

# Scrambling and Object Agreement Projections\*

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**Cho, Jai-Hyoung. 2001. Scrambling and Object Agreement Projections.** *Linguistics* 93, 135-151. The purpose of this paper is to investigate reconstruction effects and binding phenomena exhibited by scrambling and their implications for Case checking of direct objects and indirect objects in Korean. Based on reconstruction effects and the copy theory of movement, we show that direct objects are scrambled through SPEC of AGRoP to the sentence-initial position. By examining Condition C effects and Condition A effects in the case of scrambling of adjuncts, on the one hand, and indirect objects, on the other, we demonstrate that direct objects in-situ in Korean do not raise to SPEC of AGRoP for Case-checking at LF. We also propose that in Korean, indirect objects in-situ, as well as direct objects in-situ, do not raise to the AGR projection for Case-checking in LF. (Ajou University)

## 1. Scrambling of Direct Objects

It has been observed in Cho (1994), Nemoto (1993), Tada (1993), among others, that in Korean or Japanese, direct objects undergoing scrambling to the sentence-initial position pass through SPEC of AGRoP. In this section, we investigate constructions where a pronoun is scrambled over a dative NP containing a coreferential R-expression and show that scrambling takes place through SPEC of AGRoP. Consider the following short scrambling constructions first:<sup>1)</sup>

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\* I am grateful to two anonymous reviewers for their valuable and inspiring comments. Needless to say, all shortcomings are mine.

1. Note that in (1b), the copy of short scrambling inside VP is deleted. It is argued in Cho (1996) that the fact that short scrambling to SPEC of AGRoP, as well as passive and raising, does not show reconstruction effects is well accommodated under the copy theory of movement along with the hypothesis

- (1) a. \*Mira-ka kui-lul Minswui-uy samchon-eykey  $t_i$  sokayhayssta.  
 Nom he Acc Gen uncle Dat introduced  
 'Mira introduced himi to Minswui's uncle.'
- b. LF-representation of (1a)  
 \*<sub>[IP</sub> Mira-ka <sub>[AGROp</sub> kui-lul <sub>[VP</sub> Minswui-uy samchon-eykey sokayhayssta]]  
 Nom he Acc Gen uncle Dat introduced

In (1b) the R-expression *Minswui* is A-bound by the direct object *kui-lul* 'he-Acc' in SPEC of AGROp, resulting in a violation of Binding Principle C. It is worth noting that the example (2), where a direct object is scrambled to the sentence-initial position, is as ungrammatical as (1a):

- (2) \*  $t_i$ -lul Mira-ka Minswui-uy samchon-eykey  $t_i$  sokayhayssta  
 he Acc Nom Gen uncle Dat introduced

If an accusative NP is scrambled via VP-adjunction, to an IP-adjunction position, an operator-variable chain (A' ... A) is formed

that the copy of A-movement is deleted at LF. Observe the following example:

- (i) a. Mira-ka [Minswui-uy samchon]<sub>j</sub>-ul  $t_i$ -eykey  $t_i$  sokayhayssta.  
 Nom Gen uncle Acc he Dat introduced  
 'Mira introduced Minswui's uncle to himi.'
- b. [Minswui-uy samchon]<sub>j</sub> -i  $t_i$ -eykey  $t_i$  sokaytoyessta.  
 Gen uncle Nom he Dat was introduced  
 '[Minswui's uncle]<sub>j</sub> was introduced  $t_i$  to himi.'
- c. [Minswui-uy smachon]<sub>j</sub> -i  $t_i$ -eykey [  $t_i$  kwantayhan-kes] katta.  
 Gen uncle Nom he Dat be generous seems  
 '[Minswui's uncle]<sub>j</sub> seems to himi [  $t_i$  to be generous].'

If copies of A-movement delete at LF, we can provide a straightforward account of the lack of Condition C effects in (i). Then, the copying account would give the LF-structures of (ia,b,c) as in (iia, b,c), respectively:

- (ii) a. Mira-ka <sub>[AGROp</sub> Minswui-uy samchon-ul <sub>[VP</sub>  $t_i$ -eykey sokayhayssta ]]  
 Nom Gen uncle Acc he Dat introduced
- b. Minswui-uy samchon -i  $t_i$ -eykey sokaytoyessta  
 Gen uncle Nom he Dat was introduced
- c. Minswui-uy samchon -i  $t_i$ -eykey [ kwantayhan-kes] katta  
 Gen uncle Nom he Dat be generous seems

In (ii), the R-expression *Minswui* in the short-scrambled phrase (iia), the passivized phrase (iib) and the raised phrase (iic) remains A-free, and thus the sentences in (i) are well-formed.

by deletion of an intermediate copy in the VP-adjoined position.<sup>2)</sup> Under this analysis, the LF-structure of (2) is represented as (3):

- (3) \*[<sub>IP</sub> ku<sub>i</sub>-lul [<sub>IP</sub> Mira-ka [<sub>VP</sub> Minswu<sub>i</sub>-uy samchon-eykey t<sub>i</sub> sokayhayssta]]]  
           he Acc   Nom                           Gen uncle   Dat           introduced

In (3) the R-expression *Minswu* remains A-free, satisfying Binding Principle C. Then the sentence (2) would be incorrectly predicted to be well-formed.

On the other hand, if we suppose that scrambled phrases move through SPEC of AGRoP to an IP-adjoined position,<sup>3)</sup> the LF-representation of (2) would be given as follows:

- (4) \*[<sub>IP</sub> ku<sub>i</sub>-lul [<sub>IP</sub> Mira-ka [<sub>AGRoP</sub> t<sub>i</sub> [<sub>VP</sub> Minswu<sub>i</sub>-uy  
           he Acc           Nom   Gen  
           samchon-eykey sokayhayssta]]]]]  
           uncle   Dat   introduced

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2. Chomsky (1991; 1995) and Chomsky and Lasnik (1993) propose that the chain in (i) is a legitimate LF object only if C is uniform with respect to L-relatedness:

- (i) C = ( C<sub>1</sub> ..... C<sub>n</sub> )

According to them, at the level of LF, all chains must be legitimate LF objects. Heads and adjuncts are non-L-related and move only to non-L-related positions. An argument chain consists only of L-related positions. Heads, arguments and adjuncts are therefore uniform chains, which are legitimate objects at LF. The only other legitimate LF objects are operator-variable constructions ( C<sub>1</sub>, C<sub>2</sub> ), where C<sub>1</sub> is in an A'-position and C<sub>2</sub> is in an A-position:

- (ii) a. ( A' ... A' ... A' ) : uniform A'-chain  
       b. ( A ... A ... A ) : uniform A-chain  
       c. ( A' ..... A ) : operator-variable chain

3. Nemoto (1993) argues that Economy of Derivation forces direct object elements undergoing scrambling to presubject position in Japanese to pass through SPEC of AGRoP in the overt syntax. Branigan (1992) provides evidence that overt object shift to SPEC of AGRoP occurs in French and English. On the basis of AGRoP and Economy of Derivation, Boscovic (1995) also provides convincing evidence that in Spanish and Bulgarian, direct object wh-phrases undergoing syntactic wh-movement must move to SPEC of AGRoP on their way to SPEC of CP.

In (4) the R-expression *M inswu<sub>i</sub>* is A-bound by the trace *t<sub>i</sub>* in SPEC of AGRoP, violating Binding Principle C. Thus, this analysis correctly predicts that the example (2) is ill-formed. Now, compare (2) with (5a), where no Condition C effect is observed:

- (5) a. ?*ku<sub>i</sub>-lul Minswu<sub>i</sub>-uy samchon -i Mary-eykey t<sub>i</sub> sokayhayssta.*  
           he Acc           Gen uncle   Nom           Dat           introduced  
           'Him<sub>i</sub>, Minswu<sub>i</sub>'s uncle introduced t<sub>i</sub> to Mary.'
- b. LF-representation of (5a)  
       ?<sub>[IP</sub> *ku<sub>i</sub>-lul* [<sub>IP</sub> *Minswu<sub>i</sub>-uy samchon-i* [<sub>AGRoP</sub> *t<sub>i</sub>* [<sub>VP</sub>  
                                   he Acc                           Gen uncle   Nom  
                                   Mira-eykey sokayhayssta]]]]  
                                   Dat           introduced

In (5b) the R-expression *M inswu* remains A-free, satisfying Binding Principle C. Thus, the example (5a) is well-formed.

Consequently, reconstruction effects observed in this section are straightforwardly accounted for by the analysis that scrambling to an IP-adjoined position takes place through SPEC of AGRoP.

## 2. Scrambling of Adjuncts

Observing that in Korean, direct objects undergoing scrambling to the IP-adjoined position pass through SPEC of AGRoP, we first deal with reconstruction effects with regard to Binding Principle C, in the case of scrambling of an adjunct containing an R-expression, and investigate whether direct objects in-situ raise to SPEC of AGRoP at LF. Consider the following example:

- (6) a. ?\* [*Minswu<sub>i</sub>-uy samwusil-eyse* ], *ku<sub>i</sub>-ka t<sub>i</sub> Mira-lul pinanhayssta.*  
                                   Gen office   in   he Nom           Acc criticized  
                                   'In Minswu<sub>i</sub>'s office, he criticized Mira.'
- b. [*Minswu<sub>i</sub>-uy samwusil-eyse* ], *Mira-ka t<sub>i</sub> ku<sub>i</sub>-lul pinanhayssta.*  
                                   Gen office   in           Nom   he Acc   criticized  
                                   'In Minswu<sub>i</sub>'s office, Mira criticized him<sub>i</sub>.'

In (6), an adverbial PP containing the R-expression *M inswu* is scrambled across a pronoun coreferential with *M inswu*. The pronoun is the subject in (6a) and the direct object in (6b), and the result is that (6a) is bad whereas (6b) is good. We will show that what is responsible for the contrast between (6a) and (6b) is the Condition C effect.

First, hypothesize that a direct object raises to SPEC of AGRoP to check its Case at LF. Then the LF-structures of (6a) and (6b) are given as (7a) and (7b) respectively:<sup>4</sup>

- (7) a. ?\* [<sub>IP</sub> samwusil<sub>j</sub> [<sub>IP</sub> ku<sub>i</sub>-ka [<sub>AGRoP</sub> Mira-lul  
office he Nom Acc  
[<sub>VP</sub> [ Minswu<sub>i</sub>-uy t<sub>j</sub> -eyse ] [<sub>VP</sub> pinanhayssta ]]]]]  
Gen in criticized
- b. [<sub>IP</sub> samwusil<sub>j</sub> [<sub>IP</sub> Mira-ka [<sub>AGRoP</sub> ku<sub>i</sub>-lul  
office Nom he Acc  
[<sub>VP</sub> [ Minswu<sub>i</sub>-uy t<sub>j</sub> -eyse ] [<sub>VP</sub> pinanhayssta ]]]]]  
Gen in criticized

4. A reviewer points out that a more principled account of the LF-structures given needs to be provided. Here we adopt Chomsky's (1995) copy theory of movement proposed to provide an account of reconstruction facts. According to this copy theory, the trace left behind is a full copy of the moved element, deleted by a principle of the PF component in the case of overt movement. But at LF, the copy remains. Let us consider the following example:

- (i) \* [Whose<sub>i</sub> student]<sub>j</sub> did he<sub>i</sub> hit t<sub>j</sub>?

In (i), what the pronoun *he<sub>i</sub>* c-commands is not a coreferential trace, but the trace of the noun phrase containing *whose<sub>i</sub>* which is coreferential with *he<sub>i</sub>*. The variable *t<sub>j</sub>* is A-free and thus (i) is expected to be well-formed, contrary to fact. However, under the copying account, the example (i) is derived from (ii):

- (ii) \* Whose<sub>i</sub> student did he<sub>i</sub> hit whose<sub>i</sub> student?

Chomsky further proposes the Preference Principle (iii), which applies only to operator-variable formations. Given (iii), the LF-configuration of (ii) is given as (iv).

- (iii) Preference Principle:

Try to minimize the restriction in the operator position.

- (iv) \* [<sub>CP</sub> Who<sub>i</sub> did [<sub>IP</sub> he<sub>i</sub> [<sub>VP</sub> hit t<sub>i</sub>'s student ]]]

In (iv) the variable *t<sub>i</sub>* is A-bound by *he<sub>i</sub>*, violating Binding Principle C. Therefore, the Condition C effect observed in (i) receives a straightforward account under the copy theory of movement. Given the copy theory, we are led to assume that only the noun phrase *samwusil* 'office' with focus feature is left in the left periphery. However, further research needs to be done.

The ill-formedness of (7a) straightforwardly follows from Binding Principle C. The reason is that as shown in (7a), the R-expression *M inswu* in the lower copy of the adverbial PP *M inswu-uy samwusil-eyse* 'Minswu-Gen office-in' is A-bound by *ku-ka* 'he-Nom' in SPEC of IP. In (7b) the R-expression *M inswu* in the lower copy of the adverbial PP is A-bound by *ku-lul* 'he-Acc' in SPEC of AGRoP. The example (6b) is then expected to be ill-formed, contrary to fact. Thus, the hypothesis that direct objects in-situ in Korean raise to SPEC of AGRoP at LF is not borne out.

Now hypothesize that direct objects in-situ in Korean do not raise to SPEC of AGRoP for Case checking. Under this hypothesis, the LF-structures of (6a) and (6b) are represented as (8a) and (8b) respectively:

- (8) a. ?\* [<sub>IP</sub> samwusil<sub>j</sub> [<sub>IP</sub> ku<sub>i</sub>-ka [<sub>VP</sub> [ Minswu<sub>i</sub>-uy t<sub>j</sub> -eyse ]  
office he Nom Gen in  
[<sub>VP</sub> Mira-lul pinanhayssta ]]]]  
Acc criticized
- b. [<sub>IP</sub> samwusil<sub>j</sub> [<sub>IP</sub> Mira-ka [<sub>VP</sub> [ Minswu<sub>i</sub>-uy t<sub>j</sub> -eyse ]  
office Nom Gen in  
[<sub>VP</sub> ku<sub>i</sub>-lul pinanhayssta ]]]]  
he Acc criticized

In (8a) the R-expression *M inswu* in the lower copy of the adverbial PP is A-bound by *ku-ka* 'he-Nom', resulting in a violation of Binding Principle C. So (6a) is correctly predicted to be ill-formed. On the other hand, in (8b) the direct object *ku-lul* 'he-Acc', which stays inside VP, is located lower than the adverbial PP, and hence the R-expression *M inswu* remains A-free, satisfying Binding Principle C. Therefore, (6b) is correctly predicted to be well-formed.<sup>5)</sup>

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5. A reviewer points out whether there exists AGRo in Korean, given our argument that direct objects do not raise to SPEC of AGRoP overtly or covertly. It is quite a big issue to deal with AGRo in Korean which lacks overt morphological agreement.

The binding problem under the analysis that direct objects in-situ raise to SPEC of AGRoP to get their accusative Case checked at LF can be solved if we adopt Chomsky's (1995) proposal that features undergo movement (*Move F*) in

In sum, the contrast between (6a) and (6b) suggests that direct objects in-situ in Korean do not raise to SPEC of AGRoP at LF.

### 3. Scrambling of Indirect Objects

#### 3.1. Condition C effect

We now examine reconstruction effects involving Binding Principle C, when a dative NP containing an R-expression is scrambled:

- (9) a. ?\* [Minswu<sub>i</sub>-uy samchon]<sub>j</sub>-eykey ku<sub>i</sub>-ka t<sub>j</sub> Mira-lul sokayhayssta  
 Gen uncle Dat he Nom Acc introduced  
 '[To Minswu<sub>i</sub>'s uncle]<sub>j</sub>, he<sub>i</sub> introduced Mira t<sub>j</sub>.'
- b. [Minswu<sub>i</sub>-uy samchon]<sub>j</sub>-eykey Mira-ka t<sub>j</sub> ku<sub>i</sub>-lul sokayhayssta  
 Gen uncle Dat Nom he Acc introduced  
 '[To Minswu<sub>i</sub>'s uncle]<sub>j</sub>, Mira introduced him<sub>i</sub> t<sub>j</sub>.'

In the above examples, the dative NP *Minswu-uy samchon-eykey* 'Minswu-Gen uncle-Dat' is scrambled across the subject in (9a) and the direct object in (9b) which are coreferential with the R-expression *Minswu*. The result is that while (9a) is ill-formed, (9b) is

the LF component. Under the *Move F* analysis, the LF-structure of (i) is given as (ii):

- (i) Mira-ka Minswu-uy samwusil-eyse ku<sub>i</sub>-lul mannassta.  
 Nom Gen office in he Acc met  
 'Mira met him<sub>i</sub> in Minswu.'s office.'
- (ii) Move F

|  
 [P [AGRoP [+ACC] [vP [Minswu<sub>i</sub>-uy samwusil-eyse] [vP ku<sub>i</sub>-lul t<sub>j</sub>]] V-AGRo]]  
 Gen office in he Acc

In (ii), the R-expression *Minswu* is A-free and thus the example (i) is correctly predicted to be well-formed. As illustrated in (ii), in LF, the accusative Case feature moves to SPEC of AGRoP and is checked with a verb under AGRo in a SPEC-head relation.

Therefore, if we hypothesize, following Chomsky, that in LF only the Case feature moves, we can avoid unwanted new binding relations and keep the LF Case-checking theory of the minimalist program.





- b. [<sub>IP</sub> samchon<sub>j</sub> [<sub>IP</sub> Mira-ka [<sub>VP</sub> Minswu<sub>i</sub>-uy t<sub>j</sub>-eykey  
uncle Nom Gen Dat  
ku<sub>i</sub>-lul sokayhayssta ]]]  
he Acc introduced

In (11a) the R-expression *Minswu* in the lower copy is A-bound by *ku-ka*, violating Condition C. Thus, (9a) is correctly predicted to be ungrammatical. However, in (11b) *Minswu* is A-free, satisfying Binding Principle C. In fact, the example (9b) is well-formed as predicted.

Therefore, (9a) and (9b) provide evidence that direct objects in-situ do not raise to SPEC of AGRoP but stay inside VP at LF.

### 3.2. Condition A Effect

We next consider anaphoric reconstruction effects to check the position of a direct object at LF. Consider the following examples:

- (12) a. [caki<sub>i</sub>-uy samchon]<sub>j</sub>-eykey Minswu<sub>i</sub>-ka t<sub>j</sub> na-lul  
self Gen uncle Dat Nom I Acc  
sokayhayssta.  
introduced  
'[To self<sub>i</sub>'s uncle]<sub>j</sub>, Minswu<sub>i</sub> introduced me t<sub>j</sub>.'
- b. ?\* [caki<sub>i</sub>-uy samchon]<sub>j</sub>-eykey nay-ka t<sub>j</sub> Minswu<sub>i</sub>-lul  
self Gen uncle Dat I Nom Acc  
sokayhayssta.  
introduced  
'[To self<sub>i</sub>'s samchon]<sub>j</sub>, I introduced Minswu<sub>i</sub> t<sub>j</sub>.'

In (12) a dative NP containing the reflexive *caki* 'self' is scrambled over *Minswu* coreferential with *caki*. *Minswu* is the subject in (12a) and the direct object in (12b). The result is that (12a) is acceptable whereas (12b) is unacceptable.

Under the analysis of LF raising of direct object to SPEC of AGRoP, we would have the LF-structure of (12a) and (12b) as (13a) and (13b), respectively:

- (13) a. [<sub>IP</sub> samchon<sub>j</sub> [<sub>IP</sub> Minswu<sub>i</sub>-ka [<sub>AGROP</sub> na-lul [<sub>VP</sub> caki-uy  
uncel                      Nom                      I Acc                      self Gen  
t<sub>j</sub>-eykey sokayhayssta]]]]  
Dat                      introduced
- b. ?\* [<sub>IP</sub> samchon<sub>j</sub> [<sub>IP</sub> nay-ka [<sub>AGROP</sub> Minswu<sub>i</sub>-ul [<sub>VP</sub> caki-uy  
uncle                      I Nom                      Acc                      self Gen  
t<sub>j</sub>-eykey sokayhayssta]]]]  
Dat                      introduced

In (13a) the reflexive *caki* 'self' in the lower copy takes as its antecedent *Minswu-ka* 'Minswu-Nom' in SPEC of IP and Binding Principle A is satisfied. Then the well-formedness of (12a) can be accounted for. In (13b) *caki* 'self' in the lower copy of *caki-uy samchon-eykey* 'self-Gen uncle-Dat' takes as its antecedent *Minswu-lul* 'Minswu-Acc' in SPEC of AGROP, satisfying condition A. The example (12b) is expected to be well-formed, contrary to fact.

On the other hand, under the hypothesis that direct objects in-situ in Korean do not raise to SPEC of AGROP, the LF-structure of (12a) and (12b) are represented as (14a) and (14b), respectively:

- (14) a. [<sub>IP</sub> samchon<sub>j</sub> [<sub>IP</sub> Minswu<sub>i</sub>-ka [<sub>VP</sub> caki-uy t<sub>j</sub>-eykey na-lul  
uncle                      Nom                      self Gen                      Dat                      I Acc  
sokayhayssta]]]]  
introduced
- b. ?\* [<sub>IP</sub> samchon<sub>j</sub> [<sub>IP</sub> nay-ka [<sub>VP</sub> caki-uy t<sub>j</sub>-eykey Minswu<sub>i</sub>-lul  
uncle                      I Nom                      self Gen                      Dat                      Acc  
sokayhayssta]]]]  
introduced

This hypothesis again correctly predicts that (12a) is well-formed since in (14a) *caki* 'self' in the lower copy takes *Minswu-ka* 'Minswu-Nom' as its antecedent. In (14b), however, *caki* 'self' cannot take *Minswu* as its antecedent, resulting in a violation of Binding Principle A. (12b) is then correctly predicted to be ill-formed.

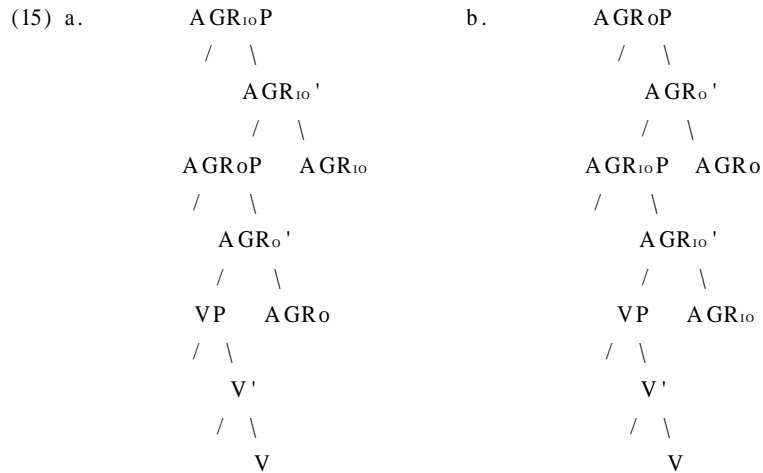
Consequently, the contrast between (12a) and (12b) provides evidence that

direct objects in-situ in Korean do not raise to SPEC of AGR<sub>o</sub>P at LF.

#### 4. AGR<sub>io</sub>P

In the last two sections we examined ditransitive verb constructions without considering a possibility that in addition to AGR<sub>o</sub>, there is a AGR<sub>io</sub> node responsible for the Case-checking of indirect objects. In this section, under the hypothesis that there exist AGR<sub>o</sub> and AGR<sub>io</sub> nodes and direct objects and indirect objects raise to SPEC (AGR<sub>o</sub>) and SPEC (AGR<sub>io</sub>) respectively for their Case-checking at LF, we reexamine ditransitive verb constructions.

There are two possible structures to consider for AGR<sub>io</sub>P and AGR<sub>o</sub>P, as shown below :



##### 4.1. AGR<sub>io</sub>P higher than AGR<sub>o</sub>P

We first examine ditransitive verb constructions on the basis of the structure (15a). Consider the following example:

- (16) a. Mira-ka Minswu<sub>i</sub>-uy samchon-eykey ku<sub>i</sub>-lul sokayhayssta.  
           Nom          Gen uncle      Dat   he Acc introduced  
           'Mira introduced him<sub>i</sub> to Minswu<sub>i</sub>'s uncle.'

- b. ?\*nay-ka caki-uy samchon-eykey Minswu-i-uy sokayhayssta.  
 I Nom self Gen uncle Dat Acc introduced  
 'I introduced Minswu<sub>i</sub> to self<sub>i</sub>'s uncle.'

If we hypothesize that there exists a  $AGR_{IO}$  node and indirect objects and direct objects raise to SPEC of  $AGR_{IO}P$  and SPEC of  $AGRO_P$  respectively for their Case-checking at LF, the LF-structures of (16a) and (16b) would be given as (17a) and (17b) respectively:

- (17) a. [<sub>IP</sub> Mira-ka [<sub>AGR<sub>IO</sub>P</sub> Minswu<sub>i</sub>-uy samchon-eykey [<sub>AGR<sub>O</sub>P</sub> ku<sub>i</sub>-lul  
 Nom Gen uncle Dat he Acc  
 [<sub>VP</sub> sokayhayssta]]]]  
 introduced  
 b. ?\* [<sub>IP</sub> nay-ka [<sub>AGR<sub>IO</sub>P</sub> caki<sub>i</sub>-uy samchon-eykey [<sub>AGR<sub>O</sub>P</sub> Minswu<sub>i</sub>-lul  
 I Nom self Gen uncle Dat Acc  
 [<sub>VP</sub> sokayhayssta]]]]  
 introduced

In (17a) no condition is violated and thus the example (16a) is correctly predicted to be well-formed. In (17b) the reflexive *caki* 'self' cannot take *Minswu* as its antecedent since *Minswu* does not c-command *caki*. Thus, the example (16b) is correctly ruled out as a violation of Binding Principle A.

Let us then consider (9b) and (12b), which are repeated here as (18a) and (18b):

- (18) a. [Minswu<sub>i</sub>-uy smachon]<sub>j</sub>-eykey Mira-ka t<sub>j</sub> ku<sub>i</sub>-lul  
 Gen uncle Dat Nom he Acc  
 sokayhayssta.  
 introduced  
 '[To Minswu<sub>i</sub>'s uncle]<sub>j</sub>, Mira introduced him<sub>i</sub> t<sub>j</sub>.'  
 b. ?\* [caki<sub>i</sub>-uy samchon]<sub>j</sub>-eykey nay-ka t<sub>j</sub> Minswu<sub>i</sub>-lul  
 self Gen uncle Dat I Nom Acc  
 sokayhayssta.  
 introduced  
 '[To self<sub>i</sub>'s samchon]<sub>j</sub>, I introduced Minswu<sub>i</sub> t<sub>j</sub>.'

If there exists a  $AGR_{IO}$  node, scrambled indirect objects in (18) must have moved through SPEC of  $AGR_{IO}P$  for the same reason that scrambled direct objects go through SPEC of  $AGRO_P$  to the sentence-initial position. Under the hypothesis that direct objects raise to SPEC of  $AGRO_P$  at LF, the LF-structures of (18a) and (18b) are represented as (19a) and (19b) respectively:

- (19) a.  $[_{IP}$  samchon<sub>j</sub>  $[_{IP}$  Mira-ka  $[_{AGR_{IO}P}$  Minswu<sub>i</sub>-uy t<sub>j</sub>-eykey  
uncle Nom Gen Dat  
 $[_{AGRO_P}$  ku<sub>i</sub>-lul  $[_{VP}$  sokayhayssta]]]]]  
he Acc introduced
- b. ?\*  $[_{IP}$  samchon<sub>j</sub>  $[_{IP}$  nay-ka  $[_{AGR_{IO}P}$  caki<sub>i</sub>-uy t<sub>j</sub>-eykey  
uncle I Nom self Gen Dat  
 $[_{AGRO_P}$  Minswu<sub>i</sub>-lul  $[_{VP}$  sokayhayssta]]]]]  
Acc introduced

In (19a) no condition is violated and hence (18a) is correctly expected to be well-formed. In (19b), since *Minswu* does not c-command *caki*, *caki* cannot take *Minswu* as its antecedent and thus the example (18b) is correctly ruled out as a Condition A violation.

Therefore, the examples in (16) and (18) can be well accounted for with a hypothesized  $AGR_{IO}P$  along with the hypothesis that indirect objects and direct objects raise to SPEC ( $AGR_{IO}$ ) and SPEC ( $AGRO$ ) respectively at LF.

However, the following example immediately poses a problem for the above hypothesis:

- (20) a. \* Mira-ka ku<sub>i</sub>-lul Minswu<sub>i</sub>-uy samchon-eykey t<sub>i</sub> sokayhayssta  
Nom he Acc Gen uncle Dat introduced  
'Mira introduced him<sub>i</sub> to Minswu<sub>i</sub>'s uncle.'
- b. \* ku<sub>i</sub>-lul Mira-ka Minswu<sub>i</sub>-uy samchon-eykey t<sub>i</sub> sokayhayssta  
he Acc Nom Gen uncle Dat introduced  
'Him<sub>i</sub>, Mira introduced t<sub>i</sub> to Minswu<sub>i</sub>'s uncle.'

If direct objects move to SPEC of  $AGR_{IO}P$  in LF, the LF-structures

of (20a) and (20b) would be represented as (21a) and (21b) respectively:

- (21) a. \*<sub>[IP Mira-ka [<sub>AGRIOP</sub> Minswu<sub>i</sub>-uy samchon-eykey [<sub>AGROP</sub> ku<sub>i</sub>-lul  
 Nom Gen uncle Dat he Acc  
 [<sub>VP</sub> sokayhayssta]]]]  
 introduced</sub>
- b. \*<sub>[IP ku<sub>i</sub>-lul [<sub>IP</sub> Mira-ka [<sub>AGRIOP</sub> Minswu<sub>i</sub>-uy samchon-eykey  
 he Acc Nom Gen uncle Dat  
 [<sub>AGROP</sub> t<sub>i</sub> [<sub>VP</sub> sokayhayssta]]]]]  
 introduced</sub>

In (21a) the R-expression *Minswu* is A-free and hence the sentence (20a) is wrongly expected to be well-formed. Also, in (21b) *Minswu* remains A-free and thus, the sentence (20b) is predicted to be well-formed, contrary to fact. Consider now the following example:

- (22) a. \* *nay-ka caki-uy samchon-ul Minswu-eykey t<sub>i</sub> sokayhayssta.*  
 I Nom self Gen uncle Acc Dat introduced  
 'I introduced self<sub>i</sub>'s uncle to Minswu<sub>i</sub>.'
- b. \* [*caki-uy samchon*]-ul *nay-ka Minswu-eykey t<sub>j</sub> sokayhayssta.*  
 self Gen uncle Acc I Nom Dat introduced  
 '[Self<sub>i</sub>'s uncle]<sub>j</sub>, I introduced t<sub>j</sub> to Minswu<sub>i</sub>.'

The LF-structures of (22a) and (22b) are given as (23a) and (23b), respectively:

- (23) a. \*<sub>[IP nay-ka [<sub>AGRIOP</sub> Minswu<sub>i</sub>-eykey [<sub>AGROP</sub> caki<sub>i</sub>-uy samchon<sub>i</sub>-ul  
 I Nom Dat self Gen uncle Acc  
 [<sub>VP</sub> sokayhayssta]]]]  
 introduced</sub>
- b. \*<sub>[IP samchon<sub>j</sub> [<sub>IP</sub> nay-ka [<sub>AGRIOP</sub> Minswu<sub>i</sub>-eykey  
 uncle I Nom Dat  
 [<sub>AGROP</sub> caki<sub>i</sub>-uy t<sub>j</sub>-ul [<sub>VP</sub> sokayhayssta]]]]]  
 self Gen Acc introduced</sub>

In (23a) the reflexive *caki* 'self' can take as its antecedent

*M inswu-eykey* 'Minswu-Dat' in SPEC of AGR<sub>IO</sub>P, satisfying Binding Principle A. However, the sentence (22a) is ill-formed, contrary to the prediction. In (23b) *caki* 'self' in the lower copy in SPEC (AGR<sub>O</sub>) takes as its antecedent *M inswu-eykey* 'Minswu-Dat' in SPEC of AGR<sub>IO</sub>P and hence Binding Principle A is satisfied. The sentence (22b) is then expected to be well-formed, contrary to fact.

Therefore, we reject the hypothesis that indirect objects and direct objects raise to SPEC (AGR<sub>IO</sub>) and SPEC (AGR<sub>O</sub>) respectively at LF.

#### 4.2. AGR<sub>O</sub>P higher than AGR<sub>IO</sub>P

Now we need to investigate whether the above ditransitive verb constructions receive a satisfactory account under the structure (15b). The structure (15b) is dismissed, just given the example in (16) repeated here as (24):

- (24) a. Mira-ka Minswu<sub>i</sub>-uy samchon-eykey ku<sub>i</sub>-lul sokayhayssta.  
 Nom Gen uncle Dat he Acc introduced  
 'Mira introduced him<sub>i</sub> to Minswu<sub>i</sub>'s uncle.'  
 b. ?\*nay-ka caki-uy samchon-eykey Minswu<sub>i</sub>-ul sokayhayssta.  
 I Nom self Gen uncle Dat Acc introduced  
 'I introduced Minswu<sub>i</sub> to self<sub>i</sub>'s uncle.'

If we adopt the structure (15b), the LF-structures of (24a) and (24b) would be given as (25a) and (25b), respectively:

- (25) a. [<sub>IP</sub> Mira-ka [<sub>AGR<sub>O</sub>P</sub> ku<sub>i</sub>-lul [<sub>AGR<sub>IO</sub>P</sub> Minswu<sub>i</sub>-uy samchon-eykey  
 Nom he Acc Gen uncle Dat  
 [<sub>VP</sub> sokayhayssta]]]]  
 introduced  
 b. ?\* [<sub>IP</sub> nay-ka [<sub>AGR<sub>O</sub>P</sub> Minswu<sub>i</sub>-lul [<sub>AGR<sub>IO</sub>P</sub> caki-uy samchon-eykey  
 I Nom Acc self Gen uncle Dat  
 [<sub>VP</sub> sokayhayssta]]]]  
 introduced

In (25a) the R-expression *M inswu* is A-bound by *ku-lul* 'he-Acc' in

SPEC of AGRoP. The sentence (24a) is then predicted to be ruled out as a violation of Binding Principle C. But, (24a) is well-formed, contrary to the prediction. In (25b) the reflexive *caki* 'self' takes as its antecedent *Minsu-lul* 'Minswu-Acc' in SPEC of AGRoP, satisfying Binding Principle A. Then, the example (24b) is expected to be well-formed, contrary to fact. Therefore, the structure (15b) is also abandoned.

Consequently, based on the data observed in this section, we conclude that in Korean, indirect objects in-situ, as well as direct objects in-situ, do not raise to the AGR projection for Case-checking in LF.

## 5. Conclusion

This paper dealt with scrambling of direct objects, adjuncts and indirect objects with regard to binding phenomena, reconstruction effects and Case checking. It was shown, based on reconstruction effects and the copy theory of movement, that direct objects are scrambled through SPEC of AGRoP to the sentence-initial position. By examining Condition C effects and Condition A effects in the case of scrambling of adjuncts, on the one hand, and indirect objects, on the other, it was demonstrated that direct objects in-situ in Korean do not raise to SPEC of AGRoP for Case-checking at LF. Finally, the investigation of reconstruction effects involving ditransitive verb constructions led us to conclude that in Korean, indirect objects in-situ, as well as direct objects in-situ, do not raise to the AGR projection for Case-checking in LF.

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