

A Single Restriction on Scrambling in Korean*

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Lee, Eunsuk. 2008. A Single Restriction on Scrambling in Korean. *The Linguistic Association of Korean Journal*, 16(1), 73–90. This paper aims to deepen our understanding of free word order phenomena or scrambling. It offers a unified approach to some fundamental limitations on scrambling in Korean. These would have been attributed to a head parameter in earlier syntactic theories but are problematic in more recent syntactic theories in the minimalist framework where such a parameter cannot be naturally stated. Korean has several limitations on scrambling. It is blocked from preposing the verb. It does not commute noun phrases that bear the same Case, nor does it prepose the right member of a small clause. I argue that these descriptive generalizations follow from a single, elegant restriction: only semantically complete or saturated constituents can scramble.

Key Words: Scrambling, Restriction on Scrambling, Unified Approach to Scrambling, Theta-roles in Scrambling, Semantic Completion in Scrambling, Scrambling in Korean

1. Introduction

Scrambling is used in the literature as a cover term for a process that derives non-canonical word order patterns in so-called free word order languages such as German, Hindi, Japanese, Korean and Turkish. In such languages, constituents can appear in a wide variety of surface orders, without changing the core meaning of the sentence.

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Korean, one of these free word order languages, is typologically a Subject–Object–Verb (SOV) language, characterized by a predicate that comes at the end of the sentence as in (1).

- (1) Minho-ka chayk-ul ilknunta
 Minho-NOM book-ACC reads
 'Minho reads a book.'

However, Korean sentences routinely diverge from the basic SOV order in (1), and the scrambled sentences like (2) are fully grammatical.

- (2) chayk-ul Minho-ka ilknunta
 book-ACC Minho-NOM reads
 'Minho reads a book.'

Traditionally the flexibility of syntactic constituents in Korean is attributed to its rich system of overt Case-markers. Since the grammatical function of a noun phrase is marked by the Case-markers, the linear ordering of the subject and the direct object can change, leaving the underlying interpretation and grammaticality of the sentence unaffected.

Scrambling has sometimes been described as a process that applies without constraint. This is implicit in the very notion of a free word order language. However, this traditional view is overly simplified. According to traditional grammar of Korean such as Nam (2001) and Martin (1992), there are several restriction on Korean scrambling.

Section 2 investigates the generality of scrambling in Korean, focusing on three important restrictions on scrambling: no rightward scrambling over the verb, no leftward scrambling over the same Case-marker, and no scrambling within small clauses.

Section 3, section 4, and section 5 search for a unified approach to these restrictions. In section 3, I form a hypothesis based on thematic roles. It uses the existence of theta-roles to conjecture that only theta-role-assigned constituents can scramble. In section 4, I form a competing hypothesis. This hypothesis uses the distinction between semantic completeness and semantic

incompleteness to argue that only semantically complete constituents can scramble. In section 5, after I compare two hypotheses empirically, I conclude that the three restrictions on Korean scrambling are explained by the single generalization that predicates (semantically incomplete constituents) do not scramble. Section 6 summarizes the main results of this paper and briefly addresses its broader significance.

2. Restrictions on Scrambling in Korean

2.1. No Rightward Scrambling Over the Verb

In Korean, the scrambling of the constituents in a sentence is permissible as long as the verb occurs sentence-finally. That is to say, there is no rightward scrambling over the verb in Korean, nor can the verb be scrambled to the left of its arguments. Consider (3)–(5).

- (3) *Minho-ka Yongho-ka pap-ul mekessta-ko malhyassta*
 Minho-NOM Yongho-NOM meal-ACC ate-COMP said
 'Minho said that Yongho ate a meal.'
- (4) **Minho-ka Yongho-ka mekessta-ko pap-ul malhyassta*
 Minho-NOM Yongho-NOM ate-COMP meal-ACC said
 'Minho said that Yongho ate a meal.'
- (5) **Minho-ka mekessta-ko Yongho-ka pap-ul malhyassta*
 Minho-NOM ate-COMP Yongho-NOM meal-ACC said
 'Minho said that Yongho ate a meal.'

Each instance of (3)–(5) has two clauses: a matrix clause and an embedded clause. In traditional Korean grammar, scrambling in (4) and (5) is not permissible where *Yongho-ka* 'Yongho-NOM' and *pap-ul* 'meal-ACC' have scrambled over their predicate, the verb *mekessta* 'ate'. Scrambling is not permissible when any argument of (3) is positioned to the right of its predicate.

Kayne (1994) is able to correlate linear order with hierarchical order. Abandoning standard X-bar assumption (Chomsky, 1986), Kayne argues that there is a universal Specifier-Head-Complement (Subject-Verb-Object) ordering,

and that specifiers are the only instances of adjuncts. Kayne's claim (combined with the standard ban on lowering operations) leads us to conclude that there can be no rightward movement operations in any language (Kayne, 2005). Following Kayne (1994, 2005), we conclude that the moved constituent in (4) and (5) must be the verb *mekessta* 'ate', as illustrated in (6) and (7).

- (6) *Minho-ka Yongho-ka mekessta-ko_i pap-ul t_i malhyassta
 Minho-NOM Yongho-NOM ate-COMP meal-ACC said
 'Minho said that Yongho ate a meal.'
- (7) *Minho-ka mekessta-ko_i Yongho-ka pap-ul t_i malhyassta
 Minho-NOM ate-COMP Yongho-NOM meal-ACC said
 'Minho said that Yongho ate a meal.'

(6) and (7) illustrate the ban on leftward scrambling of the verb over the arguments.

2.2. No Leftward Scrambling Over the Same Case-marker

Korean prohibits scrambling of a noun phrase over another noun phrase when they are assigned the same morphological Case (Kim, 1989, 1990). That is, there is no leftward scrambling over the same Case-marker.

- (8) kwulum-i pi-ka tyonta
 cloud-NOM rain-NOM becomes
 'The cloud becomes the rain.'

- (9) *pi-ka kwulum-i toynta
 rain-NOM cloud-NOM becomes
 'The cloud becomes the rain.'

In (8), the sentence has two instances of nominative Case marking (realized by *-i* and *-ka*). However, when scrambling is applied to produce the sentence (9), the result is ungrammatical.

Kim's (1989, 1990) descriptive constraint mentioned above also covers the Korean double accusative construction. This construction admits a second accusative Case-marked noun if it represents the part, kind, or number of the first accusative Case-marked noun. The example in (10) illustrates the double accusative construction. Examples in (11)–(13) demonstrate that in the double accusative construction sentence, scrambling is not permissible.

- (10) etten salam-i ku eyca-lul_i pal-ul_j capakkulessta
 certain person-NOM the woman-ACC arm-ACC pulled
 'A certain person pulled the woman's arm.'
- (11) *etten salam-i pal-ul_j ku eyca-lul t_j capakkulessta
 certain person-NOM arm-ACC the woman-ACC pulled
 'A certain person pulled the woman's arm.'
- (12) *pal-ul_j etten salam-i ku eyca-lul t_j capakkulessta
 arm-ACC certain person-NOM the woman-ACC pulled
 'A certain person pulled the woman's arm.'
- (13) *pal-ul_j ku eyca-lul_i t_j' etten salam-i t_i t_j capakkulessta
 arm-ACC the woman-ACC certain person-NOM pulled
 'A certain person pulled the woman's arm.'

In (10)–(13), the sentence has two accusative morphological Cases realized by Case-markers *-ul* and *-lul*. In (11)–(13), when leftward scrambling over the same Case-marked occurs, the sentence becomes ungrammatical.

However, even in the double accusative construction, scrambling may occur as long as the second accusative noun is preceded by the first accusative noun, as in (14)–(16).

- (14) *etten salam-i ku eyca-lul_i pal-ul_j capakkulessta*
 certain person-NOM the woman-ACC arm-ACC pulled
 'A certain person pulled the woman's arm.'
- (15) *ku eyca-lul_i pal-ul_j etten salam-i t_i t_j capakkulessta*
 the woman-ACC arm-ACC certain person-NOM pulled
 'A certain person pulled the woman's arm.'
- (16) *ku eyca-lul_i etten salam-i t_i pal-ul_j capakkulessta*
 the woman-ACC certain person-NOM arm-ACC pulled
 'A certain person pulled the woman's arm.'

In (15), both the first accusative noun *ku eyca-lul* 'the woman-ACC' and the second accusative noun *pal-ul* 'arm-ACC' are scrambled over the nominative noun *etten salam-i* 'certain person-NOM'. In (16), the first accusative noun *ku eyca-lul* 'the woman-ACC' is scrambled over the nominative noun *etten salam-i* 'certain person-NOM'. In both sentences, the second accusative noun is preceded by the first accusative noun.

2.3. Scrambling and Small Clauses

In Korean, scrambling within a small clause is not permissible. That is to say, in the small clause, scrambling between the subject and its predicate is not acceptable. Consider (17)–(20).

- (17) *salamtul-i ku-lul_i pwuca-lo_j syangkakhyassta*
 people-NOM he-ACC rich man-as thought
 'People thought of him as a rich man.'
- (18) **salamtul-i pwuca-lo_j ku-lul_i t_j syangkakhyassta*
 people-NOM rich man-as he-ACC thought
 'People thought of him as a rich man.'
- (19) **pwuca-lo_j samaltul-i ku-lul_i t_j syangkakhyassta*
 rich man-as people-NOM he-ACC thought
 'People thought of him as a rich man.'
- (20) **pwuca-lo_j ku-lul_i t_i' salamtul-i t_i t_j syangkakhyassta*
 rich man-as he-ACC people-NOM thought
 'People thought of him as a rich man.'

In (18)–(20), when two constituents of a small clause are scrambled, the sentence becomes ungrammatical. However, in (21) and (22), the sentence is acceptable as long as these two constituents of a small clause preserve their sequence.

- (21) ku-lul_i pwuca-lo_j salamtul-i t_i t_j syangkakhyassta
 he-ACC rich man-as people-NOM thought
 'People thought of him as a rich man.'
- (22) ku-lul_i salamtul-i t_i pwuca-lo_j syangkakhyassta
 he-ACC people-NOM rich man-as thought
 'People thought of him as a rich man.'

3. A Hypothesis Based on Thematic Roles

3.1. Thematic Roles

Thematic roles (henceforth Θ -roles) have played an important part in linguistic theory since the ground breaking work of Gruber (1965), Fillmore (1965, 1968), and Jackendoff (1972, 1976). While Θ -roles were identified intuitively in this early work, subsequent work in formal semantics, particularly Montague Grammar, stressed the importance of entailment relations between sentences.

Since Jackendoff (1976) it has been common to use entailment relations to characterize Θ -roles. On this view Θ -roles serve to define classes of predicates that license similar entailments (Parsons, 1990; Dowty, 1991). For instance, consider the following two-place predicates: *murder*, *nominate*, and *interrogate*. These predicates license similar entailments: 1) the subject argument of each predicate performs a volitional act, 2) it intends to be the sort of act identified by the verb, and 3) in each case the subject causes an event to take place involving the object argument. The subject of these predicates has the same Θ -role, which we can identify as Agent for expository convenience. Not all subjects of all predicates are Agents in this sense. The first entailment is not shared by *kill*, since non-volitional things such as traffic accidents can also kill. The second entailment is not shared by *convince* or *kill*, since we can convince

or kill unintentionally, but cannot murder or nominate unintentionally. The last entailment is not shared by *look at*, since it does not cause the event to take place involving the object argument. The subjects of these predicates have distinct Θ -roles although there is considerable variation among researchers on how to identify them. Some authors identify the subject of psychological predicates *convince* as a source, others take it to be a theme, and still others suggest a distinct role stimulus. More recently there was often a debate about whether Θ -roles can be partitioned into strict classes with necessary and sufficient criteria. While there has been a lack of consensus of the inventory of Θ -roles, the general notion of Θ -roles has played an important role in syntactic theorizing.

3.2. An Explanation with Θ -roles

The Θ -roles given in the above characterization can be used to frame a hypothesis to explain the numerous restrictions on scrambling in Korean in section 3.2. Let us entertain the hypothesis in (23).

- (23) X may scramble if and only if X heads a chain containing a unique visible Θ -position P.

The principle in (23) only allows X to scramble if it has been assigned a Θ -role. In (15)–(16), we see an acceptable case of scrambling in the double accusative construction. In (15), the scrambled constituent *ku eyca-lul; pal-ul;* ‘the woman-acc arm-ACC’ has been assigned a Θ -role by the verb *capakkulessta* ‘pulled’ making it available for scrambling.¹⁾

However, in (10)–(13), scrambling causes grammaticality judgments to degrade. The hypothesis in (23) will attribute this degradation to the fact that the scrambled constituent has not been given a Θ -role. In (11) and (12), the scrambled constituent *pal-ul;* ‘arm-ACC’ is not given a Θ -role. One might think that it is provided a Θ -role from the verb *capakkulessta* ‘pulled’, but the verbal predicate gives a Θ -role to the whole NP *ku eyca-lul; pal-ul;* ‘the

1) Scrambling of *ku eyca-lul* ‘the woman-ACC’ in (16) will be explained after the discussion of (13) below.

woman-ACC arm-ACC', not just the second NP *pal-ul_j* 'arm-ACC'. The reason why the verb assigns the Θ -role to the whole NP in (11) and (12) is that the theme of the predicate *pull* is *ku eyca-lul_i pal-ul_j* 'the woman-ACC arm-ACC' as a whole, not just *pal-ul_j* 'arm-ACC'.

In (13), two constituents have scrambled. First the whole NP *ku eyca-lul_i pal-ul_j* 'the woman-ACC arm-ACC' has scrambled from its underlying position, and then the second NP *pal-ul_j* 'arm-ACC' scrambles from the intermediate position t_j . The first scrambled constituent has been given a Θ -role, but the second scrambled constituent is not given a Θ -role. The fact that the second scrambled constituent has not been given a Θ -role gives us the degradation of acceptability in (13).

In (16), we can see another possible case of scrambling in the double accusative construction. By the hypothesis in (23), the scrambled constituent *ku eyca-lul_i* 'the woman-ACC' must have been given a Θ -role by the predicate (here the second accusative NP *pal-ul_j* 'arm-ACC'). The claim that the second accusative NP *pal-ul_j* 'arm-ACC' gives the first accusative NP *ku eyca-lul_i* 'the woman-ACC' a Θ -role in the double accusative construction is made plausible by the fact that the first accusative NP always expresses an argument of a relation. In the Korean double accusative construction, the second accusative Case-marked NP represents the part, kind, or number of the first one. That is, the first accusative Case-marked NP is an argument of that relation and receives a Θ -role from that relation.²⁾

The same account can be provided for small clause examples in (17)-(22). In (21), which is a possible case of scrambling in the small clause, the scrambled constituent *ku-lul_i pwuca-lo_j* 'he-ACC rich man-as' is given a Θ -role by the verb *syangkakhyassta* 'thought'. In (22), which is another possible case of scrambling in the small clause, the scrambled constituent *ku-lul_i* 'he-ACC' is given a Θ -role by the NP predicate *pwuca-lo_j* 'rich man-as'.

However, in (18)-(20) where the grammatical judgment has been degraded by scrambling, the scrambled constituent is not given a Θ -role. In (18) and (19), the scrambled constituent *pwuca-lo_j* 'rich man-as' has not been given a Θ -role.

2) The two accusative NPs are in part/whole relations. In terms of Jackendoff (1976), this relation can be stated as the function BE_{POSS} (2nd NP, 1st NP).

Like the case of (11) and (12), one might think that it is provided a Θ -role from the verb *syangkakhyassta* 'thought', but the verb predicate gives a Θ -role to the small clause *ku-luli; pwuca-loj* 'he-ACC rich man-as' as a whole, not just the NP predicate *pwuca-loj* 'rich man-as'.

In (20), again like the case of (13), there are two instances of scrambling. The first one is the scrambling of the entire small clause *ku-luli; pwuca-loj* 'he-ACC rich man-as' from its underlying position, and the second one is the scrambling of the NP predicate *pwuca-loj* 'rich man-as' from the intermediate position t_j . The first scrambled constituent is given a Θ -role, but the second scrambled one is not given a Θ -role. The validity of this assertion can be found from the fact that the NP predicate of small clauses is not in A-position. Θ -roles can be assigned to only A-positions and the NP predicate *pwuca-loj* 'rich man-as' is not in A-position. In addition, consider (24)–(26).

- (24) *salamtul-i Minho-luli; pwuca-loj syangkakhyassta*
 people-NOM Minho-ACC rich man-as thought
 'People thought of Minho as a rich man.'
- (25) *salamtul-i motun Minho-luli; pwuca-loj syangkakhyassta*
 people-NOM every Minho-ACC rich man-as thought
 'People thought of every Minho as a rich man.'
- (26) **salamtul-i Minho-luli; motun pwuca-loj syangkakhyassta*
 people-NOM Minho-ACC every rich man-as thought
 'People thought of Minho as every rich man.'

In (25) and (26), *Minho-luli* 'Minho-ACC' is easily quantified but *pwuca-loj* 'rich man-as' resists being quantified, respectively. The resistance of *pwuca-loj* 'rich man-as' shows that it is a predicate. In (17)–(22), *pwuca-loj* 'rich man-as' is not assigned a Θ -role and thus not allowed to be scrambled.

The hypothesis in (23) unifies the numerous restrictions on scrambling by preventing the scrambling of the phrases without Θ -roles. That is to say, only phrases assigned a Θ -role can be scrambled. We have seen that the prohibition of scrambling phrases that lack Θ -roles can explain the pattern of scrambling in both the double accusative construction and the small clause construction.

This explanation may also explain the restriction on the leftward scrambling

of the verb over the arguments. In (6) and (7), the scrambled constituent is the verb *mekessta* 'ate' and it lacks a Θ -role. Scrambling in (6) and (7) is not acceptable in the light of (27).

However, the extension of this explanation to the restriction on the leftward scrambling over the same Case-marker in (8) and (9) is problematic. In (8) and (9), both *kwulum-i* 'cloud-NOM' and *pi-ka* 'rain-NOM' are assigned a Θ -role, but the scrambling of *pi-ka* 'rain-NOM' is not allowed.³⁾ To explain this problem, we need to assimilate it to superiority phenomena. Between *kwulum-i* 'cloud-NOM' and *pi-ka* 'rain-NOM', the former is superior in the hierarchical structure. When the scrambling is applied to them, it has to be applied to *kwulum-i* 'cloud-NOM'. If the structurally inferior *pi-ka* 'rain-NOM' is scrambled, then it violates the Minimal Link Condition of Chomsky (1995), which is designed to capture superiority phenomena.

4. A Hypothesis Based on Semantic Completeness

4.1. Semantic Completeness vs. Semantic Incompleteness

In the tradition of formal semantics, expressions are partitioned into two classes. One class is semantically complete or saturated. The second class is semantically incomplete or unsaturated. Predicates are regarded as incomplete, or unsaturated, and this semantic incompleteness is made complete, or saturated, by composing them (via functional application) with semantically complete terms. There are two types of saturated meanings which represent semantic completeness: entities (or individuals) and truth-values. In this analysis, the unsaturated meanings are construed as functions. The unsaturated meanings take arguments, and saturation consists in the application of a function to its arguments.

4.2. An Explanation with Semantic Completeness

3) In terms of Jackendoff (1976), *pi-ka* 'rain-NOM' has a Θ -role, as shown in GO_{IDENT} (CLOUD, y, RAIN).

The concept of a function as it is used in formal semantics allows us to frame an alternative hypothesis to explain the limitations on scrambling in Korean. Specifically, let us entertain the hypothesis in (27)

(27) X may scramble if and only if X is semantically complete.

Sentences in (11)–(13) are judged unacceptable because of the application of scrambling. The scrambled constituents in (11)–(13) are semantic functions which are incomplete and by (27) they are not permissible candidates for scrambling. In (11) and (12), the scrambled constituent *pal-ul_j* ‘arm-ACC’ is semantically incomplete, as *pal-ul_j* ‘arm-ACC’ needs to be composed with *ku eyca-lul_i* ‘the woman-ACC’ to convey the complete meaning of the object in the double accusative construction (10)–(13). The unsaturated meaning of the second NP *pal-ul_j* ‘arm-ACC’ is saturated by taking an argument, the first NP *ku eyca-lul_i* ‘the woman-ACC’. In (13), there are two scramblings. The first one is the scrambling of the whole NP *ku eyca-lul_i pal-ul_j* ‘the woman-ACC arm-ACC’ from its underlying position and the second one is the scrambling of the second NP *pal-ul_j* ‘arm-ACC’ from the intermediate position t_j . The first scrambled constituents are not semantically incomplete, but the second scrambled constituent is semantically incomplete. In both (11)–(12) and (13), the scrambling of the phrases which are semantically incomplete makes each example ungrammatical. That is, as shown in (10)–(13), the phrases corresponding to functions cannot be scrambled.

Consider (14). It is possible to produce (15) because the scrambled constituent *ku eyca-lul_i pal-ul_j* ‘the woman-ACC arm-ACC’ is semantically complete. In (16), which is another possible case of scrambling in the double accusative construction (14), the scrambled constituent *ku eyca-lul_i* ‘the woman-ACC’ is also semantically complete.

In the case of the small clauses where the grammatical judgment has been degraded by scrambling, the scrambled phrases are functions. Consider again (18)–(20). In (18)–(19), the scrambled phrase *puuca-lo_j* ‘rich man-as’ is semantically incomplete. Like the case of (11) and (12), one might think that in (18) and (19) the scrambled constituent is semantically complete. However, in fact, this is not the case since the unsaturated meaning of the NP predicate

pwuca-lo_j 'rich man-as' is supplemented by taking its argument *ku-lul_i* 'he-ACC'. The NP predicate *pwuca-lo_j* 'rich man-as' functions as a semantic predicate. The validity of this assertion is supported by the distribution of quantifiers in (28) and (29). The resistance of an NP predicate *pwuca-lo* 'rich man-as' to quantification in small clauses suggests that it is a function (of type $\langle e, t \rangle$).

- (28) *salamtul-i motun uysa-lul pwuca-lo syangkakhyassta*
 people-NOM every doctor-ACC rich man-as thought
 'People thought of every doctor as a rich man.'
- (29) **salamtul-i uysa-lul motun pwuca-lo syangkakhyassta*
 people-NOM doctor-ACC every rich man-as thought
 'People thought of a doctor as an every rich man.'

In (20), again like the case of (13), there are two instances of scrambling. The first one is the scrambling of the entire small clause *ku-lul_i pwuca-lo_j* 'he-ACC rich man-as' from its underlying position and the second one is the scrambling of the NP predicate *pwuca-lo_j* 'rich man-as' from the intermediate position t_j . The first scrambled constituent is not semantically incomplete, but the second scrambled constituent is semantically incomplete. In all of (18)–(20), the scrambling of phrases corresponding to semantic functions is prevented.

On the other hand, in (21), which is a possible case of scrambling of the small clause, the scrambled constituent *ku-lul pwuca-lo* 'he-ACC rich man-as' is semantically complete (corresponding to the type $\langle t \rangle$). In (22), which is another possible case of scrambling from the small clause, the scrambled constituent *ku-lul_i* 'he-ACC' is complete (corresponding to the type $\langle e \rangle$). In neither (21) nor (22) are the scrambled phrases functions (of type $\langle e, t \rangle$ or higher).

The hypothesis (27) unifies the restrictions on scrambling by preventing the scrambling of the phrases corresponding to functions. Only the phrases which are semantically complete can be scrambled. That is, a phrase that is an unsaturated function cannot be scrambled. The prevention of the scrambling of the semantically incomplete phrases can explain the scrambling in the double accusative construction and the small clause.

This explanation may also extend to the restrictions on the leftward scrambling of the verb over its arguments. In (6) and (7), the scrambled constituent is the verb *mekessta* 'ate'. Of course, as a predicate function, it is semantic incomplete in the sense that it needs to take two arguments to form a sentence of the semantic type $\langle t \rangle$. The scrambling in (6) and (7) is not acceptable in the light of (27).

Finally, unlike the case of the explanation with Θ -roles, this explanation accounts for the restriction on the leftward scrambling over the same Case-marker in (8) and (9). In (8) and (9), unlike *kwulum-i* 'cloud-NOM', *pi-ka* 'rain-NOM' is a semantic predicate; it is saturated by applying to an argument *kwurum-i* 'cloud-NOM'. The validity of this assertion is again supported by the distribution of quantifiers. The resistance of *pi-ka* 'rain-NOM' to quantification in (31) suggests that it is a function (of type $\langle e, t \rangle$). The scrambling of the semantically incomplete phrase *pi-ka* 'rain-NOM' is prevented. In this case, we don't need to use the additional explanatory device of the superiority condition.

(30) motun kwurum-i pi-ka toynta
 every cloud-NOM rain-NOM becomes
 'Every cloud becomes the rain.'

(31) *kwulum-i motun pi-ka toynta
 cloud-NOM every rain-NOM becomes
 '*The cloud becomes every rain.'

Therefore, the semantically incomplete *pi-ka* 'rain-NOM' in (8) cannot be scrambled to produce (9) by the hypothesis in (27).

5. The Advantage of the Hypothesis Based on Semantic Completeness

In the previous sections, I have tried to explain the restrictions of Korean scrambling in two different ways. The first way is to use the notion of theta-roles. In this way, scrambling is permissible if and only if scrambled phrases are assigned a Θ -role. On this view if a scrambled phrase lacks a Θ -role, it is unavailable for scrambling. The second potential like of

explanation is to use the distinction between semantic completeness and semantic incompleteness. In formal semantics, expressions are divided into two classes: semantically complete ones and incomplete ones. From this vantage point a phrase is available for scrambling only if it is semantically complete. If a phrase is semantically incomplete, then it is unavailable for scrambling.

The two conceptualizations diverge with regard to phrases that are semantically complete but have no obvious Θ -role. If only Θ -marked phrases scramble, such a phrase should be frozen in place. If semantically complete expressions are available for scrambling, the constituent should be mobile.

The examples in (32)-(37) test these competing predictions. (32) contains the locative adjunct *hakkyo-yese* 'school-LOC' and the temporal adjunct *han si-ye* 'one o'clock-at'. *hakkyo-yese* 'school-LOC' and *han si-ye* 'one o'clock-at' in (32) are adjuncts and not arguments of the verb *kitarye-* 'wait' in that they are absent in (33) and that long distance scrambling of them is not acceptable in (34)-(35).⁴

- (32) *nya-ka hakkyo-yese han si-ye ne-lul kitaryeyssta*
 I-NOM school-LOC one o'clock-at you-ACC waited
 'I waited for you at the school at one o'clock.'
- (33) *nya-ka ne-lul kitaryeyssta*
 I-NOM you-ACC waited
 'I waited for you.'
- (34) *Yongho-ka nya-ka hakkyo-yese_i han si-ye_j*
 Yongho-NOM I-NOM school-LOC one o'clock-at
ne-lul kitaryeyssta-ko syangkakhyassta
 you-ACC waited-COMP thought
 'Yongho thought that I waited for you at the school at one o'clock.'
- (35) **hakkyo-yese_i han si-ye_j Yongho-ka nya-ka t_i t_j*
 school-LOC one o'clock-at Yongho-NOM I-NOM
ne-lul kitaryeyssta-ko syangkakhyassta

4 I assume that (32) is the underlying form of (36) and (37). Under the movement approach to scrambling, it is generally assumed that the direct object NP *ne-lul* 'you-ACC' is adjacent to the predicate *kitaryeyssta* 'waited' underlyingly, from which it receives a Θ -role under sisterhood.

- you-ACC waited-COMP thought
 'Yongho thought that I waited for you at the school at one o'clock.'
- (36) *hakkyo-yese_i nya-ka t_i han si-ye ne-lul kitaryeyssta*
 school-LOC I-NOM one o'clock-at you-ACC waited
 'I waited for you at the school at one o'clock.'
- (37) *hakkyo-yese_i han si-ye_j nya-ka t_i t_j ne-lul kitaryeyssta*
 school-LOC one o'clock-at I-NOM you-ACC waited
 'I waited for you at the school at one o'clock.'

In (36), the locative adjunct *hakkyo-yese* 'school-LOC' does not have a Θ -role, but it has scrambled. In (37), neither the locative adjunct *hakkyo-yese* 'school-LOC' nor the temporal adjunct *han si-ye* 'one o'clock-at' have Θ -roles, but they have scrambled as well. This scrambling cannot be explained by the Θ -role hypothesis. However, by the hypothesis with semantic completeness, the scrambling in (36) and (37) can be explained, since both the locative adjunct *hakkyo-yese* 'school-LOC' and the temporal adjunct *han si-ye* 'one o'clock-at' are semantically complete.

The empirical evidence in (32)–(37) illustrates that phrases with semantic completeness but without Θ -roles can scramble. This observation leads us to prefer the hypothesis that semantic completeness is a prerequisite to scrambling and gives a unified account of the restrictions on scrambling in Korean. In Korean, only semantically complete phrases scramble. In other words, semantically incomplete phrases (i.e. predicates) do not scramble.

6. Conclusion

Korean has several restrictions on scrambling as follows: scrambling of the constituent in a sentence is permissible as long as the verb occurs sentence-finally; scrambling of a noun phrase over another noun phrase is prohibited when they are assigned the same morphological Case; scrambling within a small clause is not permissible. These restrictions have been previously noted in traditional grammars but they have remained as a heterogeneous disjunctive set.

In order to provide a unified approach to these properties of scrambling in

Korean, I framed two competing hypotheses. One ties scrambling to Θ -role assignment. It contends that scrambling is permissible if and only if the scrambled phrase is assigned a Θ -role. If a scrambled phrase lacks a Θ -role, then scrambling is not acceptable. The other hypothesis is based on the distinction between semantic completeness and semantic incompleteness. In formal semantics, expressions are divided into two types: semantically complete expressions and semantically incomplete expressions that are rendered complete by function application. On the second hypothesis, scrambling is permissible if and only if the scrambled phrase is semantically complete.

The two conceptualizations diverge with regard to phrases that are semantically complete but have no obvious Θ -role. If only Θ -marked phrases scramble, such phrases should be frozen in place. If semantically complete expressions are available for scrambling, the constituent should be mobile. Significant empirical evidence involving the scrambling of adjuncts leads us to choose the second hypothesis that only semantically complete constituents scramble.

References

- Chomsky, Noam. (1981). *Lectures on government and binding*. Dordrecht: Foris.
- Chomsky, Noam. (1986). *Barriers*. Cambridge, Mass.: MIT Press.
- Chomsky, Noam. (1995). *The Minimalist Program*. Cambridge, Mass.: MIT Press.
- Dowty, D. (1991). Thematic Proto-Roles and Argument Selection. *Language* 67, 547-619.
- Fillmore, C. (1965). Toward a Modern Theory of Case. *Project on Linguistic Analysis Report* 13, 1-24. Columbus, Ohio: The Ohio State University Research Foundation.
- Fillmore, C. (1968). The Case for Case. In E. Bach and R. T. Harms (Eds.) *Universals in the Linguistic Theory*. New York: Holt, Reinhart, and Winston.
- Gruber, J. S. (1965). *Studies in Lexical Relations*. Unpublished doctoral dissertation. MIT. Boston, MA.

- Jackendoff, Ray. (1972). *Semantic Interpretation in Generative Grammar*. Cambridge, Mass.: MIT Press.
- Jackendoff, Ray. (1976). Toward an Explanatory Semantic Representation. *Linguistic Inquiry* 7, 89-150.
- Kayne, Richard S. (1994). *The Antisymmetry of Syntax*. Cambridge, Mass.: MIT Press.
- Kayne, Richard S. (2005). *Movement and Silence*. New York: Oxford University Press.
- Kim, Young-Joo. (1989). Inalienable Possession as a Semantic Relationship Underlying Predication: The Case of Multiple-Accusative Constructions. *Harvard Studies in Korean Linguistics* III, 445-467. Cambridge, Mass.: Harvard University Dept. of Linguistics.
- Kim, Young-Joo. (1990). The Syntax and Semantics of Korean Case: The Interaction Between Lexical and Syntactic Levels of Representation. Unpublished doctoral dissertation, Harvard University.
- Martin, S. E. (1992). *A Reference Grammar of Korean*. Rutland, Vermont and Tokyo: Charles E. Tuttle.
- Nam, Ki-Sim. (2001). *Modern Korean Syntax*. Seoul: Taehaksa.
- Parsons, Terence. (1990). *Events in the semantics of English*. Cambridge, Mass.: MIT Press.

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