*-phrase can be extracted across a Neg operator without posing any locality problems.

Now let us turn to the derivation and the LF representation of the ungrammatical (68b). The extraction of *how does not pose a problem. How*, with the uninterpretable feature [Q], is merged with VP. [foc] is absent since an adverbial *wh*-phrase lacks a restriction part with which [foc] is associated. Suppose that the derivation has reached the stage (76):

(76) [$_{v*P}$ you v* [$_{VP}$ [$_{VP}$ behave] *how*]]
[Q]

How moves to the outer SPEC-v*, forming (77):

(77) [$_{v*P}$ *how*$_1$ you v* [$_{VP}$ [$_{VP}$ behave] t_1]]

[Q] ~~[EPP]~~

Suppose that the derivation has constructed the following structure:

(78) [$_{FocP}$ Foc [$_{TP}$ you T [$_{NegP}$ not Neg [$_{v*P}$ *how* ....]]]]

([foc]) [Neg] [Q]

In (78), Agree does not hold between Foc and *how* since *how* lacks a foc-feature. Merger of C with FocP forms the following structure:

(79) CP phase (under construction) v*P phase

[$_{CP}$ C [$_{FocP}$ Foc [$_{TP}$ you T [$_{NegP}$ not Neg [$_{v*P}$ *how* ....]]]]]

[Q][EPP] [Neg] [Q]

Agree

Since *how* occupies the edge position of the lower v*P phase, C can agree with *how*. Again, the agreement is not blocked by the intervening Neg operator since it does not contain a Q-feature. The agreement is followed by movement of *how* to SPEC-C, forming the following structure:

(80) [$_{CP}$ *how*$_1$ C [$_{FocP}$ Foc [$_{TP}$ you T [$_{NegP}$ not Neg

[$_{v*P}$ t_1 t_{subj} v* [$_{VP}$ [$_{VP}$ behave] t_1]]]]]

The derivation converges since each step of Agree and Move has been legitimate.

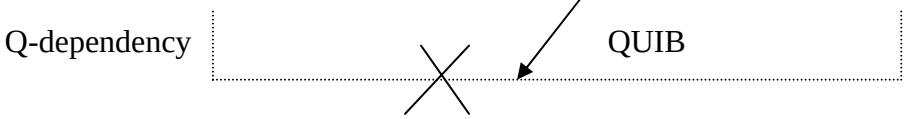
At the LF representation, the occurrence list of *how* should be judged as to its

locality. Although *how* has dropped in at the outer SPEC-v*, the position should not be included in the occurrence list since the edge positions are irrelevant to interpretation. The occurrence list of *how* is therefore (81):

(81) (CP, VP)

'VP' is the merged position and 'CP' is the final landing site. The two positions exhibit a Q-dependency which has been established by Agree between C and *how*. The important point to note is that a Neg operator intervenes between the two positions. Accordingly, the dependency is blocked by the QUIB, as shown below:

(82) [$_{CP}$ *how*$_1$ C [$_{FocP}$ Foc [$_{TP}$ you T [$_{NegP}$ not Neg [$_{v*P}$ (t_1) .... t_1]]]]]]



Since the local Q-dependency between 'CP' and 'VP' in (81) is blocked by the intervening QUIB, the occurrence list (81) is judged illegitimate. This accounts for the ungrammaticality of (68b). The adverbial *wh*-phrase cannot be extracted across a QUIB for Q-dependency.

To sum up, a constituent containing a quantificational operator is a weak island. Specifically, quantificational operators function as QUIBs for a Q-dependency at the LF representation. When an adverbial *wh*-phrase is extracted, the only dependency it creates is a Q-feature agreement relation with C, which is blocked by the intervening QUIB. Therefore an adverbial *wh*-phrase cannot be extracted out of a weak island. On the other hand, when a nominal *wh*-phrase is extracted, it creates two dependency relations, one with Foc and the other with C. Whereas the Q-dependency between the *wh*-phrase and C is blocked by the intervening QUIB, the other dependency, i.e. the

foc-dependency between the *wh*-phrase and C is not blocked. The local dependency between the occurrences thus survives, and the whole occurrence list is judged legitimate. Accordingly, nominal *wh*-phrases are extractable across a QUIB for a Q-dependency without locality violations.

It should be noted that the present account crucially depends on the existence of Foc and the agreement relation with Foc and a nominal *wh*-phrase under matching of foc-features. The argument-adjunct asymmetry is thus attributed to the compositional asymmetry between nominal and adverbial *wh*-phrases. In this way, the present analysis can account for weak island phenomena.

5.4.3 Some Notes on Strong Island Phenomena

The main concern in section 5.4 is to show that the present analysis provides an account for argument-adjunct asymmetry as to *wh*-extraction. At present I am not sure how `strong' island phenomena should be accounted for under the minimalist framework. At least the QUIB account does not work in this case, since the strong islands do not bear such QUIBs. A subject island in (57) and a Complex NP island (I) in (59) do not bear any operators. On the other hand, an adjunct island in (58) and a Complex NP island (II) in (60) might bear a temporal operator and a relative operator, respectively. However, it is not clear how or why these operators block the extraction of both nominal and adverbial *wh*-phrases.

In this section I review how previous GB/minimalist studies have dealt with strong island phenomena, and make a tentative proposal that XP in a non-theta position constitutes a barrier for extraction.

5.4.3.1 Strong islands in the non-theta position Of the four strong islands in (57)-(60), this section considers the following three.

(83) Subject island (=(57))

a. **Which books* did [talking about *t*] become difficult?

b. **How* would [to behave *t*] be inappropriate?

(84) Adjunct island (=(58))

a. **To whom* did you leave [without speaking *t*]?

b. **How* was he fired [after behaving *t*]?

(85) Complex NP island (II) (=(60))

a. **To whom* have you found [someone who would speak *t*]?

b. **How* have you found [someone who would fix it *t*]?

The islands above share the following property: they occupy a non-theta position. Chomsky (1998:50-1) assumes that Merge (more precisely, set-Merge) takes place to satisfy selectional requirements of the selector. For example, some interpretable feature of V selects the object, and some interpretable feature of *v* (or, v*) selects VP. In this regard, the positions occupied by the islands above are not created by a selectional property of the selector: a subject position SPEC-T is created by the EPP-feature associated with T, an adjunct position is created by pair-Merge (adjunction), and a relative clause in a Complex NP (II) is also created by pair-Merge.

That a constituent in a non-theta position serves as a barrier for extraction is not a novel idea. Huang (1982) defines the Condition on Extraction Domain (CED) in which a constituent in a non-properly-governed position becomes a barrier for extraction. Chomsky (1986) proposes the notion of 'L-markedness'. A non-L-marked XP becomes a barrier.[12] Manzini (1992) proposes the notion of 'g-marking'. A head g-marks its complement and a non-g-marked XP becomes a

barrier. In their approaches, XP occupying a position which is not created by selectional requirements of the selector constitutes a barrier.

In the minimalist framework, it is unclear how to relate such non-extractability with syntactic structures. One possibility is to assume that XP in a non-theta position automatically constitutes a syntactic barrier and extraction out of the barrier leads the derivation to crash. Another possibility is to assume that extraction out of XP in a non-theta position is not a problem by itself, but the resultant LF representation is excluded for the violation of some locality condition. Oba (1998) suggests that an operator and its variable must be in a 'transparent' domain, where transparency is achieved by selectional requirements between XP and its selector.

All of the approaches mentioned above pursue virtually the same line. That is, XP in a non-theta position becomes a barrier. Although this kind of discussion seems simple and empirically valid, one question remains. Why? If we stick to the strongest minimalist thesis that language is an optimal solution to legibility conditions (Chomsky (1999:1)), the barrierhood of XP in a non-theta position is a condition derived from legibility conditions. At present, however, it is totally unclear what legibility condition makes XP in a non-theta position a barrier and why. To solve this problem, better understanding of the nature of CHL and legibility would be required.

5.4.3.2 Complex NP island (I) Let us now consider the remnant strong island. It is a Complex NP island (I) exemplified in (59), repeated here as (86):

(86) Complex NP island (I)

a. **To whom* does John believe [the rumor that Mary spoke *t*]?

b. **How* does John believe [the rumor that Mary behaved *t*]?

This island is different from the other strong islands in two respects. First, a Complex NP island (I) involves no non-theta position. It consists of a head N and its complement CP. Therefore it is not for structural reasons that a Complex NP (I) constitutes a barrier. Second, this island prohibits the occurrence of a *wh*-in-situ as well as *wh*-extraction. Observe the following examples:

(87) a. *What did you mention [the fact that Mary stole *t*]?

b. *Who mentioned [the fact that Mary stole *what*]?

(Kuno and Takami (1993:80))

(88) Cf. Complex NP island (II)

a. ?**What* did you see [the man that bought *t*]?

b. *Who t* saw [the man that bought *what*]? (Lasnik and Saito (1992:167))

As exemplified by (88), typical strong islands block only extraction of a *wh*-phrase (as in (88a)) but allow the occurrence of an in-situ *wh*-phrase (as in (88b)). A Complex NP island (I) is peculiar in that it does not allow the existence of a *wh*-phrase, regardless of whether the *wh*-phrase is extracted or remains in situ.

These two properties of a Complex NP island (I) remind us of the specificity condition, exemplified in (89) below:

(89) a. **Who* did you see [<u>the/Bill's</u> picture of *t*]?

b. *Who saw [<u>the/Bill's</u> picture of *who*]?

c. Cf. *Who* did you see [<u>a</u> picture of *t*]?

Since the specific DP appears in object position in (89a, b), it is not for structural

reasons that the DP constitutes a barrier. Moreover, the specific DP not only prohibits *wh*-extraction in (89a), but also an in-situ *wh*-phrase in (89b). These are exactly the same properties observed in a Complex NP island (I), which may tempt us to suspect that the barrierhood of a Complex NP island (I) and a specific DP has to do with their semantic properties: barriers in (87) and (89) share 'specificity'. Specificity of the Complex NP islands (I) in (87) is expressed by the definite article *the*. It would sound unnatural if the definite article were replaced with an indefinite article *a*. Even if we say 'I mentioned *a* fact that ....', specificity is presupposed: the speaker presupposes that there are several facts about something in the discourse, and s/he picks up one of the facts.

Given the similarities between a Complex NP island (I) and a specific DP, we can guess that specificity should be the culprit for their barrierhood. However, it remains unclear how specificity constitute a barrier. In this section I just mention several possible ways of explanation.

A first possibility is a conflict of Agree. Suppose that specific DPs bear a foc-feature to agree with Foc. This is not a far-fetched idea since specificity can only be interpreted with the relation of the context, and an exhaustive reading (another kind of context-related reading) is obtained by agreeing with Foc in the present analysis. If correct, then Foc has two goals in (87) and (89), i.e. the specific DP and the nominal *wh*-phrase. Since I have assumed that phrases with a foc-feature cannot be unified together (unless both phrases are *wh*-phrases), the two foc-agreements remain separate, which leads the LF representation to crash. Since it is a problem of Agree, both *wh*-in-situ and *wh*-extraction are prohibited in (87) and (89). However, this line of discussion poses an immediate problem, since it would allow the extraction of an adverbial *wh*-phrase out of a specific DP. Since an adverbial *wh*-phrase does not bear a foc-feature, it need not be unified with a specific DP. Hence we would predict that

extraction of an adverbial *wh*-phrase should cause no interpretational problems and the extraction is allowed. It is a wrong prediction, as the deviant (86b) shows.

A second possibility is 'QR' of a specific DP. Diesing (1992) argues that phrases with presupposition must move out of VP by the LF representation in order to be mapped into the restrictive clause of a logic form. This entails obligatory QR of a presupposed object in English. The presupposed object thus becomes a barrier for structural reasons since it occupies a non-theta position. This line of discussion poses two problems. First, it does not explain the peculiarity of a specific DP: i.e. why is an in-situ *wh*-phrase prohibited from remaining in a specific DP? As shown in (88), other strong islands do not have such a constraint on an in-situ *wh*-phrase.[13] Second, QR (covert movement) is no longer available in the minimalist framework. This problem might be solved in some way: e.g. by assuming that English allows optional object shift (OS), and that an object with a presupposed interpretation obligatorily undergoes OS and mapped into the restriction clause. We can then paraphrase Diesing's QR account into an optional OS account. However, there remains much to be explored in order to pursue this line of discussion.

A third possibility is Oba's (1999) phase account. Oba proposes the following assumptions:

(90) a. DP is a phase.

b. A P-feature is not assigned when D bears a feature [specific]. (Oba (1999:31))

A 'P-feature' in (90b) is equal to an EPP-feature in the present thesis, which is assigned to a phasal head and provides an edge position for an active element. According to Oba, therefore, a specific DP constitutes a phase with no edge position. In consequence, no elements can be extracted from a specific DP. The ban on an in-situ

wh-phrase in a specific DP might also be accounted for by the above assumptions. The unavailability of an edge position prohibits Agree as well as Move. In other words, an 'in-situ' *wh*-phrase in the specific DP cannot move to the edge position to agree with the probe C. Accordingly, the uninterpretable feature on the *wh*-phrase remains undeleted at an LF representation, which cause the representation to crash. The validity of Oba's account crucially depends on the validity of the assumptions in (90). The assumptions are adequate in an intuitive sense. Since a variable of a *wh*-phrase makes an open sentence, it must be incompatible with specificity. However, a question remains as to how to state the intuition in syntactic terms. (See note 13.)

The three possibilities assume that specificity constitutes a syntactic barrier. However, it is not obvious why the semantic property has to do with syntax, or whether the assumption can be supported on independent grounds. I leave it for future research.

There have been numerous and diverse accounts for strong island phenomena. Yet most of the studies center around two intuitions. First, XP in a non-theta position constitutes a syntactic barrier which prohibits *wh*-extraction. Second, specificity constitutes a semantic barrier which prohibits the occurrence of a *wh*-phrase. To pursue this issue in the minimalist framework would require better understanding of the nature of syntactic derivation and legibility conditions. It is beyond the scope of the present study.

5.4.4 Summary

In section 5.4 I considered what induces weak island effects in the minimalist framework. It can be rendered to a QUIB effect assumed in chapter 2. An occurrence list is legitimate only if the quantificational relation in the list is not

separated by another intervening quantifier of the same type. The fact that an adverbial *wh*-phrase cannot move out of weak islands is then accounted for as a QUIB-violation. For example, a negative island contains a Neg operator *not*, which serves as a QUIB for a Q-dependency. Therefore, an adverbial *wh*-phrase that establishes only a Q-dependency cannot establish a relation with C across the Neg operator. On the other hand, a nominal *wh*-phrase can move out of a weak island. It is explained by assuming Foc and a foc-feature. A nominal *wh*-phrase bears a foc-feature as well as a Q-feature, and hence enters into an agreement relation with Foc before the agreement with C . Although the agreement with Foc crosses over a Neg operator, it causes no problem since the Neg operator does not block a foc-dependency. Therefore a nominal *wh*-phrase can move out of weak islands without problems.

I made a few comments on strong islands. A subject island, an adjunct island and a Complex NP island (II) are considered to constitute a barrier for structural reasons, although the precise account is yet to be established. The barrierhood of a Complex NP island (I) is also unclear. At least it is not attributed to structural reasons since it appears in complement position. I showed some possible solutions. However, the precise account for strong island phenomena would require better understanding of the nature of syntactic derivation or/and legibility conditions.

It should be noted that the present analysis provides distinct accounts for weak islands and strong islands. The former is induced by an intervening operator (QUIB), and the latter by the structure in which a *wh*-phrase appears. Theoretically, it would be preferable if both kinds of islands receive a unified account. However, there is no reason (yet) to believe that these islands are the same phenomena and thus explained in a uniform way. It should be examined in the future research which line of explanation accounts for a wider range of the relevant data, and with less assumptions.

My central concern here has been to account for argument-adjunct asymmetry as

to *wh*-extraction out of weak islands. I have shown that the asymmetry is attributed to the compositional asymmetry between nominal and adverbial *wh*-phrases: a nominal *wh*-phrase bears a foc-feature and establishes a foc-dependency through the agreement with Foc. The validity of the account here adds further support for the claim of the present thesis. An exhaustive reading has to do with syntax and it is realized as a syntactic category Foc.

5.5 Conclusion

Unlike focus languages and Japanese observed in chapters 3 and 4, English does not provide direct evidence for the existence of Foc. In English, contrastive foci do not necessarily undergo `focus' movement to SPEC-Foc. Moreover, since *wh*-phrases uniquely move to SPEC-C, not to SPEC-Foc, the relation-making between *wh*-phrases and Foc is not obvious. Nevertheless, I showed that several kinds of data are well accounted for by assuming Foc and a foc-feature associated with Foc. This provides indirect evidence for the existence of Foc in English.

In section 5.2, I considered (non-)cooccurrence of a *wh*-phrase and a focus. A moved focus can occur only with adverbial *wh*-phrases. I accounted for the fact as follows. A focus bears a foc-feature and agrees with Foc. The agreement is legitimate when the sentence contains an adverbial *wh*-phrase lacking a foc-feature. On the other hand, a focus cannot agree with Foc when the sentence contains a nominal *wh*-phrase which also bears a foc-feature and hence agrees with Foc: although quantifiers that agree with the same probe must be somehow unified, such unification is not possible between a focus and a *wh*-phrase. Therefore, a focus cannot occur with a nominal *wh*-phrase.

In section 5.3, I considered multiple *wh*-questions. I noted that the two

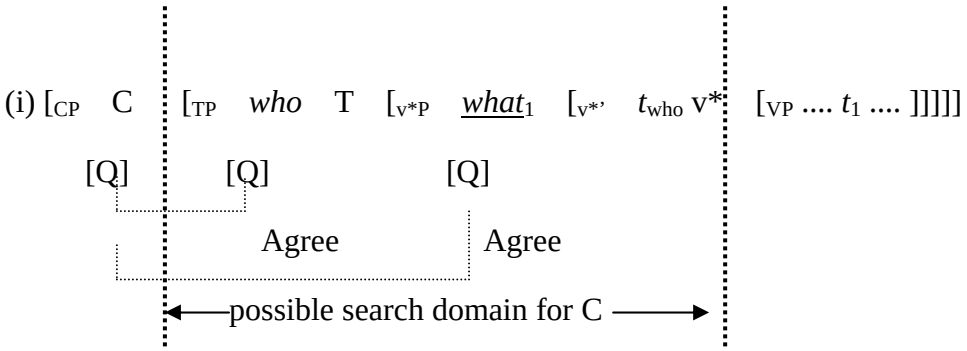
particular properties of English multiple *wh*-questions are accounted for in a unified fashion under the present analysis. *Wh*-phrases in a multiple *wh*-question must be unified in some way to bear a proper interpretation, either by Absorption or by unselective binding by Foc. Since English *wh*-phrases are unified through unselective binding by Foc, the sentence will yield only a PL interpretation. Moreover, Foc cannot bind adverbial *wh*-phrases since they have no shared properties: adverbial *wh*-phrases lack a foc-feature to agree with Foc. Therefore adverbial *wh*-phrases are not allowed in multiple *wh*-questions.

In section 5.4, I considered how weak island effects are accounted for in the minimalist framework. I have proposed that weak island effects are induced by intervening QUIBs that block Q-dependency. Adverbial *wh*-phrases containing only a Q-feature therefore cannot move across such QUIBs, since their sole Q-dependency is blocked by the QUIB. Hence adverbial *wh*-phrases are subject to weak islands. On the other hand, nominal *wh*-phrases bear another feature, i.e. a foc-feature that agrees with Foc. Since foc-agreement is not blocked by the intervening QUIBs, nominal *wh*-phrases can legitimately move across the QUIBs. Hence nominal *wh*-phrases are not subject to weak islands.

To sum up, English also exhibits several kinds of argument-adjunct asymmetries which are accounted for by assuming Foc and a foc-feature. Therefore English also provides further evidence for the existence of Foc as a syntactic category.

NOTES

1. The agreement relations shown in (4) are not correct in a precise sense. Since Agree does not apply between elements of different phases, the probe C cannot extend its search domain into the v*P phase and seek out the object *what*. For the agreement to be possible, *what* must move to the edge position of the v*P phase. The movement is triggered by an optional EPP-feature assigned to v*. The precise agreements are thus as follows:



This explanation poses a problem, though. In (i), an in-situ *wh*-phrase does not stay in situ, but moves to SPEC-v* to agree with C. In fact, however, an in-situ *wh*-phrase is pronounced literally 'in situ'.

There are two possible solutions to this problem. A first possibility is to assume that edge positions are not pronounced in English: since edge positions are created for the computational necessity (i.e. phasal minimality), but not for representational necessity, elements occupying an edge position are not pronounced there. In (i), therefore, *what* is not pronounced at SPEC-v*, but at its base-generated position.

A second possibility is to assume that in-situ *wh*-phrases do not bear uninterpretable features: uninterpretable features for a *wh*-phrase are optional in nature. If so, *what* need not move at all since it has no uninterpretable features. (This assumption might have to say something about superiority effects, though. E.g. why

are the lower *wh*-phrases always 'in situ'?)

The present analysis tentatively adopts the first assumption, without exploring which possibility is a better one.

2. Although a fronted focus in a matrix clause conflicts with a nominal *wh*-phase, one in an embedded clause conflicts with long-distance extraction of an adverbial *wh*-phrase. (This was pointed out to me by Yukio Oba (personal communication).)

(i) a. *Who* do you believe that *only for this reason* they would hire *t*?

b. **Why* do you think that *only him* they would hire *t*? (Manzini (1998:203))

As shown by (19), focus fronting does not create a barrier by itself. It is suspected, therefore, that it is the whole embedded CP that constitutes a weak island. I leave open how the embedded CP is made a weak island by focus fronting.

3. According to Yasui (1998), sentences like (27) are considered to be 'rude' and 'impolite', but used in colloquial speech.

4. A topic construction is subject to various constraints: (i) multiple topicalization is not allowed (which does not hold in Italian, though), (ii) when a topic appears with a *wh*-phrase, it must precede the *wh*, (iii) an embedded topicalization is allowed only in a factive construction, and (iv) in an embedded topicalization, the topic must follow the complementizer *that*, and cannot cooccur with an embedded *wh*-phrase. The present thesis does not explore these issues. See Watanabe (1993) for a detailed discussion.

5. It is well known that *why* can be followed by a bare infinitive clause.

(i) Why settle for second best when you can buy the winner?

(Duffley and Enns (1996:229)

Duffley and Enns (1996) observe that this form is used as a rhetorical question. The speaker (advertiser) implies that there should be no reason to buy other goods. According to Yagi (1998), this is another case of the combination of *why* and a focus. In this case, the focus is VP.

6. Kunihiro Iwakura (p.c.) has pointed out to me that the assumptions shown in (37) would create the following sentence incorrectly.

(i) I do not know [$_{S''}$ why [$_{S'}$ what [$_{S}$ John bought]]]

Since *why* and *what* do not conflict over the same syntactic position, the sentence (i) would be predicted to be acceptable, contrary to fact.

Under Kuno and Takami's (1993) approach, ungrammaticality of (i) would be explained pragmatically. (See section 4.4.2.3 for their pragmatic account.) However, the pragmatic analysis just provides the judgment of *naturalness* for a given multiple *wh*-question. Actually, example (i) is excluded not because it is unnatural, but because it is simply ill-formed. Therefore, the deviance of (i) stands as further evidence against Kuno and Takami's pragmatic analysis for multiple *wh*-questions and their syntactic analysis for the (non-)cooccurrence of *wh*- and focus phrases based on (37).

7. Some previous analyses treat sentences like (44b) as degraded but acceptable. According to Hornstein (1995), the acceptability is derived from the recognition of the sentence as an echo question. To exclude the echo-question possibility, let us embed (44b) as below:

(ii) *I wonder *why* John bought *what*.

This example is excluded without divergence of judgment. In this regard, example

(44b) is not accepted as a true, non-echo question.

8. To be precise, McCawley (1998:501) states that a pair-list is 'a strong tendency', and that a single pair answer is allowed in English, too. To explain the difference, McCawley suggests that they should undergo different operations. It might be the case that although a single pair interpretation is very rare in English multiple questions, it is allowed in certain limited contexts. However, the judgment seems to vary from individual to individual. For example, Bošković (1998b) considers that a single pair reading is impossible even if a discourse is properly arranged to elicit a single pair reading. I do not consider the marginal reading here, and regard a pair-list reading as the only possible interpretation of English multiple *wh*-questions.

9. The reader might wonder why unselective binding by Foc cannot take place in the multiple focus construction and make the construction interpretable. I briefly point out hat unification of foci does not create an exhaustive interpretation. Suppose that there are two persons, *John, Bill* and two items *A, B* in the discourse, and that the speaker utters the following multiple foci sentence.

(i) (Sono mise-de-wa) John-wa A-wa katta.
that store-loc-top John-foc A-foc bought
'(At that store,) JOHN bought A.'

As for *John*, his purchase is stated exhaustively: he bought *A*, but not *B*. However, sentence (i) does not imply anything about *Bill's* purchase: he might have bought *B* or not. This is because *John* only bears a partially exhaustive reading. *John* is not the only person that bought something, but the only person that bought *A*. Therefore we cannot tell whether *Bill* bought *B* or not. It means that a focus in a multiple focus sentence cannot convey an exhaustive information.

The failure of unification of foci can either be syntactic or semantic. The restriction parts of foci might not undergo Absorption because of some peculiarity of focus. Alternatively, the multiple focus sentence might be excluded since the absorbed foci cannot be assigned a proper semantic reading. I leave the exact procedure open here.

10. The reader might wonder whether a *wh*-island is really a weak island. Extraction of a nominal *wh*-phrase out of a *wh*-island actually degrades the acceptability. Example (61a), for example, is judged '??' at best. However, the degradation might not be caused by a *wh*-island. Manzini (1992) observes that extraction of a nominal *wh*-phrase is fully acceptable when a *wh*-island is 'tenseless'. A *wh*-island is weak by itself, but it becomes strong when combined with T which bears a complete set of ϕ-features. See Chomsky (1986) and Manzini (1992) for a relevant discussion.

11. Oba (p.c.) observes that there are other kinds of weak islands.

(i) a. *What* are you [$_{AP}$ certain [$_{CP}$ that John repaired *t*]]?

b. **How* are you [$_{AP}$ certain [$_{CP}$ that John repaired it *t*]]? (Manzini (1992:116))

(ii) a. ?*Which book* did John announce [$_{DP}$ a plan [$_{CP}$ to read *t*]]?

b. **How* did John announce [$_{DP}$ a plan [$_{CP}$ to fix the car *t*]]?

(Chomsky (1986:35))

(iii) a. *Who* was he counting [$_{PP}$ on [$_{TP}$ them giving a present to *t*]]?

b. **How* were you counting [$_{PP}$ on [$_{TP}$ him behaving *t* in public]]?

The complement of N, A, P constitutes a weak island for *wh*-extraction. These islands

are not accounted for by the present analysis since they are not likely to contain any operators. I leave it for future research.

12. More precisely, a non-L-marked XP becomes a 'blocking category' (BC). A BC is equal to an inherent barrier unless the category is IP. See Chomsky (1986) for a precise definition of barriers.

13. Endo (1995) proposes the following constraint on Absorption.

(i) Wh-in-situ in a quantificational DP cannot undergo absorption. (Endo (1995:58))

An in-situ *wh*-phrase in a specific DP is not allowed since it cannot be unified with another moved *wh*-phrase. His proposal is valid indeed: since a variable of a *wh*-phrase makes an open sentence, it must be incompatible with specificity. However, statement (i) remains a stipulation unless the validity of (i) is supported on the independent ground.