

PERIPHERIES

Syntactic Edges and their Effects

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Chapter 6

JAPANESE SCRAMBLING IN A COMPARATIVE PERSPECTIVE*

Mamoru Saito

1. Introduction

One major issue concerning the analysis of scrambling is whether it is triggered by some sort of feature checking or not. In this paper, I will argue, as I did in my previous works, that Japanese-Korean (J-K) type scrambling does not involve feature checking. Here, I will take “radical reconstruction” to be the core property of J-K scrambling and hence, will be concerned mainly with long scrambling. In Section 2, I will go over the basic facts that exemplify this property. In Section 3, I will take up some issues that arise in Chomsky’s *Minimalist Inquiries* (Chomsky 1998), and present a theory-internal argument for the conclusion. Then, in Section 4, considering some proposals in Chomsky’s *Derivation by phase* (Chomsky 1999), I will present an independent, more straightforward argument.

The two arguments to be presented are based on different assumptions about the nature of the P/EPP feature assigned to the head of a phase, and hence, are mutually incompatible. But taken together, they suggest that J-K scrambling is not triggered by feature checking regardless of what the precise nature of this feature turns out to be. In the course of the discussion, I will cite examples from Kidwai and Saito (in preparation) that show that radical reconstruction is unique to J-K type scrambling and does not obtain in Hindi. This suggests that

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Hindi scrambling involves feature checking, as proposed by Mahajan (1990) and Kidwai (2000), but J-K scrambling does not.¹

2. Radical reconstruction

2.1 The Initial Facts

Japanese allows both clause-internal and long scrambling as shown in (1) - (2).²

- (1) a. [Yamada -ga sono hon -o yonda] (koto).
Yamada -NOM that book -ACC read fact
'Yamada read that book.'
- b. [Sono hon -o_i [Yamada -ga t_i yonda]] (koto).
that book -ACC Yamada -NOM read fact
- (2) a. [Tanaka -ga [Yamada -ga sono hon -o yonda to]
Tanaka -NOM Yamada -NOM that book -ACC read that
omotteiru] (koto).
think fact
'Tanaka thinks that Yamada read that book.'
- b. [Sono hon -o_i [Tanaka -ga [Yamada -ga t_i yonda to]
that book -ACC Tanaka -NOM Yamada -NOM read that
omotteiru]] (koto).
think fact

Examples such as (1b) and (2b) appear on the surface to be similar to instances of English topicalization. However, Japanese scrambling exhibits a unique property, i.e., the radical reconstruction property.

To observe an effect of this property, let us first consider the examples in (3).

- (3) a. [_{IP} John -ga [_{CP} [_{IP} dare -ga sono hon -o katta] ka]
John -NOM who -NOM that book -ACC bought Q
siritagatteiru] (koto).
want-to-know fact
'[John wants to know [_Q [who bought that book]]]'

¹In the following discussion, I will only use Japanese examples to illustrate the properties of J-K type scrambling. But given my limited knowledge of Korean, based on Lee (1994), Sohn (1995) and others, I believe that the conclusion applies to Korean as well.

²*Koto* 'the fact that' is added to some examples to avoid the unnaturalness that results from the lack of topic in a matrix clause. I will sometimes provide the rough structure of the example in single quotes instead of the translation.

- b. * [_{IP} Dare -ga [_{CP} [_{IP} John -ga sono hon -o katta] ka]
who -NOM John -NOM that book -ACC bought Q
siritagatteiru] (koto).
want-to-know fact
'[Who wants to know [_Q [John bought that book]]]'

These examples, discussed initially by Harada (1972), show that a Japanese wh-phrase must be contained within the CP where it takes scope. This condition applies to in-situ wh-phrases in English as well, as (4) indicates.

- (4) *John asked who to find out [_{CP} what_i [_{IP} Mary bought t_i]]

In this example, the in-situ wh *who* must take scope at the embedded CP since it is the only question CP. But this is impossible because the wh is not contained within this CP. The condition concerns the interpretation of wh-phrases and hence, is plausibly an LF condition.

Let us now consider (5) in the light of this condition.

- (5) a. [_{IP} John -ga [_{CP} [_{IP} Mary -ga dono hon -o yonda] ka]
John -NOM Mary -NOM which book -ACC read Q
siritagatteiru] (koto).
want-to-know fact
'John wants to know [_Q [Mary read which book]]'
- b. ?Dono hon -o_i [_{IP} John -ga [_{CP} [_{IP} Mary -ga t_i yonda] ka]
which book -ACC_i John -NOM Mary -NOM read Q
siritagatteiru] (koto).
want-to-know fact
'[Which book_i, John wants to know [_Q [Mary read t_i]]]'

In (5b), the wh-phrase is scrambled out of the CP where it takes scope. Hence, we would expect it to be ungrammatical just like (2). Yet, the example is only slightly marginal. Given this fact, it was proposed in Saito (1989) that Japanese scrambling can be undone in LF. Then, the wh-phrase in (5b) can be within the embedded CP at LF, satisfying the condition that excludes (2). This "LF undoing property" was later named the radical reconstruction property of scrambling.

The examples in (6) point to the same conclusion.

- (6) a. [_{IP} John -ga [_{CP} [_{IP} minna -ga [_{CP} Mary -ga dono
John -NOM all -NOM Mary -NOM which
hon-o yonda to] omotteiru] ka] siritagatteiru] (koto).
book-ACC read that think Q want-to-know fact

- '[John wants to know [_Q [everyone thinks [_{that} Mary read which book]]]]'
- b?_?[_{IP} [_{CP} Mary -ga dono hon -o yonda to]_i [_{John}-ga [_{CP} Mary -NOM which book -ACC read that John -NOM [_{IP} minna -ga *t_i* omotteiru] ka] siritagatteiru]] (koto).
all -NOM think Q want-to-know fact
'[[That Mary read which book]_i, John wants to know [_Q [everyone thinks *t_i*]]]'

In (6b), a CP containing a wh-phrase is scrambled out of the CP where the wh-phrase takes scope. But this does not affect the interpretation of the wh-phrase as long as the scrambled CP can be Moved back at LF.

Note that this radical reconstruction property is unique to scrambling and is not observed with English topicalization or wh-movement.

The examples in (7) illustrate the absence of radical reconstruction with English topicalization.

- (7) a?_?[_{CP} Who_i [_{IP} *t_i* said [_{CP} that [[the man that bought what]_j, [_{IP} John knows [_{CP} whether [_{IP} Mary likes *t_j*]]]]]]]]
b.*[_{IP} Mary thinks [_{CP} that [[the man that bought what]_j, [_{IP} John knows [_{CP} who_i [_{IP} *t_i* likes *t_j*]]]]]]]]

Examples such as (7a) are marginally allowed by those who accept embedded topicalization quite generously. But even for those speakers, (7b) is hopeless. If topics can be Moved back to the clause they come from, we would expect (7b) to have the same grammatical status as (6b). In this case, the wh-phrase *what* should be able to take scope at the most deeply embedded CP. On the other hand, if topicalization is not subject to radical reconstruction, we correctly predict the total ungrammaticality of (7b). *What* needs to take scope at a question CP, but there is no question CP that contains it. Hence, the wh-phrase fails to receive an interpretation. (7b), then, is out for the same reason that (2) and (4) are.

2.2 The Obligatoriness of radical reconstruction with Long scrambling

The nature of radical reconstruction is investigated in more detail in Tada (1993) and Oka (1989). In particular, they present data that suggest that radical reconstruction is obligatory with long scrambling but optional with clause-internal scrambling.

The first set of examples consists of sentences with lexical anaphors. The contrast in (8) indicates that *otagai* 'each other' requires a c-commanding antecedent.

- (8) a. [_{IP} Karera -ga [otagai -no sensei] -o hihansita] (koto).
they -NOM each-other -GEN teacher -ACC criticized fact
'They criticized [each other's teachers]'
b.*[_{IP} [Otagai -no sensei] -ga karera -o hihansita] (koto).
each-other -GEN teacher -NOM they -ACC criticized fact
'[Each other's teachers] criticized them'

When the object in (8b) is Moved to the sentence-initial position by clause-internal scrambling, the example improves dramatically as shown in (9).

- (9) ?[_{IP} Karera -o_i [[otagai -no sensei] -ga *t_i* hihansita]] (koto).
they -ACC each-other -GEN teacher -NOM criticized fact
'Them_i, [each other's teachers] criticized *t_i*'

This is expected since scrambling in effect creates a c-commanding antecedent for *otagai*.

However, this kind of improvement is not observed with long scrambling. (10b) is as bad as (10a).³

- (10) a.*[_{IP} [Otagai -no sensei] -ga [_{CP} [_{IP} Tanaka -ga karera each-other -GEN teacher -NOM Tanaka -NOM they -o hihansita] to] itta] (koto).
-ACC criticized that said fact
'[Each other's teachers] said that Tanaka criticized them'
b.*[_{IP} Karera -o_i [[otagai -no sensei] -ga [_{CP} [_{IP} Tanaka they -ACC each-other -GEN teacher -NOM Tanaka -ga *t_i* hihansita] to] itta]] (koto).
-NOM criticized that said fact
'Them_i, [each other's teachers] said that Tanaka criticized *t_i*'

The contrast between (10b) and (9) is surprising since *karera* 'they' c-commands *otagai* in (10b) exactly as in (9). However, on the assumption that the binding requirement on *otagai* is an LF condition, the ungrammaticality of (10b) follows if radical reconstruction is obligatory with long scrambling. Then, *karera* in (10b) must Move back in LF to the clause it came from and *otagai* will not have a c-commanding antecedent at this level.

The second set of data that suggests the obligatoriness of radical reconstruction with long scrambling has to do with the scope interaction of quantifiers. Two important basic facts are observed in Kuroda (1971).⁴ The first is that

³This distinction between clause-internal scrambling and long scrambling was first discussed by Mahajan (1990) with Hindi data. Kidwai (2000), however, arrives at a different generalization for Hindi.

⁴See also Hoji (1985) for a detailed discussion on the basic scope properties of Japanese quantifiers.

Japanese is a scope rigidity language. Thus, (11) is unambiguous and only allows the wide scope reading of *dareka* 'someone'.

- (11) [IP *Dareka* -ga *daremo* -o *aisiteiru*] ($\exists > \forall, * \forall > \exists$)
 someone -NOM everyone -ACC love
 'Someone loves everyone.'

The second is that the scrambling of a quantifier over another induces a scope ambiguity. The examples in (12), in clear contrast with (11), are ambiguous.

- (12) a. [IP *Daremo* -o_i [*dareka* -ga *t_i* *aisiteiru*]] ($\exists > \forall, \forall > \exists$)
 everyone -ACC someone -NOM love
 'Everyone_i, someone loves *t_i*.'
 b. [IP *Dareka* -o_i [*daremo* -ga *t_i* *aisiteiru*]] ($\forall > \exists, \exists > \forall$)
 someone -ACC everyone -NOM love
 'Someone_i, everyone loves *t_i*.'

Given this background, Tada and Oka note an important fact concerning long scrambling. That is, long scrambling, in distinction with clause-internal scrambling, does not induce scope ambiguity. This is shown in (13).

- (13) a. [IP *Dareka* -ga [CP [IP *Tanaka* -ga *daremo* -o *aisiteiru*]
 someone -NOM Tanaka -NOM everyone -ACC love
 to] *itta*] (koto). ($\exists > \forall, * \forall > \exists$)
 that said fact
 'Someone said that Tanaka loves everyone.'
 b. [IP *Daremo* -o_i [*dareka* -ga [CP [IP *Tanaka* -ga *t_i* *aisiteiru*]
 everyone -ACC someone -NOM Tanaka -NOM love
 to] *itta*]] (koto). ($\exists > \forall, * \forall > \exists$)
 that said fact
 'Everyone_i, someone said that Tanaka loves *t_i*'

This fact constitutes additional evidence for the obligatory radical reconstruction with long scrambling. Let us assume that the LF c-command relation determines the scope relation of quantifiers. Then, if *daremo* 'everyone' in (13b) must Move back in LF to the embedded clause, it must fall within the scope of *dareka* 'someone'. The ambiguity of the examples in (12) is also expected if radical reconstruction is optional for clause-internal scrambling. The wide scope reading of the subject obtains when the object Moves back to its initial position in LF. On the other hand, when the object stays in its surface position, it takes wide scope over the subject.

In the discussion above, I presented radical reconstruction as an operation that literally reconstructs a scrambled phrase. However, what was shown is simply that the chain created by scrambling can be (and in some cases, must

be) invisible to the interpretive procedure applying at LF. I will continue to use figurative expressions like "the phrase Moves back to its initial position," but it should be kept in mind that radical reconstruction is meant to be a property and not an operation throughout this paper.

3. Chomsky's (1998) P-feature and scrambling

Given the radical reconstruction property discussed above, we may ask whether it is reasonable to analyze scrambling as a Movement operation triggered by some sort of feature checking. The property itself implies that scrambling need not establish an operator-variable relation that has significance at LF. So, the question boils down to whether there is a formal feature that triggers this kind of long Movement. In this section, I will examine this possibility within the system proposed in Chomsky (1998). There, a formal feature that apparently has this property, i.e., the P feature that is freely assigned to the head of a phase, is proposed. I will present a theory-internal argument that even Movement induced by this feature does not have the radical reconstruction property. This leads to the conclusion that Movement triggered by feature checking cannot have the radical reconstruction property regardless of whether it is "semantically significant" or "semantically vacuous". This in turn suggests that scrambling is not triggered by feature checking. But before I present this argument, I will briefly go over the development of the theory of phases.

3.1 Chomsky's (1995) Elimination of the Last Resort Principle

One of the goals of Chomsky (1995) is the elimination of the Last Resort Principle, originally proposed in Chomsky (1986b). The principle, which can be stated informally as in (14), successfully explains the contrast in (15).

- (14) Movement takes place to eliminate an uninterpretable feature on the Moved item.
 (15) a. John_i seems [*t_i* to be smart]
 b. *John_i seems [*t_i* is smart]

In (15a), *John* needs to have its uninterpretable Case feature checked and eliminated at the matrix [Spec,IP], and hence, the Movement is licit. On the other hand, in (15b), *John* is already checked for Case prior to Movement. Thus, the Movement violates the Last Resort Principle.

As discussed in detail in Chomsky (1995), the principle, however, does not have a place in the overall theory. It is an absolute condition imposed on Movement and hence, is independent of derivational economy, which allows operations that are necessary to make derivations converge. Further, it

raises empirical problems. Let us consider *wh*-movement for example. The very fact that *what* Moves to [Spec,CP] in (16) implies that it has an uninterpretable feature that needs to be checked and eliminated at this position.

- (16) What_{*i*} did you give *t_i* to whom
[-int]

But in this example, *whom* cannot have this feature since if it did, the feature would remain, making the LF illegitimate. It follows then that *wh*-phrases can but need not have the uninterpretable feature that forces them to Move to [Spec,CP].

With this conclusion, however, we lose the account for the superiority effect illustrated in (17).

- (17) a. Who_{*i*} *t_i* bought what
[-Int]
b. *What_{*i*} did who buy *t_i*
[-Int]

The simplest derivational economy account for this contrast is that both *who* and *what* are candidates for Movement to [Spec,CP] but the Movement of the former is more economical.⁵ But if *wh*-phrases are free to have and not to have the relevant uninterpretable feature, then in (17b), only *what* may have this feature. Then, it is not obvious how the unwanted (17b) can be excluded.

Concerned mainly with the conceptual problem with Last Resort, Chomsky (1995) first proposes to restate the principle as in (18).

- (18) Movement takes place to eliminate an uninterpretable feature of the target.

This formulation makes it possible to state Last Resort as part of the definition of Move. Movement takes place as soon as the target is introduced in the structure. So, we can say that it is by definition triggered by an uninterpretable feature of the target. In (15a), the EPP feature of the matrix I is uninterpretable and hence, must be checked by *John*. Similarly, the matrix [+wh] C in (16) - (17) has an uninterpretable feature that needs to be checked. This triggers the *wh*-movement. Note that superiority is no longer problematic. Informally put, in (17a)-(17b), *who* is a closer candidate than *what* to check and eliminate the uninterpretable feature of the C.⁶

⁵See, for example Bošković (1997) for a detailed discussion of this analysis.

⁶It has been widely assumed since the 1970's that *wh*-movement takes place to satisfy a requirement of C while NP-Movement is necessitated by the need for an NP to receive Case. (18), which states that all

With this refinement/elimination of the Last Resort Principle, Chomsky (1995) proposes an alternative account for (15b). He first makes the following assumptions on the formal features:

- (19) a. EPP, AGR, and Case are the uninterpretable features of I.
b. Case is the only uninterpretable feature of NP.

Then, in (15a), *John* with D, AGR, Case features checks the EPP, AGR, Case features of I, and I in turn checks the Case feature of the NP. But in (15b), the Case feature of *John* is checked and eliminated prior to the Movement. Hence, the NP fails to check the uninterpretable Case feature of I and the derivation crashes.

3.2 Chomsky (1998) on Activation and phases

Among the proposals in Chomsky (1998) are the activation condition on the Moved item and derivational phase. Let us consider them in turn.

First, Chomsky (1998) in a sense reinstates the classical Last Resort but in a different form. The motivation comes from examples like (20).

- (20) *[John_{*i*} to seem [_{CP} [_{IP} *t_i* is intelligent]]] would be surprising

Here, *John* Moves to an infinitival [Spec,IP], but the I head does not have an uninterpretable Case feature to begin with. Hence, the explanation for (15b) does not carry over to this case. Facing this problem, Chomsky suggests that only phrases with uninterpretable features count as candidates for Movement. This "activation condition" is formulated as in (21).

- (21) An uninterpretable feature activates the goal.

The infinitival I in (20) has at least the EPP feature and hence, triggers the Movement of an NP to its Spec position. But, *John* is not "activated" to Move since its uninterpretable Case feature is checked and eliminated at the position of its trace.

The activation condition in (21) is not subject to the conceptual problem that the original Last Resort Principle faced. However, on the empirical side, it too makes the account for superiority difficult. Further, as Chomsky notes, it necessitates a complication in the formulation of the Minimality condition on Movement. Let us consider (22).

- (22) ??What_{*i*} does John wonder [where_{*j*} [Mary put *t_i* *t_j*]]
[-Int] [-Int]

Movement operations are triggered by the target, unifies the "causes" of *wh*-movement and NP-Movement for the first time.

The standard account for this wh-island effect is as follows. The matrix C has an uninterpretable feature that needs to be checked by a wh-phrase. At the point the required Movement applies, *where* in the embedded [Spec,CP] is closer to the matrix C than *what* in the embedded object position. Hence, it is chosen as the wh-phrase to check the uninterpretable feature of the matrix C. However, the resulting structure, shown in (23), fails to receive a coherent interpretation.

(23) *Where_j does John wonder [*t_j*' [Mary put what_i *t_j*]]

In particular, it makes *where* take scope at two distinct [Spec,CP]s, which is impossible.

But note that this account for (22) presupposes that *where* in the embedded [Spec,CP] is a possible candidate for Movement. And even if this wh-phrase had an uninterpretable feature, it is checked and deleted at the embedded [Spec,CP]. Chomsky concludes that although only phrases with uninterpretable features are candidates for Movement, those without such features also induce Minimality effects. He calls this the "defective intervention effect."

Given the discussion above, it seems clear that it is desirable to eliminate the activation condition in (21). This would enable us to maintain the standard simple analysis for superiority and Minimality. I will return to this problem directly.

The most important proposal in Chomsky (1998) is the postulation of derivational phases. To see the motivation for this proposal, let us first consider the examples in (24)-(25).

- (24) a. There_i is likely [*t_i* to be a man in the room]
 b.*There is likely [a man_i to be *t_i* in the room]
 c. A man_i is likely [*t_i*' to be *t_i* in the room]
- (25) a. There_i is likely [*t_i* to be a proof discovered]
 b.*There is likely [a proof_i to be *t_i* discovered]
 c. A proof_i is likely [*t_i*' to be *t_i* discovered]

In (24a) *there* is Merged at the embedded clause and raised to the matrix subject position. In (24c) *a man* Moves within the embedded clause and then to the matrix subject position. In (24b) *a man* Moves to the embedded [Spec,IP] and *there* is Merged at the matrix [Spec,IP]. As indicated, only the last case is illicit.

Chomsky proposes to account for the contrast between (24a) and (24b) by the following derivational economy principle:

(26) Merge preempts Move.

The idea is that Move is a more complex operation that includes Merge as its part. Hence, when there is a choice, the simpler Merge applies. For (24a)-(24b),

the choice between the Merge of *there* and the Move of *a man* arises when the derivation reaches the embedded [Spec,IP]. At this point, (26) forces the Merge of *there*. Given that a derivation proceeds with a Numeration, this choice does not arise in the case of (24c). Roughly put, the derivation starts with a fixed set of lexical items to be used. Since *there* is not included in the set in the case of (24c), (26) is irrelevant and *a man* is free to Move.

This account for (24)-(25), Chomsky points out, faces a problem with examples such as those in (27).

- (27) a. There is a possibility [that a proof_i will be discovered *t_i*]
 b. It's fun [PRO_i to [*t_i* discover a proof]]

In (27b), for example, the choice between the Merge of *there* and the Move of *a proof* should arise at the embedded [Spec,IP]. Yet, *a proof* is allowed to Move. Given this, Chomsky proposes that a derivation proceeds phase by phase, where CP (and vP) define phases. Suppose that the fixed set of lexical items is provided for each phase. Then, when the embedded CP in (27a) is constructed, the expletive *there* is not among the available lexical items. Hence, (26) is irrelevant in this case exactly as in (24c). (26) continues to block (24b) since the embedded clause in this example is an IP, not a CP.

Chomsky argues further that the idea of derivation by phase enables us to explain why wh-movement takes place successive-cyclically. As discussed in detail in Barss (1986) for example, sentences such as those in (28) provide clear evidence for successive-cyclic Movement.

- (28) a. [Which picture of himself]_i does John think Mary liked *t_i* best?
 b.?[Which picture of himself]_i does John wonder why Mary liked *t_i*?

The anaphor *himself* is locally bound by *John* when the wh-phrase is in the embedded [Spec,CP] in (28a), and arguably, when it Moves through the matrix vP in (28b). The following condition successfully forces the desired successive-cyclic movement:

- (29) Only the edge of a phase (Spec and head) is accessible to the next phase up.

A phase is a "complete unit", and hence, its elements are in principle not visible to anything outside it. But we have to allow some exceptions. In particular, the head of a phase must be visible from outside so that it can properly satisfy the selectional requirement of the higher head. If so, it is reasonable to assume that the Spec of a phase is also visible from the next phase up.

Let us consider (30), paying attention just to the CP phase, in order to observe how (29) forces successive-cyclic movement.

- (30) What_i does John think [_{CP} t_i' [Mary bought t_i]]

The matrix C cannot “pull” *what* directly to its Spec position because the embedded CP is a phase and hence, the embedded object position is invisible to this C. For the Movement to be possible, *what* must first Move to the embedded [Spec,CP] position. Then, it is at the edge of the embedded CP and is visible to the matrix C. It follows that wh-movement must proceed successive-cyclically.

With Chomsky's proposal of phases, let us now return to the activation problem. As noted above, there are empirical reasons to eliminate the activation condition, which says that only phrases with uninterpretable features are candidates for Movement. The example that apparently required this condition was (20), repeated below as (31).

- (31) *[John_i to seem [_{CP} [_{IP} t_i is intelligent]]] would be surprising

But phase provides us with an independent way to exclude this example. Here, *John* is Moved out of a CP to an [Spec,IP] position. Since *John* is contained within the CP phase, the infinitival I should not be able to see the NP and “pull” it to its Spec position. The only way to make the Movement possible is to raise *John* to the edge of the embedded CP phase first. But in this case, further Movement to [Spec,IP] will result in a clear case of improper Movement.

It seems then that the activation condition can be eliminated successfully. There is, however, one further case to consider. I will turn to this case in the following subsection.

3.3 Improper Partial wh-movement and scrambling

Given (29), a wh-phrase must Move through the edge of every phase that dominates its initial position. If we ignore the vP phase just for the ease of exposition, the Movement applies successive-cyclically through [Spec,CP] as in (32).

- (32) What_i does John think [_{CP} t_i' [Mary bought t_i]]

Here, a question arises with respect to the initial Movement to the embedded [Spec,CP]. How is this Movement possible? According to the definition of Move discussed above, an uninterpretable feature of the target triggers Movement. Then, the embedded C in (32) must have an uninterpretable feature.

With this reasoning, Chomsky (1998) proposes (33).

- (33) An uninterpretable P-feature can be assigned to the head of a phase.

Further, assuming the activation condition, he maintains that this P-feature has the following property:

- (34) P is checked and deleted by a wh, but cannot delete the uninterpretable feature of the wh.

The P-feature triggers the Movement of *what* to the embedded [Spec,CP] in (32). This uninterpretable feature must be checked and deleted at this point so that it does not survive. Given the activation condition, *what* must also have an uninterpretable feature so that it can be a candidate for Movement. This uninterpretable feature, however, cannot be deleted at the embedded [Spec,CP] because if it is, the wh-phrase is unable to Move further to the matrix [Spec,CP].

It may appear that the basic line of Chomsky's analysis can be maintained without the activation condition. If the condition is eliminated, we need not assume that *what* in (32) has an uninterpretable feature to begin with. The derivation proceeds in the same way without the condition. However, there is a case in which the condition plays a role. The following examples illustrate this case:

- (35) a. Who_i t_i thinks [_{CP} [John bought what_i]]
b.*Who_i t_i thinks [_{CP} what_j [John bought t_j]]

Given (33), the head C of the embedded CP can be assigned a P-feature. And this feature should be able to trigger the Movement of *what* to the embedded [Spec,CP] as in (35b). The activation condition prevents this undesirable consequence. According to this condition, *what* must have an uninterpretable feature if it Moves to check the P-feature of the embedded C. But (34) states that this uninterpretable feature cannot be checked and deleted by P. Hence, *what* in (35b) is left with an uninterpretable feature and is properly excluded. Thus, the activation condition and (34) together guarantee that a wh-phrase can Move to check a P-feature only if it Moves on to the Spec of a question CP where its own uninterpretable feature can be checked and deleted.

Although the activation condition serves to exclude (35b), it seems too costly to keep the condition only for this purpose. As we saw above, its elimination has desirable consequences. Hence, it is reasonable, in my opinion, to eliminate the condition, and to look for an independent account for (35b). And there is an independent account if we follow the basic ideas of Tsai (1994) on the interpretation of wh-phrases. Let us suppose, as widely assumed at this point, that a wh-phrase that is not Moved to its scope position is interpreted through “unselective binding” from the relevant [+wh] C head. Then, *what* in (35a) is interpreted by virtue of unselective binding from the matrix C. But it is not the case that every wh-phrase in situ can be interpreted in this way. In particular, the following well known example from Huang (1982) shows that a wh-phrase in an A'-position (non-L-related position) is not subject to this kind of interpretation:

- (36) *Who_i t_i left early why?

Thus, we can say that only *wh*-phrases in A-position (L-related position) can be interpreted through unselective binding. This automatically excludes (35b) since *what* is Moved to an A'-position. That is, *what* in (35b) fails to receive an interpretation in the same way as *why* in (36).

This account for (35b) not only enables us to successfully eliminate the activation condition, but also has a clear consequence for the analysis of scrambling. First, the example in (5b), repeated in (37), indicates that radical reconstruction feeds unselective binding.

- (37) ?_{[IP} *Dono hon -o_i* [_{John -ga} [_{CP} [_{IP} *Mary -ga t_i yonda*] *ka*]
 which book -ACC John -NOM Mary -NOM read Q
 siritagatteiru] (koto).
 want-to-know fact
 '[Which book_i, John wants to know [_Q [_{Mary} read t_i]]']

If the *wh*-phrase *dono hon* 'which book' is interpreted after it is Moved back to the most deeply embedded clause, as suggested above, then the interpretation of a *wh*-phrase clearly can follow radical reconstruction.

This conclusion is confirmed by the examples in (38), where an indefinite NP is unselectively bound by an adverb of quantification.⁷

- (38) a. [_{Minna -wa} [_{CP} [_{C -san -ga} *ronbun_i -o* *takeba*] *boku*
 all -TOP C -Mr -NOM paper -ACC write-if I
 -*ga* *kanarazu sore_i -o* *yomu to*] *omotteiru*]
 -NOM always it -ACC read that think
 '[Everyone thinks that [if Mr. C writes a paper, I always read it]]'
- b. ?_{[Ronbun_i -o} [_{minna -wa} [_{CP} [_{C -san -ga} *t_i takeba*] *boku*
 paper_i -ACC all -TOP C -Mr -NOM write-if I
 -*ga* *kanarazu sore_i -o* *yomu to*] *omotteiru*]
 -NOM always it -ACC read that think
 'A paper_i, [everyone thinks that [if Mr. C writes t_i, I always read it]]'

In (38a), the indefinite NP *ronbun* 'paper' is unselectively bound by *kanarazu* 'always'. In (38b), the indefinite NP is scrambled out of the *c*-command domain of the adverb, and yet, this does not affect the unselective binding. This shows that unselective binding can apply after radical reconstruction.

Let us consider again the analysis of (35b), repeated as (39), with this conclusion.

- (39) *Who_i t_i thinks [_{CP} what_j [John bought t_j]]

The Movement of *what* here is "semantically vacuous" like scrambling in that it does not establish an operator-variable relation. So, we may expect this Movement to share some properties with scrambling. However, the analysis proposed above for the ungrammaticality of (39) is that *what* is in an A'-position and hence fails to be unselectively bound by the matrix C. And this, if correct, implies that *what* is not subject to radical reconstruction. If it is, then the *wh*-phrase could be Moved back to an A-position before unselective binding applies, since radical reconstruction feeds unselective binding. Then, we should predict incorrectly that (39) is grammatical like (37).

At this point, we may ask what the difference is between scrambling and the Movement in (39). As noted above, both are "semantically vacuous." The difference, then, must be sought in the formal mechanisms of the two Movements. The only possibility that I can think of is the absence vs. presence of feature checking. The Movement in (39) is triggered by the P-feature. If scrambling is also triggered by an uninterpretable feature that induces semantically vacuous Movement, it would be difficult, if not impossible, to distinguish the two Movements. On the other hand, if scrambling is not triggered by any feature, we can attribute the radical reconstruction property to the absence of feature checking. This is the idea originally proposed in Lee (1994) and developed further in Saito and Fukui (1998).

4. Preliminary Remarks on the Typology of scrambling

The argument presented in the preceding section relies on Chomsky's (1998) proposals on phases. Since the proposals are developed further in Chomsky (1999), I will briefly discuss this work in relation to scrambling.

4.1 Chomsky (1999) on Object Shift

One of the concerns of Chomsky (1999) is to examine the relation between the vP phase and Object Shift (OS). He entertains the hypothesis that the EPP-feature assigned to the v head (v* head in Chomsky's terms) triggers both successive-cyclic *wh*-movement and OS.

OS is in general impossible in English. This means that in this language v can have an EPP feature to trigger "OS" only when the Moved phrase is an operator that Moves on to a CP Spec. The situation is different in the case of

⁷See Heim (1982), Nishigauchi (1990) and Diesing (1992) for detailed discussion on the unselective binding of indefinites.

OS languages. Chomsky assumes A. Holmberg's Generalizations on Icelandic and Mainland Scandinavian, which he states as follows:⁸

- (40) a. OS ... is driven by the semantic interpretation of the shifted object (new information, specificity/definiteness, focus, etc.; call the interpretive complex INT).
 b. OS cannot apply across a phonologically visible category asymmetrically c-commanding the object position except adjuncts.

Given these factual assumptions, Chomsky first hypothesizes that the difference between non-OS and OS languages lies in whether an NP in the object position can receive INT interpretation. In non-OS languages it can be assigned INT or non-INT interpretation, but in OS languages it necessarily receives non-INT. Then, he proposes the following:

- (41) a. v^* is assigned an EPP-feature only if that has an effect on outcome.
 b. The EPP position of v^* is assigned INT.

In principle v can be assigned an EPP-feature that triggers OS. But if OS applies in a non-OS language, the outcome is excluded by (41). In particular, if the object is to receive, say, specific/definite interpretation, this is possible without OS. Hence, the OS has no effect on the outcome and is excluded by (41a). On the other hand, OS does have a semantic effect in OS languages. By hypothesis, the object must receive non-INT interpretation in situ. So, the INT interpretation is possible only when OS applies. Thus, OS is properly allowed by (41a). Then, why is "OS" possible in non-OS languages for successive-cyclic operator Movement? Chomsky argues that this is one case where OS has an effect on the outcome in non-OS languages. The shifted wh-object Moves on eventually to the [Spec,CP] where it takes scope.

Let us now put aside the questions and possibilities that arise from Chomsky's (1999) proposals and turn to the implications they may have for the arguments presented in the preceding section. It is not clear whether Chomsky's idea in (41a) can be (or should be) generalized to all features that are assigned to heads to trigger overt phrasal Movement, as in (42).

- (42) An uninterpretable feature (e.g. P/EPP-feature) is assigned to a head only if that has an effect on outcome.

If it is not, in particular, if it is not generalized to the P-feature assigned to C, then the arguments in the preceding section stand as they are. On the other

hand, if it is, it may provide an alternative way to exclude (39), repeated below as (43).

- (43) *Who_i t_i thinks [_{CP} what_j [John bought t_j]]

Here, the assignment of the P-feature to the embedded C does not seem to have an effect on the outcome. In particular, *what* does not Move on to the [Spec,CP] where it takes scope. Hence, the example may receive an account independently of the suggested restriction on unselective binding.

Even if we adopt this alternative analysis of (43), the proposal to eliminate the activation condition seems unaffected. But the argument that scrambling is not triggered by any feature can no longer be maintained. It was based on the claim that the Movement of *what* in (43) is not subject to radical reconstruction despite the fact that it does not establish an operator-variable relation. If the Movement is impossible to begin with, this claim loses its motivation. However, if (42) is assumed, it becomes possible to construct a more straightforward argument that scrambling is not feature-driven. I will turn to this argument in the following subsection.

4.2 Radical reconstruction as a Unique Property of J-K scrambling

Once we assume (42), it is rather difficult to maintain that scrambling is triggered by an uninterpretable feature assigned to the target of Movement. The very fact that scrambling is subject to radical reconstruction suggests that the Movement does not (or need not) have an effect on the outcome. Let us review the facts once more. (37), repeated in (44), shows that there are cases where scrambling has no effect on the scope of a wh-phrase.

- (44) ?[_{IP} Dono hon -o_i [John -ga [_{CP} [_{IP} Mary -ga t_i yonda] ka]
 which book -ACC John -NOM Mary -NOM read Q
 siritagatteiru]] (koto).
 want-to-know fact
 '[Which book_{hi}, John wants to know [_Q [_{Mary} read t_i]]]'

Example (13b), repeated in (45), demonstrates that long scrambling does not have an effect on the scope of a quantifier.

- (45) [_{IP} Daremo -o_i [dareka -ga [_{CP} [_{IP} Tanaka -ga t_i aisiteiru]
 everyone -ACC someone -NOM Tanaka -NOM love
 to] itta]] (koto). (∃>∀, *∀>∃)
 that said fact
 'Everyone_i, someone said that Tanaka loves t_i '

⁸(40b) states that OS is possible only when V Moves out of vP. I will only be concerned in this paper with cases where this condition is satisfied so that the exposition can be simplified. For more detailed, more precise discussion of the generalizations in (40), see Chomsky (1999).

Finally, the unselective binding example in (38b), repeated in (46), shows that a scrambled phrase can remain indefinite.

- (46) ?[Ronbun_i -o [minna -wa [CP [C -san -ga t_i kakeba] boku paper_i -ACC all -TOP C -Mr -NOM write-if I -ga kanarazu sore_i -o yomu to] omotteiru]]
-NOM always it -ACC read that think
'A paper_i, [everyone thinks that [if Mr. C writes t_i, I always read it]]'

Hence, radical reconstruction seems to precisely mean that the Movement has no effect on the outcome.

It should be noted that there is a variation in the speakers' judgments of examples like (46). For some, long scrambling seems to induce weak specificity and hence, the example is more degraded. But as far as I can tell, this "specificity effect" is not at all as clear-cut as in German, where, as Diesing (1992) reports, scrambling of an indefinite NP out of VP forces a presupposed reading. Thus, there is no difference between (47a) and (47b) with respect to the specificity of the object.

- (47) a. [Zenin -ga nooto -o ni -satu mottekita].
all -NOM notebook -ACC two -CL brought
'Everyone brought two notebooks.'
b. Nooto -o_i ni -satu_j [zenin -ga t_i t_j mottekita].
notebook -ACC two -CL all -NOM brought
'Two notebooks_i, [Everyone brought t_i']

The comparison with Hindi, which allows long scrambling, is more striking.⁹ First, (48b) shows that the Hindi counterpart of (44) is totally ungrammatical.

- (48) a. ye baat [CP kii [IP raam jaanna caahataa hE [CP kii [IP siitaa this talk that Ram to-know wants is that Sita -ne laibrerii -se kOnsi kitaab nikaalii]]]]
-ERG library -from which book took-out
'the fact that Ram wants to know which book Sita took out from the library'
b.*ye baat [CP kii [IP kOnsi kitaab [raam jaanna caahataa hE [CP this talk that which book Ram to-know wants is kii [IP siitaa -ne laibrerii -se t_i nikaalii]]]]
that Sita -ERG library -from took-out

⁹The Hindi data are due to Ayesha Kidwai. See Kidwai and Saito (in prep.) for a more detailed comparison of Hindi and Japanese scrambling.

This indicates that Hindi scrambling lacks the radical reconstruction property.

Further, Hindi scrambling exhibits the specificity effect similar to the one observed in German. In (49) and (50), the scrambled object is interpreted as specific.

- (49) a. [Raam -nee film dekhii]
Ram -ERG film saw
'Ram saw the/a film.'
b. Film_i [raam -nee t_i dekhii]
film Ram -ERG saw
'Ram saw the/*a film.'
- (50) a. [Siitaa -nee kaha [CP kii raam -nee film dekhii]]
Sita -ERG said that Ram -ERG film saw
'Sita said that Ram saw the/a film.'
b. Film_i [siitaa -nee kaha [CP kii raam -nee t_i dekhii]]
film Sita -ERG said that Ram -ERG saw
'Sita said that Ram saw the/*a film.'

As far as I can tell, there is no such contrast with Japanese scrambling.

Finally, scrambling in Hindi uniformly has an effect on quantifier scope. Hindi is a scope rigidity language just like Japanese. Thus, (51a) is unambiguous.

- (51) a. [Koi laRkii har laRkee -koo pyaar kartii hE (∃>∀, *∀>∃)
some girl each boy -to love does is
'Some girl loves each boy.'
b. [Har laRkee -koo_i [koi laRkii t_i pyaar kartii hE]] (*!∃>∀, ∀>∃)
each boy -to some girl love does is
'Each boy is loved by some girl.'

But unlike in the case of Japanese, (51b) is also unambiguous with 'each boy' taking wide scope. The same pattern is observed with long scrambling as shown in (52).

- (52) a. [Har student -nee hmaanaa [CP kii voo kabhii-kabhii ek klaas
each student -ERG admitted that (s)he sometimes one class
ek kartaa hE]] (∀>∃, *∃>∀)
one does is
'Each student admitted that he sometimes bunks a class.'
b.?[Ek klaas_i [har student -nee maanaa [CP kii voo kabhii-kabhii
one class each student -ERG admitted that (s)he sometimes
t_i bank kartaa hE]]] (*∀>∃, ∃>∀)
bunk does is

'One (particular) class_{*i*}, each student admitted that he sometimes bunks *t_i*'

Note that the Japanese counterpart of (52b) was also unambiguous, but in the opposite direction with the subject quantifier necessarily taking wide scope.

It is suggested in Kidwai and Saito (in prep.) that these and other contrasts between Japanese and Hindi scrambling reduce to the presence vs. absence of radical reconstruction. But aside from this, these contrasts clearly indicate that if the "effects" referred to in (42) are those observed with Hindi scrambling, they are absent in Japanese scrambling. Hence, if we assume (42), the contrasts suggest that Japanese scrambling does not involve feature checking. In fact, the most reasonable hypothesis seems to be that Hindi scrambling is triggered by feature checking but Japanese scrambling is not.

5. Final Remarks

In this paper, I have presented two arguments that Japanese-Korean (J-K) scrambling is not feature-driven. In Section 3, I assumed (based on Chomsky (1998) that the P-feature which is assigned to the head of a phase for successive-cyclic movement triggers Movement that has no semantic import. I argued that even the Movement triggered by this feature is not subject to radical reconstruction, and hence, should be distinguished from J-K scrambling. The only way to distinguish these two types of Movements seems to be by whether they involve feature checking or not. Then, J-K scrambling cannot be triggered by feature checking.

In Section 4, I considered Chomsky (1999) and entertained a different assumption, i.e., that the feature assigned to a head to trigger overt phrasal Movement must have an effect on the outcome. I showed that this assumption leads to a more direct argument that J-K scrambling does not involve feature checking.

The basic intuition behind these arguments is that if there is a feature-driven "semantically vacuous" A'-Movement, it is the first steps of a successive-cyclic movement to a [Spec,CP]. If this Movement is indeed "semantically vacuous", it provides evidence for our conclusion because it does not induce radical reconstruction, in distinction with J-K scrambling. On the other hand, if there is a general principle that prohibits it from being "semantically vacuous", then we have another argument that J-K scrambling is not triggered by feature checking.

I believe that the two arguments, taken together, make a fairly strong case for our conclusion. They are by no means decisive. For example, there is at least a logical possibility that (42) is parameterized. In that case, we may say that Japanese and Korean do not have it, and hence, allow scrambling. But this kind of hypothesis is worth exploring only if there is clear evidence that scrambling is feature-driven. In the absence of such evidence, the discussion

in this paper suggests that J-K scrambling is a unique Movement operation that does not involve any uninterpretable features.