Scrambling and Reconstruction at LF*

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1. Introduction

In this paper, we examine the various possibilities of the positions in which NPs (DPs) which have undergone scrambling, being ‘pronounced’ in a dislocated position in the sentence, can be interpreted. Specifically, our focus of attention will be on the interpretation of the NPs (DPs) which are highlighted by bold-face letters in the following sentences in Japanese.

(1) a. Kono hon-o Yamada-san-ga ti kai-ta.
    this book-Acc Mr. Yamada-Nom write Past
    ‘This book, Mr. Yamada wrote.’

b. Kono hon-o Hanako-ga [Yamada-san-ga ti
    this book-Acc -Nom Mr. Yamada-Nom

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I would like to thank Joseph Emonds and an anonymous reviewer for Gengo Kenkyu for their detailed comments on the earlier versions of the present article. The latter reviewer has brought to my attention the importance and relevance of Ueyama (1998) and Sauerland (1998) to the study represented here. I would like to incorporate a comparison of these works with the present study in a future work.

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kai-ta to] it-ta
write Past that say Past
'This book, Hanako said Mr. Yamada wrote.'

We will consider the positions in which these NPs may be interpreted in connection with their semantic and syntactic properties, interacting with binding theory and quantifier scope.

It will be shown in the present study that, in a large number of cases, constituents preposed by Scrambling are reconstructed to a position lower than that where those constituents are actually pronounced. Further, it will be shown that the positions where the preposed constituents can be reconstructed are not only their so-called D-structure positions. Rather, they can be reconstructed to a number of positions within the sentence. This can be shown by the various ways in which the preposed constituents can be interpreted, in terms of scope interaction with other scope-bearing elements (SBs) including quantifiers and scope-inducing verbs, and in terms of binding involving anaphors and pronouns acting as variables bound by them. However, the range of the possible positions in which reconstruction may take place is actually restricted, and what we will see is that it is Binding Theory that plays the most active role in restricting such possibilities.

The findings of the present discussion will support the hypothesis that Binding Theory applies at LF, the level at which quantifiers and wh-elements are given relevant interpretation.

2. Scrambling as A-and A'-movement
   2.1 Saito's (1992) observations

The most influential work on Scrambling in Japanese to date is Saito (1992), in which it is claimed that clause-internal, or short distance Scrambling is essentially A-movement while long-distance Scrambling, in which an NP (DP) is dislocated over a clause which in turn dominates a clause in which the said NP originated, is considered to be a case of
A’-movement\(^1\). This distinction is to a large extent based on the following contrast.

(2) a. Karera\(_i\)-o [otagai\(_i\)-no sensei]-ga \(t_i\) hihan-sita (koto)
    them-Acc each-other-Gen teacher-Nom criticize-did that
    ‘Them\(_i\), each other\(_i\)’s teachers criticized \(t_i\).’

    b. *Karera\(_i\)-o Masao-ga [otagai\(_i\)-no sensei]-ni
    them-Acc -Nom each-other-Gen teacher-Dat
    [Hanako-ga \(t_i\) hihan-sita to] itta (koto)
    -Nom criticize-did that said that
    ‘Them\(_i\), Masao said to each other\(_i\)’s teachers that
    Hanako criticized \(t_i\).’

Example (2a), a case of clause-internal Scrambling, contrasts in grammaticality with (3), which minimally differs from (2a) in that it exhibits the basic word-order and hence no Scrambling.

(3) ?*[Otagai\(_i\)-no sensei]-ga karera\(_i\)-o hihan-sita (koto)
    each-other-Gen teacher-Nom them-Acc criticize-did that
    ‘Each other’s teachers criticized them.’

Sentence (3) is ungrammatical because the reciprocal anaphor otagai ‘each other’ is not c-commanded and hence not bound by a proper antecedent, in this case an NP with a plural interpretation, such as karera ‘they/them’. In (2a), in contrast, the potential antecedent for the anaphor is in a position c-commanding the anaphor due to Scrambling. This relation, Saito argues, is analogous to the binding relation observed in Raising constructions in English, like the following.

(4) The boys\(_i\) seemed to each other\(_i\)’s mother [\(t_i\) to be honest].

In this example, the reciprocal anaphor is bound by the plural NP the

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\(^1\) This is an oversimplification. Saito (1992) in fact argues that short-distance Scrambling has a property of A’-movement as well.
boys in the position to which it was raised by A-movement, not in its original position in the complement clause.

Thus, Saito (1992) assimilates the binding relation in (2a) to that of (4), concluding that short-distance Scrambling in Japanese is a case of A-movement.

Turning to (b), the binding of the anaphor by the plural NP which has undergone long-distance Scrambling to a position c-commanding it at S-structure is impossible. This fact is assimilated to the status of the binding relation involving wh-movement in sentences like the following.

(5) *Which boys did Mary tell each other’s mothers that Ms. Smith had scolded t? The ungrammaticality of this sentence is accounted for on the grounds that the reciprocal anaphor is not c-commanded by the trace of the wh-phrase.

Thus, based on the generalization that binding relations involving A’-movement are determined by their pre-movement position, Saito (1992) concludes that long-distance Scrambling, exemplified by (2b), is a case of A’-movement.

2.2 Discussion

Cast in the framework of Minimalist syntax, Saito’s (1992) observations can be reinterpreted in terms of reconstruction at LF: Binding with long-distance Scrambling involves reconstruction at LF, while binding with short-distance Scrambling does not involve reconstruction.

Apart from the fact that the relevance of the A/A’ distinction in the current framework is no longer as clear as it used to be in GB syntax, the situation summarized in the above diagrams does not seem to capture the entire story about binding relations involving reconstruction.

One notable problem is that it has been shown by several authors (e.g. Fiengo and May 1994, Heycock 1995, Fox 1999, 2000) that reconstruction is relevant to (what corresponds to) both A-and A’-de-
dependencies, on the assumption widely accepted in the current framework that binding theory applies at LF.

For example, to account for the scope relations seen in the following, reconstruction is motivated to 'lower' the matrix subject to the complement subject position at LF.

(6) [A guard], appears to John [\(t_i\) to be standing in front of every building] \(\Rightarrow\)
   e appears to John [[a guard] to be standing in front of every building]

The indefinite NP which is pronounced in the matrix subject position is optionally reconstructed to the complement subject position, where it can enter into a proper scope relation with the quantifier every building, the latter taking wide scope.

In this type of case as well, Binding Theory limits the extent to which reconstruction may take place. Thus, in the following example on the relevant interpretation, reconstruction is not permitted.

(7) (??) [A guard], appears to his superior [\(t_i\) to be standing in front of every building].

In (7), the indefinite NP in the subject position cannot be reconstructed to the complement clause, for in that position the indefinite would be unable to bind the pronoun in the matrix clause. Therefore, the pronoun can only be interpreted in the matrix clause, where it has wide scope, giving rise to a bizarre interpretation on which one person was standing in front of every building at the same time. This is one example of the kind of evidence provided by Fox (1999, 2000) and others to show that there is a strong relation between scope and Binding Theory.

We will show in the sections to follow that this close relation be-
tween scope and Binding Theory holds with both short- and long-distance Scrambling in Japanese: Both the dislocated and reconstructed positions participate in binding theory at LF, and this is true of constructions involving both short- and long-distance Scrambling. In many cases, one of the relevant positions is chosen as the relevant position for binding, and this choice is subject to various factors. What we will observe throughout is that Binding Theory plays a part in narrowing down the possibilities of reconstruction. We will focus our attention on this subject in later sections.

Saito (1992) notices that the status of sentences like the following is not straightforwardly captured by the distinction that he draws between short- and long-distance Scrambling.

(8) a. *[Masaoi-no hahaoya]-o; karei-ga ai-site-iru (koto)
   -Gen mother-Acc he-Nom love fact
   '[Masaoi's mother], he loves t.'

b. Zibun-zisin-oi [Hanako-ga hihan-sita] (koto)
   self -Acc -Nom criticize-did fact
   'Herself, Hanako criticized.'

The grammaticality of examples like (8b), which suggests that an anaphor dislocated by short-distance Scrambling can be interpreted in its reconstructed position, can be accounted for by the supposition, which is also expressed by Saito, that short-distance Scrambling can also be A'-movement, which requires reconstruction.

However, (8a), which is ungrammatical according to Saito's judgment, cannot be explained by the theory outlined. If short-distance Scrambling can either be A- or A'-movement, the sentence has a chance to be derived by A-movement. In this case, the fronted NP in this sentence should be able to be interpreted in the dislocated position, in which neither the pronoun nor its purported antecedent c-commands the other.

In fact, my own judgment of (8a) is that it is not so bad. Even if
(8a) does not sound so good, it is possible to come up with sentences which are parallel in structure and yet tolerable in acceptability. If this judgment is correct, sentence (8a) is no longer a problem to the analysis based on the A-A’ distinction of Scrambling. In fact, we are going to argue in the rest of the paper that factors other than the A-A’ distinction are at play in predicting the behavior of Scrambling. This supports the Minimalist framework in which the A-A’ distinction has been virtually lost.

In the next section, we will explore an analysis of dislocated constituents based on the semantic notion of referential/nonreferential asymmetries, argued for by Heycock (1995) and further elaborated by Fox (1999, 2000), and we will try to show that this line of thought sheds light on subtle aspects of sentences like (8a), which exhibits condition C effects (or the absence thereof) involving dislocated constituents.

3. Referential/Nonreferential Asymmetries

3.1 Heycock (1995)

After reviewing several preceding analyses of reconstruction, such as Barss (1986, 1988) and Huang (1993), which are more or less focused on the asymmetries in terms of the argument/predicate distinction with respect to the dislocated constituents, Heycock (1995) presents an analysis of the relevant phenomena based on the asymmetries in terms of the referential/nonreferential nature of the fronted constituents.

In the previous analyses reviewed by Heycock (1995), attention was mainly paid to whether the fronted constituent behaves as an argument or a predicate.

(9) a. [Which allegations about Johni]j do you think he; will deny tj?
    b. *[How proud of Johni]j do you think he; is tj?

Example (9a) is considered to be grammatical since the fronted constituent is an argument (NP) and can be interpreted in the surface po-
sition, in which neither the pronoun in the matrix clause nor John in the fronted constituent c-commands the other. In contrast, the fronted constituent is a predicate (AP), which by hypothesis requires reconstruction as in:

(10) [How] do you think he is [proud of John]

Here, the R-expression John is c-commanded by the pronoun which purports to have the same reference – this is a violation of binding condition C and (10) is ruled out.

Now, Heycock (1995) shows that some arguments (NPs) pattern together with predicates in behaving as though they had to be reconstructed to their D-structure position. Consider the contrast in the following examples.

(11) a. [Which stories about Diana], did she most object to tj?
   b. *[How many stories about Diana], is she likely to invent tj?

Heycock assumes that the R-expression Diana in the sentences in (11) is contained in an adjunct, which, following Lebeaux (1991), she assumes can be added into the constituent after it has been moved out of the c-command domain of the coindexed pronoun, obviating any effect of the condition C. Therefore, for Heycock, it is the status of (11b) which requires explanation.

Heycock argues that the crucial difference between the examples in (11) is that the fronted constituent in (11a) is referential while that in (11b) is nonreferential: The fronted constituent in (11a) is considered to be referential because of the semantics of which, which has the function of presupposing the range of entities from which the relevant choice can be made. Also, the semantics of the predicate in the matrix clause contributes to the referential status of the fronted constituent: objecting to X presupposes the existence of X. In contrast, Heycock observes that (11b) does not presuppose the existence of a set of entities of the type specified by the NP contained in the wh-phrase. In addition, the
semantics of the predicate \textit{(likely to) invent}, being a creational verb, contributes to the reading in which the presupposition is absent\textsuperscript{2}).

Heycock further discusses the semantics of \textit{how many}, which is relevant to the semantic properties of the fronted constituent. Since this point is very important in the analysis of Scrambling in Japanese as well, we will turn to this in a later section.

### 3.2 The Asymmetries in Japanese

The asymmetries based on (non)referentiality are also observed in Scrambling in Japanese, with an R-expression contained in a fronted constituent:

(12) a. \[Hanako\textsubscript{i}-no dono sotugyoo-syasin-o\] \textsubscript{j} kanozyoi\textsubscript{i}-ga -Gen which graduation pic.-Acc she-Nom \[t_j \text{ Amerika-e okutta no?} \]
\[\text{America-to sent } Q \]
'\textbf{[Which graduation picture of Hanako\textsubscript{i}]j did she\textsubscript{i} send } t_j \textbf{to America?}''

b. ??\[Hanako\textsubscript{i}-no donna sotugyoo-syasin-o\] \textsubscript{j} kanozyoi\textsubscript{i}-ga -Gen what kind graduation pic.-Acc she-Nom \[t_j \text{ Hawai-de toru no?} \]
\[\text{Hawaii-in take } Q \]
'\textbf{[What kind of graduation picture of Hanako\textsubscript{i}]j is she\textsubscript{i} going to take } t_j \textbf{in Hawaii?}''

In (12a), which is grammatical on the interpretation indicated by the indexing, the semantics of the \textit{wh}-determiner \textit{dono} 'which', as well as the semantics of the predicate \textit{okuru} 'send (to America)', contribute to

\textsuperscript{2}) Joseph Emonds (p.c.) suggests, as a possible explanation for the relevance of referentiality, that presupposing the existence of a set of stories about Diana implies that Diana is already known in the discourse. Emonds further suggests that if this is right, the pronoun may be anaphoric on the individual in the discourse, not an NP in [Spec CP].
the referential interpretation of the fronted constituent — there is a
definite presupposition that there are some graduation pictures of
Hanako. In (12b), which is worse than (12a) on the interpretation
specified by the indexing, both the semantics of the wh-determiner
donna ‘what kind of’ and the predicate toru ‘take’ force the non-
referential interpretation of the fronted constituent.

The following examples, which do not involve wh-questions, show
the same contrast.

(13) a. [Hanako
i-no sotugyoo-syasin-o] j kanozyo
i-ga t j
   -Gen graduation pic.-Acc she-Nom
   Amerika-e okutta (koto)
   America-to sent fact
   ‘[A graduation picture of Hanako
i] j shei sent t j to America.’

b. ??[Hanako
i-no sotugyoo-syasin-o] j kanozyo
i-ga t j
   -Gen graduation pic.-Acc she-Nom
   Hawai-de toru (koto)
   Hawai-in take fact
   ‘[A graduation picture of Hanako
i] j shei is going to take t j in
   Hawaii.’

Notice that these sentences minimally differ in their predicates, one
presupposing the existence of a set of graduation pictures, the other not
having this presupposition.

Thus, on the hypothesis entertained by Heycock (1995) that front-
ed constituents which have nonreferential interpretation are recon-
structed to their D-structure position, (13b) has essentially the follow-
ing LF representation, which shows a condition C violation.

(14) shei is going to take [a graduation picture of Hanako
i]

The examples in (13) both involve short-distance Scrambling. It is
important to notice here that the contrast observed in (13) is essentially
preserved in the following sentences, which involve Scrambling over a
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clause.

(15) a. [Hanako-i-no sotugyoo-syasin-o]j Taroo-ga [kanozyo-i-ga tj -Gen graduation pic.-Acc -Nom she-Nom Amerika-e okutta to] omotta (koto) America-to sent that thought fact 'A graduation picture of Hanako; Taro thought she; sent tj to America.'

b. ??[Hanako-i-no sotugyoo-syasin-o]j Taroo-ga [kanozyo-i-ga tj -Gen graduation pic.-Acc -Nom she-Nom Hawaii-de toru to] omotta (koto) Hawaii-in take that thought fact 'A graduation picture of Hanako; Taro thought she; is going to take tj in Hawaii.'

If the judgment is correct, this shows that the distinction between short-distance and long-distance Scrambling does not play such an important role, but the distinction in terms of referentiality does play a role independent of the distance.

3.3 Difficulties in judgment

Speakers' judgments of the relevant examples in fact do not appear to be so clear as I started out assuming: Some speakers find examples like (12b) not as bad as the analysis based on referentiality would predict. To see this, consider the following example3).

(16) [Tanaka-san-ti ni-tuite-no donna hon-o]j kare-i-ga tj Mr. Tanaka about-Gen what like book-Acc he-Nom kakoo-to siteiru no? write going to Q

3) The English translation of this example is ungrammatical on the relevant reading. This is because the PP headed by about, unlike its (semantic) counterpart in Japanese, is an argument of the head N book, an idea that runs counter to Heycock's assumption about PPs with about being adjuncts.
'What kind of book about Mr. Tanaka is he going to write?'

This sentence is not so bad, in fact somewhat better than (12b), to many speakers including myself. Since the preposed constituent here does not appear to be referential — there is no set of books about Mr. Tanaka from which the choice can be made — the analysis presented in the previous subsection would predict that this sentence should be worse than it appears to be.

This situation may be explained in terms of the adjunct status of the NPs contained in a complex NP in a wide range of cases in Japanese. In this connection, it is useful to consider the contrasts in (17)–(19), adapted from Lebeaux (1991):

(17) a. [Which report that John revised] did he submit t?
   b. *Which report that John was incompetent did he submit t?

(18) a. [Which pictures near John] did he look at t?
   b. *Which pictures of John did he like t?

(19) a. [Whose examination (paper) near John] did he peek at t?
   b. *Whose examination of John did he fear t?

In all of these pairs, the (b) sentences are considerably worse than the (a) sentences. The difference lies in the fact that in all the (a) sentences it is an adjunct that is contained in the preposed wh-phrase, while in all the (b) examples complements to the head of the respective phrases are involved. Lebeaux accounts for these contrasts by saying that adjuncts in the (a) sentences can be introduced into the derivation after move wh has taken place, so at no point in the derivation is there a Condition C violation. Cf. Sauerland (1998) for an alternative analysis.

Essentially the same analysis may be at work in (16) — the adjunct meaning 'about Mr. Tanaka' may be introduced into the derivation after the constituent which is to contain it has been moved, so that there is no point in the derivation where a Condition C violation occurs.
It may also be that the adjuncts can freely remain, possibly as a topic, in the preposed position even after the rest of the constituent has undergone reconstruction, due to the nonreferential nature of the complex NP.

(20) [Tanaka-san_i ni-tuite] [donna], kare_i-ga [t_i hon-o]
Mr. Tanaka about what like he-Nom book-Acc
kakoo-to siteiru no?
write going to Q

'What kind of book about Mr. Tanaka_i is he_i going to write?'

Those speakers who find examples like (12b) tolerable on the intended indexing pattern may be taking the R-expression within the preposed constituent as an adjunct, so that it has been introduced in the derivation after movement has taken place, or it may be serving as a topic in a way analogous to (20).

4. Amount and Scope

4.1 Basic observations

Heycock (1995) discusses more intricate properties of questions involving how many. According to Heycock, the following sentence can be understood in at least two ways:

(21) How many people did she decide to hire?

One reading of this sentence is the nonreferential reading in which what is quantified over is amounts — the one who asks this question simply believes that the employer has made a decision about a number/amount, perhaps as some kind of goal for the year ahead. The other reading Heycock describes is a referential reading, on which the questioner presupposes that there is an actual set of people who the employer has decided to hire.

With this observation as background, Heycock presents the following sentences:
(22) a. *[How many stories about Diana\textsubscript{j}]\textsubscript{i} is she\textsubscript{i} likely to invent \(t_\text{j}\)？
b. *[How many stories about Diana\textsubscript{j}]\textsubscript{i} was she\textsubscript{i} really upset by \(t_\text{j}\)？

In sentence (22a), the nonreferential interpretation of the amount quantifier is the only reading available, due to the semantic nature of the embedded predicate, together with the modal context in which it appears, which makes reconstruction obligatory at LF. Thus, Heycock claims that the LF representation for (22a) should be the following.

(23) *how many\textsubscript{j} [is she\textsubscript{i} likely to invent \([t_\text{j} \text{stories about Diana}_\text{j}]\textsubscript{i}\)]

This involves a violation of Condition C, which accounts for the ungrammaticality of (22a) on the intended reading.

4.2 ‘How many’ in Japanese

The ambiguity of the sort described by Heycock can be observed in corresponding sentences in Japanese.

(24) Kanozyo-ga nan-nin-no gakusei-o saiyoo-si
    -Nom how many-Gen student-Acc hire
    tagat-te iru no?
      want is Q

‘How many students does she want to hire?’

On one interpretation of (24), there are a certain number of specific students that she wants to hire, and the sentence is asking for the cardinality of that group. The other interpretation does not carry any presupposition about the identity of the candidates — the sentence is simply asking for the goal that she has in mind for recruitment.

Thus, in the following sentence:

(25) [Yamada-sensei\textsubscript{j}-no kurasu-no nan-nin-no gakusei-o]\textsubscript{j}
    -Gen class-Gen how many students-Acc
it is only the presuppositional interpretation on which Prof. Yamada has a certain group of students in her class in mind that she wants to send to MIT, that allows the pronoun in the matrix clause to be coreferential with Yamada-sensei contained in the preposed constituent.

It has been pointed out by Nishigauchi and Uchibori (1992) that, unlike quantifiers in prenominal position, sentences involving floated quantifiers have only the cardinal interpretation. Thus, while (24), with the *wh*-quantifier in the prenominal position, is ambiguous in the way described above, the following sentence, with a floated quantifier, has only the cardinal interpretation.

(26) Kanozyo-ga gakusei-o nan-nin saiyou-si tagat-te iru no?
    she-Nom student-Acc how many hire want is Q
    ‘How many students does she want to hire?’

This sentence has only the interpretation on which the questioner is asking for the recruitment goal that she has in mind as to the number of new employees.

Correlated with this property of floated quantifiers, in the following sentence, which minimally differs from (25) in that the *wh*-quantifier is floated so that it occupies a position next to the D-structure position of the preposed constituent, a condition C violation is observed.

(27) ??[Yamada-sensei,-no kurasu-no gakusei-o]_j  kanozyo_i,-ga  t_i
    -Gen class-Gen students-Acc she-Nom
    nan-nin MIT-e ik-ase tagatte iru no?
    how many -to make go want is Q
    ‘How many students in Prof. Yamada’s class does she want to send to MIT?’
In this sentence, only the cardinal interpretation is available in which there is no presupposition as to the group of students who the speaker has in mind, and the pronoun in the matrix clause cannot be interpreted as anaphoric on the same individual as Prof. Yamada. This indicates that at least the major portion of the fronted constituent in (27) is interpreted in the D-structure position — Nishigauchi and Uchibori (1992) claim that an indefinite NP bearing the cardinal interpretation is interpreted in a VP-internal position — while, the whole sentence being a wh-question, the wh-feature associated with the floated quantifier has to be interpreted in [Spec CP], at LF. Thus, I take the LF-representation of (27) to be the following:

(28) *how many_i [does she_i want t_j students in Prof. Yamada_i's class] to go to MIT]

Given this, the pronoun in the matrix clause c-commands its purported antecedent, which is a violation of Condition C.

Essentially the same result is obtained when we consider the following sentence, in which Scrambling takes place long distance in Saito's (1992) sense.

(29) ??[Yamada-sensei_i-no kurasu-no gakusei-o]_i Taroo-ga
    -Gen class-Gen students-Acc -Nom
    [kanozyo_i-ga t_j nan-nin MIT-e ik-ase tagatte iru
    she-Nom how many -to make go want is
    to] itta no?
that said Q
'How many students in Prof. Yamada_i's class did Taro say she_i wanted to send to MIT?'

If LF-reconstruction is equated with A'-movement, the ungrammaticality of this sentence on the intended interpretation is in keeping with the prediction of the theory based on A/A' distinctions. However, such a theory predicts that the following sentence, which minimally differs
from (29) in that the *wh*-quantifier occurs in the prenominal position within the fronted constituent, should be as bad as (29) on the intended reading.

(30) \[Yamada-sensei,-no  kurasu-no  nan-nin-no  gakusei-o\]j
    -Gen  class-Gen  how many-Gen  students-Acc
Taroo-ga [kanozyo,-ga  t;  MIT-e  ik-ase  tagatte  iru
    -Nom  she-Nom  -to  make  go  want  is
toj]  omotta  no?
that  thought  Q
’How many students in Prof. Yamada,’s class did Taro think
shei wanted to send to MIT?’

The fact is that the status of this example is on a par with that of (25), where the Condition C effect is not observed. The difference between (25) and (30) is that long-distance Scrambling is involved in the latter, suggesting again that the A/A’ distinction does not play an important role, but that the distinction in terms of referentiality does play a role here — the contrast between (29) and (30) is explained in terms of referentiality, where the nonreferentiality associated with the cardinal interpretation in (29) is induced by quantifier floating of the *wh*-quantifier.

Later on, we will see that sentences exemplified by (30) exhibit more intricate semantic properties, if we take into account the scope behavior induced by the verb *omow* ‘think’. The point is that sentence (30), with the coindexing relation indicated, is possible even on the interpretation in which the preposed constituent takes scope within the verb meaning ‘think’. What that means is that the preposed constituent can be reconstructed in a position higher than the pronoun in the complement clause, so that a Condition C violation is evaded, while at the same time it takes scope within the thought verb’s complement, which is related to the interpretation on which *Taro* does not have any specific students in mind. This leads us to posit a wider range of positions in the
sentence in which reconstruction can occur than have hitherto been assumed. That is part of the topic of the next section.

5. Interaction with scope-bearing elements (SB)

In the discussion so far, it has been shown that reconstruction that is motivated for *wh*-movement constructions in English and structure effected by Scrambling in Japanese is constrained by Binding Theory at LF. This generalization can be restated as presented by Fox (1999, 2000):

\[(31) \ [Qp \ldots R\text{-expression}_1 \ldots]_2 \ldots \text{pronoun}_1 \ldots t_2 \]

\[(32) \text{Scope reconstruction feeds Condition } C\]

Scope reconstruction should be impossible in the structural configuration in (31).

(Here and in what follows, the linear precedence is meant to represent c-command.) What this says in essence is that if a preposed constituent contains an R-expression, that constituent cannot be reconstructed to the position c-commanded by a pronoun purporting to have the same (referential) index as the R-expression, or a Condition C violation will result. If the preposed constituent has to reconstruct for some reason, like its being nonreferential, the LF-representation will involve a Condition C violation.

We will show in later sections that this statement, as it is taken literally, is inaccurate. Fox’s statement (32) makes sense only when the term reconstruction is restricted to the D-structure position, namely the position of $t_2$ in (31). If reconstruction is taken more broadly, as Fox himself does — see discussion immediately following — so that it can take place in a variety of positions other than the D-structure position, scope reconstruction should be able to apply *so long as the resulting structure does not violate Condition C*. What this means is that, as long as the fronted constituent is not reconstructed lower than the pronoun in (31), reconstruction should be able to take place.
Fox (1999, 2000) is aware of this, so in practice he takes the notion of reconstruction more broadly: Building on (32), Fox (1999, 2000) goes on to argue that this hypothesis makes two predictions. On the one hand, if there is a scope-bearing element (SB) in a position c-commanded by the pronoun but higher than $t_2$ in (31), QP should be obliged to take scope over that SB, for QP must be interpreted in a position above the pronoun to avoid a Condition C violation. On the other hand, if there is an SB in a position c-commanding the pronoun in (31), QP is not obliged to take scope over SB — there is still a chance for it to take scope below SB, but above the pronoun. This is stated in (33).

(33) Predictions made by (32)

a. Prediction I: In (34) QP must take scope over the scope-bearing element SB.

b. Prediction II: In (35) QP need not take scope over the scope-bearing element SB.

(34) $[QP \ldots R\text{-expression}_1 \ldots ]_2 \ldots \text{pronoun}_1 \ldots \text{SB}^1 \ldots t_2$

(35) $[QP \ldots R\text{-expression}_1 \ldots ]_2 \ldots \text{SB}^2 \ldots \text{pronoun}_1 \ldots t_2$

In the subsections that follow, we will consider each of these predictions.

While Fox’s (1999, 2000) analysis is limited to the ways in which reconstruction interacts with Condition C, the same line of thought can be extended to cases in which reconstruction interacts with Condition A. As we will see, while Condition C narrows down the range of positions in which reconstruction can take place, telling us where reconstruction may not take place, Condition A works in the opposite direction and forces reconstruction in a number of cases, giving us clues as to exactly where reconstruction may take place. Thus, our claim in the present study puts forth an even stronger claim than Fox’s (32):\footnote{Although our focus will be specifically on Conditions A and C, the same line of thought can easily be extended to cover Condition B as well.}
(36) Scope reconstruction feeds Binding Conditions.

Specifically, in addition to the cases discussed by Fox, we will consider cases of scrambling in Japanese involving structures schematically shown in (37), where an anaphor is contained in a preposed constituent.

(37) \[ QP \ldots \text{anaphor}_1 \ldots ]_2 \ldots \text{R-expression}_1 \ldots \text{SB} \ldots t_2 \]

Given this structure, reconstruction is expected to take place anywhere lower than the R-expression as long as the distance required for anaphoric binding is not exceeded: Scope reconstruction feeds Condition A. To observe the potential width of the range of possible reconstruction sites, we will also consider cases involving pronouns, where we wish to set the consideration involving distance aside.

We will show that the preposed constituent in (37) can be reconstructed in a number of positions, higher or lower than SB.

(38) \[ QP \ldots \text{anaphor}_1 \ldots ]_2 \ldots \text{R-expression}_1 \ldots \text{SB} \ldots t_2 \]

If this is the case, we will expect to see a number of cases in which reconstruction shows a variety of scopal phenomena in interaction with SB. In case there is more than one R-expression involved, the range of reconstruction possibilities will be widened still further. We will indeed see that this is the case.

5.1 Fox's Prediction I

In this subsection, we will examine Prediction I, which is stated again as below:

(39) Prediction I: In (40) QP must take scope over the scope-bearing element SB.

(40) \[Q_P \ldots \text{R-expression}_1 \ldots ]_2 \ldots \text{pronoun}_1 \ldots \text{SB}^1 \ldots t_2 \]

What this prediction says is that if a scope-bearing element (SB) is in a
position c-commanded by the pronoun in (40), QP should be obliged to take scope over that SB, for that QP must be interpreted in a position above the pronoun, which is still above SB in the structure.

To examine this prediction, Fox discusses the type of examples pointed out by Heycock (1995) in terms of scope interaction involving scope-bearing predicates, such as *likely*.

(41) a. [How many stories]$_i$ is Diana likely to invent $t_i$?

   ($\text{likely} > \text{many}$) (*$	ext{many} > \text{likely}$)

   b. [How many stories]$_i$ is Diana likely to reinvent $t_i$?

   ($\text{likely} > \text{many}$) (many $\text{likely}$)

An interpretation without reconstruction in (41a) should presuppose that there are certain stories such that Diana is likely to invent them. However, such a presupposition is virtually a contradiction, because the story is something that she’s going to invent, which presupposes that the story does not exist yet. Therefore, (41a) has only the reading on which *how many* is reconstructed under the scope of *likely*. In contrast, the verb *reinvent* carries the presupposition that certain stories have been invented. Therefore, the analysis says that the preposed constituent may be interpreted with or without reconstruction, which accounts for the scopal ambiguity.

Now, Fox discusses examples like the following to examine the interaction of a scope-bearing element (SB) with Condition C effects.

(42) a. [How many slides from Jonathan’s trip to Kamchatka]$_j$ did he$_i$ decide to show $t_j$ at the party?

   (many $\text{decide}$) (*decide $\text{many}$)

   b. [How many slides from his$_i$ trip to Kamchatka]$_j$ did Jonathan$_i$ decide to show $t_j$ at the party?

   (many $\text{decide}$) (decide $\text{many}$)

Fox observes that (42b), which does not meet the structural description (40), can be ambiguous, so that it can be interpreted as either of the
following paraphrases.

(43) a. What is the number $n$ such that there are $n$ (many) slides $x$ of the trip to Kamchatka, such that Jonathan decided to show $x$ at the party

$$\text{(many > decide)}$$

b. What is the number $n$ such that Jonathan decided to show $n$ many slides at the party

$$\text{(decide > many)}$$

Example (42a), on the other hand, does meet the structural description (40), so it can only have the interpretation paraphrased as (43a) — sentence (42a) can be schematically represented as the following:

(44) $[\text{How many ... Jonathan}_i \ldots ]_j \ldots \text{he}_i \ldots \text{decide (=SB)} \ldots t_j \ldots$

$$\text{(many > decide)} \ (*)\text{decide > many}$$

This is a configuration in which Fox claims reconstruction is prohibited to the position of $t_i$, which would result in a violation of Condition C.

That this generalization holds in Japanese as well can be shown by looking at (25) again, which we repeat here:

(25) $[\text{Yamada-sensei}_i\text{-no kurasu-no nan-nin-no gakusei-o}]_j$

$$\text{-Gen class-Gen how many students-Acc}$$

$kanozyo_i\text{-ga} t_j \text{MIT-e ik-ase tagatte iru no?}$

she-Nom -to make go want is Q

'How many students in Prof. Yamada$_i$'s class does she want to send to MIT?'

$$\text{(many > want)} \ (*)\text{want > many}$$

In this sentence, what counts as a scope-bearing element (SB) interacting with the preposed constituent is the modal verb tagar 'want', which is highlighted in the example. Given this, Prediction I (39) says that the preposed constituent can only be interpreted as having scope
above the SB ‘want’, which results in the interpretation that there were
a certain number of specific students such that Prof. Yamada wants to
send them to MIT. Otherwise a Condition C violation occurs.
Therefore our analysis predicts that there should be no reconstruction in
such a way as to interpret the preposed constituent in a position lower
than the pronoun or the SB in (25).

5.2 Reconstruction feeds Condition A

As I have said above, Fox’s (1999, 2000) analysis can be extended
to reconstruction involving anaphors and pronouns as well. As a step
towards showing this, consider the fact that the following sentence,
which does not meet the structural description in (40), readily allows a
scopal ambiguity.

\[(45) \{ \text{Zibun-zisin Kanozyo} \}_{-no kurasu-no nan-nin-no gakusei-oj} \]

self/she-Gen class-Gen how many students-Acc
Yamada-sensei$_i$-ga $t_j$ MIT-e ik-ase tagatte iru no?
-Nom -to make go want is Q
‘How many students in her$_i$ class does Prof. Yamada$_i$ want to
send to MIT?’

\[(many > want) (want > many)\]

The structure of this sentence can be schematically shown as follows:

\[(46) [Q_p \ldots \text{pronoun}_1 \ldots ]_2 \ldots \text{R-expression}_1 \ldots \text{SB}^1 \ldots t_2\]

Given this, the QP is expected to be able to be reconstructed in a variety
of positions, either below or above SB — in neither case does a Binding
Condition violation occur.

\[(47) [Q_p \ldots \{ \text{pronoun} \}_{1 \ldots } ]_2 \ldots \text{R-expression}_1 \ldots \text{SB}^1 \ldots t_2\]

\[\text{\vdash \vdash} \]
Why is it necessary to allow reconstruction to the position below R-expression and above SB, as the dotted line indicates? This will be made clear when we consider a case in which SB is an 'opacity-inducing' predicate: If QP is reconstructed below SB, we will obtain a so-called 'opaque' and nonspecific interpretation, while if it is reconstructed above SB, it will exhibit a specific interpretation — remember, at the same time it must be below the R-expression to satisfy Binding Condition A, when an anaphor is contained in QP. We will discuss this shortly.

Now, turning to sentence (45), it has the interpretation shared with (25) on which the preposed constituent has wide scope over the SB 'want', which results in the reading that there is a presupposition that there are a certain number of specific students that Prof. Yamada has in mind. This reading is unproblematic as long as we read the sentence with the pronoun in the preposed constituent. In this case, the presuppositional interpretation is obtained without reconstruction. This reading on which there is a presupposition as to the presence of the set of students still exists even when the sentence is read with the reflexive anaphor. This will also be discussed later in this subsection.

Sentence (45) also has the interpretation in which the preposed constituent has narrow scope with respect to SB 'want', in which case there is no presupposition as to the group of people to go to MIT and the sentence is staging the goal as to the number of students to be sent to MIT that Prof. Yamada has in mind.

This interpretation is straightforwardly related with the following LF-representation, in which the preposed constituent is reconstructed to its D-structure position. Here the anaphor can be bound without problem by the matrix subject (or by an empty element controlled by it), while being under the scope of SB, resulting in a nonspecific interpretation.
(48) [How many]j does Prof. Yamada; \textit{want} (\textit{=SB}) to send \([t_j \text{ students in } zibun-zisin;\text{\text{'}s class}]\) to MIT

It is the presuppositional (or specific) interpretation of (45) that shows that the preposed constituent has to be reconstructed below the subject NP while having wide scope over the SB ‘want’, at least when the sentence is read with the reflexive anaphor \textit{zibun-zisin} within the preposed constituent. This means that the preposed constituent containing the reflexive anaphor must be reconstructed to a position which is lower than the matrix subject and yet higher than SB ‘want’. Such a position is available if we allow the preposed constituent to be reconstructed to the position where it is in the periphery of \(vP\) of the matrix clause (i.e. either in the Spec of or adjoined to \(vP\)):

(49) [How many]; does Prof. Yamada;\([vP [t_j \text{ students in } zibun-zisin;\text{\text{'}s class}] \text{ want} (=SB) to send } t_k \text{ to MIT]}

Thus, the present analysis in fact predicts that sentence (45) has three possible LF-representations, when the sentence is read with the pronoun \textit{kanozyo} ‘she/her’, instead of two, while it has two possible LF-representations when it is read with the anaphor \textit{zibun-zisin}.

(50) a. [How many students in \(\begin{Bmatrix} *zibun-zisin \\
kanozyo \end{Bmatrix}\) \text{ of zibun-zisin;\text{\text{'}s class}]j does Prof. Yamada; \textit{want} (=SB) to send \(t_j\) to MIT

b. [How many]; does Prof. Yamada; \([vP [t_j \text{ students in } zibun-zisin;\text{\text{'}s class}] \text{ want} (=SB) to send } t_k \text{ to MIT]}

c. [How many]; does Prof. Yamada; \textit{want} (=SB) to send \([t_j \text{ students in } zibun-zisin;\text{\text{'}s class}]) \text{ to MIT}
Of these, the first two representations (50a) and (50b) are truth-conditionally indiscernible. Recall that representations like (50a) where no reconstruction has taken place (visibly) were motivated by (25), where we wanted to evade a Condition C violation.

The need for the fine distinction in scope in terms of reconstruction possibilities can be demonstrated more clearly by sentences like the following:

(51) \[
\left\{ \begin{array}{c}
\text{Zibun-zisin/so} \\
\text{So}
\end{array} \right\}_i \text{-no kurasu-no (sukunaku-tomo) hitori-no}
\]
\[\text{self/she-Gen class-Gen at least one-Cl} \]
\[\text{gakusei-o} \] \[\text{san-nin-no sensei-i-ga} \] \[t_j \text{MIT-e ik-ase} \]
\[\text{student-Acc three-Cl teacher-Nom to make go} \]
\text{tagatte iru (koto)}
\text{want is fact}
\text{‘Three teachers, want to send (at least) one student in their class to MIT’}

In the first place, this sentence does not have the interpretation on which the preposed constituent takes wide scope over the matrix subject ‘three teachers’ and SB ‘want’. This is accounted for on the grounds that the reflexive anaphor is not bound in the preposed position (similarly for the pronoun, which is not bound by the quantified subject). Still, the sentence is at least two ways ambiguous, where one reading is that on which there is a presupposition that for each of the three teachers there is one specific student that the teacher wants to send to MIT (specific narrow scope), the other reading being that on which each teacher has a goal of sending at least one student, whoever that may be, to MIT (nonspecific narrow scope). The latter interpretation is forced when we read (51) with the phrase meaning ‘at least’. Thus, our analysis maps sentence (51) to the following two representations by reconstruction at LF.
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(52) a. [three teachers]k ep [one student in \( \left\{ \text{zibun-zisin} \right\} \text{'s class}\)k
\text{want} (= SB) to send \( t_k \) to MIT]
\hspace{2cm} (three > one > want)

b. [three teachers]k \text{want} (= SB) to send [(at least) one student

\hspace{1cm} \text{in} \left\{ \text{zibun-zisin} \right\} \text{'s class}] to MIT
\hspace{2cm} (three > want > one)

To the extent that the interpretations expected by these representations are readily discernible from each other, I conclude that the analysis portrayed in this subsection is firmly motivated.

5.3 Fox's Prediction II

In this subsection, we will discuss the second of the predictions made by Fox (1999, 2000):

(53) Prediction II: In (54) QP need not take scope over the scope-bearing element SB.
(54) \([\text{QP} ... \text{R-expression}_1 ... ]_2 ... \text{SB}_2 ... \text{pronoun}_1 ... t_2\)

As a case relevant to this configuration, Fox discusses sentences like the following:

(55) How many slides did Susi know that Jonathan decided to show at the party?

Fox observes that this sentence is three-ways ambiguous. Imagine that Jonathan is going to show a certain number of slides that he took from his trip to Kamchatka. The ambiguity of this sentence can be shown by the following paraphrases:5)

5) A reviewer observes that s/he finds the second reading, which would require \textit{how many} to be non-specific with respect to Susi's knowledge but specific for Jonathan's decision, hard to obtain.
(56) a. For what number $n$ are there $n$ slides such that Susi knows Jonathan decided to show them.

\((\text{many} > \text{know} > \text{decide})\)

b. For what number $n$ does Susi know that there are $n$ slides such that Jonathan decided to show them.

\((\text{know} > \text{many} > \text{decide})\)

c. For what number $n$ does Susi know that Jonathan decided to show $n$ slides.

\((\text{know} > \text{decide} > \text{many})\)

In our terms, this ambiguity can be captured if we hypothesize that there are two positions to which the preposed constituent can be reconstructed.

(57) a. [How many]$_i$ did Susi know that [t$_i$ slides]$_i$ Jonathan decided to show t$_i$ at the party

\((\text{know} > \text{many} > \text{decide})\)

b. [How many]$_i$ slides did Susi know that Jonathan decided to show [t$_i$ slides] at the party

\((\text{know} > \text{decide} > \text{many})\)

Namely, reading (56b) can be obtained by reconstructing the portion of the preposed constituent to the position either in the Spec of the complement CP or adjoined to that complement clause, as in (57a), while reading (56c) can be obtained by reconstructing the portion of the preposed constituent to the D-structure position, as in (57b). Reading (56a) can be obtained without (visible) reconstruction.

Now, Fox observes that the following sentence has only two of the interpretations indicated in (56).

(58) [How many slides from Jonathan$_i$’s trip to Kamchatka]$_i$ did Susi know that he$_i$ decided to show t$_i$ at the party?

That is, this sentence can be interpreted either (i) without reconstruc-
tion in which case *many* takes topmost scope, or (ii) with *many* having scope narrower than *know* but wider than *decide*. The latter interpretation is obtained from an LF representation in which reconstruction of the fronted constituent is done at the periphery of the complement clause.

(59) [How many]$_j$ did Susi know that [$_t_j$ slides from Jonathan$_i$'s trip to Kamchatka]$_k$ he$_i$ decided to show $t_k$ at the party

\[(know > many > decide)\]

Now, Prediction II (53) implies that the fronted constituent cannot be reconstructed in the position of the trace — this would result in a reading analogous to (56c), in which case the fronted constituent would have scope lower than both *know* and *decide*.

(60) *[How many]$_j$ did Susi know that he$_i$ decided to show [$_t_j$ slides from Jonathan$_i$'s trip to Kamchatka] at the party

\[(know > decide > many)\]

This would be a violation of Condition C.

The same point can be observed in a Japanese example that we have seen above, namely example (30), which we repeat here.

(30) [Yamada-sensei$_i$-no kurasu-no nan-nin-no gakusei-o]$_j$
    -Gen class-Gen how many-Gen students-Acc
    Taroo-ga [kanozyoi$_j$-ga $t_j$ MIT-e ik-ase tagatte iru
    -Nom she-Nom -to make go want is
to] omotta no ?
that thought Q

'How many students in Prof. Yamada$_i$’s class did Taro think she$_i$ wanted to send to MIT?'

The point is that sentence (30), with the coindexing relation indicated, is possible on the interpretation (i) that the preposed constituent takes scope within the complement of the verb meaning ‘think’, as well as on
the interpretation (ii) that the preposed constituent takes scope higher than ‘think’. The latter interpretation is related to an LF representation in which no reconstruction has taken place. The presence of the first reading means that the preposed constituent can be reconstructed in a position higher than the pronoun in the complement clause, so that a Condition C violation is evaded, while at the same time it takes scope within the complement of the thought verb, which is the interpretation on which Taro does not have any specific students in mind. This interpretation is related to an LF representation in which the preposed constituent is reconstructed to the periphery of the complement clause, as in:

(61) \[\text{How many} j \text{ does Taro think (} = \text{SB} \) \[cp [t_j \text{ students in Prof. Yamada}_i \text{’s class}] k \text{ she}_i \text{ wants to send } t_k \text{ to MIT}\]

The similarity of (30) to Fox’s example (58) is underscored by the fact that this sentence does not allow the interpretation in which the description denoting Prof. Yamada’s students is read as nonspecific with respect to Prof. Yamada’s intention. Such an interpretation would be forced if the sentence is prefixed by a contextualizing phrase meaning ‘as a goal for the school year three years ahead from now,’ and on this interpretation, the coindexing of the pronoun to Prof. Yamada is unavailable. Such an interpretation would be associated with either of the following LF representations, in which reconstruction occurs in the D-structure position ((62a)) or at the periphery of the clause governed by the intentional verb want, a second SB in the sentence ((62b)).

(62) a. \[\text{How many} j \text{ does Taro think (} = \text{SB} \) \[cp \text{ she}_i \text{ wants (} = \text{SB}\) to send \[t_j \text{ students in Prof. Yamada}_i \text{’s class}] \text{ to MIT}\]

b. \[\text{How many} j \text{ does Taro think (} = \text{SB} \) \[cp \text{ she}_i \text{ wants (} = \text{SB}\) \[t_j \text{ students in Prof. Yamada}_i \text{’s class}] \text{[PRO to send } t_k \text{ to MIT]}\]

In neither of these representations is the pronoun lower in the structure than Prof. Yamada, so Condition C effects occur.
Thus, the effect of Prediction II (53) can be accounted for by the supposition, which is well-motivated by the discussion so far, that reconstruction is possible to a position below SB while being higher than the pronoun, to avoid a Condition C violation.

\[(63) \ [Q \ldots R\text{-}expression_1 \ldots ]_2 \ldots SB^2 \ldots \text{pronoun}_1 \ldots t_2\]

Although this observation I think is fairly clear, it is possible to make the observation even more concrete and objective by making use of the behavior of the reflexive anaphor in the relevant cases of Japanese. The following example offers such a possibility.

\[(64) \ [\text{Zibun}\text{-}zisin_i\text{-}kara\text{-}no Hanako}_i\text{-}e\text{-}no tegami\text{-}o]_k \ Taroo_i\text{-}ga
\text{self\text{-}from\text{-}Gen} \text{-to\text{-}Gen} \text{letter\text{-}Acc} \text{-Nom}
\text{[kanozyo}_j\text{-}ga Hawai\text{-}de } t_k \text{ uketor\text{-}u to} \text{ omotta (koto)}
\text{she\text{-}Nom} \text{Hawaii in receive that thought fact}
\text{ '[A letter from self}_i \text{ to Hanako}_j]_k \ Taro_i \text{ thought she}_j \text{ would receive } t_k \text{ in Hawaii.'}\]

This sentence has only one interpretation in the relevant sense: It has only the interpretation on which the fronted constituent has scope above SB, which in this case is the V meaning ‘think’ but below (i.e. in a position c-commanded by) Taro, in keeping with Binding Condition A so that the reflexive anaphor is bound. Furthermore, the constituent has to be reconstructed above the pronoun in the complement clause, to evade a Condition C violation involving the R-expression Hanako and the pronoun in the complement clause. Such a position is only possible on the periphery of vP of the matrix clause, as in the following.

\[(65) \ Taroi_1[vP[a letter from self}_i \text{ to Hanako}_j]_k[vP \text{thought}[CP \text{she}_j \text{ would receive } t_k \text{ in Hawaii}]]\]

This representation is in keeping with Prediction II of Fox (1999, 2000), which we repeat below.
(53) Prediction II: In (54) QP need not take scope over the scope-bear- 
ing element SB.
(54) \[\text{QP} \ldots \text{R-expression}_1 \ldots \text{SB}^2 \ldots \text{pronoun}_1 \ldots t_2\]

In (65), QP in the fronted position takes scope lower than SB, while still 
being higher than the pronoun in the complement clause. This reading 
can be related only to an LF-representation in which the preposed con-
stituent is reconstructed at the periphery of the complement clause.

5.4 Recapitulating so far

In this section, we examined three types of environments in which
wh-movement or Scrambling has taken place, so that reconstruction is 
expected to occur in LF:

(66) a. \[\text{QP} \ldots \text{R-expression}_1 \ldots \text{pronoun}_1 \ldots \text{SB} \ldots t_2\]

b. \[\text{QP} \ldots \left\{ \begin{array}{c} \text{pronoun} \\ \text{anaphor} \end{array} \right\}_1 \ldots \text{R-expression}_1 \ldots \text{SB} \ldots t_2\]

c. \[\text{QP} \ldots \text{R-expression}_1 \ldots \text{SB} \ldots \text{pronoun}_1 \ldots t_2\]

In environment (66a) we expect no reconstruction to take place, since 
the preposed constituent has to be interpreted above the pronoun, to 
avoid a Condition C violation. In addition, the preposed constituent has 
to have scope over SB since SB is below the pronoun. If reconstruction 
is forced due to the nonreferential nature of the preposed constituent, a
Condition C violation is anticipated, and this has been confirmed by such 
examples as (25).

Case (66b) is on the opposite end of the scale of freedom of recon-
struction. When the pronoun occurs in the preposed constituent, any of 
the following three possibilities are conceivable:

1. No reconstruction
2. Reconstruction to the D-structure position (lower than SB)
3. Reconstruction to a position between R-expression and SB
The possibilities are schematically shown by the following.

\[
\begin{array}{c}
\text{Qp} \ldots \left\{ \begin{array}{c}
\text{pronoun} \\
\text{anaphor}
\end{array} \right\} \ldots R\text{-expression}_1 \ldots \text{SB}^1 \ldots t_2 \\
\hline
\end{array}
\]

When an anaphor is contained in the preposed constituent, reconstruction is forced, so the possibilities are reduced to two. We have seen that reconstruction to the position between the R-expression and SB, indicated by the dotted line, is motivated by cases where the preposed constituent has a specific interpretation, outside the scope of the SB. In such cases, reconstruction takes place in a peripheral position of a complement clause, or a projection of \( v \).

In case (66c) we expect two possibilities: Either no reconstruction, in which case the preposed constituent takes scope over SB, or reconstruction to below SB, but above the pronoun.

\[
\begin{array}{c}
\text{Qp} \ldots R\text{-expression}_1 \ldots \ldots \text{SB}^2 \ldots \text{pronoun}_1 \ldots t_2 \\
\hline
\end{array}
\]

In order for this type of reconstruction to take place, it must be to the periphery of the clause below SB, either to [Spec CP] or to an adjoined position.

We have seen throughout that reconstruction of preposed constituents must be allowed to take place in a variety of positions, a fact that militates against the assumption that reconstruction is always to a D-structure position. Binding Theory plays a crucial role, reducing dramatically the range of possible positions in which reconstruction occurs.

6. \textit{wh}-Licensing

In this section, we examine various cases of Scrambling involving \textit{wh}-phrases. As has been discussed by various authors, \textit{wh}-phrases must be interpreted in positions where they are licensed by a specific class of clause-markers: In the case of Japanese, \textit{wh}-phrases must be
licensed by an interrogative clause-marker *ka* in the case of *wh*-questions and by quantificational particles (which also serve as clause markers) when the *wh*-phrase serves as part of a quantifier. Cf. Nishigauchi (1990, 1999).

In the present discussion, we will focus our attention on *wh*-questions. The point is that a *wh*-phrase must be interpreted, and therefore must be reconstructed at LF in a position in which it can be licensed. There are essentially two cases to consider. One case is where a *wh*-phrase is scrambled out of a domain in which it can be licensed, in apparent violation of the Proper Binding Condition. In such a case, the *wh*-phrase must be reconstructed back to the position [Spec CP] of the complement interrogative clause.

(69)  
\[
\begin{array}{c}
\text{CP} \\
\cdots \quad \text{C}' \\
\text{IP} \\
\text{NP} \quad \text{IP} \\
\text{wh} \quad \cdots \quad \cdots \\
\end{array}
\]

The second case is where *wh* is overtly in the domain of a *wh*-licenser,
as in:

(70)

\[
\begin{array}{c}
\text{CP} \\
\vdots \\
\text{C'} \\
\text{IP} \\
\vdots \\
\text{C} \\
\vdots \\
\text{IP} \\
\text{NP} \\
\text{wh} \\
\vdots \\
\text{CP} \\
\vdots \\
\text{C'} \\
\vdots \\
\text{IP} \\
\text{C} \\
\vdots \\
\text{IP} \\
\text{+wh} \\
\end{array}
\]

In this type of case, reconstruction is optional (indicated by dotted lines), but the semantic effects are dramatically different depending on whether reconstruction takes place: with reconstruction, the whole sentence is interpreted as a yes/no question, and without reconstruction, the \textit{wh}-phrase may be interpreted in just this position, the whole sentence being interpreted as a \textit{wh}-question.

In what follows, we will examine each of these cases in turn, in connection with Binding Theory and scope-interaction with other relevant elements.
6.1 Where Reconstruction is Forced

6.1.1 'Semantically vacuous movement'

In this subsection, we will consider cases involving Scrambling of the type schematically shown in (69). These are the cases which were discussed by Saito (1989, 1992), who refers to the type of Scrambling involved there as 'semantically vacuous movement'. The following example, from Saito (1989, 1992), illustrates the point.

(71) [Dono hon]-o [Masao-ga [C[$IP$] Hanako-ga $t_i$ tosyokan-kara which book-Acc -Nom -Nom library-from kari-dasi-ta] ka] siri-tagatte-iru (koto) checked-out Q want-to-know fact 'Which book, Masao wants to know [Q [Hanako checked out $t_i$ from the library]].'

The *wh*-phrase in this sentence appears outside of the interrogative embedded clause, in which prima facie it cannot be licensed by the interrogative clause-marker. To account for the fact that (71) can nevertheless be interpreted as a well-formed sentence involving an embedded question, Saito (1989, 1992) argues that a scrambled phrase can be freely moved downward at LF without leaving a trace, which would otherwise be in violation of the Proper Binding Condition, on the grounds that traces are not required if there is no independent principle calling for their presence. In the present terms, the *wh*-phrase in (71) is obligatorily reconstructed to its D-structure position.

What we are going to show in this subsection is that, while Saito (1989, 1992) is on the right track, his analysis makes wrong predictions about Binding Theory and interactions involving scope-bearing elements, so something more needs to be said about the relevant constructions. The conclusion to be drawn from the discussion will be that the type of Scrambling observed in (71) is not really a 'semantically vacuous movement'\(^6\).
6.1.2 Reconstruction at the complement-periphery

To see the problem, consider the following sentence.

(72) [Hanako{-no dono syasin{-o}j] Masao{-ga} [kanozyo{-ga} t{-j}
     -Gen which picture{-Acc} -Nom she{-Nom}
     itiban ki{-ni-itte iru ka} siri{-tagatte iru koto
     best fond of be Q want{-to-know is fact
     'Which picture of Hanako,] Masao wants to know [[she{-i likes t{-j}
     best] Q].'

What is troublesome for the analysis suggested by Saito (1989, 1992) is that sentences of this type are not so bad as his analysis would predict: Saito’s analysis predicts that this sentence should be in violation of Condition C on the reading on which Hanako in the preposed constituent is coindexed with the pronoun in the embedded clause. If the preposed constituent is reconstructed to the D-structure position, which is implied by the idea about Scrambling as a ‘semantically vacuous movement’, we would obtain an LF-representation like the following:

(73) Masao wants to know [[she{-i likes [which picture of Hanako{] best]
     Q].

Of course, under Saito’s analysis as well, the wh-phrase whose scrambling has been undone at LF should subsequently be moved to [Spec, CP] of the embedded interrogative clause, but the question of Binding Theory would remain, to which we will turn shortly.

In the preceding sections, we have seen various cases in which it was shown that reconstruction must be allowed to occur at the periphery of a clause. Along this line, (72) is represented in LF as the following, in which the fronted constituent is reconstructed to the periphery of the
embedded CP.

(74) Masao wants to know [[which picture of Hanako,\textsubscript{i}] she likes \textsubscript{t} best] Q

In this representation, the *wh*-constituent satisfies both the requirement that (i) the constituent as a whole is in the domain of the interrogative clause-marker, and (ii) the R-expression within it is not c-commanded by the pronoun in the embedded clause. To the extent that sentence (72) does not have any problem with Condition C, the representation (74) correctly captures the intuition about (72).

Lasnik and Saito (1999) discuss the fact that sentence (75a) is much better than (75b).

(75) a. [John\textsubscript{i} ni-tuite-no dono hon-o\textsubscript{j} kare\textsubscript{i}-ga [Hanako-ga \textsubscript{t} about-Gen which book-Acc he-Nom -Nom ki-ni-itta ka] sit-teiru (koto) liked Q know fact

'Which book about John,\textsubscript{i}, he knows [Q [Hanako likes \textsubscript{t}]]'

b. *Kare\textsubscript{i}-ga [Hanako-ga [John\textsubscript{i} ni-tuite-no dono hon-o] about-Gen which book-Acc he-Nom -Nom ki-ni-itta ka] sit-teiru (koto) liked Q know fact

'He knows [[which book about John,\textsubscript{i}] [Hanako likes \textsubscript{t}]]'

Our analysis predicts that (75a) should be ungrammatical on the intended interpretation — Since the preposed *wh*-phrase is supposed to be reconstructed in the complement interrogative clause, there should be a Condition C violation whether reconstruction takes place in the D-structure position or at the clause-periphery.

(76) a. *e he\textsubscript{i} knows [[which,\textsubscript{j} [Hanako liked [t\textsubscript{j} book about John,\textsubscript{i}]]]
b. *\( \text{he}_i \) knows [[which book about John\(_i\)]_j [Hanako liked \( t_j \)]]

While Lasnik and Saito (1999) acknowledge that speakers' judgments on this sentence vary, I agree that (75a) is not so bad, while I do not agree with their conclusion, reached from the observation of this example, that Condition C (Disjoint Reference) should apply at S-structure.

I suggest that the explanation for the status of (75a) lies in the direction of what we saw in section 3.3: (i) If an adjunct is contained in a preposed constituent, that adjunct may have been introduced into the derivation after the \( \text{wh} \)-constituent has been moved (an idea due to Lebeaux 1991. Also cf. Sauerland 1998.), or (ii) that adjunct may remain in the preposed position, while the rest of the constituent can be reconstructed in a lower position in LF. In terms of the second alternative, I suggest that the following can be an LF-representation for (75a):

(77) [about John\(_i\)]_j[he\(_i\) knows [[which book \( t_j \)]_k [Hanako liked \( t_k \)]]]

This representation does not involve any violation of Condition C.

To confirm the view that the adjunct-argument distinction is relevant to the case at hand, consider the following example.

(78) ?*[Hanako\(_i\)-no donna imeezi-o\(_j\)]_j kanozyo\(_i\)-ga [Masao-ga
-Gen what like image-Acc she-Nom -Nom
\( t_j \) ki-ni-itte iru ka] siri-tagatte iru (koto)
like is Q want to know is fact
[What (kind of) image of Hanako\(_i\)]_j she\(_i\) wants to know [Q [Masao like \( t_j \)]]

I've chosen the expression (\( X\)-no) imeezi '(the) image of \( X \)' to get as close as possible to what can be a genuine argument within a complex NP in Japanese. The result is that there is a clear violation of Condition
C in (78). The explanation is that reconstruction must yield LF-representations analogous to either of the representations in (76) — either to the D-structure position or to the complement periphery, where in either case reconstruction yields an R-expression lower than the pronoun in the matrix clause. Since in this case the R-expression is part of the argument, it must be reconstructed as part of the wh-phrase.

6.1.3 Narrow scope and Condition A

In the preceding subsection, I mentioned that there remains a problem for Binding Theory with example (72). The fact is that this particular example appears compatible with the assumption that Binding Theory applies at S-structure. In S-structure, there is no violation of Condition C involving Hanako and the pronoun in the complement clause in (72). Thus, the analysis might proceed as follows:

1. At S-structure (72), Binding Theory licenses the coindexing of the R-expression in the preposed constituent and the pronoun in the embedded clause.
2. At LF, the preposed constituent is lowered to its D-structure position (73).
3. Subsequently, the same constituent is raised to [Spec CP] of the embedded clause, to satisfy the licensing of wh (74).

This analysis, however, is immediately faced with a problem when we consider the following example.

(79) [Zibun-zisin\(i\), -no dono syasin-o\(k\) Masao\(i\), -ga [Hanako\(j\), -ga self-Gen which picture-Acc -Nom -Nom
\(t_k\) itiban ki-ni-itte iru ka] siri-tagatte iru koto
best fond of be Q want-to-know is fact
'[Which picture of self\(i\), Masao\(i\) wants to know [[Hanako\(j\) likes
\(t_k\) best] Q].']

First of all, if Binding Theory applies to S-structure, the well-formed-
ness of this sentence is not explained, for the reflexive anaphor is not c-commanded by anything relevant in the sentence. Secondly, the reflexive anaphor in this sentence is ambiguous, so that it may be bound either by *Masao* of the matrix clause or by *Hanako* of the embedded clause.

Under the analysis being developed in the present work, (79) can be related with either of the following LF-representations, depending on where the fronted constituent is reconstructed.

(80) a. *Masao*$_i$ wants to know [[which picture of self]$_k$ [Hanako$_j$ likes $t_k$ best] Q] \[zibun-zisin = Masao\]

b. *Masao*$_i$ wants to know [which$_k$ [Hanako$_j$ likes [picture of self$_j$] best] Q] \[zibun-zisin = Hanako\]

In the representation (80a), where the fronted constituent is reconstructed at the periphery of the complement clause, the binder of the reflexive is the matrix subject *Masao*, while in (80b), in which the fronted constituent is reconstructed in the D-structure position — the *wh* part must be in the [Spec CP] to have the *wh*-feature licensed — the binder is the complement subject *Hanako*.

Our analysis in which the LF-representation of (72) involves reconstruction of the preposed constituent at the periphery of the complement clause can be independently supported by the nature of ‘how many’ questions, discussed above with reference to Heycock (1995). Consider the following sentence, which is similar to what we considered in subsection 4.2:

(81) Yamada-sensei$_i$-ga [kanozyo$_i$-no kurasu-no nan-nin-no gakusei-o] sagasite-iru no? Prof. -Nom she-Gen class-Gen how many student-Acc search Q

‘How many students in her$_i$ class is Prof. Yamada$_i$ looking for?’
On one interpretation, Prof. Yamada’s search is satisfied as long as she finds a certain number of students of her class, where it does not matter who they are. The question is asking for the number of students that fulfills her search. This is the cardinal interpretation. On the other interpretation, Prof. Yamada is looking for a certain specific group of students, and the question is asking how many they are. This is the presuppositional interpretation.

With this in mind, let us consider the following example.

(82) [Yamda-sensei-no kurasu-no nan-nin-no gakusei-o]j Masao-ga
     [kanozyōi-ga t̄j sagasite-iru ka] sitte-iru koto
     she-Nom search Q know fact
     ‘[How many students in Prof. Yamada’s class], Masao knows [[she is looking for t̄j] Q]’

On the indexing pattern indicated, this sentence allows only the presuppositional interpretation on which Masao can probably tell you the names of the students that Prof. Yamada is looking for. The LF-representation that this sentence is mapped to is the following.

(83) Masao knows [[how many students in Prof. Yamada’s class],
     [she is looking for t̄j] Q]

In this representation, the fronted constituent is reconstructed in [Spec CP] of the embedded clause where the wh-feature is licensed. Further, in this reconstruction site the R-expression is not c-commanded by the pronoun, evading the Condition C effect. Furthermore, this position is higher than the verb sagas ‘look for’, an ‘opacity inducing’ verb, so that the reconstructed constituent is outside its scope and the presuppositional interpretation is accounted for.

On the other hand, the following sentence has a noticeably different semantic property.
(84) [Otagai-no kurasu-no nan-nin-no gakusei-o] Masao-ga each other-Gen class-Gen how many students-Acc -Nom
[[A-sensei to B-sensei]-ga t_j sagasite-iru ka] sitte-iru koto
Prof. and Prof. -Nom search Q know fact
'[How many students in each otheri's class], Masao knows
[[[Prof. A and Prof. B]i are looking for [t_j] Q']
The most likely interpretation of this sentence is that on which Masao knows the number of Prof. B's students Prof. A is looking for, and the number of Prof. A's students Prof. B is looking for, where the identity of the students is not at stake 7). This interpretation derives from the following LF-representation.

(85) Masao knows [how many, [[Prof. A and Prof. B]i are looking for [t_j students in each otheri's class]] Q]

This representation is obtained by reconstructing the fronted constituent back in its D-structure position, which is lower than the opacity-inducing verb sagas 'search'.

Although the cardinal interpretation just described is the dominant interpretation for (84), it appears to be possible to interpret on the presuppositional interpretation on which the two teachers are looking for specific students of each other's class. Such an interpretation is related on our account to a representation in which the fronted constituent is reconstructed in a position higher than the opacity-inducing verb sagas 'search', but the position must at the same time be lower than the complement clause subject, to be in keeping with Binding Condition A. Such a position is available in a projection of v, as was mentioned in

7) I use the names Prof. A and Prof. B to avoid adding complexity to the already semantically loaded sentence, but this might have contributed to the nonreferentiality of the students involved in the sentence. This is not my intention. My belief is that the same result is obtained even if we used the names Prof. Yamada and Prof. Tanaka. In fact, as I will discuss shortly, the possibility for the presuppositional interpretation may not be totally denied for this sentence.
subsection 5.2. Thus, the following representation captures the interpretation under consideration.

(86) Masao knows [how many, [Prof. A and Prof. B], [vP [t_j students of each other's class], k are looking for t_k]] Q]

6.1.4 Recapitulating the subsection

In this subsection, we have considered the various cases in which a wh-constituent has been moved by Scrambling out of a domain in which it can be licensed by the interrogative clause marker. We have seen here that the preposed wh-constituent must be able to be reconstructed not only to its D-structure position, but to a clause periphery, in order to account for phenomena connected with Binding Theory.

(87) [wh-phrase ... R-expression ... ], [XP ... [CP ... [R-expression ... t_j ... ] C [+ wh]]

Again, we have seen cases in which it is not correct to simply identify reconstruction with D-structure.

We have also examined cases in which reconstruction of wh-phrases interacts with scope-bearing elements (SB), especially so-called 'opacity-inducing' predicates, making use of wh-phrases containing an anaphor. In such cases, reconstruction has a chance to take place in either position, higher or lower than SB.

(88) [wh-phrase ... anaphor ... ], [XP ... [CP ... [R-expression ... SB ... t_j ... ] C [+ wh]]

either case, partial reconstruction must occur in [Spec CP] of the embedded interrogative clause to ensure that the wh-feature is licensed.

6.2 Where Scrambling Widens Scope

In this subsection, we will discuss another set of cases in which the licensing of wh interacts with reconstruction and Binding Conditions.
The cases that we will consider are those where Scrambling of a *wh*-phrase is seen to widen its scope, which would otherwise be restricted to the complement clause.

    
    checked-out Q know Q
    
    ‘Does Masao know [which book Hanako checked out from the library]?’

    
    checked-out Q know Q
    
    ‘Which book, does Masao know [Q [Hanako checked out ti from the library]]?’

In (89a), the scope of the *wh*-phrase is within the complement clause which is headed by the interrogative clause-marker *ka*, so the sentence as a whole can only be interpreted as a yes/no question. In contrast, as was pointed out by Takahashi (1993), in (89b), where Scrambling has moved the *wh*-phrase from the complement clause to the sentence-initial position, it is possible to interpret the sentence as a whole as a *wh*-question. Although Takahashi’s (1993) judgment is that (89b) is unambiguously a *wh*-question, many speakers of Japanese including myself find it ambiguous, so that it can also be interpreted as a yes/no-question. The presence of the latter interpretation suggests that the fronted *wh*-phrase has a chance of getting reconstructed at LF to a position in the complement clause, where it gets licensed by the complement interrogative marker. Along the lines of the discussion in the previous subsection, it can be reconstructed either at the D-structure position or at the clause-periphery.

In contrast, when the complement clause is headed by *ka-dooka*
'whether (or not)', which is incapable of licensing a *wh*-phrase, a sentence can only be interpreted as the resulting *wh*-question:

(90) [Dono hon]-o [Masao-ga [cp[Hanako-ga *t*; tosyokan-kara which book-Acc -Nom -Nom library-from kari-dasi-ta] ka-dooka] sitte-iru no?
checked-out whether know Q
'Which book, does Masao know [whether [Hanako checked out *t*; from the library]]?'

This is because if the *wh*-phrase is reconstructed back to the complement interrogative clause, the head of this clause *ka-dooka* 'whether' is unable to license its *wh*-feature. The only place where the licensing can take place is in the domain of the matrix clause interrogative marker. Thus, no reconstruction takes place here.

### 6.2.2 Interacting with Condition C

To see how the property of Scrambling just observed interacts with Binding Theory, consider the following examples.

(91) a. [Hanako,-no dono syasin-o]_j_ Masao-ga [kanozyo,-ga -Gen which picture-Acc -Nom she-Nom
*t*; itiban ki-ni-itte iru ka] siri-tagatte iru no?
best fond of be Q want-to-know is Q
'Which picture of Hanako, does Masao want to know [[she *likes *t*; best] Q]?' *wh*-question, yes/no-question

b. [Hanako,-no dono syasin-o]_j_ kanozyo,-ga [Masao-ga -Gen which picture-Acc she-Nom -Nom
*t*; itiban ki-ni-itte iru ka] siri-tagatte iru no?
best fond of be Q want-to-know is Q
'Which picture of Hanako, does she want to know [[Masao likes *t*; best] Q]?' *wh*-question, *yes/no-question
On the relevant indexing pattern where *Hanako* and *kanozyo* 'she' are coindexed, sentence (91a) is still ambiguous, so it can be interpreted as a *wh*-question, with the fronted *wh*-phrase interpreted as having matrix scope, and it also can be interpreted as a yes/no question, in which the fronted *wh*-phrase is construed within the complement clause. The latter interpretation is admittedly less perspicuous, but the reading definitely exists — this interpretation becomes prominent if we read the sentence with *Masao*, the matrix subject, topicalized as *Masao-wa*, but my judgment is that (91a) has a reading as a *wh*-question even without this modification.

Along the lines of analysis developed in this work, the yes/no-question reading of (91a) is related to the following LF-representation in which the fronted *wh*-phrase is reconstructed to [Spec CP] of the complement clause.

(92)  
\[ e \text{ Does Masao want to know } \{ \text{[which picture of Hanako]_j} \} \{ \text{she, likes t_j best} \} \text{ Q}\]?

In this position, the *wh*-constituent can be licensed by the complement interrogative marker, while at the same time evading a Condition C effect. This ensures that the *wh*-constituent takes the complement scope, so that the interrogative-marker of the matrix clause does not bind any *wh*-phrase. Therefore, the sentence as a whole has an interpretation as a yes/no question.

In contrast, (91b) can only be interpreted as a *wh*-question. This fact can be accounted for by the observation that the fronted position is the only possible location for the R-expression *Hanako* to be coindexed with the pronoun in the matrix subject position without violating Condition C. If the *wh*-constituent is reconstructed in the complement clause, a Condition C violation will occur, whether the reconstruction is to the D-structure position or to [Spec CP] of the complement clause, as can be seen in (93).
(93) a. *e Does she\textsubscript{i} want to know [[which picture of Hanako\textsubscript{j}}[Masao likes \textsubscript{t} best] Q]?
b. *e Does she\textsubscript{j} want to know [which\textsubscript{j} [Masao likes \textsubscript{t} picture of Hanako\textsubscript{i}] best] Q]?

Therefore, the only position in which the preposed wh-phrase can be interpreted without incurring a Condition C violation is the preposed position. Thus, the whole sentence must be interpreted as a wh-question, the interrogative marker of the complement clause interpreted as.

### 6.2.2 Interacting with Condition A

As a further example showing the way Binding Condition interacts with reconstruction, consider the following example.

(94) [Otagai\textsubscript{-no dono syasin-o\textsubscript{j}} karera\textsubscript{i}-wa [Hanako-ga each other-Gen which picture-Acc they-Top -Nom \textsubscript{t} itiban ki-ni-itte iru ka] siri-tagatte iru no? best fond of be Q want-to-know is Q

`[Which picture of each other,\textsubscript{j} do they, want to know [[Hanako likes \textsubscript{t} best] Q]?]`

*=wh-question, yes/no-question*

This sentence can only be interpreted as a yes/no-question. The reason for this is that, to be in keeping with Condition A, the preposed wh-phrase containing the anaphor must be interpreted in a position lower than the matrix subject *karera* ‘they’. This is possible only when the preposed constituent is reconstructed at the periphery of the complement clause, viz. [Spec CP]: Its D-structure position is too low for it to satisfy Condition A.
(95) *Do they want to know [[which picture of each other,] [Hanako likes \(t_j\) best] Q]?

Since in this representation the interrogative marker of the matrix clause has nothing to bind, it can only serve the function of *whether*, leading to the yes/no-question interpretation.

The following example also has only the yes/no-question interpretation.

(96) *Hanako wa [karera, -ga each other-Gen which picture-Acc -Top they-Nom \(t_j\) itiban ki-ni-itte iru ka] siri-tagatte iru no? best fond of be Q want-to-know is Q

'[[Which picture of each other,] does Hanako want to know [[they, like \(t_j\) best] Q]?'

*wh-question, yes/no-question

In this case, the major portion of the *wh*-phrase including the reciprocal anaphor must reconstruct lower than the complement subject. One such position is the D-structure position occupied by the trace. Reconstruction to this position will lead to the following LF-representation.

(97) *Does Hanako want to know [[which,] [they, like \(t_j\) picture of each other,] best] Q]?

Again, the matrix interrogative marker has nothing to bind, so it behaves as *whether*, leading to the yes/no-question interpretation.

### 6.2.3 Overriding the referentiality distinction

In section 3.2, we observed, drawing on Heycock’s (1995) insight, that referentiality of a preposed constituent plays a role in determining...
whether the constituent should be reconstructed. Consider again the
relevant examples discussed there.

(12) a. [Hanako$_i$-no dono sotugyoo-syasin-o]$_j$ kanozyo$_i$-ga

-Gen which graduation pic. -Acc she-Nom

t$_j$ Amerika-e okutta no?

America-to sent Q

'[Which graduation picture of Hanako$_i$$_j$ did she$_i$ send t$_j$ to
America?]

b. ??[Hanako$_i$-no donna sotugyoo-syasin-o]$_j$ kanozyo$_i$-ga

-Gen what kind graduation pic. -Acc she-Nom

t$_j$ Hawai-de toru no?

Hawaii-in take Q

'[What kind of graduation picture of Hanako$_i$$_j$ is she$_i$ going to
take t$_j$ in Hawaii?]

The observation was that (12b) is worse than (12a) because the
preposed constituent is not referential in the sense that the presence of
any set of graduation pictures is not presupposed by (12b). Heycock's
observation was that a wh-constituent which is not referentially inter-
preted must be reconstructed to its D-structure position, and what we
have seen is that essentially the same applies to corresponding cases in
Japanese as well.

With this in mind, consider the following example.

(98) [Hanako$_i$-no donna sotugyoo-syasin-o]$_j$ kanozyo$_i$-ga

-Gen what kind graduation pic.-Acc she-Nom

[Masao-ga t$_j$ Hawai-de toroo-to site-iru ka]

Hawaii-in to-take is attempting Q

sitte-ru no?

know Q

'[What kind of graduation picture of Hanako$_i$$_j$ does she$_i$ know [Q
[Masao is going to take t$_j$ in Hawaii]]?']
Firstly, this sentence is unambiguous and can only be interpreted as a *wh*-question. This is expected because of its parallel structure with (91b) — no reconstruction takes place. Secondly, and more relevant to the present discussion, this sentence is considerably better than (12b) on the interpretation indicated by the coindexing pattern.

What we see here can be thought of as a case in which two conflicting requirements of language are competing with each other. One requirement is of a semantic nature based on the referential/non-referential distinction, which calls for reconstruction, as we saw in (12b). The other requirement is of a syntactic nature, based on both the licensing of *wh*-feature and Binding Condition C, which militates against reconstruction, for reconstruction in (98) would result in a Condition C violation.

The *wh*-phrase in (98) remains in the preposed position to satisfy the requirement that the *wh*-feature must be licensed. By remaining in this position, despite the semantic requirement due to its nonreferential nature, it can also evade a Condition C violation involving the R-expression contained in it. What we see in (98) can be taken as illustrating a case in which feature-based syntactic requirement wins out over a semantic requirement which is not feature-based. In other words, a syntactically motivated requirement is seen to be stronger than a semantically motivated requirement.

### 6.2.4 Weakening Weak Crossover

Saito (1992) points out an interesting case where ‘scrambling “remedies” weak crossover violations,’ (p. 107), attributing the observation to Yoshimura (1989).

(99) a. ![Sentence in Japanese]

‘His mother loves who,'
b. ？Darei-o [soitui-no hahaoya]-ga ？t_i aisiteiru no?
who-Acc the guy-Gen mother-Nom love Q
‘His, mother loves who,‘

While sentence (99a) with the wh-phrase in the object position shows a weak crossover violation, sentence (99b) with the wh-phrase preposed by short Scrambling is considerably improved in grammaticality on the intended reading. Saito accounts for this by claiming that short Scrambling is a case of A-movement, so that the wh-phrase in (99b) is in a position to bind the pronoun in the subject phrase.

Saito (1992) also points out the following example, also attributed to Yoshimura (1989).

(100) ？Darei-o [soitui-no hahaoya]-ga [CP Hanako-ga ？t_i
who-Acc the guy-Gen mother-Nom -Nom
aisiteiru to] omotteiru no?
love that think Q
‘Who, his, mother thinks Hanako loves t_i?’

Personally, I find the following sentence better than (100), but the point is the same in either case.

(101) ？Darei-o Hanako-ga [CP[soitui-no hahaoya]-ga ？t_i aisiteiru
who-Acc -Nom the guy-Gen mother-Nom love
to] omotteiru no?
that think Q
‘Who, Hanako thinks his, mother loves t_i?’

This is an example of long-distance Scrambling, in which the effect of weak crossover is also remedied. Yoshimura (1989), as quoted in Saito (1992), makes use of this fact to argue that long-distance Scrambling also has a chance of being A-movement.

According to the present analysis, what we see here is just another example in which short- and long-distance Scrambling are not sig-
nificantly different in nature. In both (99b) and (101), the preposed *wh*-phrase is qualified to remain in [Spec, CP] of the main clause where it is in a position to be licensed by the interrogative head in LF. In the same position, the *wh*-phrase is capable of binding the pronoun contained in the subject phrase, thus evading the weak crossover effect.8)

One more important outcome of the observation made in this subsection is that the position occupied by a *wh*-phrase which has been preposed is not an operator position, as far as the relevant facts are concerned in Japanese. Otherwise, the preposed *wh*-phrase should not be able to bind the pronoun. For recent discussion, cf. Ruys (2000).

7. Conclusion

The present article has examined a number of cases in which reconstruction of preposed constituents interacts with Binding Theory and scope-bearing elements.

On the one hand, it has been shown that reconstruction takes place in a wide range of positions including not only the D-structure positions from which constituents have been dislocated, but also some clause-

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8) The following sentence, which minimally differs from (2b) in having a *wh*-phrase in the dislocated position, is somewhat better than (2b).

(i) ??[Dono gakusei-tati]-o Masao-ga [otagai-no sensei]-ni which students-Acc -Nom each-other-Gen teacher-Dat
[Hanako-ga ti hihan-sita to] itta no? -Nom criticize-did that said Q

‘Which students’s, Masao said to each other’s teachers [Q [Hanako criticized ]]?’

We take this as another case illustrating the effect of scrambling widening scope: In this example, the *wh*-phrase must be interpreted and licensed by the interrogative clause marker in the dislocated position, and hence must remain in this position, where it can locally bind the reciprocal anaphor in the matrix clause. The reason why this sentence is not perfectly acceptable may be due to the nature of the reciprocal anaphor *otagai*, which prefers to be bound by (what originates as) its co-argument.
peripheral positions. On the other hand, the range of these reconstruction sites is reduced by Binding Theory — reconstruction is possible only to a position where no violation of Binding Theory occurs.

The present analysis has shown a number of facts which can be taken as evidence that reconstruction is not just a rephrasing of D-structure. Rather, it involves intermediate positions at the periphery of various projections.
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「かきまぜ」と LF の再構成

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本論文は日本語で「かきまぜ」を受けた名詞句が LF での再構成 reconstruction により文中のさまざまな位置で解釈を受ける可能性があることを主張する。まず、移動を受けた名詞句は D 構造位置だけでなく CP や vP の「端」（edge）で再構成を受けることを示す。この主張の基盤となるのは束縛とスコープに関わる事実である。次に、LF での再構成は束縛理論の制約を受けることを示す。再構成はさまざまな位置で名詞句を解釈することを許すが、その可能性の範囲は束縛条件 A と C によって狭められるのである。さらに、LF 再構成は指示の非透明性を引き出す動詞など、スコープに関与する要素と相互関係を持つが、このような関係も束縛条件によって制約される。

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