RECONSTRUCTION, BECK EFFECTS AND *WH*-PHRASES IN SITU*

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ABSTRACT

This paper argues that *wh*-in situ is interpreted in its original position. Focusing on the ambiguity of *how many* sentences, it shows that the semantic behavior of *wh* in-situ can be explained without postulating LF (phrasal) movement. It is then pointed out that the fact that *wh*-phrases in situ lack anti-reconstruction effects follows directly from this non movement approach. The paper also shows that certain intervention effects discussed by Beck do not necessarily present a problem to this approach. It is suggested that the intervention effects are due to a constraint on movement of '*wh*-features', but not of '*wh*-phrases'.

1. INTRODUCTION

This paper discusses the interpretation of a *wh*-phrase that remains in situ. Huang [9] proposes that *wh*-phrases in situ move at LF (Logical Form) just like overtly moved *wh*-phrases. Under his analysis, we expect that *wh*-phrases left in situ are interpreted in the same way as those moved to the Spec of CP already at S-structure. However, there is some difference in the interpretation of these two types of *wh*-phrases. Examining relevant sets of data from English and Japanese, I argue for the position that Reinhart [16], [17] take; in situ *wh*-phrases do not move to the Spec of CP at LF.

Throughout the paper, I assume a modified version of Karttunen [10]'s semantics of Question. A question meaning is associated with a set of possible answers as proposed in Hamblin [6], but not with a set of true answers as seen in Karttunen. The meaning of (1a) is represented as in (1b). It is roughly equated with a set of propositions of the form 'x came' where x is a student. When John, Bill and Mary are the students in the world, (1c) is the relevant set for the question in (1a). A possible answer is a subset of the set of propositions that the question denotes when each member of the subset is true in the world.

(1) a. Which student came?
b. $\lambda p \exists x$ [student (x) $\wedge$ p = ^came (x)]
c. {John came, Bill came, Mary came} where John, Bill, Mary are the students

2. RECONSTRUCTION AND OVERT/COVERT DISTINCTION

In this section, we will see that *wh*-phrases left in situ are interpreted differently from overtly moved *wh*-phrases. Rizzi [18] shows that a *wh*-phrase that has moved across a weak island cannot be reconstructed to a position inside the island. If there is covert movement of *wh*-in-situ, we expect that the anti-reconstruction effects are also observed in *wh*-in-situ constructions. However, *wh*-in-situ in

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the weak island is interpreted in the position where it is. Here, I focus on the 'how many' phrase in negative islands.[1]

Let us begin with the following example from Rullman [19].

(2) How many books does Chris want to buy?
  a. What is the number n such that there are n books that Chris wants to buy?
  b. What is the number n such that Chris wants it to be the case that there are n books that he buys?

The sentence in (2) is ambiguous with respect to the interpretation of the *wh*-phrase. In the (a) reading, there are certain books which Chris wants to buy and the speaker is concerned with the number of the books he wants to buy. 'Many books' in this reading takes wide scope with respect to the verb 'want'. In the (b) reading, 'many books' takes narrow scope relative to 'want'. Chris might not have any specific books that he wants to buy in his mind. He just wants to buy a certain number of books and the speaker wants to know that number. In this case, 'many books' is assumed to be either syntactically or semantically reconstructed back to its D-structure position or somewhere within the scope of 'want'.[2] The paraphrase in (a) is the de re reading of the question and the one in (b) de dicto reading. The two interpretations will be represented schematically as follows.[3]

(3) a. which n [a group of books with n members [Chris wants to buy t]]
  b. which n [Chris wants to buy [a group of books with n members]]

Now let us look at another example from Rullman [19].

(4) How many books did no student wants to buy?
  a. What is the number n such that there are n books that no student wants to buy?
  b. *What is the number n such that no student wants it to be the case that there are n books that s/he wants to buys?

In (4), 'how many books' is overtly moved across a negative expression in the subject position. This question lacks the de dicto reading, which requires reconstruction of 'many books' under the scope of 'want'.

(5) a. which n [a group of books with n members [no student wants to buy t]
  b. *which n [no student wants to buy [a group of books with n members]]

It has been noticed that negative expressions interfere with reconstruction. I cannot discuss here how this anti-reconstruction effect is to be explained.[4] What I would like to do instead is to consider how the restriction of a *wh*-phrase in situ is interpreted when the *wh*-phrase is in the negative island.

Consider the question in (6), which does not contain any negative expressions.

(6) Who must read how many books?
  a. For which x, n, x is a person and n is a number and there are n books that x must read.
  b. For which x, n, x is a person and n is a number and it is necessary that x reads n books.

While the (b) reading is a preferred reading, the (a) reading is also available given an appropriate context. A possible context for each reading is illustrated below.

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[1] See Rullman [19] for discussion on other types of the 'how'-phrase. See Rullman and Beck [20] for discussion of the interpretation of 'which' phrases left in situ.

[2] See, for instance, [1] and [18] for syntactic reconstruction, [5] and [19] for semantic reconstruction.

[3] The reconstruction process might be semantic. Thus, the representations in (3) do not imply that only the syntactic reconstruction is relevant here.

[4] See, for example, [5], [18], [19], [20] for the relevant discussion.

(7) a. There are 100 books to be reviewed. Prof. Smith placed some of them on Bill's desk and told him to read them, and he placed some other books on Mary's desk and tell her to read them,.....

b. There are students who will definitely fail Prof. Smith's class if they do not do extra work. Prof. Smith decided to make them read books related to the class. Students can choose any books if they are related to the lecture, but the amount of the books they must read depends on the amount of assignments they didn't turn in.

Let us turn to the negative question in (8).

(8) Who doesn't have to read how many books?
a. For which x, n, x is a person and n is a number and there are n books that x does not have to read.
b. For which x, n, x is a person and n is a number and it is not necessary that x reads n books.

In (8), 'how many books' is in the negative island. Nevertheless, the (b) reading can be obtained just as easily as in the non-negative question in (5). The (a) reading, on the other hand, may not be easily obtained without a context. Some background information such as (8) is necessary.

(9) There are 10 books assigned for Prof. Smith's Ling 456. But the students who already took some other classes of Prof. Smith do not have to read all the books. For example, John took Introduction to Syntax, so he doesn't have to read Radford and Napoli; Bill took Reading I, so he doesn't have to read Hornstein in addition to the two book mentioned above,....

(8) shows that *wh*-in-situ in the negative island has a reading associated with the position where it originates. If there is covert *wh*-movement at all, we must say that the covertly moved *wh*-expression is not sensitive to the negative island, and that its restriction is freely reconstructed back to its original position. The difference between the overtly moved *wh* and the covertly moved *wh* must then be accounted for.

3. CHOICE FUNCTIONS AND *WH*-PHRASES IN SITU

This section first introduces Reinhart [16][17]'s analysis. Adopting her analysis, I will show that *how many*-phrases are interpreted properly in their original position. I will argue that *wh*-phrases in situ do not move at LF, wherefore they do not show anti-reconstruction effects.

Reinhart [16][17] proposes that indefinites are ambiguous and interpreted either an existential quantifier or a functional complex. For example, 'a book' is interpreted either as a generalized quantifier as in (10a) or a 'choice' function as in (10b).

(10) a $\lambda P \exists x[book(x) \wedge P]$
b. f(book)

When 'a book' is interpreted as a quantifier, it undergoes Quantifier Raising (QR), which is assumed to be a clause-bound movement. The functional variable 'f' in (10b) is associated with a special function which chooses a particular individual from the set which its argument 'book' designates, namely the set of books. The variable 'f' is bound by an existential quantifier introduced through the process called Existential Closure (EC) (cf. Heim [8]).[5]

Reinhart further shows that the wide scope reading of 'a book' in (11a) is explained without the movement of 'a book'.

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[5] Heim [8] assumes the movement of indefinites to the position where an existential quantifier is introduced. Reinhart does not assume this movement. Another difference between Heim and Reinhart is that the former assumes that variables are bound locally, but the latter allows the long distance binding of variables through EC.

(11) a. Every boy read a book.
b. $\exists f[\, f \in G \wedge \forall x[boy(x) \rightarrow read(x, f(book))]]$
where $G = \{f \mid \forall P[{}^{\vee}P \neq \varnothing \rightarrow f(P) \in {}^{\vee}P\}$, P of type <s,<e,t,>> or <s,<<e,t>,t>>

In (11b), 'f(book)' corresponds to 'a book' and the variable 'f' is bound by an existential quantifier introduced at the topmost S level. This 'f' is a 'choice' function as specified in the restriction clause 'f∈G'. (11b) says that there is a choice function 'f' such that for any boy 'x', 'x' read a specific book selected by 'f' from the book set. The book selected by 'f' does not vary with the boy we are concerned with.

Wh-terms are also indefinites, so they can be interpreted as a choice function. (12a) is given the interpretation in (12b); a set of propositions 'p', with a certain choice function 'f', 'p' is in the form 'a particular student picked out by 'f' saw Mary'.

(12) a. Which student saw Mary?
b. $\lambda p \exists f\, [f \in G \wedge p = {}^{\wedge}saw\ (f(student), Mary)]$

Reinhart assumes that EC for *wh*-phrases occurs only at the C[+wh] level.

Wh-phrases in situ are interpreted in their original position as follows.

(13) a. Who will be offended if we invite which professor?
b. $\lambda p \exists <x,f>[person\ (x) \wedge f \in G \wedge p = {}^{\wedge}[[invite\ (we, f(professor))] \rightarrow x$ will be offended]]

In (13), we are concerned with some function 'f' and a proposition 'p'; if we invite a particular professor selected by 'f', x will be offended.'

Reinhart's arguments for her functional analysis are summarized below. In an LF movement approach, 'which professor' in (13a) is moved to the Spec of CP at LF as shown in (14).

(14) $[who_i$ which $professor_j\ ]\ t_i$ will be offended if we invite t_j

This movement violates the subjacency condition, crossing an adjunct island. Nonetheless, the sentence in (13a) is grammatical. It has been suggested by Huang [9] that the subjacency is an S-structure condition and not observed at LF. However, under the Minimalist assumption, no rule can be associated with a particular level anymore. We must seek for another explanation.

If we assume that *wh*-phrases do not move at LF, the subjacency condition is irrelevant for *wh*-phrases which stay in their D-structure position. There arises a question, however, as to the interpretation of *wh*-phrases left in situ. Let us examine if (15a) is a possible interpretation of the question in (13a) above.

(15) a. $\lambda p \exists <x,y>[person(x) \wedge p = {}^{\wedge}[[we\ invite\ y \wedge professor(y)]] \rightarrow x$ will be offended]]
b. Lucie will be offended if we invite Donald Duck.

In (15a), 'which professor' is treated as an indefinite in the sense of Heim [8] and is bound by the existential operator in the projection of C. Reinhart argues that (15a) is not an appropriate interpretation for (13a). If the question is interpreted as in (15a), (15b) is expected to be one of the possible answers to the question. When we pick up 'Donald Duck' for the value of 'y', 'professor(y)' in the antecedent clause under 'p' becomes false since 'Donald Duck' is not a professor. Then the antecedent clause becomes false by the semantics of conjunction. When the antecedent clause is false, the sentence is necessarily true by the semantics of implication. Thus, (15b) should be an answer to (13a), given the interpretation of (15a). It is apparent that (15b) is not an appropriate answer to the question.

There is no Donald Duck problem when (13a) is interpreted as in (13b). In (13b), we are concerned with a function which picks out a professor as its output value.

Let us now go back to the *how many* sentence in question in (6), which is repeated below.

(6) Who must read how many books?
a. For which x, n, x is a person and n is a number and there are n books that x must read.

b. For which x, n, x is a person and n is a number and it is necessary that x reads n books.

Under Reinhart's analysis, the question in (6) is assigned the interpretations below.

(16) a. $\lambda p\ \exists<x,f>[person(x) \wedge f \in G \wedge$
$p = \wedge \exists g[\ g \in G \wedge must\ [read\ (x, g(\{books\ (X) \wedge |X| = f(N)\}))]]]$
b. $\lambda p\ \exists<x,f>[person(x) \wedge f \in G \wedge$
$p = \wedge must\ [\exists g[\ g \in G \wedge read\ (x, g(\{books\ (X) \wedge |X| = f(N)\}))]]]$

Note that in (16) Reinhart's choice function is extended to the one which picks up both plural singular individuals (cf.[12]).

We can account for the two readings in the negative question in (8) just as in the non-negative question in (6).

(8) Who doesn't have to read how many books?
a. For which x, n, x is a person and n is a number and there are n books that x does not have to read.
b. For which x, n, x is a person and n is a number and it is not necessary that x reads n books.

(17) a. $\lambda p\ \exists<x,f>[person(x) \wedge f \in G \wedge$
$p = \wedge \exists g[\ g \in G \wedge not\ [must\ [read\ (x,\ g(\{books\ (X) \wedge |X| = f(N)\}))]]]]$
b. $\lambda p\ \exists<x,f>[person(x) \wedge f \in G \wedge$
$p = \wedge not\ [must\ [\ \exists g[\ g \in G \wedge read\ (x,\ g(\{books\ (X) \wedge |X| = f(N)\}))]]]]$

Wh-phrases left in situ stay in their original position and there they are interpreted through unselective binding.[6] If *wh*-phrases in situ do not move, they are of course indifferent to reconstruction and reconstruction barriers.

4. WH-PHRASES IN JAPANESE

It is generally assumed that *wh*-phrases in Japanese do not overtly move to the Spec of CP. This section illustrates that Reinhart's analysis can naturally be extended to *wh*-questions in Japanese. It will be also shown that Japanese 'how many' questions also support the non-movement approach.

The question with 'nansatu-no hon-o (how many books-Acc)' in (18) has both de re and de dicto readings.[7]

(18) Chris-wa nan-satsu-no hon-o kau-tsumori desu ka ?
-Top what-CL-Gen book-Acc buy-intend be Q

a. What is the number n such that there are n books that Chris wants to buy?
b. What is the number n such that Chris wants it to be the case that there are n books that he buys?

Scrambling does not affect the availability of the two readings.

(19) Nan-satsu-no hon-o Chris-wa kau-tsumori desu ka ?
what-CL-Gen book-Acc -Top buy-intend be Q

(19) is interpreted as a question asking the number of a certain group of books that Chris wants to buy. It also has the reading in which Chris just cares about the number of books he is going to buy while he might not have decided which books to buy.

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[6] We cannot completely deny the possibility of covert *wh*-movement. If *wh*-in-situ has an option as to whether it stays or moves, we get the two readings in question.

[7] In Japanese, 'nan (what)' is used with a classifier to ask quantity.

Negative questions in Japanese also show ambiguity with respect to the interpretation of the 'how many' phrase. An NPI 'daremo (anyone)' is used with a negated verb 'kawanakatta (bought not)' in the following examples, in order to make sure that the scope of the negation extends to VP.[8]

(20) a. *Daremo nan-satsu-no hon-o kawanakatta no?
Anyone what-CL-Gen book-Acc bought not Q

b. Nansatsu-no hon-o daremo kawanakatta no?
what-CL-Gen book-Acc anyone bought not Q

c. For which n, there are n-many books that no-one bought.
d. For which n, no-one bought n-many books.

It will be shown why (20a) is ungrammatical in the next section. Let us keep in mind that a Japanese *wh*-phrase cannot follow an NPI in a simple sentence such as in (20a). (20b) is associated with the two readings illustrated in (20c) and (20d). The reading in (20c) might not easily be obtained as the reading in (20d).[9]

Recall that it is also the case in English that the narrow scope reading of 'many books' is available but not the wide scope reading with respect to the negation in the sentence. Heim [8] proposes that indefinites are existentially closed under Negation and Modal operators. The closure operation for 'many books' does not seem to be mandatory when those operators are introduced, but the operation seems to be active to guide the preference for the de dicto reading.

This reading preference is also observed in the non-*wh* sentences such as in (21).

(21) a. Daremo 5-satsu-no hon-o kawanakatta.
Anyone -CL-Gen book-Acc bought not

b. 5-satsu-no hon-o daremo kawanakatta.
-CL-Gen book-Acc anyone bought not

'No-one bought 5 books.'

One of the possible situations described by (21) is; no-one bought '5' books though Jim bought 4, Mary 3. Native speakers hesitate to say that (21), especially (21a), presupposes some specific 5 books no-one bought.

Such presupposition is completely absent when a 'shika (except)' phrase is used instead of 'daremo (anyone)'.

(22) a. Chris-shika 5-satsu-no hon-o kawanakatta.
-except -CL-Gen book-Acc bought not

b. 5-satsu-no hon-o Chris-shika kawanakatta.
-CL-Gen book-Acc -except bought not

'Only Chris bought 5 books'
(No-one else bought '5' books though Jim bought 4, Mary 3)

Negative questions with 'nan-satsu-no hon' do not have the de re reading, as we naturally expect.

(23) a. ??Chris-shika nan-satsu-no hon-o kawanakatta no?
-except what-CL-Gen book-Acc bought not Q

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[8] See Kuno [11] for the claim that the negative morpheme just negates the verb it is attached to.

[9] Beck and Kim [3], however, report that Korean sentences similar to (22b) only have the de re reading. Beck [2] shows that the de re reading is not available to 'was für (what kind of)' questions in German while 'wieviele (how many)' questions have both de re and de dicto readings.

b. Nan-satu-no hon-o Chris-shika kawanakatta no?
what-CL-Gen book-Acc -except bought not Q

c. *For which n, there are n-many books that only Chris bought.
d. For which n, only Chris bought n-many books.

We have seen that Japanese *wh*-phrases in the Negative Island are interpreted in situ, just like English *wh*-phrases in situ. If we assume LF *wh*-movement, we expect reconstruction to be blocked due to the existence of the island; the restriction of the moved *wh*-phrase does not get interpreted inside the negative island through reconstruction. The data show, however, that *wh*-phrases are interpreted inside the scope of the negation both in Japanese and English.

Let us now examine the interpretation of a *wh*-phrase inside the relative clause. In (24), 'dare-ga (who-Nom)' is in the relative clause, but it is associated with the matrix question.

(24) John-wa [dare-ga kaita hon-o] yomi-mashita-ka?
-Top who-Nom wrote book-Acc read Q
'John read books who wrote?'

(25) λp∃f[f∈G ∧ p=^∃x[[book(x) ∧ write (f(person), x)] ∧ read (John, x)]]

The question in (24) has the interpretation in (25), even though 'dare-ga' is not moved covertly.[10]

Note that the subjacency condition is violated when 'dare-ga' moves out of the relative clause.[11] Nishigaushi [14] argues that we do not see subjacency effects because not only a *wh*-phrase in situ but a whole NP containing the *wh*-phrase is moved to the Spec of CP at LF. While sitting inside the relative clause, the wh-element is associated with the matrix Q, passing up its *wh*-feature to the head of the complex NP above. However, if we assume LF movement of the complex NP, we will face with the reconstruction problem again. Consider the following sentences.

(26) a. *?Daremo Bill-ga nan-satsu-no hon-o katta mise-ni] ikanakatta no?
anyone -Nom what-CL-Gen book-Acc bought shop-to went not Q

b. [Bill-ga nan-satsu-no hon-o katta mise-ni] daremo ikanakatta no?
-Nom what-CL-Gen book-Acc bought shop-to anyone went not Q

c. For which n, there is a bookstore where Bill bought n-many books and no-one went there.
d. For which n, no-one went to the bookstore where Bill bought n-many books.

(27) a. ??Chris -shika [Bill-ga nan-satsu-no hon-o katta mise-ni]
-except -Nom what-CL-Gen book-Acc bought shop-to
ikanakatta no?
went not Q

b. [Bill-ga nan-satsu-no hon-o katta mise-ni] Chris-shika
-Nom what-CL-Gen book-Acc bought shop-to -except
ikanakatta no?
went not Q

c. ?For which n, there is a bookstore where Bill bought n-many books and only Chris went there.
d. For which n, only Chris went to the bookstore where Bill bought n-many books.

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[10] In (25), 'hon (book)' is analyzed as a generalized quantifier. When we take it as a functional complex, we will have (i) for (24).
(i) λp∃f[f∈G ∧ p=^∃g[g∈G ∧ read (John, g (Σ *λx[book(x) ∧ write(f(person), x)]))]]
(* gives the power set of the set; Σ gives the largest group within the set. cf. [24])

[11] It must be noted that there is controversy over whether or not in-situ *wh*-phrases show subjacency effects in Japanese. See [14], [23] for relevant discussion.

(26a) and (27a) are not grammatical since an NPI precedes a *wh*-phrase in the sentences. (26b) is associated with the two readings we have been concerned with; namely, (26c) and (26d). As for the question with 'shika (except)' in (27b), 'many book' takes narrow scope relative to the negation. The wide scope reading in (27c) is possible, but can only be accepted marginally.[12] Now if the whole NP is pied-piped to the Spec of CP at LF as Nishigauchi proposes, we must say that reconstruction takes place across the Negative Island, in order to account for the de dicto reading of (26b) and (27b).

The materials in the complex NP are interpreted ambiguously even in the case where *wh*-expressions other than 'how many' are involved. The following example was provided by Tomioka (lecture notes, 1997 LSA Summer Institute).

(28) a. Cornell-ni-wa [nani-go-de kaitearu hon-ga]$_i$ is-satsu-mo t_i nai no?
-at-Top what-lang-in written book-Nom one-CL-even be-not Q

b. What language does Cornell have no books that are written in t ?
c. ?What language is such that there is a group of books written in t and Cornell doesn't have that group of books.

For (28a), we can give some language as an answer even if no books in the world are written in the language. Thus the materials in the bracket are interpreted in the scope of the NPI 'is-satsu-mo (one-CL-even)' and negation.

We can assign the following semantic representations to (28a), without assuming *wh*-movement at LF.

(29) a. $\lambda p \exists f[\, f \in G \wedge p = \hat{} \neg\, \exists g[g \in G \wedge$ have (Cornell , $g(\Sigma^* \lambda x[$book$(x) \wedge$ written in $(x,$ f(language))]))]] (for (28b))

b. $\lambda p \exists f[\, f \in G \wedge p = \hat{} \exists g[g \in G \wedge \neg$have (Cornell , $g(\Sigma^* \lambda x[$book$(x) \wedge$ written in $(x,$ f(language))]))]] (for (28c))

Based on Reinhart's analysis of *wh*-in-situ, the NP containing 'nani-go-de (what-language-in)' is interpreted as an indefinite and gets bound by an Existential Quantifier introduced inside or outside the scope of negation.[13]

Under Nishigauchi's analysis, the whole NP is pied-piped and moved to the Spec of CP at LF. To account for the reading in (28b), we must move the *wh*-phrase out of the NP and then reconstruct the NP the across the Negative Island.[14]

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[12] In (21) and (22), we have seen that *wh* questions with 'shika (except)' do not allow the wide scope reading of the number phrases with respect to negation. (27) shows that if a *wh*-element is embedded in the relative clause and not originated in the same clause as the negative expression, the wide scope reading is available to the question.

[13] The NP can also be interpreted as a generalized quantifier and raised by QR.

[14] Dayal (1997 LSA Summer Institute Lecture) argues that there is no reconstruction after the pied-piping of the complex NP. She discusses the following contrast noted in Hasegawa [7]. The sentence in (i) is ambiguous with respect to the scope relation between 'everyone' and the complex NP, but the question in (ii) does not have the wide scope reading on 'everyone'.

(i) a. Daremo-o$_i$ [LGB-o yonda hito-ga] t_i shootai-shita.
everyone-Acc -Acc read person-Nom invited
b. For everyone y, there is a person x who read LGB such that x invited y.
c. There is a person x who read LGB such that for everyone y, x invited y.

(ii) a. Daremo-o$_i$ [nani-o yonda hito-ga] t_i shootai-shita no?
everyone-Acc what-Acc read person-Nom invited Q
b. * For which x, for every person y, there is a person z that read x such that z invited y.
c. For which x, there is a person z that read x such that for every person y, z invited y.

However, von Stechow [24] comments on the judgment of the question in (ii) that it varies among native speakers and that those who agree with Hasegawa's judgment take 'everyone' as an intervener inducing Beck Effects, which will be discussed in Section 5.

5. BECK EFFECTS

This section deals with Beck Effects, which may present a problem to the LF non-movement approach we have argued for. I suggest a possible solution by utilizing feature movement.

In the previous section, it was shown that a *wh*-element cannot be preceded by a negative expression in Japanese.[15] More examples are given below.

(30) a. *Chris-shika nani-o tabenakatta no?
-except what-Acc ate not Q

b. Nani-o Chris-shika tabenakatta no?
what-Acc -except ate not Q

'What did only Chris eat?'

Beck [1], [2] discuss the same ordering restriction observed in German interrogative sentences. (31) shows that the in situ *wh*-phrase 'wo (where)' does not come after 'niemanden (nobody)'.[16]

(31) a. Wer hat wo niemanden angetroffen?
who has where nobody met

b.*Wer hat niemanden wo angetroffen?
who has nobody where met

'Who didn't meet anybody where?'

Beck describes this phenomenon as an intervention effect on the chain created by LF *wh*-movement. The ungrammaticality results when an element moves at LF, crossing a negative expression.[17]

(32) $[\ X_k$ ...[Neg [... t_k^{LF}...]]...]

(33) a. Wen glaubt niemand dass Karl gesehen hat?
whom believes nobody that seen has

b. *Was glaubt niemand wen Karl gesehen hat?
what believes nobody whom seen has

'Who does nobody believe that Karl saw?'

(33a) shows that overt movement of 'wen (whom)' crossing 'niemand (nobody)' does not lead to the ungrammaticality. When the scope marker 'was (what)' is used to indicate the scope of 'wen' as in (33b), 'niemand' blocks the association of 'wen' with the position which 'was' is in.

Obviously, my discussion in the previous sections is not compatible with Beck's analysis. It should be noted, however, that Chomsky [4] argues that covert movement is an instance of feature movement, but not of phrasal movement. Consider the difference in the binding possibility of the sentences in (34).

(34) a. John wonders which picture of himself Bill saw.
b. John wonders who saw which picture of himself.

'Himself' in the overtly moved *wh*-phrase in (34a) is bound by 'John' or 'Bill' while 'himself' in the *wh*-phrase in situ in (34b) is bound by 'who'. If we assume only a *wh* feature moves at LF, 'himself' stays in the object positions and gets locally bound by 'who' there.

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[15] See [21], [22] for a detailed discussion on the interaction of NPIs and *wh*-phrases in Japanese.

[16] In (31a), 'wo' is scrambled to a position higher than 'niemanden'.

[17] Beck finds that not only negative elements but 'jeder (everyone)' and 'oft (often)' show the same type of blocking effects.

Miyagawa [13] reanalyzes Beck's intervention effects in accordance with Chomsky's proposal, and argues that the intervention effects are not a property of covert 'phrasal' movement. Instead, the chain created by covert 'feature' movement is considered to be affected by a negative intervener.[18] Since *wh* 'feature' movement leaves an overt *wh* form behind, the *wh*-phrase or its restriction is interpreted in the original position. Miyagawa's analysis, thus, makes it possible to maintain Reinhart's analysis. What Reinhart argues against is covert (phrasal) movement of a *wh*-phrase across an island. The postulation of covert feature movement arguably does not affect her functional binding approach to *wh*-phrases in situ.[19]

To conclude, the intervention effects do not necessarily show the existence of *wh*-(phrasal) movement at LF.[20] Thus, we can still maintain the position that *wh*-phrases in situ are interpreted in the position where their overt form appears.

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[18] Miyagawa extends his analysis to overt movement. The ungrammaticality of (i) below is considered to be an example of Beck's intervention effects.

(i) * **Futatsu**$_i$ Chris-shika **Ringo-o** t_i tabenakatta.
two-CL -except apple-Acc ate not
'Only Chris ate two apples.'

[19] We must assume that feature movement is free from the subjacency condition and the head movement constraint, if a *wh*-feature of all *wh*-phrases in situ moves.

[20] We must further investigate what type of movement occurs when, and see whether Beck's intervention effects are attributed to a condition particular to a specific movement type. Pesetsky [15] points out that the intervention effects are observed when the superiority condition is violated.

(i) a. Which person read which book?
b. Which person didn't read which book?

(ii) a. Which book did which person read?
b. *Which book didn't which person read?

He claims that 'which person' undergoes *wh*-feature movement in (ii).

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