

Right Node Raising as Conjunction Reduction Fed by Linearization*

Myung-Kwan Park
(Dongguk University)

Park, Myung-Kwan. (2009). Right Node Raising as Conjunction Reduction Fed by Linearization. *Language Research* 45.2, 179-202.

This paper argues that right node raising (RNR) in Korean is a process of conjunction reduction (CR) fed by linearization. Two full conjunct clauses start to complete structure-building, their respective left-edge elements then undergo linearization, and finally they, containing the copy-trace-like elements left by linearization of the left-edge elements, are conjoined together in syntax by means of CR. In the meantime we will point out problems with the existing analyses of RNR in Korean and also discuss the advantages of the proposed analysis with respect to peculiar phenomena of RNR such as verbal inflection, negation-NPI/QP interaction and (non-)constituenthood.

Keywords: right node raising, linearization, conjunction reduction, ATB movement, deletion/ellipsis, multi-dominance, inflection, scope of negation, constituenthood

1. Introduction

This paper is concerned with what is called right node raising (RNR) construction in Korean:

- (1) con-un yenge-lul yelsimhi paywunta, (kuliko)
 -Top English-Acc hard study and

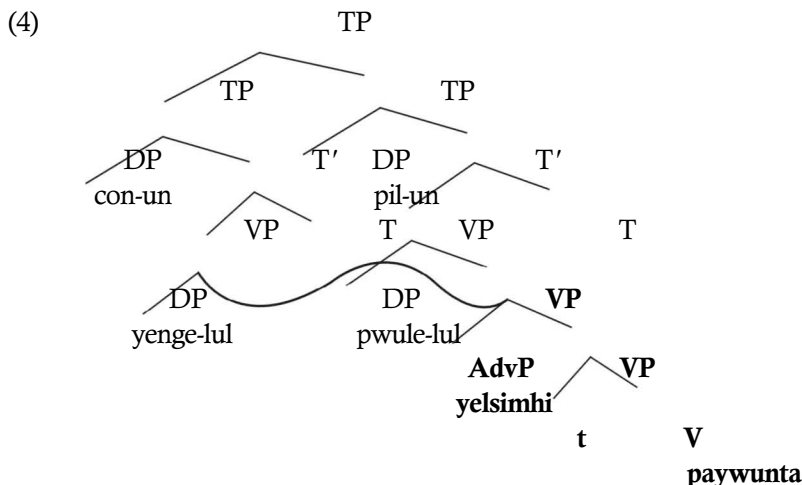
 pil-un pwule-lul, yelsimhi paywunta.
 -Top French-Acc hard study

‘John studies English hard, and Bill studies French hard.’

The salient characteristic of this construction is that the right-edge elements of the first conjunct clause are “phonologically suppressed” in identity with those of the second conjunct clause.

An issue that arises immediately regarding this construction is what gram-

* I wish to thank three anonymous reviewers of this journal for their comments and suggestion. I am grateful to the editors of this journal for helpful advice in making this paper better.



In this analysis, the string of words in clause-final position at surface form is multiply or simultaneously dominated by the two different mother nodes in the preceding first and second conjuncts.

3. Against the Previous Analyses

In this section we will discuss some problems with the previous three analyses of RNR in Korean. Possibly, the following example renders evidence against all of the previous approaches:

- (5) [meyli-nun con-i], (kuliko) [suci-nun pil-i],
 -Top -Nom and -Top -Nom

[ttokttokhatako sayngkakhanta]
 smart thinks

‘Mary thinks John is intelligent, and Susi thinks Bill is intelligent.’

The important aspect of this example is that the RNR-ed portion of the sentence which is composed of the embedded verb and the matrix verb does not form a constituent. The non-constituency of this RNR-ed portion of the sentence renders straightforward evidence against the ATB movement or ellipsis analysis of RNR, when we accept the general assumption that both movement and ellipsis are sensitive to constituency. Furthermore, it also argues against the multi-dominance analysis of RNR, when we assume Wilder’s (1999) original idea of multi-dominance that the multi-dominated RNR-ed portion is c-commanded by the preceding part of the sentence: Simply, this is not the case in (5), where the main verb *sayngkakhanta* is neither c-commanded

by the immediately preceding embedded verb in the RNR-ed portion nor by the other embedded subjects in each preceding conjunct clause.³

More evidence against the previous analyses of RNR is at hand. According to the deletion/ellipsis analysis of RNR, the deleted/elided edge of the first conjunct is understood to be identical to the non-deleted edge of the second conjunct clause. However, this is not always the case. For example, in (6c) the collective verb *moi-* 'gather' in RNR-ed position is not just related to the subject of the second conjunct clause; if it were, the sentence would be acceptable, just like (6a) or (6b).

- (6) a. *con-un palphyoca-lo **ku seyminasil-ey moiessta**
 -Top presenter-as the seminar room-at gathered
 'John gathered in the seminar room as a presenter.'
- b. *con-un palphyoca-lo **ku seyminasil-ey moiessta**, (kuliko)
 -Top presenter-as the seminar room-at gathered and
 pil-un tholonca-lo **ku seyminasil-ey moiessta**
 -Top discussant-as the seminar room-at gathered
 'John gathered in the seminar room as a presenter, and Bill gathered in the seminar room as a discussant.'
- c. con-un palphyoca-lo, (kuliko) pil-un tholonca-lo,
 -Top presenter-as and -Top discussant-as
 ku seyminasil-ey moiessta
 the seminar room-to gathered
 'John and Bill gathered in the seminar room as a presenter and as a discussant.'

³ In a more stronger sense, the multi-dominance analysis of RNR based on Wilder (1999) may work for head-initial languages like English, but it cannot for head-final languages like Korean.

One of the reviewers of this journal suggests that multiple applications of RNR can resolve the problem raised by the non-constituenthood of the RNR-ed portion in (5). In fact, Wilder (1999) proposes this line of analysis for the example in German which is very similar to the example in (5):

(i) Er hat einen Mann, der drei, und sie hat eine Frau, die vier, Katzen besitzt, gekannt
 he has a man who three and she has a woman who four cats have met
 'He has met a man who has three and she has met a woman who has four cats.'

In (i), the RNR-ed portion *Katzen besitzt gekannt* does not form a constituent. Wilder's proposal is that successive applications of RNR target a substring of *Katzen besitzt gekannt* until the correct structure is derived.

However, this idea does not seem to work in Korean. As is well-known, each application of RNR marks a distinct comma/listing intonation as shown in (i). However, the example in (5) of Korean does not call for a comma/listing intonation between the embedded predicate complex and the matrix one within the RNR-ed portion, though it does at the beginning of the RNR-ed portion. This provides clear evidence showing that multiple applications of RNR are not at work in deriving the RNR-ed portion of (5).

The contrast in acceptability between (6b) and (6c) clearly shows that, contrary to what is predicted by the deletion/ellipsis analysis of RNR, (6c) is not derived from or related to (6b).⁴

The same kind of argument can be made by (7), where the RNR-ed portion is formed by conjoining the first-conjunct verb with the second-conjunct one.

- (7) a. con-un phiano-lul, (kuliko) meyli-nun nolay-lul,
 -Top -Acc and -Top song-Acc
 (kakkak) **chi-ko** **pwulessta.**
 respectively played-and sang
 ‘John played the piano, and Mary sang a song, respectively.’
- b. pil-un TV-lul, (kuliko) suci-nun radio-lul,
 -Top -Acc and -Top -Acc
 (kakkak) **po-ko** **tulessta.**
 respectively watched-and listened to
 ‘Bill watched TV, and Susi listened to the radio, respectively.’

Definitely, these examples cannot be accounted for by the deletion/ellipsis analysis of RNR, as the RNR-ed right-edge portion in the second conjunct is not identical to the supposedly deleted one in the first conjunct clause.

A similar kind of point made by (6) and (7) can also be drawn from (8)-(10), first reported by Chung (2004). These examples involve plurality-sensitive elements (PSE) such as plural marker *-tul* ‘-s’, reciprocal expression *selo* ‘each other’ and distributor *kakkak* ‘respectively’, which all call for a plurally-interpreted subject.

- (8) a. con-un nonmwun-ul yelsimhi(***tul**) ilkessta.
 -Top article-Acc hard(*PM) read
 ‘John read articles hard.’
- b. con-un nonwun-ul yelsimhi(***tul**) ilk-ko
 -Top article-Acc hard(*PM) read-and

⁴ The following example can also render evidence refuting the deletion/ellipsis analysis of RNR. If the latter were right, it is not clear how to derive such examples like *ttokkathun* ‘the same’ or *selo talun* ‘different from each other’ in the RNR-ed portion.

(i) con-un meyli-eykey, pil-un sucun-eykey, {**ttokkathun/selo talun**}
 -Top -Dat -To -Dat the same/different
 senmwul-ul cwu-ess-ta
 present-Acc gave

‘John gave Mary, and Bill gave Susan, the same present/different presents.’

meyli-nun chayk-ul yelsimhi(***tul**) ilkessta.
 -Top book-Acc hard(*PM) read

‘John read articles hard, and Mary read books hard.’

- c. con-un nonmwun-ul, (kuliko)
 -Top article-Acc (and)

meyli-nun chayk-ul, yelsimhi(**tul**) ilkessta.
 -Top book-Acc hard(PM) read

‘John (read) articles (hard), and Mary read books hard.’

- (9) a. *con-un si-lul **selo**-eykey ilke cwuessta.
 -Top poem-Acc each other-to read gave
 ‘John read poems to each other.’

- b. *con-un si-lul **selo**-eykey ilke c-ko
 -Top poem-Acc each other-to read give-and
 swu-nun sosel-ul **selo**-eykey ilke cuwessta.
 -Top novel-Acc each other-to read gave

‘John read poems to each other, and Sue read novels to each other.’

- c. con-un si-lul, (kuliko)
 -Top poem-Acc (and)

su-nun sosel-ul, **selo**-eykey ilke cwuessta.
 -Top novel-Acc each other-to read gave

‘John (read) poems and Sue read novels to each other.’

- (10) a. thom-un minyo-lul (***kakkak**) pwullessta.
 -Top folk song-Acc respectively sang
 *‘Tom sang folk songs, respectively.’

- b. thom-un minyo-lul (***kakkak**) pwulu-ko
 -Top folk song-Acc respectively sing-and
 su-nun phapsong-ul (***kakkak**) pwullessta.
 -Top pop song-Acc respectively sang

*‘Tom sang folk songs, respectively, and Sue sang pop songs, respectively.’

- c. thom-un minyo-lul, (kuliko)
 -Top folk song-Acc (and)

su-nun phapsong-ul, (**kakkak**) pwullessta.
 -Top pop song-Acc (respectively) sang

‘Tom sang folk songs, and Sue sang pop songs, respectively.’

The important point is that when they appear in a non-RNR-ed sentence with a singularly-interpreted subject, the sentence becomes unacceptable, as the (a) or (b) examples of (8)-(10) show. However, when the sentence involves RNR, the two singular subjects in each conjunct clause seem to be combined together to be able to denote a plural entity. This can account for the acceptability of the (c) examples of (8)-(10). In fact, Chung (2004) argues that the plural interpretation of the two singular subjects stems from multi-dominance, as represented in (4). In other words, multi-dominance enables the two singular subjects to c-command and license PSEs. To the extent that this is right, the examples from (8)-(10) render evidence supporting the multi-dominance approach to RNR, but they clearly argue against the deletion/ellipsis analysis of it.

Now we turn to examples in (11) and (12), where the RNR portion of the sentence contains a gap which is associated with two separate fillers in each conjunct before it:

- (11) makkelli -lul con-un, (kuliko) soju-lul pil-un,
 rice wine-Acc -Top and hard liquor-Acc -Top
meyli-ga masiesstako sayngkakhanta.
 -Nom drank think

‘John thinks Mary drank rice wine, and Bill thinks Mary drank hard liquor.’

- (12) ?*makkelli -lul con-un, (kuliko) soju-lul pil-un,
 rice wine-Acc -Top and hard liquor-Acc -Top
meyli-lul masikey han chinkuw-lul chacko issta
 -Acc drink make friend -Acc look for

‘John is looking for her friend who made Mary drink rice wine, and Bill is looking for her friend who made Mary drink liquor.’

The contrast in grammaticality between (11) and (12) means that the relation between right-edge internal gap and left-edge external filler is subject to island constraints. If we say that the relation is established by movement, the movement involved in (11) is somewhat peculiar, especially in light of the multi-dominance analysis of RNR, which states that the RNR-ed portion of the sentence is shared by the first and the second conjunct clauses. This analysis

- (7) a. con-un phiano-lul, (kuliko) meyli-nun noray-lul,
 -Top -Acc and -Top song-Acc
 (kakkak) **chi-ko** **pwulessta.**
 respectively played-and sang
 ‘John played the piano, and Mary sang a song, respectively.’
- b. pil-un TV-lul, (kuliko) suci-nun radio-lul,
 -Top -Acc and -Top -Acc
 (kakkak) **po-ko** **tulessta.**
 respectively watched-and listened to
 ‘Bill watched TV, and Susi listened to the radio, respectively.’

A question that arises immediately is what happens to (1), repeated below, where the RNR-ed portion seems not to involve a coordinating conjunction. The answer is apparent. It seems to be innocuous to say that the RNR-ed portion of this example is also formed by unifying two identical terms into one without adding a coordinating conjunction.

- (1) con-un yenge-lul **yelsimhi paywunta**, (kuliko)
 -Top English-Acc hard study and
 pil-un pwule-lul, yelsimhi paywunta.
 -Top French-Acc hard study
 ‘John studies English hard, and Bill studies French hard.’

To make more concrete the process of RNR, we propose that the RNR construction starts with two full conjunct clauses and ends up with their two right edges undergoing coordination in the middle of its derivation. There are two options, depending on whether the right edges of the two full conjunct clauses are identical or not. On the one hand, when the right edges are identical (or non-distinct), a usual/simple case of RNR construction as in (1) comes out finally with just a simple right edge in the second conjunct.⁶ On the other

idea adopted in Hartmann (ibid.) is then that for contrastive focus in RNR, the set of alternatives for the focused elements must be identical. There is no possible world in which *today* and *upstairs* create the same set of alternatives, which is why (iiib) crashes. The prosodic constraints on RNR make the elements in contrastive relation prominent in the pronunciation. It is concluded from the contrast between (iiia) and (iiib) that focus in RNR constructions explains the periphery but is constrained itself by semantics: prosodically stressed elements that cannot express contrast in RNR are ungrammatical. The same line of analysis can apply mutatis mutandis to the unacceptable examples in (ib) and (iib) of Korean the reviewer brought forth.

⁶ In deriving a simple case of RNR construction like (1), we assume that lexical items at the right-edge of the first conjunct clause are inserlexically copying those at the right-edge of the second con-

hand, when the two right edges are not identical (or distinct), they are combined together by use of a coordinating conjunction (*-ko* ‘and’ in Korean), producing a more complex case of right edge as in the second conjunct of (7).

At this point we are reminded of the fact that in Korean, an apparently non-constituent RNR-ed element can occur in right-edge position, as noted in (5), repeated below:

- (5) [meyli-nun con-i], (kuliko) [suci-nun pil-i],
 -Top -Nom and -Top -Nom

[ttokttokhatako sayngkakhanta]
 smart thinks

‘Mary thinks John is intelligent, and Susi thinks Bill is intelligent.’

If the simple RNR-ed portion in (5) is also derived just by right-edge coordination, does the latter not respect constituenthood?

To overcome this problem with non-constituenthood, we will further elaborate on the process of RNR. The idea we advance is that RNR involves not right-edge coordination but conjunction of the two full conjunct clauses. To implement this idea, we propose that each of the two full conjunct clauses consisting of the RNR construction first completes structure building via a series of Merge and then starts undergoing linearization from left to right in parallel/simultaneous fashion. The first is a bottom-up process, and the latter is a top-down process. We assume following Fukui and Takano (1998) that linearization consists of (a) a copying process of ‘Demerge’ and (b) Concatenate. More specifically, departing slightly from Fukui and Takano (*ibid.*), we suggest that a process of Derge is to copy a grammatical element on the tree that has been built via a series of Merge in a bottom-up fashion, and then send it to the PF component. This process of Derge as part of linearization applies in a top-down fashion. Note that the grammatical element on a tree that has had its copy sent to the PF component undergoes copy deletion (not erasure) (just like the copy trace left by movement). After some but not all of the grammatical elements on the tree have undergone this process of linearization, the two remaining full clauses containing the deleted grammatical elements undergo CR at syntax, which we take to derive RNR. (13) illustrates the step-by-step derivation of RNR. The shaded elements intended to mean that they have undergone linearization, thereby being transferred to PF. The elements with strikethrough intended to mean that they are copy traces left behind in

conjunct clause, and at a later point of derivation the former are merged into the latter thus ‘copy’ instances of lexical items can also be found in the ellipsis construction as in (i):

(i) John met Mary, and Bill did [_{VP} ~~meet Mary~~], too.

syntax after linearization:

- (13) a.

meyli-nun con-i ttokttokhatako sayngkakhanta
--

, (kuliko)

suci-nun pil-i ttokttokhatako sayngkakhanta

- b.

meyli-nun

~~meyli-nun~~ con-i ttokttokhatako sayngkakhanta,

suci-nun

~~suci-nun~~ pil-i ttokttokhatako sayngkakhanta
(kuliko)
(A word or words that is shaded has been transferred to PF.)
- c.

meyli-nun + con-i

meyli-nun con-i ttokttokhatako sayngkakhanta
--

, (kuliko)

suci-nun + pil-i

suci-nun pil-i ttokttokhatako sayngkakhanta

- d. The two clauses not transferred to PF yet undergo CR as RNR:

meyli-nun + con-i

 (kuliko)

suci-nun + pil-i

meyli-nun & suci-nun con-i & pil-i ttokttokhatako sayngkakhanta

- e. After conjunction reduction, the elements not transferred to PF yet in the post-CR clause undergo usual linearization.

(13a) is the starting point of derivation before feeding into RNR as CR: Two full clauses have been constructed via Merge in a bottom-up mode. In (13b) the first element of each conjunct clause undergoes linearization in a top-down mode, leaving a copy in its original position of each conjunct in syntax; in (13c) the second element does too. In (13d) linearized elements are concatenated together by optional use of a coordinating conjunction. Meanwhile the following two full conjunct clauses containing the copy-trace versions of the linearized elements are conjoined together in syntax by means of CR. Finally, in (13e) the RNR-ed, CR-ed clause, except the elements already transferred to PF, now undergoes linearization.⁷ In short, the RNR construction proceeds derivationally in the following steps: ① structural building of two conjunct clauses, ② linearization of some left-edge elements of each conjunct clause, ③ CR of the two conjunct clauses containing copy traces of the linearized elements, and ④ linearization of the post-CR output clause.

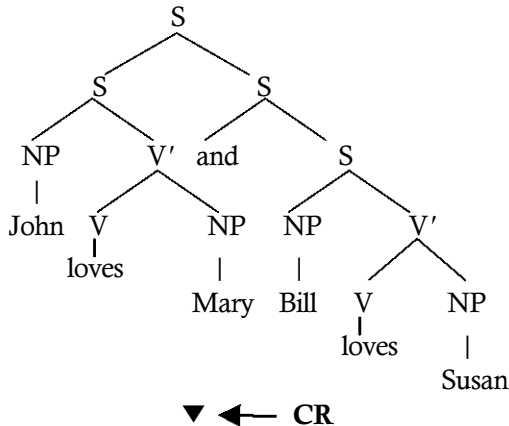
Our analysis of RNR as CR calls for more elaboration of CR itself. It has been argued that CR is involved in the relation between (14a) and (14b) (cf. McCawley (1988), for example):

⁷ With regard to cyclicity, we can understand that a right-edge element is an exception to the PIC, just like left-edge elements of a phase (cf. Sabbagh 2003; Sabbagh 2007).

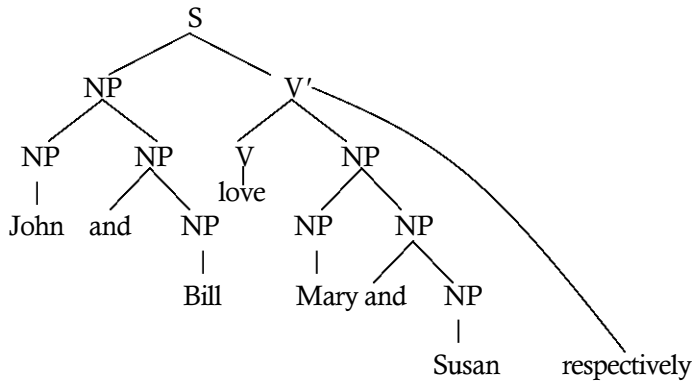
- (14) a. John loves Mary, and Bill loves Susan.
 b. John and Bill love Mary and Susan, (respectively).

(14b) is derived from (14a) by the application of CR to the two conjunct clauses. For more concreteness, we reproduce McCawley's (1988: 295) schematic representation of how CR unifies two full clauses into one, as follows:

- (15) a.



- b.



This tree structure representation of CR seems to be well in accord with Chomsky's (1957: 36) original proposal of CR, which he defines in transformational terms as follows:

- (16) If S1 and S2 are grammatical sentences, and S1 differs from S2 only in that X appears in S1, where Y appears in S2 (i.e., S1 = .. X .. and S2 = .. Y ..), and X and Y are constituents of the same types in S1 and S2, respectively, then S3 is the result of replacing X by X + and + Y in S1 (i.e., S3 = .. X + and + Y ..).

The remarkable aspect of Chomsky's proposal is his view that two full clauses change into one resulting clause through CR, and that CR is a transformational rule.

An important question that one can raise (as the reviewers of this journal also do) is how to implement the conception of CR in the more recent theory of the Minimalist Program. This may be not an easy task, as there are various kinds of constructions where CR supposedly applies. Here we just restrict ourselves to the derivation from (14a) to (14b), which will suffice to show how CR proceeds in converting (13c) to (13d) in Korean. Let's suppose following Chomsky (*ibid.*) that two full clauses feed into CR to produce one resulting clause. This amounts to saying that CR has a characteristic of "restructuring" the existing two-clause structure built already via a series of Merge to the new one-clause structure.⁸ In other words, the two full conjunct clauses first complete structure building before undergoing CR, as in (15a). Now we assume that CR is a top-down process⁹ and is a combination of Demerge (= Copy and Delete), Conjoin-alpha, and Rmerge. In this sense, CR is comparable to Move, which is a composite of Demerge and Rmerge. One difference between them, however, is that the former involves one additional operation of Conjoin-alpha, which may apply in a different derivational workspace before being Rmerged (cf. Uriagereka 1999). Another difference between them is that Move involves Rmerge to the existing tree structure, but CR involves Rmerge to the new one. For example, in (15a) above, CR applies to the subject constituents of the two conjunct clauses. They are at first literally Demerged from the existing tree structure, and then conjoined together by use of a coordinating conjunction through Conjoin-alpha, and finally Rmerged into the new tree structure. Why are only they targeted for Demerge and Rmerge in this application of CR? We propose that the following condition holds in grammar.

- (17) CR applies to the "constituents of the same type" and the same grammatical function.

This condition sounds stipulative, but it seems it does not, since this condition is needed anyway, whether coordinate structure is base-generated or generated at a point of derivation; we have argued for the latter possibility here. This process of CR applies at least two more times in (15a). Since the two tokens of

⁸ Note that this view of CR has a problem of destroying the existing structure but creating the new structure instead. But whether we accommodate it into grammar or not is an empirical matter. Incidentally, other structure-"deforming" operations than CR, such as t isalysis, a prouncturing, a projection, and so on, have also been proposed for some other empirical reasons.

⁹ We follow Phillips (2003) in regard to the convention of building structure in a top-down fashion.

verbs in the two conjunct clauses are non-distinct, they are unified into one grammatical element, *love*. And just like the subject constituents, the object constituents in the two conjunct clauses are distinct to each other and conjoined together by use of a coordinating conjunction. Remerging these outputs to the new structure initiated by the CR-ed subject expression yields the representation in (15b).¹⁰

Returning to Korean, CR applies to (13c) in the fashion presented up to now. It targets the subject constituents, the object constituents, and the verbal complexes in the two conjunct clauses, finally yielding their respective form in (13d). Furthermore, this conception of RNR as CR can provide a straightforward explanation for the plurality effects of RNR, as noted in (6) and (c) examples of (8)-(10).¹¹ We repeat (6) below:

- (6) con-un palphyoca-lo, (kuliko) pil-un tholonca-lo,
 -Top presenter-as and -Top discussant-as

ku seyminasil-ey moiessta
 the seminar room-to gathered

‘John and Bill gathered to the seminar room as a presenter and as a discussant, respectively.’

In our analysis, (6) has the following point of derivation. Left-edge two elements of the first and the second conjunct clauses undergo linearization, and then the two full clauses are conjoined together via CR.

¹⁰ One of the reviewers of this journal doubts the analysis of the “respectively” construction by invoking the transformational rule of CR, as it seems not easy to translate it into modern syntactic theory. He/she further notes that the “respectively” construction without coordinate structure (underlined below) argues in favor of a purely semantic approach proposed by Kehler and Dalrymple (1995) or Gawron and Kehler (2002):

- (i) a. The people you have indicated are all New York residents except for the last two. They live in Chicago and Columbus, respectively.
 b. Eleven isotopes of copper are known, two of which are not radioactive and occur with a natural abundance of 69.09% and 31.91%, respectively.

However, it is a moot point whether it is feasible to provide a CR account for (ia) and (ib); in other words, whether each of the underlined sentences in (ia) and (ib) is derived from two conjunct clauses. We leave it for future research.

¹¹ The RNR construction in English has the same plurality effects, as noted by Postal (1998: 173):

- (i) The pilot claimed that the first nurse, and the sailor proved that the second nurse_i, were_{i+ii} spies.

The two separate singularly-interpreted embedded subjects in (i) can trigger plural morpheme in the RNR-ed portion of the sentence.

- (18) con-nun + palphyca-lo(kuliko)pil-nun + tholonca-lo
~~con-un & pil-un~~ palphyca-lo & tholonca-lo ku seyminasil-ey moiessta

Note that the structure available in syntax is the representation except the shaded portions of (18). In this syntactic representation the subject is regarded as a conjunction of the two singular NPs of the first and the second conjunct clauses. In short, the plurality effects of RNR follow from the fact that the two conjunct clauses involve CR during formation of RNR.

5. Some Other Issues on RNR

In this section we will show that CR in the course of RNR exhibits both symmetry and asymmetry effects, in that after RNR, each of the two conjunct clauses does or does not maintain its grammatical properties it has before the operation. We will explore this issue with respect to verbal agreement morphology and negation-negative polarity item (NPI)/quantified phrase (QP) interaction in the construction at issue. We will also touch on island (in)sensitivity of linearized elements immediately before the RNR-ed portion of the construction.

5.1. Agreement in RNR

First, the RNR construction usually exhibits asymmetry effects, in that the second conjunct clause rather than the first conjunct clause is respected for its grammatical property. For instance, inflection (honorific or tense) morphology on the verb within the RNR-ed portion of the sentence, is triggered by the relevant element of the second conjunct clause, but not by that of the first conjunct clause, as follows:

- (19) a. meyli-ka sakwa-lul, kuliko
 -Nom apple-Acc and
emeni-ka panana-lul, sa-si-essta.
 mother-Nom banana-Acc buy-Hon-Past
 ‘Mary (bought) apples, and (my) mother bought bananas.’
- b. *emeni-ka banana-lul, kuliko
 mother-Nom banana-Acc and
meyli-ka sakwa-lul, sa-si-essta.
 -Nom apple-Acc buy-Hon-Past
 ‘(My) mother (bought) bananas, and Mary bought apples.’

- (20) a. na-nun **cakneyn-ey**, (kuliko) con-un **olhay-ey**,
 I-Top last year-in and -Top this year-in
 thongkyehak-ul tut-**nun**-ta
 statistics-Acc take-Pres-Decl
 'I took statistics last year, John is taking it this year.'
- b. *na-nun **cakneyn-ey**, (kuliko) con-un **olhay-ey**,
 I-Top last year-in and -Top this year-in
 thongkyehak-ul tut-**ess**-ta
 statistics-Acc take-Pres-Decl
 'I took statistics last year, John is taking it this year.'

These asymmetry effects have also been called proximity effects: these effects come about as the verbal morphology in the RNR-ed portion is more proximate to the second conjunct clause than to the first one.

However, the construction also exhibits symmetry effects, in that the grammatical properties of the first and the second conjunct clauses are preserved after RNR. The following examples, drawn from Ahn and Cho (2006), make the point:¹²

- (21) ***con-un** tango-lul, (kuliko) **apenim-un** disco-lul,
 -Top -Acc and Father-Top -Acc
kakkak chuw-**si**-ess-ta
 (respectively) dance-Hon-Past-Decl
 'John danced a tango, and (his) Father danced a disco, respectively.'
- (22) *na-nun **cakneyn-ey**, (kuliko) con-un **olhay-ey**,
 I-Top last year-in and -Top this year-in
kakkak thongkyehak-ul tut-**nun**-ta
 respectively statistics-Acc take-Pres-Decl
 'I took statistics last year, John is taking it this year, respectively.'
- (23) ***con-un** tango-lul, (kuliko) **apenim-un** disco-lul,
 -Top -Acc and Father-Top -Acc
 sinnakey-**tul** chuw-**si**-ess-ta
 elatedly-PL dance-Hon-Past-Decl
 'John danced a tango, and (his) Father danced a disco, elatedly.'

¹² Park (2005) also notes that RNR in English also exhibits the same behaviors as its counterpart in Korean.

- (24) *con-un si-lul, (kuliko) apenim-un sosel-ul,
 -Top poem-Acc (and) -Top novel-Acc

selo-eykey ilke cuw-si-essta.
 each other-to read give-Hon-Past-Decl

‘John (read) poems and (his) Father read novels to each other.’

In addition, when the RNR-ed portion is formed by conjoining together the elements in the first and the second conjunct clauses by use of a coordinating conjunction, the construction also exhibits symmetry effects, as follows:

- (25) apenim-un phiano-lul, (kuliko) con-nun noray-lul,
 -Top -Acc and father-Top song-Acc

(kakkak) chi-*(si)-ko pwulessta
 (respectively) played-and sang

‘(His) Father played the piano, and John sang a song(, respectively).’

The lesson we now learn from the behaviors of verbal agreement inflection in the RNR construction is that when the RNR-ed portion contains plurality-sensitive elements or consists of two conjoined verbal elements, CR applies in a default fashion, as in (13d), where each of the first and the second conjunct clauses are conjoined together to denote two different entities.

- (13) d. meyli-nun + con-i (kuliko) suci-nun + pil-i
meyli-nun & suci-nun con-i & pil-i ttokttokhatako sayngkakhanta

In this case, agreement relation established between the subject and the verbal element in each of the first and the second conjunct clauses is preserved after CR. The resulting structure is an instance of symmetric coordination where the agreement relation in the first clause and that in the second clause are merged intactly into coordinate structure in the course of CR.

However, there is another option. If the RNR-ed portion does not contain a plurality-sensitive element or does not consist of two conjoined verbal elements, the first conjunct clause is merged onto the second conjunct clause¹³ under the Focus Condition on Ellipsis¹⁴ (cf. Merchant (2001)) in the course of

¹³ We follow here the lead of van Riemsdijk (1998), who proposes that RNR is grafting. In other words, RNR results when the first conjunct clause is grafted onto the second conjunct clause.

¹⁴ Merchant’s (2001) original version of this condition goes as follows:

(i) Focus condition on ellipsis:

α can be deleted only if α is e-GIVEN.

(An expression E counts as e-GIVEN off E has a salient antecedent A and, modulo \exists -

CR.¹⁵ This is not an instance of symmetric coordination. The second conjunct clause behaves as a pivot for the first conjunct clause, with the grammatical elements of the former being unified with those of the latter via CR. The resulting structure will be as follows:

- (13) d' meyli-nun + con-i (kuliko) suci-nun + pil-i
suci-nun pil-i ttoktokhatako sayngkakhanta

In this structure, verbal agreement obtains as a reflection of agreement relation between the subject and the verbal element of the second conjunct clause. This accounts for asymmetry effects of the RNR construction.

5.2. Negation and NPI

We now examine how negation interacts with NPI or QP in the RNR construction. First, NPI outside the RNR-ed portion can be licensed by the negation inside it, as follows:

- (26) con-un amwu sathangto, (kuliko) pil-un amwu kwacato,
 -Top any candy and -Top any cookie
 mekci ahnassta¹⁶
 ate didn't

type shifting,
 (i) A entails F-clo(E), and (ii) E entails F-clo(A)).

We assume that a modified version of this condition also applies in the process of CR. The idea is that when the first conjunct clause is e-GIVEN vis-à-vis the second one, the first is suppressed completely and apparently vacuously merged onto the latter.

¹⁵ Another piece of evidence showing that two grammatical terms do not always end up as plural comes from the following examples where the two reflexives are taken to be unified into one in the RNR-ed portion during CR.

- (i) con-un_i yenge-lul, (kuliko) pil-un_j pwule-lul, caki_{i/j} chinkuw-wa paywunta.
 -Top English-Acc and -Top French-Acc his friend-with study
 'John_i studies English, and Bill_j studies French, with his_{i/j} friend.'

¹⁶ In contrast to (26) in the text, the following example in (i) is ungrammatical. The contrast between (26) and (i) is that the former contains coordinating conjunction *kuliko* (sentential conjunction) and the latter *-ko* (phrasal conjunction). We assume that the former involves conjunction of the two clauses, and the latter involves conjunction of the two VPs.

- (i) ?*[con-un amwu ppangto mek-**ko** pil-un amwu umlyosuwto masici] anhassta
 -Top any bread eat-and -Top any drink drank

If this is right, the unacceptability of (i) is attributed to a violation of the Immediate Scope Principle (Linebarger 1980, 1987), which requires that NPI be in the immediate scope of negation, preventing the presence of a scope-marking element like coordinating conjunction between them.

‘John didn’t have any candy, and Bill didn’t have any cookie.’

Furthermore, NPI outside the RNR-ed portion can also be licensed by the negation within the coordinate structure of it, as follows:

- (27) con-un **amwu** **ppangto**, (kuliko) pil-un **amwu** **umlyoswuto**,
 -Top any bread and -Top any drink
 (kakkak) **mekci(to)** **ahnko** **masici(to)** **ahnassta**
 respectively eat don’t drink didn’t

‘John didn’t eat any bread, nor did Bill have any drink, respectively.’

This shows that it is licensed in a point of derivation before the two full conjunct clauses undergo CR.¹⁷ In this sense, licensing of NPI in the RNR construction can be understood on a par with its licensing in the following sentence:

- (28) **amwukes-to_i** con-un [meyli-ka t_i saci anhasstako] sayngkakhanta
 anything -Top -Nom buy not-Past thinks
 ‘John thinks that Mary did buy anything.’

We can say that in (28), the scrambled NPI can be licensed as it is linked to its original position. In short, the distribution of NPI in the RNR construction renders compelling evidence showing that the construction results from conjoining together the two full conjunct clauses in each of which negation licenses NPI.

The interaction of negation with QP displays different behaviors from the interaction of negation with NPI. In the usual, non-RNR-ed sentence negation on a verbal element can take scope over or below a preceding QP, as in (29a).

- (29) a. [ambiguous]
 olhay-nun con-i **manhun** **chinkkuw-eykeyse**
 this year-Top -Nom many friend-from
 sayngil senmuwl-ul patci **mos** hayssta.
 birthday present-Acc receive not did
 ‘This year, John didn’t receive birthday presents from many friends.’

¹⁷ Otherwise, that is, if NPI in cases like (27) in the text were licensed after CR, it would violate Linebarger’s (1980) Immediate Scope Principle, as scope-sensitive coordinating conjunction intervenes between it and negation. In this regard, the acceptability of (27) argues against the multi-dominance analysis of RNR, which, unlike our analysis, posits only one shared RNR-ed portion in its syntactic derivation: this would induce a violation of the Immediate Scope Principle.

b. [ambiguous]

olhay-nun con-i kuliko caknyen-eynun meyli-ka,
 this year-Top -Nom and last year-Top -Nom

manhun chinkwu-eykeyse sayngil senmwul-ul
 many friend-from birthday present-Acc

patci **mos** hayssta.
 receive not did

'This year, John (didn't receive birthday presents from many friends), and last year, Mary didn't receive birthday presents from many friends.'

And when negation and QP are in the RNR-ed portion, the sentence such as (29b) is also ambiguously interpreted.

As Sohn (2001) notes, however, when negation occurs only in the RNR-ed portion, it cannot take wide scope over the QP in the pre-RNR-ed portion of the sentence, as in (30). Furthermore, when the RNR-ed portion consists of two negated verbal elements, they cannot do so either, as in (31):

(30) [unambiguous]

caknyen-eynun **motun colepsayng-i**, kuliko
 last year-Top all graduate-Nom and

olhay-nun **manhun colepsayng-i**,
 this year-Top many graduate-Nom

tongchanghoi-ey chamsekhaci **mos** hayssta.
 school reunion-at attend not did

'Last year, all graduates (didn't attend school reunion), and this year, many graduates didn't attend school reunion.'

(31) [unambiguous]

con-un motun **ppang-ul**, (kuliko) pil-un manhunt
 -Top any bread and -Top many

umlyoswu-ul, (kakkak) **mekci(to)ahnko masici(to)** ahnassta
 drink respectively eat don't drink didn't

'John didn't eat any bread, nor did Bill have any drink, respectively.'

It now seems safe to conclude that scope of negation is determined in the structure formed after the application of RNR as CR. This is consonant with the claim made in Park (1994) that scope of negation in Korean (probably uni-

versally) reflects on surface structure of a sentence. One more thing to note in this regard is the use of comma or listing intonation between the pre-RNR-ed and the RNR-ed portions in the construction in question. We suggest that listing intonation marking cataphoric anaphora in the RNR construction (cf. Féry & Hartmann 2005) prevents negation from taking scope or spreading over QPs in the two pre-RNR-ed conjunct clauses.

5.3. Island Effects

As noted above in (5), the RNR-ed/CR-ed portion in sentence-final position is a non-constituent; in other words, the portion is sensitive to linear structure rather than hierarchical structure. The following example also makes the same point:

- (32) con-un oleyn-ci-lul, (kuliko) pil-un panana-lul,
 -Top -Acc and -Top -Acc
 [meyli-eykey cwun saram-ul] chacko-iss-ta
 -to gave person-Acc looking for-is

‘John is looking for the man who gave Mary an orange, and Bill is also looking for the man who gave her a banana.’

This example exhibits more intriguing aspects of RNR. The two underlined elements in the pre-RNR-ed portion are interpretively associated with the relative clauses in the RNR-ed portion of the sentence. The more confounding aspect of this example is that when the two accusative-marked NPs each scrambles over the preceding nominative-marked NP in the pre-RNR-ed portion, the sentence becomes unacceptable, as in (33):

- (33) *oleyn-ci-lul con-un, (kuliko) panana-lul pil-un,
 -Acc -Top and -Acc -Top
 meyli-eykey cwun salam-ul chacko-iss-ta
 -to gave person-Acc looking for-is

‘John is looking for the person who gave Mary an orange, and Bill is looking for the person who gave her a banana.’

The contrast between (32) and (33) implies that movement occurs before RNR as CR applies in each of the full conjunct clauses. That is, as in deriving (33), the accusative-marked NP has to move out of the relative clause in each conjunct, the sentence turns out to be unacceptable. The unacceptability of this example is not to blame for RNR, but for a movement or scrambling opera-

tion permuting the accusative-marked NP. In (32), however, the accusative-marked NP does not involve this kind of permutation or scrambling. In the latter example, after the two conjunct clauses each undergoes linearization of the first two elements, they are conjoined together via CR. Needless to say, linearization is not sensitive to island constraints. Otherwise, we would not produce sentences involving, for example, relativization.¹⁸

6. Conclusion

We have started with the thesis that the existing analyses of RNR cannot account for the non-constituency of the RNR-ed portion of the sentence. Almost every work in syntax maintains that movement and ellipsis, including multi-dominance proposed more recently, are sensitive to constituency. However, the fact that the RNR-ed portion of the construction at issue in Korean may not form a constituent raise insurmountable problems for the core assumptions in the previous analyses of RNR.

As an alternative to these predecessors, we have pursued a CR analysis of RNR. Especially, adopting the spell-out view of linearization (cf. Chomsky 2001), we can provide a better analysis of RNR, by proposing that linearization feeds CR in the formation of the RNR construction. That is, two full conjunct clauses start to complete structure-building, and their left-edge strings of words/phrases first undergo linearization, before RNR as CR applies. We have demonstrated how this proposed analysis can account for symmetric and asymmetric verbal inflection, negation-NPI/QP interaction and island-

¹⁸ We have just pointed out that linearization itself is not susceptible to island constraints. Another relevant issue is whether linearization is sensitive to morphemic status of an element affected. In fact, Sohn (1999, 2001) (cf. Abe and Hoshi (1997) for Japanese) argues that a bound morpheme can occur between the pre-RNR-ed and the RNR-ed portions of the sentence, as follows:

(i) con-un meyli(-eykey), (kuliko) pil-un sucun-**eykey**, chayk-ul cwuessta
 -Top and -Top -to book -Acc gave
 'John gave a book to Mary, and Bill to Susan.'

(ii) con-un meyli(-uy), (kuliko) pil-un sucun-**uy**, chayk-ul pilyessta
 -Top and -Top -to book-Acc borrowed
 'John borrowed Mary's book, and Bill borrowed Susan's book.'

Put in our linearization-based account of RNR, we can say that a particle like *-eykey* 'to' or *-uy* 's' is linearized independently of the preceding NP. However, the grammatical status of (i) or (ii) is not clear to us. In passing, we note that the following English examples corresponding to (i) and (ii) are unacceptable:

(iii) A: Who has and who will watch Casablanca?
 B: Anne has and Mary will *Anne's and Mary'll watch Casablanca.

(iii) A: Who do you and Mary think will watch Casablanca tomorrow?
 B: *I think that Ann, and Mary thinks that Ben, 'll watch Casablanca tomorrow.

(in)sensitivity.

References

- Abbott, Barbara. (1976). Right node raising as a test for constituenthood. *Linguistic Inquiry* 7, 639-642.
- Abe, Jun and Hiroto Hoshi. (1997). Gapping and P-stranding. *Journal of East Asian Linguistics* 6, 101-136.
- Abels, Klaus. (2004). Right node raising: Ellipsis or across the board movement? *The Proceedings of the 34th North East Linguistic Society*, 45-59.
- Ahn, Hee-Don and Yongjoon Cho. (2006). A dual analysis of verb-less coordination in Korean. *Language Research* 42, 47-68.
- Chomsky, Noam. (1957). *Syntactic Structures*. The Hague: Mouton.
- Chomsky, Noam. (2001). Derivation by phase. In Michael Kenstowicz, ed., *Ken Hale: A Life in Language*, 1-52. Cambridge, MA: MIT Press.
- Chung, Daeho. (2004). A multiple dominance analysis of right node sharing constructions. *Language Research* 40, 791-811.
- Féry, Caroline and Katharina Hartmann (2005). The focus and prosodic structure of German right node raising and gapping. *The Linguistic Review* 22, 69-116.
- Fukui, Naoki and Yuji Takano. (1998). Symmetry in syntax: Merge and demerge. *Journal of East Asian Linguistics* 7, 27-86.
- Gawron, Jean Mark and Andrew Kehler. (2002). The semantics of the adjective 'respective.' *Proceedings of the 21st West Coast Conference on Formal Linguistics*, 85-98.
- Hartmann, Katharina. (2000). *Right Node Raising and Gapping: Interface Conditions on Prosodic Deletion*. Amsterdam: John Benjamins.
- Kayne, Richard. (1994). *The Antisymmetry of Syntax*. Cambridge, Mass.: MIT Press.
- Kehler, Andrew and Mary Dalrymple. (1995). Antecedents of 'respectively.' A hand-out presented at the Annual Meeting of the Linguistic Society of America, New Orleans.
- Kim, Jeong-Suk. (1998). A minimalist account of gapping in Korean/Japanese. *Studies in Generative Grammar* 8.1, 105-137.
- Kim, Jeong-Suk. (2006). Against a multiple dominance analysis of right node sharing constructions in Korean and Japanese. *Studies in Modern Grammar* 42, 123-147.
- Kuno, Susumu. (1978). Japanese: A characteristic OV language. In Winfred P. Lehmann, ed., *Syntactic Typology*, 57-138. Austin: University of Texas Press.
- Linebarger, Marcia Christine. (1980). *The Grammar of Negative Polarity*. Ph.D. dissertation, MIT.
- Linebarger, Marcia Christine. (1987). Negative polarity and grammatical representation. *Linguistics and Philosophy* 10.3, 325-387.
- McCawley, James. (1988). *The Syntactic Phenomena of English*. Chicago and London: University of Chicago Press.

- Mukai, Emi. (2003). On verbless conjunction in Japanese. *The Proceedings of the 33th North East Linguistic Society*, 205-224.
- Park, Myung-Kwan. (1994). *A Morpho-Syntactic Study of Korean Verbal Inflection*. Ph.D. dissertation, University of Connecticut.
- Park, Myung-Kwan. (2005). When things are cumulated or distributed across coordinate conjuncts. *Studies in Generative Grammar* 15.4, 415-431.
- Phillips, Colin. (2003). Linear order and constituency. *Linguistic Inquiry* 34, 37-93.
- Postal, Paul M. (1998). *Three Investigations of Extraction*. Cambridge, Mass.: MIT Press.
- Riemsdijk, Henk van. (1998). Trees and scions: Science and trees. *Chomsky's 70th Birthday Celebration Fest-Web-Page*. <http://mitpress.mit.edu/chomskydisc/riemskyd.html>.
- Rooth, Mats. (1992). A theory of focus interpretation. *Natural Language Semantics* 1, 75-116.
- Ross, John Robert. (1967). *Constraints on Variables in Syntax*. Ph.D. dissertation, MIT.
- Sabbagh, Joseph. (2003). Rightward movement is sometimes movement before, and sometimes movement after, Spell-Out. A handout presented at the 22nd West Coast Conference on Formal Linguistics, UC San Diego.
- Sabbagh, Joseph. (2007). Ordering and linearizing rightward movement. *Natural Language and Linguistic Theory* 25.2, 349-401.
- Saito, Mamoru. (1987). Three notes on syntactic movement in Japanese. In Takash Imai and Mamoru Saito, ed., *Issues in Japanese Linguistics*, 301-350. Dordrecht: Foris.
- Sohn, Keun-Won. (1999). Deletion or copying: Right node raising in Korean and Japanese. *Proceedings of the Nanzan GLOW*, 367-384.
- Sohn, Keun-Won. (2001). Deletion and right node raising in Korean and English. *Generative Grammar* 11, 485-501.
- Uriagereka, Juan. (1999). Multiple spell-out. In Samuel D. Epstein and Nobert Hornstein, ed., *Working Minimalism*, 251-282. Cambridge, Mass.: MIT Press.
- Wilder, Chris. (1999). Right node raising and the LCA. *The Proceedings of the 18th West Coast Conference on Formal Linguistics*, 586-598. Somerville, MA.: Cascadia Press.

Myung-Kwan Park
 Department of English
 Dongguk University
 Pil-dong, Chung-gu
 Seoul, 100-715, Korea
 E-mail: parkmk@dgu.edu

Received: September 18, 2009

Revised version received: December 5, 2009

Accepted: December 11, 2009