Minimalist Limits on Predicate Scrambling*

Eunsuk Lee
(Kyungpook National University)

Lee, Eunsuk. 2007. Minimalist Limits on Predicate Scrambling. *The Linguistic Association of Korea Journal, 15*(3), 65-88. The generalization that only semantically complete constituents scramble follows from a deeper semantic restriction that requires arguments of a semantic function to c-command that function.   The semantic restriction, when wedded to Miyagawa's (2001) minimalist analysis of scrambling in Japanese and Korean, is able to derive the generalization that predicates fail to scramble in Korean.   On this score, Korean scrambling contrasts with scrambling in Turkish, which is movement to an A-bar position.   Following the EPP-analysis of scrambling in Miyagawa (2001), I argue that there is a correlation between the lack of predicate scrambling and the lack of reconstruction in scrambled constituents.   That is, predicates do not scramble to A-positions.   This was held to explain the variation in scrambling in Korean and Turkish.   Turkish scrambling is to an A-bar position.   As a result it exhibits both reconstruction effects and predicate (sub)scrambling.

Key Words: Scrambling, Predicate Scrambling, EPP-analysis of Scrambling, Predicate Scrambling as A-bar Scrambling, Scrambling in Korean, Scrambling in Turkish

1. Introduction

Scrambling is permissible in Korean when the scrambled constituent is semantically complete and impermissible when the constituent is semantically incomplete (Lee, 2007).   If we understand the traditional

term 'predicate' as denoting a semantically incomplete expression (of type $<e, t>$ or higher), we can summarize the main conclusion of Lee (2007) as (1).

(1) Predicates must not scramble.

The generalization in (1) means that in a sentence like (2) the predicate *pwuca-lo* 'rich man-as' is unable to scramble.

(2) salam-tul-i   ku-lul   pwuca-lo   syangkakhya-ss-ta
    person-PL-NOM   he-ACC   rich man-as   think-PST-DCL
    'People thought of him as a rich man.'

In (2) *pwuca-lo* 'rich man-as' is an NP predicate of the small clause *ku-lul pwuca-lo* 'he-ACC rich man-as'. Scrambling of the predicate *pwuca-lo* 'rich man-as' causes the acceptability of (2) to degrade, as in (3)-(5).

(3) *salam-tul-i   pwuca-lo$_j$ ku-lul$_i$ t$_j$ syangkakhya-ss-ta
    person-PL-NOM   rich man-as   he-ACC   think-PST-DCL
    'People thought of him as a rich man.'
(4) *pwuca-lo$_j$ salam-tul-i   ku-lul$_i$ t$_j$ syangkakhya-ss-ta
    rich man-as   person-PL-NOM   he-ACC   think-PST-DCL
    'People thought of him as a rich man.'
(5) *pwuca-lo$_j$ ku-lul$_i$ t$_j$' salam-tul-i   t$_i$ t$_j$ syangkakhya-ss-ta
    rich man-as   he-ACC   person-PL-NOM   think-PST-DCL
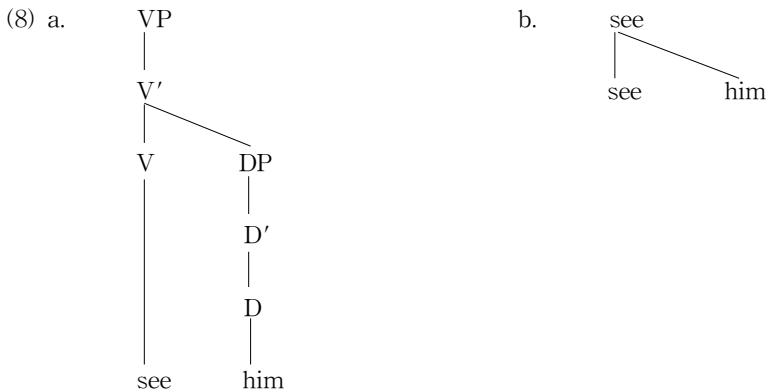   'People thought of him as a rich man.'

On the other hand, the pronoun *ku-lul* 'he-ACC' is semantically complete (of type $<e>$). The small clause *ku-lul pwuca-lo* 'he-ACC rich man-as' is also a semantically complete expression (of type $<t>$). The generalization of (1) predicts that they should be available for scrambling. This prediction is confirmed by the acceptability of (6) and (7). In (6) and (7) below, the scrambled constituent is not a predicate

and thus does not lower the acceptability of the sentence.

(6) ku-lul$_i$ pwuca-lo$_j$ salam-tul-i   t$_i$ t$_j$ syangkakhya-ss-ta
    he-ACC rich man-as person-PL-NOM   think-PST-DCL
    'People thought of him as a rich man.'

(7) ku-lul$_i$ salam-tul-i   t$_i$ pwuca-lo$_j$ syangkakhya-ss-ta
    he-ACC person-PL-NOM   rich man-as   think-PST-DCL
    'People thought of him as a rich man.'

The generalization of (1) forces us to face two questions. The first question is why (1) should hold. The second is whether it holds categorically or needs to be parameterized in some fashion. With respect to the first question, section 2 argues that the generalization of (1) can be derived from other more general claims about how Ɵ-roles are linked to syntactic phrases or how arguments combine with selecting head functions. In order to present a theoretical explanation for the generalization in (1), I draw on Williams' (1989) suggestion that arguments of a predicate are in a binding relation with the predicate in some way. From this perspective, a scrambled predicate moves to a position where it cannot semantically compose with its argument.

This semantic account of why predicates do not scramble is especially useful to the minimalist view of phrase structure. In the Government and Binding framework of Chomsky (1981) heads of phrases are uniquely represented and subjected to strong limits on their movement. The head movement constraint in particular would block scrambling of the predicate (either as adjunction to some phrasal projection or as a substitution for a phrasal position) in such a theory. In the minimalist program of Chomsky (1995) phrases are labelled by their head as in (8b) which replaces the more traditional (8a). It becomes formally difficult to stipulate that only the top instance of 'see' can be copied (i.e. "moved") to a given landing site. Recognizing this limited expressive power of minimalist phrase structure forces us to look for a semantic account of scrambling and its limitations. (1) fits that bill.

(8) a.
```
         VP
         │
         V′
         │
      ┌──────┐
      V      DP
      │      │
      │      D′
      │      │
      │      D
      │      │
     see    him
```

b.
```
    see
    │
  ┌────────┐
 see      him
```

Section 3 deals with the second question of whether the generalization in (1) is categorical or needs to be parameterized. I will draw out the consequences of viewing the semantic restriction in (1) as universal. To maintain this strong claim I will consider in detail examples of predicate scrambling in Turkish and Korean. Turkish is a language that exhibits predicate scrambling generally. In Turkish, APs scramble out of containing NPs (a phenomenon which Kornfilt (2003) dubs ′subscrambling′). Subscrambling APs is an instance of predicate scrambling, since adjectives are predicates in the relevant sense. I also show that even Korean exhibits a limited form of predicate scrambling in the so-called VP-focus construction. This construction is formed by attaching a focus marker *nun* ′FOC′ to VP. These two phenomena might be taken as prima facie evidence that the prohibition against the scrambling of predicates in (1) needs to be parameterized or weakened in some other fashion. Closer inspection, however, reveals that this is not in fact the case. I will argue in this paper that (1) is a categorical ban against predicate scrambling in UG. The apparent variation will be attributed to how (1) interacts with the clausal syntax of the two languages.   Evidence of this interaction comes from a correlation between predicate scrambling and what has been called reconstruction effects in scrambled constituents. Reconstruction of predicates is also discussed in Heycock (1995). She argues that non-referential phrases,

including predicates, must undergo reconstruction, while referential phrases can remain in their displaced positions. My approach in this paper similarly places reconstruction effects at the center of cases where (1) appears not to hold.

2. Why Do Predicates Fail to Scramble?

2.1. Theta-roles

A thematic role (henceforth Ө-role) is the semantic relation that an argument stands in to the predicate function of a sentence. In (9), *John* is understood as an agent (the entity initiating an action); *the car* is a theme. In (10), *Daniel* is understood as an experiencer (the entity that undergoes psychological states), and *his girl friend* is a theme.

(9) John broke the car.
(10) Daniel loves his girl friend.

Each Ө-role in a sentence is assigned to a single noun phrase, and each noun phrase bears a unique Ө-role. This is the content of the theta criterion proposed in Chomsky (1981). For instance, for the verb *give*, which is associated with the Ө-roles of Agent, Goal and Theme, a grammatical sentence might look like (11).

(11) John gave Mary a book.

In (11), the Ө-roles are assigned to *John*, *Mary*, and *a book*, respectively. The sentence would be ungrammatical if any of these arguments were absent because of theta-criterion.

2.2. Theta-roles as anaphors

A lexical entry is the portion of the lexicon specifying the properties of a single lexical item. Every lexical entry includes the idiosyncratic

information of the lexical item such as its unpredictable phonological, semantic, and syntactic information. A theta-grid of a predicate is one kind of such information. The theta-grid is the lexical specification of the thematic properties of the predicate.[1)] It makes a lexical Head, H, induce argument positions with specific Θ-roles in syntactic structure. For instance, the head *open* has a theta-grid which induces obligatorily one argument position (theme), and optionally two more (agent and instrument). This theta-grid accounts for what the sentences in (12)-(15) have in common.

(12) John opened Bill's door (with his key).
(13) John's key opened Bill's door.
(14) Bill's door opened.
(15) Bill's door was opened (by John).

The theta-grid of *open* is usually represented as in (16).

(16) OPEN <Agent, Theme, Instrument>

In the minimalist program, arguments of H are initially merged by the need to satisfy the theta-criterion. Arguments of Head are assigned their Θ-role as they are merged to form a syntactic structure. As a result all the arguments of a Head, H, will appear in H^{MAX}. These arguments will necessarily c-command their head, H.

Williams (1989) proposes that the Θ-role assignment relation is a relation subject to binding theory and thus derives a c-command restriction on predication. He argues that Θ-role assignment is a relation between two Θ-roles. He assumes that verbs (and adjectives) as well as nouns have a Θ-role. In Williams (1989), the verbal Θ-role is like an anaphor, and is subject to binding by the Θ-role of verb's nominal argument. When a predicate scrambles to above the position of its arguments, its Θ-role cannot be bound by its antecedent.

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1) It is sometimes identified with the argument structure of a lexical item (Grimshaw, 1990).

In the spirit of Williams' (1989) suggestion above, let us entertain the proposal in (17). The proposal is formulated in (17a) in terms of Ɵ-roles. In (17b) it is stated in formal semantics terms.[2]

(17) a. A phrase XP saturates a Ɵ-role of a head H only if XP c-commands H.
   b. A phrase XP saturates an argument of a semantic function H (by functional application) only if XP c-commands H.

By (17a) the arguments c-commanding a Ɵ-role of a predicate can saturate that Ɵ-role. Similarly by (17b) the arguments of a predicate function must c-command that predicate in order to be available for functional application. When a predicate scrambles to above the arguments, the Ɵ-role (or argument) of that predicate remains unsaturated.[3] Predicate scrambling thus gives rise to the violation of the Principle of Full Interpretation (cf. Chomsky, 1995) that requires that every element at LF must receive an appropriate interpretation.

The unacceptability of (4), here repeated as (18), is explained by the failure of the saturation of a predicate's Ɵ-role (or argument). (19) illustrates the structure of (18) where scrambling of the NP predicate *pwuca-lo* 'rich man-as' causes the acceptability of a sentence to degrade. The tree in (19) is represented in classic standard X-bar terms for expository convenience. For the sake of explicitness I also adopt Miyagawa's (2003) analysis of scrambling in Japanese and Korean that treats it as an instance of A-movement to [Spec, TP] triggered to check an EPP feature on the head T.

(18) *pwuca-lo$_j$ salam-tul-i   ku-lul$_i$ t$_j$ syangkakhya-ss-ta

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2) Standard formal semantics adopts a strong version of compositionality that requires sisters to compose. Such theories would require H and XP in (17b) to be in a mutual c-command relation.

3) If movement leaves a copy in the original base position, as is typically assumed in the minimalist framework, we would require every instance of X and HP to satisfy (17).

rich man-as   person-PL-NOM   he-ACC   think-PST-DCL
'People thought of him as a rich man.'

(19)
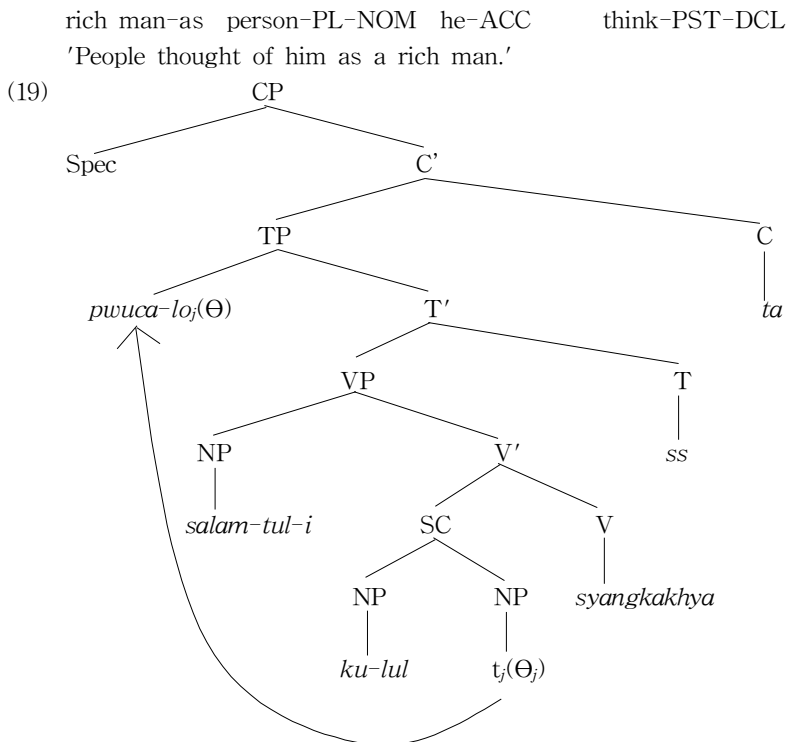
In (19), the predicate *pwuca-lo* 'rich man-as' moves to [Spec, TP]
and thus it is not bound by the nominal argument *ku-lul* 'he-ACC'.
The proposal in (17) says that the scrambling of predicate *pwuca-lo*
'rich man-as' gives rise to the failure of its Θ-role (or argument)
saturation, which makes (18) unacceptable.

3. A Categorical Ban against Predicates Scrambling in UG

3.1. Predicate Scrambling in Turkish

Historical linguists have sometimes grouped Turkish, Japanese, and
Korean into a single language family, Altaic, and syntacticians have
often found it illuminating to compare closely related languages to

observe the parameterization of a general syntactic principle (e.g. Kayne, 1994).[4]   Like Korean and Japanese Turkish typically exhibits SOV (Subject–Object–Verb) order in simple transitive sentences as in (20).

(20) Ayşe   gazeteyi   okuyor   (SOV)
     Ayşe   newspaper–ACC   read–PRES
     'Ayşe is reading the newspaper.'

Turkish   also   shows   other   variant   orders   such   as   OSV (Object–Subject–Verb),   SVO   (Subject–Verb–Object),   OVS (Object–Verb–Subject),   VOS   (Verb–Object–Subject),   and   VSO (Verb–Subject–Object), as illustrated in (21)–(25) respectively (Hoffman, 1992).

(21) Gazeteyi   Ayşe   okuyor   (OSV)
     newspaper–ACC   Ayşe   read–PRES
     'Ayşe is reading the newspaper.'
(22) Ayşe   okuyor   gazeteyi   (SVO)
     Ayşe   read–PRES   newspaper–ACC
     'Ayşe is reading the newspaper.'
(23) Gazeteyi   okuyor   Ayşe   (OVS)
     newspaper–ACC   read–PRES   Ayşe
     'Ayşe is reading the newspaper.'
(24) Okuyor   gazeteyi   Ayşe   (VOS)
     read–PRES   newspaper–ACC   Ayşe
     'Ayşe is reading the newspaper.'
(25) Okuyor   Ayşe   gazeteyi   (VSO)
     read–PRES   Ayşe   newspaper–ACC
     'Ayşe is reading the newspaper.'

These facts suggest that Turkish is a "free word order" language

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4) Altaic is a proposed language family which includes some 60 languages spoken by about 250 million people, mostly in and around Central Asia and the Far East.   See Anderson (1991).

much like Japanese and Korean.   The Korean counterparts to the
Turkish (20)-(25) are provided in (26)-(31) below.   Notice that, while
the nominal arguments are freely reordered in both Korean and Turkish,
the position of Verb is restricted in Korean to the clause final position.

(26) Minho-ka   sinmwun-ul   ilk-nun-ta   (SOV)
      Minho-NOM   newspaper-ACC   read-PRES-DCL
      'Minho reads a newspaper.'
(27) sinmwun-ul   Minho-ka   ilk-nun-ta   (OSV)
      newspaper-ACC   Minho-NOM   read-PRES-DCL
      'Minho reads a newspaper.'
(28) *Minho-ka   ilk-nun-ta   sinmwun-ul   (SVO)
      Minho-NOM   read-PRES-DCL   newspaper-ACC
      'Minho reads a newspaper.'
(29) *sinmwun-ul   ilk-nun-ta   Minho-ka   (OVS)
      newspaper-ACC   read-PRES-DCL   Minho-NOM
      'Minho reads a newspaper.'
(30) *ilk-nun-ta   sinmwun-ul   Minho-ka   (VOS)
      read-PRES-DCL   newspaper-ACC   Minho-NOM
      'Minho reads a newspaper.'
(31) *ilk-nun-ta   Minho-ka   sinmwun-ul   (VSO)
      read-PRES-DCL   Minho-NOM   newspaper-ACC
      'Minho reads a newspaper.'

In addition to the difference in the placement of Verb, Turkish and
Korean contrast in whether predicates more generally can scramble.
Consider the following Turkish examples (Kornfilt, 2003).

(32) Dün   sokak-ta   [[çok yaşh] bir adam]-a   rasla-dı -m
      Yesterday street-LOC very old   a man-DAT meet-PST-1SG
      'Yesterday I met a very old man in the street.'
(33) Dün   sokak-ta [e$_i$ bir adam]-a   rasla-dı -m [çok yaşh]$_i$
      Yesterday street-LOC   a man-DAT meet-PST-1SG very old
      'Yesterday I met a very old man in the street.'

In (33), the AP *çok yaşh* 'very old' has scrambled out of the NP containing it. An adjective is a predicate in that it is not semantically complete.

Korean behaves very differently from Turkish. Consider whether APs in Korean scramble in the way Turkish APs do.

(34) nya-ka   eoce   kil-yese   [twu meyng-uy haksyangtul-ul]
     I-NOM   yesterday street-LOC   two person-GEN students-ACC
     po-ass-ta
     see-PST-DCL
     'Yesterday I saw two students in the street.'

(35) *twu meyng-uy$_i$ nya-ka eoce   kil-yese [t$_i$ haksyangtul-ul]
     two person-GEN I-NOM yesterday street-LOC   students-ACC
     po-ass-ta
     see-PST-DCL
     'Yesterday I saw two students in the street.'

(36) Minho-ka   [ce   cakun ai-lul]   po-ass-ta
     Minho-NOM   that small kid-ACC   see-PST-DCL
     'Minho saw that small kid.'

(37) *cakun$_i$ Minho-ka   [ce   t$_i$ ai-lul]   po-ass-ta
     small   Minho-NOM that   kid-ACC see-PST-DCL
     'Minho saw that small kid.'

In (35) and (37), subscrambling an AP out of either a non-specific NP or a specific NP respectively is not allowed in Korean.

3.2. Reconstruction and A-bar Scrambling

It is common to distinguish two types of scrambling: one that patterns with A-movement such as passivization and the other that patterns with A-bar movement such as wh-movement (Mahajan, 1990; Webulhuth, 1989). Mahajan argues that in Hindi clause-internal scrambling can be either A- or A-bar movement, while long distance scrambling is necessarily A-bar movement. A-scrambling moves a

phrase to an A-position such as [Spec, TP], while A-bar scrambling moves a phrase to an A-bar position such as [Spec, CP].[5]

Based on Japanese data containing the lexical anaphor *otagai* 'each other', Saito (1992) generalizes Mahajan's (1990) distinction by showing that it is applicable to Japanese as well.[6]   Saito (1989) also makes the point that A-bar scrambling is subject to reconstruction.   Consider Japanese A-bar scrambling in (39).

(38) John-ga   [Mary-ga   nani-o_i yonda   ka]   sitta
    John-NOM   Mary-NOM   what-ACC   read   Q   know-PST
    'John knew what Mary read.'
(39) nani-o_i John-ga   [Mary-ga t_i yonda   ka]   sitta
    what-ACC   John-NOM   Mary-NOM   read   Q   know-PST
    'John knew what Mary read.'

In (39) which is an instance of A-bar scrambling, the wh-phrase *nani-o* 'what-ACC' in the embedded clause is in [Spec, CP] of the matrix clause.   If the scrambled wh-phrase *nani-o* 'what-ACC' remains in [Spec, CP] of the matrix clause, the wh-phrase must take the matrix scope.   However, the wh-phrase in (39) has the embedded scope just like (38).   (38) and (39) both have the same interpretation where the wh-phrase has the embedded scope.   This fact suggests that A-bar scrambled constituents can be interpreted at the base position.

Reconstruction is an LF operation whereby fronted constituents returned to their base positions for interpretation (cf. Chomsky, 1981). In the classic formulation of Government and Binding theory in Chomsky (1981), reconstruction was limited to elements in A-bar position.   Although the original theoretical distinction between A- and

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5) Webelhuth (1989) proposes that scrambling is uniformly movement to a third type of position, the non-A-position/non-A-bar position, and that this position has the binding properties of both A- and A-bar positions.

6) See Kawamura (2004) for an argument that clause-internal scrambling differs from regular A-movement and that long distance scrambling behaves differently from typical A-bar movement.

A-bar position in terms of Ɵ-marking (Chomsky, 1981) is no longer widely assumed, we will understand the specifier of TP (subject) position to be an A-position and the specifier of CP to be an A-bar position.   We will follow Chomsky (1993) and assume that reconstruction holds only for A-bar movement, not for A-movement.[7] Reconstruction effects are diagnostic of these different structural positions.   We thus expect A-bar scrambling to exhibit reconstruction effects that are absent in A-scrambling.

   This distinction between A-scrambling and A-bar scrambling with respect to reconstruction effect accounts for variation in anaphor-binding in Korean and Turkish.   First, consider the Korean lexical anaphor *selo* 'each other' which must be A-bound.   The lexical anaphor *selo* 'each other' cannot be A-bound in (40) showing the canonical Korean word order, while it is A-bound in (41) showing the scrambled word order. On the other hand, in the case of long distance scrambling, the lexical anaphor *selo* 'each other' can be A-bound neither in the neutral word order (42) nor in the scrambled word order (43).

(40) *$selo_i$-uy   sensyangnim-i   [[Minho   wa   Yongho]$_i$-lul]$_j$
      each other-GEN   teacher-NOM   Minho   and   Yongho-ACC
      kkucic-ess-ta
      scold-PST-DCL
      'Each other$_i$'s teachers scolded Minho and Yongho$_i$.'

(41) [[Minho wa Yongho]$_i$-lul]$_j$ $selo_i$-uy   sensyangnim-i   t$_j$
       Minho and Youngho-ACC   each other-GEN teacher-NOM
      kkucic-ess-ta
      scold-PST-DCL
      'Each other$_i$'s teachers scolded Minho and Yongho$_i$.'

(42) *$selo_i$-uy   sensyangnim-i [Songmi-ka   [[Minho wa Yongho]$_i$-lul]$_j$
      each other-GEN teacher-NOM Songmi-NOM Minho and Yongho-ACC
      kkucic-ess-ta   ko]   syangkakha-n-ta
      scold-PST-DCL   COMP   think-PRES-DCL

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7) But see Lasnik and Hendrick (2003) for a different view.

'Each other$_i$'s teachers think that Songmi scolded Minho and Yongho$_i$.'

(43) *[[Minho wa Yongho]$_i$-lul]$_j$ selo$_i$-uy   sensyangnim-i [Songmi-ka t$_j$]
     Minho and Yongho-ACC each other-GEN teacher-NOM Songmi-NOM
     kkucic-ess-ta   ko]   syangkakha-n-ta
     scold-PST-DCL   COMP   think-PRES-DCL
     'Each other$_i$'s teachers think that Songmi scolded Minho and Yongho$_i$.'

In (41), *Minho wa Yongho-lul* 'Minho and Yongho-ACC' is
scrambled clause-internally to the A-position [Spec, TP]. In (43), it is
scrambled out of a finite clause to the A-bar position [Spec, CP]. In
(41), the lexical anaphor *selo* 'each other' is A-bound, while in (43) it
cannot be.   The reason is that clause-internal scrambling moves a
phrase to A-position and thus *Minho wa Yongho-lul* 'Minho and
Yongho-ACC' does not undergo reconstruction, whereas long distance
scrambling moves a phrase to A-bar position and thus *Minho wa
Yongho-lul*   'Minho   and   Yongho-ACC'   necessarily   undergoes
reconstruction.

The distribution of the Korean anaphor *selo* 'each other' contrasts
with   that   of   its   Turkish   counterpart   *birbirlerinin*   'each
other-AGR-GEN' which, as an anaphor, must also be A-bound.
Consider the following Turkish examples (Kural, 1992).

(44) *[[Birbirlerinin$_i$ sekreterleri]   adamlari$_i$ dün   aramiş]
    each other-AGR-GEN secretary-PL-AGR-NOM men-ACC yesterday call-PST-AGR
    'Each other$_i$'s secretaries called the men$_i$ yesterday.'
(45) *Adamlari$_i$ [[birbirlerinin$_i$ sekreterleri]   t$_i$ dün   aramiş]
    men-ACC each other-AGR-GEN secretary-PL-AGR-NOM yesterday call-PST-AGR
    'Each other$_i$'s secretaries called the men$_i$ yesterday.'

In (45), the clause-internally scrambled phrase moves to the A-bar
position and thus necessarily reconstructs at LF. The reconstruction at
LF of the anaphor in (45) leads to the violation of Principle A of the
Binding Theory and thus the Turkish lexical anaphor *birbirlerinin* 'each
other-AGR-GEN' fails to be bound.

3.3. Predicate Scrambling as A-bar Scrambling (in Turkish Subscrambling)

Miyagawa (2001, 2003) has provided an analysis of scrambling in Japanese and Korean that recognizes two mechanisms which lead to the OSV order. One is the A-movement of the object to satisfy the EPP, and the other is an A-bar movement of the object for focus reasons. In the former case, the object appears in [Spec, TP], while in the latter, it is adjoined to TP or higher.   Because of the absence of reconstruction effects in scrambling to an A-position and because (17) requires the arguments of a verb to c-command the verb, we derive the prohibition against scrambling of predicates in Korean. At the same time, because Turkish scrambling is to an A-bar position which exhibits reconstruction effects, predicates will scramble in Turkish in contrast to Korean.

Miyagawa (2001, 2003) argues that A-scrambling is triggered by the EPP feature on T. To support his claim, Miyagawa provides evidence from Japanese data involving a universal quantifier *zen'in* 'all' in the context of negation.

(46) zen'in-ga   sono   tesuto-o   uke-nakat-ta   (SOV)
    all-NOM   that   test-ACC   take-NEG-PST
    'All did not take that test.'
    *not>all, all>not
(47) sono   tesuto-o_i zen'in-ga t_i uke-nakat-ta   (OSV)
    that   test-ACC   all-NOM   take-NEG-PST
    'That test, all didn't take.'
    not>all, all>not

(46) has an SOV order, while (47) has a scrambled OSV order. In both (46) and (47) above, a universal quantifier *zen'in* 'all' occurs in the subject position. However, (46) and (47) do not have the same reading in that (47) has another reading as well as the reading of (46). The reading of (46) is a total negation (meaning that none of the people

referred to by *zen'in* 'all' took the test). This reading can be explained by Klima's (1964) assumption that negation must c-command a quantifier in order to take scope over that quantifier.   In (46), the quantifier *zen'in* 'all' is in [Spec, TP], which is out of the negation domain.[8]   (47) has the same reading as (46), but it may have an additional reading, a partial-negation reading. This is the reading that some, but not all, took the test.   The negation in this reading only partially negates the referent of *zen'in* 'all'.   In the partial-negation reading of (47), the quantifier *zen'in* 'all' is in the negation domain. What fills in [Spec, TP] is the object, rather than the subject.   The quantifier subject *zen'in* 'all' stays in-situ in [Spec, vP], which is in the domain of negation.

   The   scrambling   of   the   sort   Miyagawa   (2001)   observed   is A-movement to [Spec, TP] triggered by the EPP feature on T. Scrambling to check EPP feature is unique and has no reconstruction effect. Following Williams' (1989) suggestion (discussed in section 2.2.) that a verb's Ө-roles are anaphors subject to binding by the verb's nominal argument, I derive the prohibition against the scrambling of predicates   from   Miyagawa's   scrambling   analysis.   A   constituent scrambled to [Spec, TP] does not show reconstruction effects.   A predicate that undergoes A-scrambling will position the predicate's Ө-roles in a position where the predicate's arguments (or its Ө-roles) cannot be licensed for (17).   My proposal thus correlates the lack of predicate scrambling with the lack of reconstruction effects in scrambled constituents.

   When   scrambling   is   to   an   A-bar   position,   it   should   show reconstruction effects.   The instance of A-bar scrambling is observable in Turkish (44) and (45), repeated as (48) and (49).

   (48) *[[Birbirlerinin$_i$ sekreterleri]   adamlari$_i$ dün   aramiş]
      each other-AGR-GEN secretary-PL-AGR-NOM men-ACC yesterday call-PST-AGR
      'Each other$_i$'s secretaries called the men$_i$ yesterday.'

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   8) We assume that the position of negation is between the vP and T. (see Laka (1990) and Pollock (1989))

(49) *Adamlari$_i$ [[birbirlerinin$_i$ sekreterleri]   t$_i$ dün   aramiş]
     men–ACC each other–AGR–GEN secretary–PL–AGR–NOM yesterday call–PST–AGR
     'Each other$_i$'s secretaries called the men$_i$ yesterday.'

The examples of anaphor–binding in (48) and (49) indicate that
scrambling in Turkish example (49) is movement to A–bar position. If
the scrambled object *adamlari* 'men–ACC' were in an A–position in
Turkish, (49) could not be ruled out.   *Adamlari* 'men–ACC' in the
putative A–position would A–bind the lexical anaphor *birbirlerinin* 'each
other–AGR–GEN', but this is counter factual. The problem in (49) does
not stem from the position of the anaphor or the antecedent, since an
anaphor inside an NP can be bound from a higher A–position as shown
by (50). Moreover, anaphors are not excluded from the subject position,
as illustrated in (51) and anaphors can be bound by non–subject, as in
(52) (Kural, 1992).

   (50) Adamlar$_i$ [birbirlerinin$_i$ sekreterlerini]   aramiş
        man–PL–NOM   each other–AGR–GEN secretary–AGR–ACC call–PST–AGR
        'The men called each other's secretaries.'
   (51) Adamlar$_i$ [birbirlerinin$_i$ Ahmet'i aradığını]
        man–PL–NOM each other–AGR–GEN Ahmet–ACC call–PST–COMP–AGR–ACC
        sanıyor
        think–PRES–AGR
        'The men think [each other called Ahmet].'
   (52) Ahmet   adamlari$_i$ birbirlerine$_i$ göstermiş
        Ahmet–NOM man–PL–ACC   each other–AGR–DAT show–PST–AGR
        'Ahmet showed the men to each other.'

The problem in (49) is the relationship between anaphor and
antecedent.   Kural (1992) argues that the scrambled object *adamlari*
'men–ACC' is in A–bar position in (49), and thus does not bind the
anaphor. I will accept Kural's conclusion here.[9]

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9) For detailed explanation, see Kural (1992).

Once we recognize the correlation between A-bar scrambling of predicate and reconstruction effects in Turkish, we can attribute Turkish predicate scrambling in (33) to the reconstruction effects of A-bar scrambling.   Since subscrambling of adjectives in Turkish is not to [Spec, TP] for the purpose of the EPP, it must be A-bar scrambling. Thus, we predict that it undergoes reconstruction effects.   This is a desirable prediction, since the predicate′s Ɵ-roles (or arguments) are able to be saturated when the predicate is reconstructed to its base position.

3.4. Predicate Scrambling as A-bar Scrambling (in Korean VP-focus Construction)

My hypothesized correlation between predicate scrambling, reconstruction effects, and A-bar scrambling is confirmed by the VP-focus construction in Korean.   Although Korean does not scramble AP predicates out of a containing NP, it does have one instance of predicate scrambling.   Korean grammars traditionally identify a ″VP-focus″ construction.   This construction is formed by attaching a nominalizer clitic -ki- ′NMZ′ and a focus marker -(n)un (or an accusative Case marker -(l)ul) to VP.   The focused VP scrambles to clause initial position.   This construction allows preposing of unergative verbs and transitive verbs with their objects, as shown in (54) and (56), respectively (Hagstrom, 1997).[10]

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10) In (56), the verb must take its object along when it scrambles, as shown in (i)-(iii).
  (i) Minho-ka   ppang-ul   mek-ki-nun   ha-eyss-ta
      Minho-NOM   bread-ACC   eat-NMZ-FOC   do-PST-DCL
      ′Eat the bread, Minho did, (but not other things).′
  (ii) *mek-ki-nun$_i$ Minho-ka   ppang-ul   t$_i$ ha-eyss-ta
       eat-NMZ-FOC   Minho-NOM   bread-ACC   do-PST-DCL
       ′Eat the bread, Minho did, (but not other things).′
  (iii) [ppang-ul   mek-ki-nun]$_i$ Minho-ka   t$_i$ ha-eyss-ta
        bread-ACC   eat-NMZ-FOC   Minho-NOM   do-PST-DCL
        ′Eat the bread, Minho did, (but not other things).′

(53) Minho-ka   [(ppalli) ttwi-ki-nun]   ha-eyss-ta
     Minho-NOM   (fast)   run-NMZ-FOC   do-PST-DCL
     'Run fast, Minho did, (but not other things).'

(54) [(ppalli) ttwi-ki-nun]$_i$ Minho-ka   t$_i$ ha-eyss-ta
     (fast)   run-NMZ-FOC   Minho-NOM   do-PST-DCL
     'Run fast, Minho did, (but not other things).'
     'As for running fast, Minho did.'

(55) Minho-ka   ppang-ul   mek-ki-nun   ha-eyss-ta
     Minho-NOM   bread-ACC   eat-NMZ-FOC   do-PST-DCL
     'Eat the bread, Minho did, (but not other things).'

(56) [ppang-ul   mek-ki-nun]$_i$ Minho-ka   t$_i$ ha-eyss-ta
     bread-ACC   eat-NMZ-FOC   Minho-NOM   do-PST-DCL
     'Eat the bread, Minho did, (but not other things).'
     'As for eating the bread, Minho did.'

(53) and (55) show the structure before VPs prepose and (54) and
(56) show the structure with VP-preposing. In (54) and (56), the VP
constituent nominalized by -ki- 'NMZ' scrambles to A-bar position
above TP. As my hypothesis predicts, the focused VP allows
reconstruction of anaphors, as shown in (57)-(60) below.

(57) [M-kwa-J]$_i$-ka C-yekye selo$_i$-uy chinkwu-lul sokyasikhi-ki-nun
     M-and-J-NOM   C-DAT each other-GEN friend-ACC introduce-NMZ-FOC
     ha-eyss-ta
     do-PST-DCL
     'Introduce each other's friends to C, M and J did.'

_____

Yatsushiro (1997) offers an explanation for why it is not possible to prepose
transitive verbs alone. Yatsushiro argues that the derivation (ii) results in the
violation of some version of the Proper Binding Condition. In (ii), the VP
mek-ki-nun 'eat-NMZ-FOC' includes the trace of the object ppang-ul
'bread-ACC', and the trace of the object in the scrambled VP is not bound by
its antecedent.

(58) selo$_i$-uy chinkwu-lul sokyasikhi-ki-nun [M-kwa-J]$_i$-ka C-yekye
each other–GEN friend–ACC introduce–NMZ–FOC   M–and–J–NOM   C–DAT
ha-eyss-ta
do-PST-DCL
'Introduce each other's friends to C, M and J did.'

(59) *kutul$_i$-i C-yekye [M-kwa-J]$_i$-uy chinkwu-lul sokyasikhi-ki-nun
they–NOM C–DAT   M–and–J–GEN   friend–ACC   introduce–NMZ–FOC
ha-eyss-ta
do-PST-DCL
'Introduce M and J's friends to C, they did.'

(60) *[M-kwa-J]$_i$-uy chinkwu-lul sokyasikhi-ki-nun kutul$_i$-i C-yekye
M–and–J–GEN   friend–ACC   introduce–NMZ–FOC   they–NOM C–DAT
ha-eyss-ta
do-PST-DCL
'Introduce M and J's friends to C, they did.'

In (58), the anaphor in the scrambled VP is bound by the subject, and in (60), the R-expression in the scrambled VP is bound by the pronoun in the subject. (58) and (60) show that the scrambled VP reconstructs to the base-generated position and thus VP-scrambling is A-bar movement.

The consideration of predicate scrambling as A-bar scrambling gives us a clue of the explanation for why the verb cannot move to an A-bar position in Korean (making it like Turkish). Assuming that such movement requires the morphological marking of *(n)un* 'TOP' only to phrases and has the semantics of topicalization/old information, I argue that in Korean the topic interpretation is correlated with reconstruction effects. Prince (1986) argues on the basis of variation in the Germanic languages that information packaging requirements (like topichood) are paired with syntactic structures in a language specific fashion. Suppose this is true. We could then say that Turkish does not pair topichood status with the A-bar position (of the specifier in CP) in the way Korean does, speculatively because it does not have a topic morpheme dedicated for this position. Turkish will then be able to "scramble" to

the A-bar position in a way that Korean cannot.   Korean can only topicalize to that position.

4. Conclusion

This paper has investigated the generalization from Lee (2007) that scrambling is limited to semantically complete expressions.   In particular, I have probed the basis of this generalization by raising the following two questions: Why are predicates resistant to scrambling? Does the ban against predicate scrambling hold categorically or need to be parameterized?

Regarding the reason of the ban against predicate scrambling, I draw on Miyagawa's (2001, 2003) analysis of scrambling and Williams' (1989) work on the nature of Ө-roles.   Miyagawa argues that scrambling to check EPP feature on T is unique and exhibits no reconstruction effect. Williams argues that a verb's Ө-roles are anaphors subject to binding by the verb's nominal argument.   From the synthesis of these two general claims, we can derive the prohibition against the scrambling of predicates in A-scrambling.   A constituent scrambled to [Spec, TP] does not show reconstruction effects.   A predicate that undergoes A-scrambling will position the predicate's Ө-roles in a position where the predicate's arguments (or its Ө-roles) cannot be licensed.   We thus correlate the lack of predicate scrambling with the lack of reconstruction effects in constituents scrambled to [Spec, TP].

With respect to the question whether the ban against predicate scrambling is categorical or not, I have provided empirical evidence that the resistance to predicate scrambling is universal for A-scrambling.   I have considered instances of predicate scrambling in Turkish and Korean.   In Turkish, adjective phrases acceptably scramble out of containing noun phrases.   Subscrambling of adjective phrases is an instance of predicate scrambling.   The correlation between predicate scrambling and reconstruction effects identifies predicate scrambling in Turkish as A-bar scrambling.   The correlation between predicate scrambling, reconstruction effects and scrambling to an A-bar landing

site is also confirmed by the VP-focus construction in Korean.   When the focused VP with anaphors scrambles to above [Spec, TP], it allows for reconstruction effects of anaphor binding.

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Eunsuk Lee
Department of English Language & Literature
Humanities, Kyungpook National University
702-701 #1370 Sangyeok-dong, Buk-gu, Daegu, Korea
Phone: 82-10-2955-6056
Email: eunsuk76@gmail.com