Semantic and Discourse Interpretation of the Japanese Left Periphery[*]

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1. Introduction

Japanese scrambling often makes no contribution to interpretation and seems purely stylistic. Yet, it can have semantic and discourse effects. The purpose of this paper is to examine the interpretive mechanism for movement chains by investigating this peculiar property of scrambling. In the course of the discussion, I will also present a hypothesis on the structure of the Japanese left periphery.

The basic idea pursued in this paper is that Japanese scrambling is stylistic but can nevertheless affect interpretation because of the general mechanism of movement and its interpretation. Let us consider the example of *wh*-movement in (1) to illustrate this mechanism first.

(1) a. What$_i$ did John buy t_i
     b. [For which x: x a thing] John bought x

(1a) is interpreted as in (1b), which indicates that the *wh*-phrase is construed as an operator *[for which x: x a thing]* at the landing site and as a variable *x* at the initial site. This in turn suggests that the *wh*-phrase is composed of a feature, say [wh], which yields its interpretation as a *wh*-operator, and a feature, say [arg(ument)], which is responsible for its interpretation as a variable, in addition to the phonetic features [phon] and the categorial features [cat]. Then, extending Chomsky's (1993) copy and deletion analysis of movement, it can be hypothesized that movement copies the *wh*-phrase at the landing site as in (2a), and the chain is interpreted as in (2b) with the appropriate deletion of features.

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(2) a. What$_{\{wh, arg, phon, cat\}}$ [did John buy what$_{\{wh, arg, phon, cat\}}$]

  b. What$_{\{wh, \cancel{arg}, phon, cat\}}$ [did John buy what$_{\{wh, arg, \cancel{phon}, cat\}}$]

[phon] is retained at the landing site as the movement is overt, and I assume that [cat] is retained at all positions of the chain. The specific syntactic features [wh] and [arg], on the other hand, are retained at the positions where they are licensed and properly interpreted. The [arg] feature satisfies the selectional requirement of the verb at the object position, and the [wh] feature is attracted to the CP Spec position by the question C.

Given this mechanism for movement and its interpretation, the simple example of scrambling in (3a) is analyzed as in (3b).

(3) a. Hon -o$_i$ [Taroo-ga t_i katta]
    book-ACC   -NOM   bought
    'Taroo bought a book'

  b. Hon-o$_{\{\cancel{arg}, phon, cat\}}$ [Taroo-ga   hon-o$_{\{arg, \cancel{phon}, cat\}}$ katta]

As the scrambled phrase *hon-o* 'book-ACC' is not an operator, it consists only of [arg], [phon] and [cat]. The [arg] feature should be retained at the object position because *hon-o* is interpreted as an argument at that position. Hence, the scrambling chain is interpreted as in (3b). This makes scrambling purely stylistic or semantically vacuous as no substantial feature is retained at the landing site. But note that the [arg] feature is copied at the landing site although the copy is eventually deleted. I will argue in this paper that this enables the [arg] feature to interact with higher functional heads, and that scrambling can have semantic effects because of this. Further, a scrambled phrase may contain features such as [top(ic)] in addition to [arg]. This, I will argue, is the source of the discourse effects of scrambling.

In the following section, I will first present examples of the Japanese *wh*-construction and demonstrate that scrambling can indeed be semantically vacuous as illustrated in (3b). Then, I will show how the mechanism of chain interpretation captures the A/A' properties of scrambling discussed in detail by Mahajan (1990) and Tada (1993), among others. In Section 3, I will turn to the effects of scrambling on the scope interaction between the subject and sentential negation. Modifying Miyagawa's (2001, 2003) analysis of the phenomenon, I will argue that there is a functional head, *Pred(ication)*, above TP, and that the [arg] feature preposed by scrambling can be attracted by this head. Then, in Section 4, I will consider Kuno's (1973) observation that only a matrix-initial topic can receive thematic (as opposed to contrastive) interpretation, and also some exceptions to this generalization pointed out in Kuroda (1988). I will argue that only those topics in the specifier position of the Pred projection can be interpreted as thematic, and that scrambling of

topics interacts with this in an intricate way. Section 5 concludes the paper with a brief discussion of the Japanese left periphery from a crosslinguistic perspective.

2. The Basic Properties of Japanese Scrambling

In Section 2.1, I will review two well-known properties of Japanese scrambling. I will first consider scrambling of *wh*-phrases and show that it need not have any effect on interpretation. Then, I will discuss Mahajan's (1990) generalization that only clause-internal scrambling exhibits properties of A-movement. In Section 2.2, I will argue that the chain interpretation mechanism alluded to above successfully accounts for the relevant facts.

2.1. Radical Reconstruction and the A/A' Distinction

Let us first consider the examples of *wh*-questions in (4).[1]

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

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

In both (4a) and (4b), the embedded CP is a question, as indicated by the question marker *ka* in C. In the former, the *wh*-phrase *dare* 'who' is contained within this CP and takes scope at this CP. The example is interpreted as in (5).

(5)   Taroo wants to know [for which x: x a person] x bought that book

In (4b), on the other hand, *dare* is the matrix subject and is not contained within the question CP. As the example is totally ungrammatical, the contrast in (4) suggests the simple generalization in (6).

(6)   A *wh*-phrase must be contained within the question CP where it takes scope.

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[1] In these examples and some others to follow, I show the rough structure of the sentence in single quotes instead of English translation. Also, *koto* 'the fact that' is added at the end of some examples in order to avoid the unnaturalness resulting from the lack of topic in a matrix clause. I ignore this in the rough structure or translation in single quotes.

This generalization, first discussed by Harada (1972), extends to the English examples in (7).

(7) a. [$_{CP}$ Who$_i$ [$_{TP}$ t_i asked whom to find out [$_{CP}$ what$_j$ [$_{TP}$ Bill bought t_j]]]]

   b. [$_{CP}$ Who$_i$ [$_{TP}$ t_i wonders [$_{CP}$ [which picture of whom]$_j$ [$_{TP}$ Bill saw t_j]]]]

   c. ??[$_{CP}$ [Which picture of whom]$_j$ does [$_{TP}$ Bill wonder [$_{CP}$ who$_i$ [$_{TP}$ t_i saw t_j]]]]

Since *wh*-movement places *wh*-phrases in their scope positions, *who* takes matrix scope and *what* takes embedded scope in (7a). The third *wh*-phrase, *whom*, is in the matrix object position. As it is contained in the matrix question but not in the embedded question, it must take scope at the matrix CP in accordance with (6). Thus, the example only has the interpretation as a matrix multiple *wh*-question. (7b), on the other hand, is ambiguous as pointed out by van Riemsdijk and Williams (1981). *Wh*-movement places *who* at the matrix CP Spec and *which (picture)* at the embedded CP Spec. The third *wh*-phrase, *whom*, is pied-piped to the embedded CP Spec, and is contained in the matrix CP as well as the embedded CP. Accordingly, it can take either matrix or embedded scope, again as correctly predicted by (6). Finally, *whom* in (7c) is pied-piped out of the embedded question CP, and hence, can only take matrix scope. Although the example is degraded because of the *wh*-island effect, its interpretation clearly conforms to the generalization in (6).

Having seen that (6) is well-motivated, let us now turn to an example of *wh*-scrambling. (8a) is a straightforward example with an embedded *wh*-question.

(8) a. [$_{TP}$ Taroo-ga   [$_{CP}$ [$_{TP}$ Hanako-ga   dono hon -o   yonda] ka] siritagatteiru] (koto)

      -NOM   -NOM which book-ACC read   Q   know-want   fact

   '[Taroo wants to know [Q [Hanako read which book]]]'

   b. [$_{TP}$ Dono hon -o$_i$ [Taroo-ga   [$_{CP}$ [$_{TP}$ Hanako-ga t_i yonda] ka] siritagatteiru]] (koto)

      which book-ACC   -NOM   -NOM read   Q   know-want   fact

   '[Which book$_i$, Taroo wants to know [Q [Hanako read t_i]]]'

In (8b), the *wh*-phrase, *dono hon* 'which book', is scrambled out of the embedded question all the way to the initial position of the matrix clause. Given (6), we would expect the example to be ungrammatical like (4b) because the *wh*-phrase is not contained within the CP where it takes scope. Yet, (8b) is grammatical and receives the same interpretation as (8a).

Based on examples of this kind, I proposed in Saito (1989) that scrambling can be "semantically vacuous" in the sense that a scrambled phrase can be radically (totally) reconstructed at LF. Then, the scrambled object in (8b) can be placed back in its initial position at LF, and the example can be interpreted in a way that is consistent with (6), that is, exactly like (8a). This amounts to saying that scrambling can be merely stylistic and need not have any effect on

interpretation. However, it is known that scrambling can affect interpretation. In the remainder of this section, I will discuss one such case, namely, the interaction of scrambling with anaphor binding.

It was observed by Mahajan (1990), who examined Hindi scrambling, that a phrase preposed by clause-internal scrambling can serve as the antecedent of an anaphor. For example, (9b) contrasts sharply with (9a).

(9)   a. ?*[Otagai   -no   sensei]-ga   [Taroo-to   Hanako]-o   suisensita   (koto)
            each other-GEN teacher-NOM   -and   -ACC recommended fact
            '*Lit.* Each other's teachers recommended Taroo and Hanako'

      b.   [Taroo-to   Hanako]-o$_i$ [[otagai   -no   sensei]-ga t_i suisensita]   (koto)
                 -and   -ACC   each other-GEN teacher-NOM   recommended fact
            '[Taroo and Hanako]$_i$, each other's teachers recommended t_i'

(9a) is out because the anaphor *otagai* 'each other' is not bound. This is remedied in (9b) as the potential antecedent *Taroo-to Hanako* is scrambled to a position c-commanding the anaphor. This indicates that scrambling can affect binding relations. Interestingly, it is only clause-internal scrambling that exhibits this effect. Thus, long scrambling out of a finite clause does not extend the binding possibility as (10) shows.

(10) a. *[Otagai   -no   sensei]-ga   [$_{CP}$ Ziroo-ga   [Taroo-to   Hanako]-o   suisensita
           each other-GEN teacher-NOM   -NOM   -and   -ACC recommended
           to] itta   (koto)
           that said   fact
           '*Lit.* Each other's teachers said that Ziroo recommended Taroo and Hanako'

      b. *[Taroo-to   Hanako]-o$_i$ [[otagai   -no   sensei]-ga   [$_{CP}$ Ziroo-ga t_i suisensita
                 -and   -ACC each other-GEN teacher-NOM   -NOM   recommended
           to] itta] (koto)
           that said   fact
           '[Taroo and Hanako]$_i$, each other's teachers said that Ziroo recommended t_i'

(10b) is ungrammatical despite the fact that long scrambling places *Taroo-to Hanako* in a position that c-commands *otagai*.

Mahajan concludes then that clause-internal scrambling can be A-movement while long scrambling out of a finite clause is necessarily A'-movement. More specifically, he hypothesizes

that there are two kinds of scrambling: A-scrambling to TP Spec and A'-scrambling that involves adjunction to TP.[2] The former is clause-bound because it is A-movement. The latter, on the other hand, can take place across a CP boundary. Given this hypothesis, nothing prevents a clause-internal application of A'-scrambling. The prediction is borne out by the following example:

(11) Zibunzisin-o$_i$ [Taroo-ga t_i suisensita]   (koto)
       self   -ACC   -NOM   recommended fact
       'Himself$_i$, Taroo recommended t_i'

If clause-internal scrambling is necessarily A-movement, *zibunzisin* 'self' A-binds its antecedent *Taroo* and the example should be in violation of Condition (C) of the Binding theory. Its grammaticality, thus, constitutes evidence that clause-internal scrambling can be A'-movement.

In the following subsection, I will briefly go over the unified analysis of A and A' scramblings proposed in Saito (2003, 2005). It relies crucially on the chain interpretation mechanism mentioned in Section 1 and forms a basis, together with Mahajan's (1990) analysis, for the discussion in the subsequent sections.

2.2. A Unified Analysis of A and A' Scramblings

Although Mahajan's analysis successfully accounts for the A/A' properties of scrambling, it is tempting not to postulate two distinct kinds of scrambling and to pursue a uniform analysis. The radical reconstruction property of scrambling also remains to be explained. In this section, I will briefly discuss an attempt at a uniform analysis presented in Saito (2003, 2005).

Recall first the chain interpretation mechanism introduced in Section 1. According to it, the example of clause-internal scrambling in (12a) is analyzed as in (12b).[3]

(12) a. [$_{TP}$ [Taroo-to   Hanako]-o$_i$ [[otagai   -no   sensei] -ga t_i suisensita]]   (koto)
               -and   -ACC   each other-GEN teacher-NOM   recommended fact
           '[Taroo and Hanako]$_i$, each other's teachers recommended t_i'

      b. [$_{TP}$ [T.-to H.]-o$_{\{arg, phon\}}$ [[otagai-no …] -ga [T.-to H.]-o$_{\{arg, \text{phon}\}}$ suisensita]]

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[2] More accurately, Mahajan (1990) proposes that the landing site of A-scrambling is AGR Spec. It was Miyagawa (2001, 2003) that updated this analysis and proposed that A-scrambling is movement to TP Spec. See also Kuroda (1988), which presents a TP Spec analysis from a different perspective.

[3] I will henceforth omit the categorical features [cat] as they play no role in the discussion in this paper.

All features of *Taroo-to Hanako* are first copied at the landing site.[4] Then, [arg] is deleted at the landing site and [phon] is deleted at the initial site. As a result, only [phon] is in a position that c-commands *otagai* 'each other'. Then how can this scrambling license the anaphor? We would expect the [arg] feature to be responsible for anaphor binding. I argued in Saito (2003) that the derivational application of Condition (A) provides an answer. It is proposed by Belletti and Rizzi (1988), among others, that Condition (A) is an anywhere condition. They present examples of psych-verb construction such as (13) as evidence.

(13) $[_{TP}$ [Pictures of himself]$_i$ $[_{VP}$ $[_{V'}$ worry $t_i]$ John]]

The reflexive *himself* is not bound by its antecedent *John* in this sentence. However, the subject is a theme argument and hence, it is plausible that it originates in a position lower than the experiencer *John*. Belletti and Rizzi argue then that the reflexive can be licensed prior to the movement of *pictures of himself* to the subject position. This analysis implies that Condition (A) can be satisfied at any point of a derivation. Given this conception of Condition (A), *otagai* in (12b) is licensed when its antecedent is copied at the sentence-initial position, that is, prior to the deletion of [arg] from this position.

The failure of long scrambling to license anaphors follows from this analysis, given that CPs constitute phases in the sense of Chomsky (2000). Let us first consider how the chain interpretation mechanism applies to the long-distance *wh*-movement in (14).

(14) Which book$_i$ does John think that Mary read t_i

Given that the embedded CP is a phase, the *wh*-phrase *which book* must first move to its edge as in (15a).

(15) a. $[_{CP}$ Which book$_{\{wh, arg, phon\}}$ $[_{C'}$ that $[_{TP}$ Mary read which book$_{\{wh, arg, phon\}}]]]$
      b. $[_{CP}$ Which book$_{\{wh, \sout{arg}, phon\}}$ $[_{C'}$ that $[_{TP}$ Mary read which book$_{\{\sout{wh}, arg, \sout{phon}\}}]]]$

Upon the completion of this phase, the complement TP is transferred to the interpretive components

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[4] Given that *v*P constitutes a derivational phase, the movement must proceed though its edge. However, I will ignore *v*P phase and assume that only CP constitutes a phase in this paper for ease of exposition. The simplification is justified in part because short scrambling to the *v*P edge is known to have properties quite distinct from scrambling across the subject. For example, as pointed out by Mahajan (1990), Tada (1993), and Nemoto (1993), among others, it exhibits strict A-properties with respect to binding. I will assume that it is more like object shift and in particular, that the [arg] feature copied at the *v*P edge by short scrambling is retained at that position. This means that real scrambling, as analyzed in this paper, originates at the *v*P edge. See Saito (2003) for more detailed discussion on this point.

before the derivation continues to construct the matrix clause. This implies that chain interpretation by feature deletion must apply at this point as in (15b) because [wh] and [phon] are not interpreted at the object position. (15b) indicates properly that *which book* is not pronounced and is interpreted as a variable at this position. Then, the matrix part is constructed as in (16a) and construed as in (16b).

(16) a. [$_{CP}$ Which book$_{\{wh, phon\}}$ [$_{C'}$ does [$_{TP}$ John think [$_{CP}$ which book$_{\{wh, \cancel{arg}, phon\}}$ [$_{C'}$ …

　　 b. [$_{CP}$ Which book$_{\{wh, phon\}}$ [$_{C'}$ does [$_{TP}$ John think [$_{CP}$ which book$_{\{\cancel{wh}, \cancel{arg}, \cancel{phon}\}}$ [$_{C'}$ …

Which book is copied at the matrix CP Spec with two sets of features, [wh] and [phon], because [arg] is already deleted at the embedded CP Spec. The *wh*-phrase is pronounced there and is interpreted there as a *wh*-operator.

Long scrambling out of a CP should apply in basically the same way. Let us consider (10b), the example that shows that a phrase preposed by long scrambling cannot serve as the antecedent of an anaphor. In this example, *Taroo-to Hanako* should first move to the edge of the embedded CP as in (17a).

(17) a. [$_{CP}$ T.-to H.-o$_{\{arg, phon\}}$ [$_{TP}$ Ziroo-ga T.-to H.-o$_{\{arg, phon\}}$ suisensita]]

　　 b. [$_{CP}$ T.-to H.-o$_{\{\cancel{arg}, phon\}}$ [$_{TP}$ Ziroo-ga T.-to H.-o$_{\{arg, \cancel{phon}\}}$ suisensita]]

Then, chain interpretation by feature deletion should apply as in (17b) before the complement TP is transferred to the interpretive components. Next, the matrix clause is constructed as in (18a) and the derivation is completed with the deletion of [phon] at the embedded CP Spec as in (18b).

(18) a. [$_{TP}$ T.-to H.-o$_{\{phon\}}$ [[otagai-no …]-ga [$_{CP}$ T.-to H.-o$_{\{\cancel{arg}, phon\}}$ [$_{TP}$ Ziroo-ga …

　　 b. [$_{TP}$ T.-to H.-o$_{\{phon\}}$ [[otagai-no …]-ga [$_{CP}$ T.-to H.-o$_{\{\cancel{arg}, \cancel{phon}\}}$ [$_{TP}$ Ziroo-ga …

Note here that [arg] is not copied at the matrix-initial position because it was deleted at the embedded CP Spec. Hence, the [arg] feature of *Taroo-to Hanako* does not c-command the anaphor *otagai* at any point of the derivation. The ungrammaticality of (10b) is thus accounted for.

According to the analysis illustrated above, the landing site of scrambling can always be a position from which anaphor licensing is possible. Long scrambling out of a CP fails to license an anaphor not because the landing site is an A'-position but because the [arg] feature of the scrambled phrase is not copied at the landing site. The analysis crucially relies on the hypothesis that Condition (A) is an anywhere condition. This is consistent with (11), repeated below as (19).

(19) Zibunzisin-o$_i$ [Taroo-ga t_i suisensita]   (koto)

       self   -ACC   -NOM   recommended fact

       'Himself$_i$, Taroo recommended t_i'

As the (subject-oriented) anaphor *zibunzisin* can be licensed prior to the application of scrambling, the example is correctly predicted to be grammatical.[5]

       Let us finally return to the example of radical reconstruction in (8b), repeated below as (20).

(20) [$_{TP}$ Dono hon -o$_i$ [Taroo-ga   [$_{CP}$ [$_{TP}$ Hanako-ga t_i yonda] ka] siritagatteiru]] (koto)

          which book-ACC   -NOM   -NOM   read   Q   want-to-know   fact

       '[Which book$_i$, Taroo wants to know [Q [Hanako read t_i]]]'

The problem was that the *wh*-phrase *dono hon* 'which book' is not contained within the question CP where it takes scope. The *wh*-phrase first moves to the edge of the embedded CP as in (21).

(21) [$_{CP}$ Dono hon-o$_{\{wh, arg, phon\}}$ [$_{TP}$ Hanako-ga dono hon-o$_{\{wh, arg, phon\}}$ yonda] ka]

As Japanese lacks syntactic *wh*-movement, two hypotheses have been entertained for *wh*-licensing in this language. Huang (1982) proposes that *wh*-phrases are raised covertly to CP Spec and are interpreted there. If this is the case, the [wh] feature can be retained at the landing site as in (22a) and the matrix clause can be derived as in (22b).

(22) a.   [$_{CP}$ Dono hon-o$_{\{wh, \text{arg}, phon\}}$ [$_{TP}$ Hanako-ga dono hon-o$_{\{\text{wh}, arg, \text{phon}\}}$ yonda] ka]

       b.   [$_{TP}$ Dono hon-o$_{\{\text{wh}, phon\}}$ [Taroo-ga … [$_{CP}$ dono hon-o$_{\{wh, \text{arg}, \text{phon}\}}$ [$_{TP}$ …

In (22b), [wh] is retained at the embedded CP Spec as it is licensed and interpreted there, and is deleted at the final landing site. On the other hand, Nishigauchi (1990) argues that *wh*-phrases in Japanese are licensed through unselective binding from [+Q] C. In this case, the first step of the movement is interpreted as in (23), and the [wh] feature is retained at the embedded object position.

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[5] This analysis of (19) is inconsistent with Lebeaux's (1988) conception of Condition (C) as an everywhere condition, and provides an additional piece of evidence for Chomsky's (1993) proposal that the condition applies to the output of the derivation. This is so because the [arg] feature of *zibunzisin* is copied at the sentenced-initial position as shown in (i).

(i)   Zibunzisin-o$_{\{arg, phon\}}$ [Taroo-ga zibunzisin-o$_{\{arg, \text{phon}\}}$ suisensita]

Thus, if Condition (C) is an everywhere condition, the example is predicted to be ungrammatical, contrary to the fact.

(23) [$_{CP}$ Dono hon-o$_{\{\text{wh}, \text{arg}, \text{phon}\}}$ [$_{TP}$ Hanako-ga dono hon-o$_{\{\text{wh}, \text{arg}, \text{phon}\}}$ yonda] ka]

In either case, the radical reconstruction property of scrambling is captured by the proposed mechanism of chain interpretation.

In this section, I presented a uniform analysis of scrambling, clause-internal and long-distance, with a feature-based interpretive mechanism of movement chains. In the following section, I will extend the analysis to data on subject-negation scope interaction discussed in detail in Miyagawa (2001, 2003). I will argue that the [arg] feature that is copied at the landing site of the initial step of scrambling can be attracted by a higher functional head Pred. This provides further support for the analysis of scrambling just presented, and interestingly, resurrects part of Mahajan's (1990) hypothesis that there are two distinct kinds of scrambling.

3. Pred Phrase above TP

In Section 3.1, I will review Miyagawa's analysis of subject-negation scope interaction. Then, in 3.2, I will present a revision of his analysis, proposing that a functional projection above TP plays a crucial role in the account for the phenomenon.

3.1. Miyagawa on Subject-Neg Scope Interaction

Miyagawa (2001, 2003) makes an important observation about the effects of scrambling on the scope of subject in relation to sentential negation. First, a subject tends to take scope over negation, as (24a) shows.[6]

(24) a. Zen'in-ga   sono tesuto-o   uke -na -katta (yo /to   omo -u)
          all   -NOM that test -ACC take-Neg-Past   Part that think-Pres
          'All did not take that exam' (All > Not, *Not > All)

      b. Sono tesuto-o$_i$ zen'in-ga t_i uke -na -katta (yo /to   omo -u)
          that test -ACC all   -NOM   take-Neg-Past   Part that think-Pres
          'That exam$_i$, all did not take t_i' (All > Not, Not > All)

However, once the object is scrambled to the sentence-initial position, the narrow scope reading of

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[6] I will show the morphological make-ups of the verbal complexes in the examples in this section because the position of negation is important for the discussion.

the subject becomes readily available as in (24b).[7] This effect is observed only with clause-internal scrambling. (25) indicates that long scrambling out of a CP does not make the narrow scope construal of the subject possible.

(25) Syukudai -o$_i$ zenn'in-ga   [$_{CP}$ sensei -ga t_i das -u   to] omow-ana -katta (yo)
        homework-ACC all   -NOM   teacher-NOM   assign-Pres that think -Neg-Past Part
        'Homework$_i$, all did not think that the teacher would assign t_i' (All > Not, *Not > All)

The difference between clause-internal scrambling in (24b) and long scrambling out of a CP in (25) is reminiscent of the binding paradigm discussed in the preceding section. In both cases, only clause-internal scrambling can affect interpretation. Miyagawa in fact argues that it provides supporting evidence for Mahajan's non-uniform analysis of scrambling, which he himself has developed over the years. Let us first consider the structure of (24a), shown in (26).

(26) [$_{TP}$ Zen'in-ga$_i$ [$_{T'}$ [$_{NegP}$ [$_{vP}$ t_i [$_{v'}$ [$_{VP}$ sono tesuto-o [$_V$ uke-]] v]] [$_{Neg}$ -na-]] [$_T$ -katta]]]

The subject *zen'in-ga* 'all-NOM' is raised to TP Spec in order to satisfy the EPP requirement of T. Consequently, it is in a position higher than the Neg head and takes wide scope. According to Miyagawa's version of the non-uniform analysis of scrambling, the object may move to TP Spec and check the EPP-feature of T instead of the subject, or it may adjoin to TP after the subject moves into TP Spec. The two cases are shown schematically in (27).

(27) a.   [$_{TP}$ Object$_i$ [$_{T'}$ [$_{vP}$ Subject [$_{v'}$ [$_{VP}$ t_i V] v]] T]]
        b.   [$_{TP}$ Object$_i$ [$_{TP}$ Subject$_j$ [$_{T'}$ [$_{vP}$ t_j [$_{v'}$ [$_{VP}$ t_i V] v]] T]]]

In the former case, the object is in an A-position and can license an anaphor contained within the

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[7] The wide scope construal of the subject in examples without scrambling is a tendency and is not without exceptions. As Miyagawa notes, the facts are relatively clear with specific quantifiers (such as *zen'in* 'all members'), specific verbs (native Japanese as opposed to Sino-Japanese), and specific sentence endings (such as the assertive particle *yo* or embedding by *to omo-u* 'I think that'). But even then, exceptions can be found. For example, suppose that an instructor for a course gives the students a choice between taking the final exam and submitting a term paper. If she utters (i) in this context while trying to guess how many copies of the exam she should prepare, the narrow scope reading of the subject is quite natural.

(i)   Zen'in-ga   siken -o   erab -ana -i   to   omo -u
        all   -NOM exam-ACC choose-Neg-Pres that think-Pres
        'I think that all will not choose an exam (over a term paper)' (All > Not, Not > All)

Nevertheless, the contrast between (24a) and (24b) is clear, and I agree with Miyagawa that it represents a phenomenon that needs to be explained.

subject as in (9b). The latter accounts for A'-scrambling that is observed in examples like (11).

Given this analysis of scrambling, (24b) has two possible structures, depending on whether the object moves to TP Spec or adjoins to TP. These structures are shown in (28).

(28)   a.   [$_{TP}$ Sono tesuto-o$_i$ [$_{T'}$ [$_{NegP}$ [$_{vP}$ zen'in-ga [$_{v'}$ [$_{VP}$ t_i [$_V$ uke-]] v]] [$_{Neg}$ -na-]] [$_T$ -katta]]]

   b.   [$_{TP}$ Sono tesuto-o$_i$ [$_{TP}$ zen'in-ga$_j$ [$_{T'}$ [$_{NegP}$ [$_{vP}$ t_j [$_{v'}$ [$_{VP}$ t_i [$_V$ uke-]] v]] [$_{Neg}$ -na-]] [$_T$ -katta]]]]

In (28a), the object NP moves to TP Spec and checks the EPP-feature of T. This allows the subject to remain in vP Spec. The subject is then asymmetrically c-commanded by the Neg head, and takes narrow scope. This is how scrambling makes the narrow scope construal of the subject possible, according to Miyagawa. In (28b), on the other hand, the structure is identical to (26), except that the object is adjoined to TP. In particular, the subject moves to TP Spec to check the EPP-feature of T. Hence, it takes wide scope over negation. The scope ambiguity of (24b) is thus accounted for. This analysis also predicts correctly that long scrambling out of a CP has no effect on the scope of the matrix subject. It is known that A-movement to TP Spec cannot take place across a CP boundary. Hence, long scrambling must involve TP-adjunction. The structure of the matrix part of (25) is then as in (29).

(29)   [$_{TP}$ Syukudai-o$_i$ [$_{TP}$ zen'in-ga$_j$ [$_{T'}$ [$_{NegP}$ [$_{vP}$ t_j [$_{v'}$ [$_{VP}$ [$_{CP}$ .. t_i ..] [$_V$ omow-]] v]] [$_{Neg}$ -ana-]] [$_T$ -katta]]]]

Here, the matrix subject must raise to TP Spec to check the EPP-feature of T. Therefore, it must take wide scope over negation.

Although Miyagawa's account for the contrasts in (24)-(25) is quite elegant, a couple of questions arise. First, the English counterpart of (24a), shown in (30), exhibits scope ambiguity.
(30)   Everyone didn't take that exam (Every > Not, Not > Every)
This suggests that negation can take sentential scope, and if so, the non-ambiguity of (24a) cannot be attributed to the fact that the subject is in TP Spec. Secondly, and more importantly, the contrast in (24) seems to obtain even when the object is an anaphor bound by the subject. This is illustrated by (31) and (32).

(31)   a.   Zen'in-ga   zibun-zisin-ni   toohyoosi-na -katta (to   omo -u)
            all   -NOM self -self -DAT vote   -Neg-Past   that think-Pres
            'Everyone did not vote for herself/himself' (All > Not, *Not > All)

       b.   Zibun-zisin-ni$_i$ zen'in-ga t_i toohyoosi-na -katta (to   omo -u)
            self -self -DAT all   -NOM   vote   -Neg-Past   that think-Pres
            'For herself/himself, everyone did not vote' (All > Not, Not > All)

(32) a. Zen'in-ga   zibun-zisin-o   seme -na -katta (to omo -u)
        all   -NOM self -self -ACC blame-Neg-Past   that think-Pres
        'Everyone did not blame herself/himself' (All > Not, *Not > All)

    b. Zibun-zisin-o_i   zen'in-ga   t_i seme -na -katta (to omo -u)
        self -self -ACC all   -NOM   blame-Neg-Past   that think-Pres
        'Herself/himself, everyone did not blame' (All > Not, Not > All)

To my ear, there is no substantial difference whether the object is a regular NP as in (24) or it is an anaphor as in (31) and (32). And Miyagawa's account does not extend to the latter case.

When the scrambled object is *zibunzisin* 'self', it cannot be in TP Spec because that would cause a Condition (C) violation. The illicit structure for (31b) is shown in (33).

(33) [_TP Zibun-zisin-ni_i [_T' [_NegP [_vP zen'in-ga [_v' [_VP t_i [_V toohyoosi-]] v]] [_Neg -na-]] [_T -katta]]]

The structure is ruled out as *zibunzisin* in TP Spec A-binds its antecedent *zen'in* 'all'. Then, the scrambled object must be adjoined to TP as in (34).

(34) [_TP Zibunzisin-ni_i [_TP zen'in-ga_j [_T' [_NegP [_vP t_j [_v' [_VP t_i [_V toohyoosi-]] v]] [_Neg -na-]] [_T -katta]]]]

But in this case, *zen'in* must move to TP Spec in order to check the EPP-feature of T. It is then predicted incorrectly that *zen'in* must take wide scope over negation in (31b) exactly as in (31a). The examples in (31) and (32), thus, suggest that Miyagawa's account cannot be maintained as such. In the following subsection, I will propose a revision based on a functional projection PredP, above TP, together with the chain interpretation mechanism discussed in the preceding section.

3.2. Pred Phrase and Scrambling

The generalizations that emerge from the discussion in the preceding subsection are as follows. First, when the subject is sentence-initial, it takes scope over negation, as in (24a), (31a) and (32a). Second, when the object is placed before the subject by clause-internal scrambling and the subject is no longer sentence-initial, the subject need not take wide scope over negation even if it is in TP Spec. This is shown by (31b) and (32b). The initial conclusion that can be drawn from these facts is that the sentence-initial element must take scope over negation but a phrase in TP Spec need not. Then, what is the position of the sentence-initial element? If negation can scope over TP Spec, it must be higher in the structure than TP Spec. This leads to the hypothesis that the

sentence-initial element is in the Spec of a higher functional head, which I call *Pred* here.[8] The structure of (24a) will then be as in (35).

(35)   [$_{PredP}$ Zen'in-ga$_i$ [$_{Pred'}$ [$_{TP}$ t_i' [$_{T'}$ [$_{NegP}$ [$_{vP}$ t_i [$_{v'}$ [$_{VP}$ sono tesuto-o [$_V$ uke-]] v]] [$_{Neg}$ -na-]] T]] Pred]]

The scope of negation extends to TP, as suggested also by the English example (30). But the subject *zen'in* 'all' in (35) is in PredP Spec, and hence, takes wide scope over negation. In (31b), on the other hand, the scrambled object *zibunzisin* 'self' occupies the PredP Spec position, being sentence-initial. The structure of the example is then as in (36).

(36)   [$_{PredP}$ Zibunzisin-ni$_i$ [$_{Pred'}$ [$_{TP}$ zen'in-ga$_j$ [$_{T'}$ [$_{NegP}$ [$_{vP}$ t_j [$_{v'}$ [$_{VP}$ t_i [$_V$ toohyoosi-]] v]] [$_{Neg}$ -na-]] T]] Pred]]

In this case, *zen'in* can take narrow scope because it remains in TP Spec. (36) suggests that the Spec of PredP is an A'-position as the example is not a Condition (C) violation.

This accounts for the effect of clause-internal scrambling on the scope of the subject. The analysis entertained here is in fact quite similar to Miyagawa's. It just employs a higher functional projection PredP instead of his TP. The remaining problem is the contrast between (24b) and (25), that is, the fact that long scrambling out of a CP has no effect on the scope interaction between the subject and negation. (24b) and (25) are repeated below as (37a-b).

(37)   a.   Sono tesuto-o$_i$ zen'in-ga t_i uke -na -katta (yo /to   omo -u)
             that test -ACC all   -NOM   take-Neg-Past   Part that think-Pres
             'That exam$_i$, all did not take t_i' (All > Not, Not > All)

       b.   Syukudai -o$_i$ zenn'in-ga   [$_{CP}$ sensei -ga t_i das   -u   to] omow-ana -katta (yo)
             homework-ACC all   -NOM   teacher-NOM   assign-Pres that think -Neg-Past   Part
             'Homework$_i$, all did not think that the teacher would assign t_i' (All > Not, *Not > All)

Given the mechanism for the formation and interpretation of movement chains discussed in the preceding section, the contrast suggests that the Pred head attracts an [arg] feature. Recall that the interpretation of clause-internal scrambling proceeds as follows:

(38)   [$_{TP}$ $\alpha_{\{\text{arg}, \text{phon}\}}$ [Subject [$_{T'}$ [$_{vP}$ ...$\alpha_{\{\text{arg}, \text{phon}\}}$...] T]]]

Suppose, as seems reasonable, that chain interpretation by the deletion of features need not take

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[8] The Pred projection is proposed in Bowers (1993), where Pred roughly corresponds to *v* of Chomsky (1995). Its role is quite different in the present context: it is higher than TP and is intended intuitively to capture the theme-rheme relation in traditional terms.

place as soon as a chain is formed, but only needs to apply before a phase is completed and its complement is transferred to the interpretive components. Then, the [arg] feature of the scrambled phrase can be attracted by the Pred head before it is deleted at the landing site of scrambling. In this case, the scrambled phrase moves into PredP Spec as in (39).

(39) [$_{PredP}$ α$_{\{arg, phon\}}$ [$_{Pred'}$ [$_{TP}$ α$_{\{\sout{arg}, \sout{phon}\}}$ [Subject [$_{T'}$ [$_{vP}$ …α$_{\{arg, \sout{phon}\}}$…] T]]] Pred]]

As the [arg] feature is attracted by Pred, it is retained at the PredP Spec position as well as the initial site. On the other hand, long scrambling out of a CP proceeds as in (40).

(40) a.   [$_{CP}$ α$_{\{\sout{arg}, phon\}}$ [$_{TP}$ Subject [$_{T'}$ [$_{vP}$ …α$_{\{arg, \sout{phon}\}}$…] T]]]
       b.   [$_{TP}$ α$_{\{phon\}}$ [Subject [$_{T'}$ [$_{vP}$ …[$_{CP}$ α$_{\{\sout{arg}, \sout{phon}\}}$ [$_{C'}$ …]] …] T]]]

The scrambled phrase first moves to the embedded CP Spec as in (40a), and chain interpretation must apply at this point because the complement TP is transferred to the interpretive components upon the completion of the CP phase. In the matrix clause, only [phon] is copied at the sentence-initial position as in (40b). As a result, the Pred head in the matrix clause cannot attract [arg] of the scrambled phrase and attracts that of the subject instead. Consequently, the matrix subject takes wide scope over negation in (37b).

It was shown above that Miyagawa's (2001, 2003) paradigm can be successfully accounted for by postulation of the Pred head that attracts an [arg] feature. Before concluding this section, I would like to briefly discuss the implications of this proposal for the analysis of scrambling. First, scrambling is distinct from the movement to PredP Spec illustrated above, but it feeds this movement. Since Pred attracts an [arg] feature, it must attract the [arg] feature of the subject if scrambling does not take place, as illustrated in (41).

(41) [$_{PredP}$ α$_{\{arg, phon\}}$ [$_{Pred'}$ [$_{TP}$ α$_{\{arg, \sout{phon}\}}$ [$_{T'}$ [$_{vP}$ … object V …] T]] Pred]]

This is so because the closest [arg] feature to the Pred head is that of the subject. Then, how can the [arg] feature of the object be attracted by the Pred head in (37a)? Here, scrambling plays a crucial role. That is, scrambling places the object in a position closer to Pred than the subject, and consequently allows Pred to attract the object. This derivation was shown in (39). (39) in fact illustrates the peculiar role that scrambling plays for the interpretation of a sentence. The [arg] feature is deleted at the landing site of scrambling because it is not licensed there. Thus, scrambling itself is "semantically vacuous." But it allows the [arg] feature of the scrambled phrase to be attracted to PredP Spec. As a result, it allows the subject to remain in TP Spec and fall within the scope of negation.

Secondly, the edge of PredP should be allowed as a landing site of scrambling in addition to the edge of TP. This can be best illustrated with long scrambling out of a CP. Recall that only [phon] of the scrambled phrase is copied at the sentence-initial position in this case, as was shown in (40b). I just argued that Pred then cannot attract the scrambled phrase as it lacks [arg] and must attract the subject as in (42).

(42) [$_{\text{PredP}}$ Subject$_{\{\text{arg, phon}\}}$ [$_{\text{Pred'}}$ [$_{\text{TP}}$ Object$_{\{\text{phon}\}}$ [Subject$_{\{\text{arg, } \sout{\text{phon}}\}}$ [$_{\text{T'}}$ …

But this results in a wrong word order: the matrix subject precedes the scrambled object.[9] The sentence, then, should be derived instead by first moving the subject to PredP Spec and then scrambling the object to a position preceding it as in (43).

(43) [$_{\text{PredP}}$ Object$_{\{\text{phon}\}}$ [Subject$_{\{\text{arg, phon}\}}$ [$_{\text{Pred'}}$ [$_{\text{TP}}$ Subject$_{\{\text{arg, } \sout{\text{phon}}\}}$ [$_{\text{T'}}$ …

This implies that there are two kinds of scrambling across the subject. One is to the left edge of TP and the other is to the left edge of PredP. As far as I can tell, there is no need to suppose that they are different except for the landing site. In particular, both are optional and are not triggered by a specific feature such as the EPP. So this does not undermine the uniform analysis of scrambling. But descriptively, scrambling to the edge of TP corresponds to Mahajan and Miyagawa's A-scrambling and scrambling to the edge of PredP to their A'-scrambling. In this sense, the analysis of scrambling we arrived at incorporates the insights of both the uniform and the non-uniform approaches.

4. Discourse Effects of Scrambling

In this section, I will extend the analysis proposed above to the "first-position effects" in Japanese. It has been known since Kuroda (1965) and Kuno (1973) that matrix-initial phrases receive unique interpretations. For example, a matrix-initial nominative phrase is interpreted as an "exhaustive listing focus" when the predicate is individual level. Further, only a matrix-initial topic, Kuno argues, can be construed as a "thematic topic," as opposed to a "contrastive topic." In Section 4.1, I will present an analysis of these facts in terms of the Pred projection and discuss the effects of scrambling on the thematic interpretation of topic. Then, in Section 4.2, I will examine the predictions that the feature-based chain interpretation mechanism makes and show that they are indeed borne out.

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[9] In addition, this derivation is arguably ruled out as an instance of Chomsky's (2000) defective intervention effect, since the scrambled object intervenes between the Pred head and the subject.

4.1. The First Position Effects: Exhaustive Listing Focus and Thematic Topic

As discussed in detail in Kuno (1973) and Heycock (1994, 2008), Japanese exhibits "first-position effects."[10] First, a matrix-initial nominative phrase is interpreted obligatorily as an "exhaustive listing focus" when the predicate is individual level in the sense of Carlson (1977). Thus, while (44a) can be a neutral description of an event, (44b) must be interpreted with focus on *Hanako*.[11]

(44) a. Hanako-ga   kooen-o   aruiteita
         -NOM park -ACC walking-was
    'Hanako was walking in the park'

   b. Hanako-ga   heburaigo-ga   hanaseru
         -NOM Hebrew   -NOM speak-can
    'It is Hanako that can speak Hebrew'

It is only the sentence-initial nominative phrase that obligatorily receives focus. (45a) means that monkeys are the creatures that are smart.

(45) a. Saru   -ga   kasikoi
    monkey-NOM smart
    'It is monkeys that are smart'

   b. Nihon-ga   saru   -ga   kasikoi
    Japan -NOM monkey-NOM smart
    'It is Japan where monkeys are smart'

(45b), on the other hand, means that Japan is the place where monkeys are smart, with focus on Japan but not necessarily on monkeys. In other words, it is interpreted as 'It is Japan where monkeys are smart' but not necessarily as 'It is Japan where it is monkeys that are smart'. It does not exclude the possibility that creatures other than monkeys are smart in Japan. The phenomenon

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[10] Kuno (1973) presents the basic facts while Heycock (1994, 2008) proposes that the effects arise in the mapping from syntax to information structure. As far as I can see, the discussion that follows is consistent with Heycock's proposal.

[11] What is important here is the fact that *Hanako* in (44b) *must* be construed as focus. Any phrase *can* be focused, for example, with stress. A "neutral" way to express the propositional content of (44b) would be with the topic marker -*wa* on *Hanako*. The sentence would then mean 'speaking of Hanako, she can speak Hebrew' or 'Hanako can speak Hebrew' without focus on *Hanako*.

is restricted to the matrix clause. Thus, when (44b) is embedded as in (46), *Hanako* need not be interpreted with focus.

(46) Taroo-wa [CP Hanako-ga   heburaigo-ga   hanaseru to] omotteiru
           -TOP   -NOM Hebrew   -NOM speak-can that think
      'Taroo thinks that Hanako can speak Hebrew'

The Pred projection proposed in the preceding section provides a means to represent exhaustive listing focus in structural terms. As the Pred head attracts [arg], the sentence-initial nominative phrase must be in its Spec position. The structure of (45a), for example, should be as in (47).

(47) [PredP saru-ga{arg, phon} [Pred' [TP saru-ga{arg, ~~phon~~} [T' …]] Pred]]

Then, the generalization can be stated as in (48).

(48) A nominative phrase in matrix PredP Spec is obligatorily interpreted as focus when the
      predicate of the sentence is individual level.

Similarly, Kuno (1973) argues that a phrase marked by *-wa* can be interpreted as a thematic topic only when it is matrix-initial. The particle *-wa* can attach to any phrase and induce a contrastive topic interpretation. But the thematic topic interpretation seems possible only when the *wa*-phrase is in the initial position of a matrix clause, as the examples in (49) illustrate.[12]

(49) a. <u>Taroo-wa</u>   (kyonen) sono hon -o   katta
              -TOP last year that book-ACC bought
          A. '<u>Spaking of Taroo</u>, he bought that book' (*thematic*)
          B. '<u>Taroo</u> bought that book, but I don't know about <u>other people</u>' (*contrastive*)

      b. Taroo-ga   (kyonen) <u>sono hon -wa</u>   katta
              -NOM last year that book-TOP bought
          'Taroo bought <u>that book</u>, but I don't know about <u>other books</u>' (*contrastive*)

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[12] What counts as "matrix" is less clear in this case. For example, a sentence-initial *wa*-phrase in a CP complement of a verb can be construed as a thematic topic as in (i), in contrast to (49c), where a *wa*-phrase appears within a relative clause.

(i) Taroo-ga   [Hanago-wa   sono hon -ga   sukida to] omotteiru (koto)
          -NOM   -TOP that book-NOM like   that think   fact
      'Taroo thinks that speaking of Hanako, she likes that book'

c. Taroo-ga   [NP [TP Hanako-wa   sukina] hon] -o   katta
         -NOM   -TOP like   book-ACC bought
    'Taroo bought a book that <u>Hanako</u> likes, but I don't know if <u>other people</u> like the book'
    (*contrastive*)

In all of these examples, the *wa*-phrase can receive contrastive topic interpretation. But *Taroo-wa* in (49a) can in addition be construed as a thematic topic because it is in the initial position of a matrix clause.

The Pred projection accommodates this generalization as well. The matrix-initial topic in (49a) is in the Spec of PredP as the structure in (50) shows.

(50) [PredP Taroo-wa {top, arg, phon} [Pred' [TP Taroo-wa {t̶o̶p̶, arg, p̶h̶o̶n̶} [T' …]] Pred]]

Thus, Kuno's generalization can be restated as in (51).[13]

(51) Only those topics in matrix PredP Spec can receive thematic interpretation.

In (50), I assumed that a topic carries the feature [top], and that this feature is retained and interpreted at PredP Spec when the topic receives thematic interpretation. I will discuss this in more detail in the following subsection.

The thematic interpretation of topics is particularly interesting because it interacts with the "free word-order phenomenon" in an intricate way. *Sono hon-wa* 'that book-TOP' in (49b) cannot be a thematic topic, but it can be when it is placed at the sentence-initial position as in (52).

(52) <u>Sono hon -wa</u>   Taroo-ga   (kyonen)   katta
      that   book-TOP   -NOM last year   bought
      A. '<u>Speaking of that book</u>, Taroo bought it' (*thematic*)
      B. 'Taroo bought <u>that book</u>, but I don't know about <u>other books</u>' (*contrastive*)

The same is true for PP topics, as shown in (53).

(53) a. Taroo-ga   (kyonen) <u>Teruabibu-e -wa</u>   itta
             -NOM last year Tel Aviv -to-TOP went
          'Taroo went to <u>Tel Aviv</u>, but I don't know about <u>other places</u>' (*contrastive*)

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[13] It has been proposed in the literature that thematic topics occupy the Spec position of a functional head. For example, Kuroda (1988) argues that *wa*-phrases are interpreted thematically when they are in CP Spec.

b. <u>Teruabibu-e -wa</u>   Taroo-ga   (kyonen) itta
    Tel Aviv -to-TOP   -NOM   last year went
    A. 'Speaking of <u>Tel Aviv</u>, Taroo went there' (*thematic*)
    B. 'Taroo went to <u>Tel Aviv</u>, but I don't know about <u>other places</u>' (*contrastive*)

In the remainder of this subsection, I will argue that the thematic interpretation of the PP topic in (53b) is made possible by scrambling.

First, it has been shown convincingly that sentence-initial NP topics can be generated directly at that position. One piece of evidence comes from examples such as the following, discussed first also by Kuno (1973):[14]

(54) Sono e_i -wa Taroo-ga   [$_{NP}$ [$_{TP}$ e_i kaita] hito] -o   (yoku) sitteiru
      that painting-TOP   -NOM   drew person-ACC well   know
      'Speaking of that painting, Taroo knows the person who drew it'

In this example, the sentence-initial topic relates to a gap inside a complex NP. Hence, the example should be a Subjacency violation if it is derived by movement. Yet, it is perfectly grammatical. Kuno concludes then that the topic can be licensed by some sort of "aboutness relation" at the sentence-initial position and can be generated there directly. Perlmutter (1972) completes this analysis based on the fact that Japanese allows *pro* in any argument position. More specifically, he points out that the gap need not be produced by movement because it can be *pro*. Then, (54) is an equivalent not of topicalization as in (55a) but of left-dislocation as in (55b).

(55) a. ?*That painting$_i$, John knows [$_{NP}$ the person [$_{CP}$ who owns t_i]]
      b.   That painting$_i$, John knows [$_{NP}$ the person [$_{CP}$ who owns it$_i$]]

The analysis is confirmed by the fact that (54) remains grammatical when an overt pronoun appears in the position of the gap as in (56).

(56) Sono e_i -wa Taroo-ga   [$_{NP}$ [$_{TP}$ sore$_i$-o   kaita] hito] -o   (yoku) sitteiru
      that painting-TOP   -NOM   it   -ACC drew person-ACC well   know
      'Speaking of that painting, Taroo knows the person who drew it'

This analysis of sentence-initial NP topics implies that they need not move to PredP Spec but can be merged directly at that position. However, I argued in Saito (1985) that the situation is

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[14] The NP topics in (54) and (56) below can be construed contrastively as well. This is not indicated in the translations just because it is not important for the discussion here.

different with PP topics. First, PP topics, in distinction with NP topics, cannot correspond to a position within a complex NP, as (57) shows.

(57) ?*Osuro-de$_i$-wa Taroo-ga [$_{NP}$ [$_{TP}$ (yonenkan) e_i benkyoosita] hito] -o sitteiru
      Oslo -in -TOP -NOM for four years studied person-ACC know
      'Speaking of Oslo, Taroo knows a person who studied there'

The contrast between this example and (58a-b), which contain no islands, already suggests that a PP topic cannot be generated directly at the sentence-initial position but must be moved to that position.

(58) a. Osuro-de$_i$-wa [$_{TP}$ Taroo-ga (yonenkan) e_i benkyoosita]
      Oslo -in -TOP -NOM for four years studied
      'Speaking of Oslo, Taroo studied there'

    b. Osuro-de$_i$-wa Hanako-ga [$_{CP}$ Taroo-ga (yonenkan) e_i benkyoosita to] itteita
      Oslo -in -TOP -NOM -NOM for four years studied that said
      'Speaking of Oslo, Hanako said that Taroo studied there'

Secondly, PP topics, as opposed to NP topics, do not allow overt resumptive pronouns. For example, (59) contrasts sharply with (56).

(59) *Osuro-de$_i$-wa Taroo-ga [$_{NP}$ [$_{TP}$ (yonenkan) soko-de$_i$ benkyoosita] hito] -o sitteiru
      Oslo -in -TOP -NOM for four years there-in studied person-ACC know
      'Speaking of Oslo, Taroo knows a person who studied there'

This indicates that the "gap" in PP topic sentences cannot be *pro*. This is so because if it can be *pro*, we would expect an overt pronoun to be also possible. (59), then, confirms that examples with sentence-initial PP topics must be derived by movement, and that (57), in particular, must be derived by movement of the PP topic from within the complex NP.[15]

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[15] It is speculated in Saito (1985) that (59) is ungrammatical and (57) must involve movement because a PP topic, as opposed to an NP topic, cannot be licensed at the sentence-initial position by the "aboutness" relation with the rest of the sentence. (59) is in fact much improved if an NP topic is substituted for the PP topic, as (i) shows.

(i)   Osuro$_i$-wa Taroo-ga [$_{NP}$ [$_{TP}$ (yonenkan) (soko$_i$-de) benkyoosita] hito] -o sitteiru
      Oslo -TOP -NOM for four years there -in studied person-ACC know
      'Speaking of Oslo, Taroo knows a person who studied there (for four years)'

This analysis implies that scrambling of PP topics can affect interpretation in an interesting way. Let us consider the examples in (60).

(60) a. Kanemoti -ga   Nyuuyooku-e kaimono -ni iku
          rich people-NOM New York -to shopping-for go
          'It is rich people that go to New York for shopping'

      b. Nyuuyooku-e -wa   kanemoti -ga   kaimono -ni iku
          New York -to-TOP rich people-NOM shopping-for go
          A. 'Speaking of New York, rich people go there for shopping' (*thematic*)
          B. 'Rich people go to New York for shopping, but I don't know about other places'
              (*contrastive*)

(60a) is actually ambiguous. It can be a description of some rich people heading toward New York for shopping. In this case, the predicate is stage level. But it can also express a property of rich people with the construal of the predicate as individual level. It is this interpretation that is important for the purpose here. Since the predicate is individual level, the sentence-initial *kanemoti-ga* 'rich people-NOM' is interpreted obligatorily with exhaustive listing focus. This is expected as this sentence-initial phrase must be in PredP Spec.

In (60b), the PP *Nyuuyooku-e* 'New York-to' is turned into a topic and placed at the sentence-initial position. The topic can receive thematic interpretation, which indicates that it can be in PredP Spec. And interestingly, *kanamoti-ga* 'rich people-NOM' no longer needs to be construed as an exhaustive listing focus. This in turn shows that it need not be in PredP Spec because the position is occupied by the PP topic. Then, (61) is a possible representation for (60b).

(61) $[_{PredP}$ Nyuuyooku-e-wa$_{\{top, arg, phon\}}$ $[_{Pred'}$ $[_{TP}$ kanemoti-ga$_{\{arg, phon\}}$ $[_{T'} \cdots$]] Pred]]

This situation is a familiar one. In the preceding section, a case was discussed where a scrambled object moves into PredP Spec, allowing the subject to stay at TP Spec. It was noted then that this movement of the object is possible only when it is mediated by scrambling. The Pred head attracts the closest [arg] feature, which should be that of the subject. But when the object is scrambled over the subject, Pred can attract its [arg] feature and it can move into PredP Spec. In (61) as well, the Pred head cannot ignore the subject and attract the PP topic from within T'. This implies that the PP topic can move to PredP Spec only if it first undergoes scrambling to the edge of TP as in (62).

(62) $[_{PredP}$ PP-wa$_{\{top, arg, phon\}}$ $[_{Pred'}$ $[_{TP}$ PP-wa$_{\{\overline{top}, \overline{arg}, \overline{phon}\}}$ $[$ subject$_{\{arg, phon\}}$ $[_{T'} \cdots$

Again, scrambling is semantically vacuous as all features are deleted from its landing site. But it

enables the scrambled PP topic to move into PredP Spec and be interpreted thematically.

Two phenomena have been analyzed so far. First, scrambling makes it possible for the object to move into PredP Spec, and as a result, allows the subject to stay in TP Spec and take narrow scope with respect to sentential negation. Secondly, it allows PP topics to move into PredP Spec and receive thematic interpretation. Although these two phenomena look quite different, the analysis is basically the same. Scrambling can have semantic and discourse effects because it makes it possible for non-subjects to be attracted by the Pred head. The instances of scrambling that were important in this discussion all had the edge of TP as the landing site. However, it was noted at the end of the preceding section that scrambling can also move a phrase to the edge of PredP. In the following subsection, I will consider the discourse effects of this kind of scrambling.

4.2. Scrambling as Topicalization

In this subsection, I will examine how scrambling to the edge of PredP affects the thematic interpretation of topics. The crucial examples to be discussed are those presented in Kuroda (1988) as exceptions to Kuno's (1973) generalization that only sentence-initial *wa*-phrases can be interpreted thematically. The first part concerns cases where an object is scrambled over a thematic topic. In the second part, I will discuss cases that are more involved and interesting, that is, those in which a topic is scrambled to the edge of PredP. In both parts, I will argue that the analysis developed in the preceding sections makes the correct predictions.

A brief discussion on the [top] feature is in order before I start examining examples with scrambling to the edge of PredP. It was assumed above, for example in (62), that topics carry this feature and that this feature can end up in PredP Spec. When the feature is in PredP Spec, the topic can be construed as a thematic topic. At the same time, as noted above, topics can appear in any position and receive contrastive interpretation. In (49b), for example, the topic is in the object position. It seems then that the [top] feature can be licensed at any position and yield the contrastive interpretation. Given this, it should be possible to retain the [top] feature at any position of the chain when a topic is moved. This is illustrated in (63).

(63) a. $XP_{\{top, ...\}}$ [.... $XP_{\{\cancel{top}, ...\}}$ ...]
 b. $XP_{\{\cancel{top}, ...\}}$ [.... $XP_{\{top, ...\}}$ ...]

Again, the contrastive interpretation is always possible, and the thematic interpretation obtains only when the feature is retained at PredP Spec.

Let us now consider cases of scrambling to the PredP edge. It was argued in the preceding section that scrambling can place an object to the edge of PredP after the subject moves into PredP

Spec. The relevant structure in (43) is repeated in (64).[16]

(64) [$_{PredP}$ Object$_{\{(arg), phon\}}$ [Subject$_{\{arg, phon\}}$ [$_{Pred'}$ [$_{TP}$ Subject$_{\{arg, \cancel{phon}\}}$ [$_{T'}$ …

In the examples discussed there, the subject was in nominative. But what if it is a topic marked by *-wa*? Kuno's (1973) generalization predicts that it cannot receive thematic interpretation because it is not sentence-initial. On the other hand, the analysis presented above predicts that it can because it is in PredP Spec. And the latter prediction is borne out by examples of the following kind from Kuroda (1988):

(65) Sono hon -o$_i$ <u>Taroo-wa</u>   (kyonen) t_i katta
      that   book-ACC   -TOP   last year   bought
      A.   '<u>Spaking of Taroo</u>, he bought that book' (*thematic*)
      B.   '<u>Taroo</u> bought that book, but I don't know about <u>other people</u>' (*contrastive*)

In this example, the subject *Taroo-wa* can be interpreted either as a thematic topic or as a contrastive topic. In the former case, the representation is as in (66).

(66) [$_{PredP}$ Object$_{\{\cancel{arg}, phon\}}$ [Subject$_{\{top, arg, phon\}}$ [$_{Pred'}$ [$_{TP}$ Subject$_{\{\cancel{top}, arg, \cancel{phon}\}}$ [$_{T'}$ …

First, the subject is attracted to PredP Spec and its [top] feature is interpreted thematically. Then, the object is scrambled to the edge of PredP. As the [arg] feature is deleted at the landing site, this movement is semantically vacuous. This demonstrates that the distribution of thematic topics cannot be characterized in purely linear terms but must be explained in terms of a structural position in the sentence.

The second case to be examined is scrambling of PP topics to the edge of PredP. For this, let us directly consider the relevant examples in (67).

(67) a.   <u>Hanako-wa</u>   (kyonen) <u>Teruabibu-e -wa</u>   itta
               -TOP last year Tel Aviv -to-TOP went
      A.   '<u>Speaking of Hanako</u>, she went to <u>Tel Aviv</u>, but I don't know about <u>other places</u>'
           (Hanako-*thematic*, Tel Aviv-*contrastive*)
      B.   '<u>Hanako</u> went to <u>Tel Aviv</u>, but I don't know about <u>other people</u> and <u>other places</u>'
           (Hanako-*contrastive*, Tel Aviv-*contrastive*)

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[16] The [arg] feature is copied and deleted at the landing site if the scrambling is clause-internal. Otherwise, it is not copied at all, as discussed above.

b. Teruabibu-e -wa$_i$ [Hanako-wa (kyonen) t_i itta]
    Tel Aviv -to-TOP   -TOP last year   went

    A. 'Speaking of Tel Aviv, Hanako went there, but I don't know about other people'
    (Tel Aviv-*thematic*, Hanako-*contrastive*)

    B. 'Speaking of Hanako, she went to Tel Aviv, but I don't know about other places'
    (Tel Aviv-*contrastive*, Hanako-*thematic*)

    C. 'Speaking of Tel Aviv and speaking of Hanako, she went there'
    (Tel Aviv-*thematic*, Hanako-*thematic*)

    D. 'Hanako went to Tel Aviv, but I don't know about other places and other people'
    (Tel Aviv-*contrastive*, Hanako-*contrastive*)

In these examples, both the subject *Hanako* and the PP *Teruabibu-e* 'Tel Aviv-to' accompany the topic marker -*wa*. The possible interpretations for (67a) are as expected. Only the sentence-initial subject can receive thematic interpretation. In (67b), the PP topic *Teruabibu-e-wa* 'Tel Aviv-to-TOP' is placed at the sentence-initial position and interestingly, the sentence is four-ways ambiguous, as indicated. The most striking is the interpretation in C: As pointed out in Kuroda (1988), when a PP topic precedes a *wa*-marked subject, both can receive thematic interpretation.[17] Let us examine the interpretation in B first and then this case.

The interpretation in B obtains when the PP topic is scrambled to the edge of PredP as in (68).

(68) [$_{PredP}$ PP-wa$_{\{\text{top}, \text{arg}, \text{phon}\}}$ [NP-wa$_{\{\text{top, arg, phon}\}}$ [$_{Pred'}$ [$_{TP}$ [NP-wa$_{\{\text{top}, \text{arg}, \text{phon}\}}$ [$_{T'}$ ...

The subject *Hanako-wa* is attracted to PredP Spec and receives thematic interpretation. Then, the PP topic is scrambled to the edge of PredP. This interpretation provides further evidence for scrambling to the edge of PredP. (68) is in fact identical to (66) except that a PP topic is scrambled instead of an object. There is another slightly different representation that also yields the interpretation in B. In (68), the [top] feature of the scrambled PP topic is deleted at the landing site. But as noted above, the [top] feature can be retained at any position of a chain. Thus, it should be possible to retain the feature at the landing site as in (69).

(69) [$_{PredP}$ PP-wa$_{\{\text{top}, \text{arg}, \text{phon}\}}$ [NP-wa$_{\{\text{top, arg, phon}\}}$ [$_{Pred'}$ [$_{TP}$ [NP-wa$_{\{\text{top}, \text{arg}, \text{phon}\}}$ [$_{T'}$ ...

This representation also leads to the interpretation in B because the [top] feature of the PP topic can still be interpreted contrastively.

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[17] It is, unfortunately, difficult to provide a precise definition for "thematic topic." What is clear is that (67b) has an interpretation in which neither topic is contrastive. I assume with Kuroda (1988) that this means that both topics can be thematic at the same time.

And interestingly, (69) yields the interpretation in C as well. The [top] feature of the PP topic is at the edge, that is, at the outer Spec of PredP. Hence, if a [top] feature can be interpreted thematically when it is in a Spec position of PredP, it should be possible to interpret both the PP topic and the NP topic as thematic topics on the basis of (69). Thus, the interpretation in C is correctly predicted by the analysis proposed in this paper. This is another case in which a non-sentence-initial topic receives thematic interpretation, and provides further evidence for the analysis of thematic topics in terms of hierarchical structure over that in terms of linear order.[18]

It was shown above that the effects of clause-internal scrambling on the thematic interpretation of topics can be captured properly with the analysis of scrambling proposed in the preceding section. The analysis for the scrambling of topics to the edge of PredP, in particular, makes interesting predictions for long scrambling out of CP. I will examine these in the remainder of this section.

Recall that only clause-internal scrambling has effects on anaphor binding and the scope interaction between the subject and sentential negation. This was so because the relevant feature was [arg]. Clause-internal scrambling takes place as in (70) while long scrambling proceeds as in (71).

(70) $[_{\text{TP}} \alpha_{\{\text{arg}, \text{phon}\}} [\cdots \alpha_{\{\text{arg}, \text{phon}\}} \cdots]]$

(71) a. $[_{\text{CP}} \alpha_{\{\text{arg}, \text{phon}\}} [_{\text{C'}} \cdots \alpha_{\{\text{arg}, \text{phon}\}} \cdots]]$
     b. $[_{\text{TP}} \alpha_{\{\text{phon}\}} [\cdots [_{\text{CP}} \alpha_{\{\text{arg}, \text{phon}\}} [_{\text{C'}} \cdots]] \cdots]]$

In (70), the [arg] feature of the scrambled phrase is copied at the landing site. This makes it possible for α to bind an anaphor and to be attracted to PredP Spec. The feature is deleted at the landing site prior to interpretation because it is licensed only at the initial site. In the case of long scrambling, the initial step of movement is to the embedded CP Spec, and the resulting chain is interpreted with the deletion of features as in (71a). In the matrix clause, only [phon] is copied at the landing site as in (71b). Thus, α can neither serve as the binder of an anaphor nor be attracted to PredP Spec.

But the situation is different with the [top] feature: The hypothesis that was entertained above is that [top] can be licensed and retained at any position of a chain. Then, long scrambling of a topic out of a CP can proceed as in (72).

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[18] As was noted in Footnote 13, Kuroda (1988) indeed presents an analysis in structural terms. For him, *wa*-phrases receive thematic interpretation when they are in CP Spec. He argues that the interpretation C of (67b) is in accord with his hypothesis that Japanese is not a forced 1-1 agreement language, because multiple topics occupy the CP Spec position without agreeing with the C head.

(72) a. [$_{CP}$ α$_{\{top, \text{arg}, phon\}}$ [$_{C'}$ …α$_{\{top, arg, \text{phon}\}}$ …]]

b. [α$_{\{top, phon\}}$ [… [$_{CP}$ α$_{\{top, \text{arg}, \text{phon}\}}$ [$_{C'}$ …]] …]]

The [top] feature of the scrambled topic is retained at the embedded CP Spec after the initial movement in (72a). Then it is copied and retained at the matrix-initial position in (72b). This predicts that a topic preposed to the matrix-initial position by long scrambling can be interpreted thematically. The prediction is indeed borne out by (73).

(73) <u>Teruabibu-e -wa$_i$</u> [$_{TP}$ Hanako-ga [$_{CP}$ Taroo-ga (kyonen) t_i itta to] itteita]
      Tel Aviv -to-TOP   -TOP   -NOM last year   went that saying-was

    A. <u>'Speaking of Tel Aviv</u>, Hanako was saying that Taroo went there' (*thematic*)

    B. 'Hanako was saying that Taroo went to <u>Tel Aviv</u>, but I don't know about <u>other places</u>' (*contrastive*)

As indicated, the preposed PP *Teruabibu-e-wa* 'Tel Aviv-to-TOP' can be construed as a thematic topic. The relevant derivation is shown in (74).

(74) a. [$_{CP}$ PP-wa$_{\{top, \text{arg}, phon\}}$ [$_{C'}$ …PP-wa$_{\{top, arg, \text{phon}\}}$ …]]

b. [$_{PredP}$ PP-wa$_{\{top, phon\}}$ [NP-ga$_{\{arg, phon\}}$ [$_{Pred'}$ …[$_{CP}$ PP-wa$_{\{top, \text{arg}, \text{phon}\}}$ …] … Pred]]]

The PP topic first scrambles to the edge of the embedded CP as in (74a). The [top] feature is retained and the [arg] feature is deleted at the landing site. In the matrix clause, the Pred head attracts the subject *Hanako-ga* to its Spec position as in (74b). Note that the PP topic cannot be attracted to this position as its [arg] feature is deleted at the embedded CP Spec. Finally, the PP topic scrambles to the edge of PredP and its [top] feature is interpreted thematically at the landing site.

(73) shows that it is not just clause-internal scrambling that can affect interpretation. It is then not correct to say that there are two kinds of scrambling, one with effects on interpretation and one without, and that only the latter can take place long-distance. Scrambling is scrambling, and how it affects interpretation depends on how the features of the scrambled phrase are interpreted in the scrambling chain. This analysis is confirmed when it is examined whether long scrambling of a PP topic affects the scope of the matrix subject. Recall Miyagawa's (2001, 2003) observation that long scrambling out of a CP does not allow the matrix subject to take narrow scope with respect to negation. A relevant example is shown in (75).

(75) Teruabibu-e$_i$ zen'in-ga [$_{CP}$ Hanako-ga t_i iku to] omow-ana-katta (yo)
      Tel Aviv -to all -NOM   -NOM go that think -not-Past Part
      'To Tel Aviv$_i$, all did not think that Hanako would go t_i' (All > Not, *Not > All)

The proposed analysis was that long scrambling does not carry the [arg] feature of *Teruabibu-e* 'Tel Aviv-to' into the matrix clause, and consequently, the matrix Pred attracts the subject *zen'in-ga* 'all-NOM' to its Spec position.

The situation remains the same when a PP topic is scrambled, but at the same time, the scrambled PP topic can be interpreted thematically. This is shown in (76).

(76)   Teruabibu-e -wa$_i$ zen'in-ga   [$_{CP}$ Hanako-ga t_i iku to]   omow-ana-katta (yo)
        Tel Aviv -to-TOP   all   -NOM   -NOM   go that think -not-Past Part
        A.   'Speaking of Tel Aviv$_i$, all did not think that Hanako would go there'
             (*thematic*, All > Not, *Not > All)
        B.   'All did not think that Hanako would go to Tel Aviv, but I don't know about other places'
             (*contrastive*, All > Not, *Not > All)

This is exactly what is expected under the proposed analysis. The [arg] feature of the scrambled PP topic is deleted at the embedded CP Spec. Thus, the matrix Pred head attracts the subject *zen'in-ga* to its Spec exactly as in (75). As a result, the subject takes scope over negation. Then, the PP topic is scrambled to the edge of the matrix PredP. Its [top] feature can be retained at this final landing site, and if it is, it can be interpreted thematically as indicated by the reading in A. This example shows clearly that [top] and [arg] can function independently, and hence, provides further support for the feature-based interpretation of movement chains.

5. Conclusion and Further Issues

It was argued in this paper that the semantic and discourse effects of scrambling can be accounted for by the interpretive mechanism for movement chains. Scrambling itself is semantically vacuous in the sense that no substantial feature needs to be interpreted at the landing site. However, because scrambling, like any other movement, copies all features of the moved item at the landing site, it interacts with higher functional heads, in particular, Pred, and affect interpretation in intricate ways. Further, since [top], which can be licensed at any position, can take a "free ride" on scrambling, a topic scrambled to the matrix-initial position can be interpreted thematically. The functional head, Pred, plays an important role also in this analysis of the distribution of thematic topics. Before concluding this paper, I would like to raise some issues regarding the precise nature of this functional head and make a few speculative remarks.

The main properties of Pred are summarized in (77).

(77) a. It is always present above a finite TP, and attracts [arg] to its Spec.

     b. The phrase in PredP Spec takes scope over everything in the complement TP, including sentential negation.

     c. A nominative phrase in matrix PredP Spec is interpreted obligatorily as an exhaustive lising focus when the predicate of the sentence is individual level.

     d. A topic can be interpreted thematically when its [top] feature is in matrix PredP Spec.

I have entertained the hypothesis that there is a single Pred projection above TP, and it plays a role in all the phenomena in (77b-d). There is in fact suggestive evidence that PredP is not recursive. Let us consider (78), for example.

(78) a. Nihon-ga   saru   -ga   kasikoi
           Japan -NOM monkey-NOM smart
           'It is Japan where monkeys are smart'

     b. <u>Nihon-wa</u> saru   -ga   kasikoi
           Japan -TOP monkey-NOM smart
           A. '<u>Speaking of Japan</u>, monkeys are smart there' (*thematic*)
           B. 'Monkeys are smart in <u>Japan</u>, but I don't know about <u>other places</u>' (*contrastive*)

     c. Nihon-ga   <u>saru   -wa</u> kasikoi
           Japan -NOM monkey-TOP smart
           'It is Japan where I know <u>monkeys</u> are smart but don't know about <u>other creatures</u>' (*contrastive*)

(78a-b) show that only the sentence-initial nominative phrase is interpreted obligatorily as exhaustive listing focus. (78b), in particular, indicates that a nominative phrase need not have this interpretation when it is preceded by a topic. In this case, the nominative phrase need not be in PredP Spec because the position can be occupied by the topic. Finally, in (78c), the sentence-initial nominative phrase must be an exhaustive listing focus, and the topic must be interpreted contrastively. The latter fact suggests that PredP cannot occur recursively as in (79).

(79) [$_{PredP}$ Focus [$_{Pred'}$ [$_{PredP}$ Topic [$_{Pred'}$ [$_{TP}$ …] Pred]] Pred]]

If (79) were possible, the topic in (78c) should be able to receive thematic interpretation as it is in PredP Spec.

    (78c) suggests further that a Pred head cannot have multiple Specs occupied by a focus and a topic as in (80).

(80) [_{PredP} Focus [Topic [_{Pred'} [_{TP} …] Pred]]]

This is particularly interesting because it was shown above that Pred can host multiple Specs when they are all topics. A relevant example in (67b) is repeated below in (81).

(81) <u>Teruabibu-e -wa</u>_i   [<u>Hanako-wa</u>   (kyonen) t_i itta]
      Tel Aviv -to-TOP   -TOP last year   went
      C. '<u>Speaking of Tel Aviv</u> and <u>speaking of Hanako</u>, she went there'
          (Tel Aviv-*thematic*, Hanako-*thematic*)

Although I do not have an explanation for why (80) is impossible, I suspect that it receives an account in terms of the analysis based on the mapping from syntax to information structure as developed in Heycock (1994, 2008). Loosely speaking, a sentence with a thematic topic is construed as representing a *topic* and an *assertion*. In this case, PredP Spec is mapped to *topic* and the complement TP to *assertion*. Focus, then, must be contained in the TP so that it can be part of the *assertion*. When PredP Spec contains an exhaustive listing focus, it is mapped to *focus* and the complement TP to *presupposition*. As a thematic topic cannot be part of *focus*, it cannot be in PredP Spec in this case. A refinement along this line may shed some light on the precise nature of thematic topic and exhaustive listing focus.

A question that is more directly relevant to comparative syntax concerns the identity of Pred. Since it hosts thematic topics and exhaustive listing focus, it is tempting to relate it to the Topic and Focus heads that Rizzi (1997) postulates in the left periphery of CP. More precisely, he proposes to split the C-system as in (82).

(82) Force - (Topic)* - (Focus) - (Topic)* - Finite

As topics and focused phrases move into the Spec positions of the relevant heads, this system accounts for Italian examples such as (83), where *questo* 'this' is in focus, and *a Gianni* 'to Gianni' and *domani* 'tomorrow' are topics.

(83) a. Credo   che a Gianni, QUESTO, domani,   gli dovremmo dire
          I-believe that to Gianni this   tomorrow we should   say
          'I believe that we should say this to Gianni tomorrow'

      b. Credo   che   a Gianni, domani, QUESTO,   gli dovremmo dire

      c. Credo   che   QUESTO, a Gianni, domani,   gli dovremmo dire

There are, however, clear differences between the Topic/Focus heads in Italian and what I called the Pred head in Japanese. The former is optional and recursive, which is not the case with the latter. The former attracts [top] and [focus], while the latter attracts [arg]. The Topic and Focus projections in Italian can occur in embedded clauses, as (83) shows. On the other hand, only those phrases in matrix PredP Spec are interpreted as thematic topics and obligatorily as exhaustive listing focus. This last fact suggests that topic and focus interpretation in Japanese is accomplished ultimately in the mapping to information structure, as Heycock argues. Yet, a close comparison between the two systems may uncover the possible forms of variation in the left periphery.

Another tempting comparison is between Pred and the head that hosts the sentence-initial verb in Celtic languages. Bobaljik and Carnie (1996) present the Irish example in (84) to show that the sentence-initial verb is located lower than C.

(84) Ceapaim [go bhfaca   sé   an madra]
      I-think   that saw-Dep he   the dog
      'I think that he saw the dog'

The verb *bhfaca* clearly follows the complementizer in this example. They also argue that the subject is raised to the Spec position of a functional head and the verb is raised to a still higher position. McCloskey (1996) argues for the same conclusion, providing examples such as (85) as evidence.

(85) Tá sé críochnaithe againnn
      is it finished   by-us
      'That has been finished by us'

Since this example is passive, the subject is raised from the object position to a position preceding the verb *críochnaithe*. The landing site of this movement is plausibly a Spec position of a functional head, and the example suggests that subjects in general are licensed at this position. The sentence-initial *tá* precedes this position, which indicates that it is in a fairly high position. Bobaljik and Carnie then hypothesize that the subject is in TP Spec while the verb raises to AGR. (See also Roberts (2005) for detailed discussion on this analysis.) The Japanese Pred is probably not AGR as the language lacks agreement altogether. However, if it is an equivalent of AGR in Celtic, an interesting variation can be observed. The relevant head in Celtic attracts a verbal head while that in Japanese attracts an [arg] feature to its Spec.

The discussion above on the crosslinguistic comparison is merely speculative. But it suggests that the postulation of Pred in Japanese opens up a way to compare the Japanese left periphery with

other languages. The main purpose of this paper was to provide a precise analysis for the semantic and discourse effects of scrambling. But I hope it also serves to stimulate research leading to contributions from Japanese on the nature of the left periphery.

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