

An Interpretive Analysis of Right Node Raising in English\*

Norimi Kimura

0. Introduction

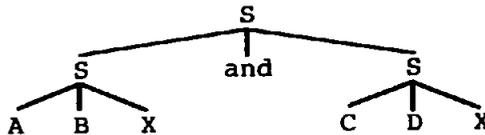
In this paper I will consider the derivation of the so-called Right Node Raising constructions (henceforth, RNR constructions).<sup>1</sup> This construction as in (1b) has been often assumed to be derived by application of the rule 'Right Node Raising' (hereafter, RNR) to (1a):

- (1) a. Sally might be pregnant, and everyone believes Sheila definitely is pregnant.
- b. Sally might be, and everyone believes Sheila definitely is, pregnant.

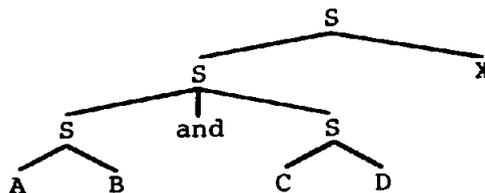
(Ross 1967)

So far, various proposals have been advanced on the derivational processes of RNR constructions within the framework of generative grammar, and there are considerable technical differences among the analyses proposed. However, there are two points of consensus, as Levine (1984) notes. One point is that if RNR is a transformation, it is a raising rule which applies only to identical elements in coordinate and some subordinate structures. By applying RNR as a raising rule to the underlying structure (2a), the surface structure (2b) has been generally taken to be derived:

(2) a.



b.



The other point of consensus is that the "right-node-raised" con-

stituent of RNR constructions (that is, the node X in (2)), which has been taken to be Chomsky-adjoined to the right of the coordinate node S by RNR, is a syntactic single constituent.

In what follows, I will thoroughly examine whether these two points of concensus are adequate and accurate for characterizing the properties of RNR constructions. In section 1, I will formalize a rule of RNR, taking into account the syntactic properties of RNR constructions. This formalization of RNR will be made incorporating the following hypotheses:

- (3) i) The structure-preserving nature of RNR constructions  
 A "right-node-raised" constituent is located within its adjacent conjunct.
- ii) An interpretive analysis of RNR constructions  
 The rule involved with RNR constructions is an interpretive (or semantic interpretation) rule, but not a syntactic movement or deletion rule.

In light of some syntactic phenomena, I will verify the validity of the hypotheses (3i) and (3ii) in sections 2 and 3 respectively. Finally, section 4 will deal with the constituency of RNR constructions, or, speaking more concretely, the question whether right-node-raised strings are syntactic single constituents.

## 1. A Formal Statement of Right Node Raising

### 1.1. The Domains of RNR

RNR is not restricted in application to a sentence conjunction. As is clear from (4), RNR applies to coordinations of all sorts of constituents ( $\bar{S}$ , S, NP, VP, AP, PP):

- (4) a. [  $\bar{S}$  or S John enjoyed  $\emptyset$  ] and [  $\bar{S}$  or S my friend liked the play ]. (Chomsky 1957)
- b. John interviewed [ <sub>NP</sub> people who like  $\emptyset$  ] and [ <sub>NP</sub> people who dislike potatoes ]. (Neijt 1979)
- c. She will [ <sub>VP</sub> drive to  $\emptyset$  ], but [ <sub>VP</sub> fly back

from, London ] . (Quirk et al. 1972)

d. I am [ <sub>AP</sub> confident of  $\emptyset$  ] and [ <sub>AP</sub> dependent on a successful outing at the track ] .

e. John was standing [ <sub>pp</sub> on a new  $\emptyset$  ] , or [ <sub>pp</sub> on an old table ] . (Neijt 1979)

(An empty category ( $\emptyset$ ) and an underline are mine.)

### 1.2. The Connecting Element of RNR Constructions

The rule of RNR has been usually treated as applying to co-ordinate structures. As illustrated in (5a)-(5g), however, RNR is applicable in adverbial clause constructions:<sup>2</sup>

(5) a. It seems likely to me, though it seemed unlikely to everyone else, that he would be impeached.

(Bresnan 1974)

b. Mary loves, although I detest, any film by Fellini.

(Dieterich and Napoli 1982)

c. John will surely uphold, even if his wife rejects, the views expressed by the chairman.

d. John decided to claim, soon after his wife had denied, that Bill was responsible for the robbery.

e. John seems to have accepted, only because his wife had so vehemently rejected, the views expressed by the chairman.

(Grosu 1980)

f. You cooked, before you ate, some mutton.

g. John taught last year, while John's wife will teach next year, the Book of Genesis.<sup>3</sup>

Furthermore, RNR may apply to quasi-coordinate structures as in (6):

(6) a. John boiled rather than fried his eggs.

(Dieterich and Napoli 1982)

b. I'd have said he was sitting on the edge of rather than in the middle of the puddle.

(Hudson 1976)

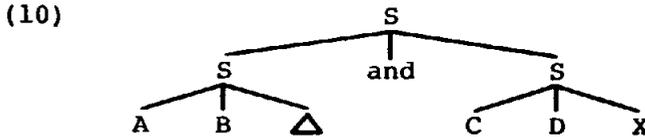


$$(9) \quad [_{\alpha} [_{\alpha} \dots [_{\beta} \Delta ] ] ] C [_{\alpha} \dots [_{\beta} X ] ] ]$$

where  $\alpha$  stands for any category ( $\bar{S}, S, NP, VP, AP, PP$ ),  
 C indicates connectors, and  $\beta$ , any category. (X is  
 a right-node-raised constituent.)

Our analysis, called an interpretive analysis, is quite different from traditional analyses, which we will refer to as transformational analyses, in that our approach suggests fairly reasonable hypotheses, the structure-preserving nature of RNR constructions and the interpretive analysis of RNR constructions.

The first hypothesis positively asserts that the surface (or output) structure of RNR constructions for (1b) is the following structure (10), not that of (2b):



The node X indicates a right-node-raised constituent, and we suppose, as illustrated above, this node is located within the second adjacent conjunct unlike traditional analyses.

As is obvious from the formalization (9) and the second hypothesis, we further assume that an empty node ( $\Delta$ ) can be generated at the level of deep structure by phrase structure rules, following Jackendoff (1972), Fiengo (1974), and Wasow (1979). The missing node in the first conjunct is represented syntactically as delta, and it is phonologically unrealized. We assume furthermore that deltas represented as empty nodes receive interpretation by semantic interpretation rules. As the Delta Interpretation Rule for RNR Constructions (DIR), we propose the following semantic rule (I):

(11) Delta Interpretation Rule for RNR Constructions (I)

$$[_{\alpha} \dots \Delta ] C [_{\alpha} \dots X ]$$

X controls  $\Delta$ .

where i) X is a constituent, and

ii) X and  $\Delta$  are of the same category.

Under the present analysis, (1b) is base generated as in (12), which is a deep and a surface structure of (1b):

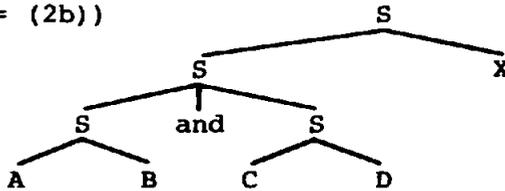
- (12) Sally might be [ <sub>AP</sub>  $\Delta$  ], and everyone believes Sheila definitely is, pregnant.

The term pregnant will be chosen as the antecedent of a missing node [ <sub>AP</sub>  $\Delta$  ] of (12) by the semantic rule (11), because they are structurally and categorially parallel; thus, the interpretation of the first conjunct is: Sally might be pregnant. Following Jackendoff (1972), moreover, we assume that sentences containing uninterpreted nodes will be semantically ill formed by the well formedness condition, and as a result, lead to the unacceptable sentences.<sup>7</sup>

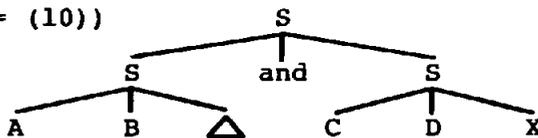
## 2. The Structure-Preserving Nature of RNR Constructions

As noted earlier, the surface structure assumed under the present analysis is entirely different from the structure in the usual analysis. Let us repeat here each structure, (13) as under the transformational analysis and (14) as under our analysis, for convenience:

- (13) (= (2b))



- (14) (= (10))



In this section, we will consider which analysis sufficiently and accurately accounts for syntactic configurational properties of RNR constructions. We will present three arguments for (14) rather than (13) for RNR sentences.

### 2.1. RNR and the Structure-Building Transformation

Ross (1967) proposes the Conjunction Reduction Transformation (hereafter, CR) as a rule deriving a kind of RNR construction. CR is formalized by Ross (1967) as follows:

(15) Conjunction Reduction

$$[\text{and} - [X - A]_B^n]_B$$

$$\begin{array}{ccc} 1 & 2 & 3 \\ [1 & 2 & 0]_B \neq 3 \end{array} \Rightarrow \text{OPT}$$

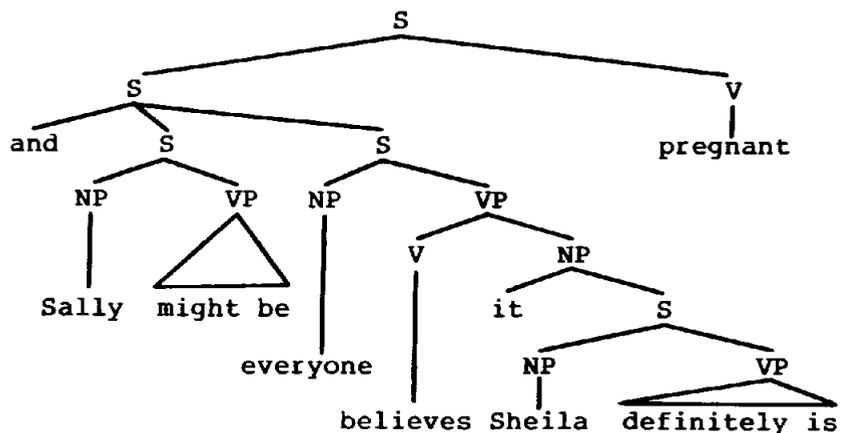
condition: all occurrences of A are identical.

According to Ross (1967), (16b) will be derived by the rule of CR applying to the underlying structure (16a):

- (16) (= (1)) a. Sally might be pregnant, and everyone believes Sheila definitely is pregnant.  
 b. Sally might be, and everyone believes Sheila definitely is, pregnant.

Counter to our interpretive analysis, Ross furthermore assumes the following structure (17) as schematized in (13):

(17)



As is self-evident from CR and the structure (17), RNR has been taken to have a structure-building capacity.<sup>8</sup> However, this idea is theoretically and substantially undesirable, I believe.

On the other hand, under the interpretive analysis, we do not set up a transformational rule RNR or assume a structure

like (17), but we suppose the schematically illustrated structure (14) for RNR constructions. This structure is generated by means of the phrase structure rules which independently derive structures other than RNR constructions; accordingly, our analysis is considerably preferable in that we need not posit a very powerful structure-building transformation in the derivation of RNR constructions.

## 2.2. RNR Constructions in Subordinate Clauses

In the previous section, we suggested that transformational analyses of RNR be abandoned since we must set up an unfavorable structure-building transformation. However, some sentences may be generated by "structure-building" transformations, namely, root transformations (henceforth, RTs).<sup>9</sup> The question to be considered here is whether or not RNR is a kind of RT.

Before discussing this question, let us briefly survey a general property of RTs, especially the applicability of RTs in S complements. Generally, RTs are applicable in main clauses, and they can also apply in some subordinate clauses. The following examples illustrate this point:

- (18) a. Wendy said she opened the window and in flew Peter Pan.  
 b. I suppose falling off the stage was quite embarrassing, wasn't it?  
 c. \*It was impossible that each part he had examined carefully.  
 d. \*Marvin regretted that he went to see it, that movie.

(Hooper and Thompson 1973)

In (18a), Directional Adverb Preposing has applied in the complements of "Class A Verbs" say, in (18b) Tag Question Formation, in those of "Class B Verbs" suppose, in (18c) Topicalization, in those of "Class C Verbs" be impossible, and in (18d) Right Dislocation, in those of "Class D Verbs" regret. The contrast between (18a,b) and (18c,d) clearly shows that RTs are applicable in the complements of "Class A Verbs" or "Class B Verbs" (or, "asser-

tive" predicates), but not in those of "Class C Verbs" or "Class D Verbs".<sup>10</sup>

Now let us see whether or not the constructions involving RNR have the same pattern of grammaticality as (18):

- (19) a. Mary says that Jack may be, and Tom certainly is, a werewolf.  
 b. I suppose that Jack permanently borrows, and Harry simply steals, rare books from public libraries.  
 c. It is impossible that John gave a book, and Peter sold a record, to the girl in the red sweater.  
 d. John regrets that Tom can, but won't, pay the full fee.

Sentences (19) indicate that RNR is acceptable also in the complements of "Class C Verbs" be impossible and "Class D Verbs" regret. In other words, RNR applies in the complements of any verb, as opposed to RTs. Then, we conclude that RNR is not a kind of RT since RNR does not exhibit the same characteristic as RTs; rather, RNR constructions have the same property as structure-preserving transformations (cf. Emonds (1976)) with respect to the distribution of RNR constructions. The facts of (19) can be correctly predicted only under the present analysis which assumes a structure-preserving formulation of RNR.

### 2.3. RNR Constructions and VP Deletion

We will adduce one further piece of evidence for (14) over (13) as the surface constituent structure of RNR sentences. Observe the following examples:

- (20) a. Tom admires, and is sure that everyone else admires, Adolf Hitler, but of course you and I don't. (= admire Adolf Hitler)  
 b. Tom talked, and is sure that everyone else talked, about politics, but of course you and I didn't. (= talk about politics; ≠ talk)

(McCawley 1982)

Each sentence in (20a) and (20b) has the missing VP. This VP

is related to the antecedent which is involved in RNR constructions by VP Deletion as an interpretive rule. Notice here that the missing VP includes the constituent to which RNR applies. Thus, in (20a), the antecedent of VP Deletion is the entire VP admire Adolf Hitler, but not the verb admire. Similarly, in (20b), the controller for VP Deletion is the VP talk about politics, but not the verb talk.<sup>11</sup>

Under the transformational approach, as is clear from a surface structure like (13), the strings admire Adolf Hitler in (20a) or talk about politics in (20b) do not form syntactic single constituents; thus, the constituent structure as a constituent VP is "destroyed" by RNR. Therefore, this analysis is quite inadequate in that only the verbs admire or talk may be taken to be the controller for VP Deletion.

On the other hand, under the alternative advanced here, the strings admire Adolf Hitler in (20a) and talk about politics in (20b) keep intact as constituent VPs, respectively; consequently, only our interpretive analysis with the hypothesis (3i) can predict that the entire VP functions as the antecedent of VP Deletion in (20).<sup>12</sup>

### 3. An Interpretive Analysis of RNR Constructions

This section discusses the validity of the hypothesis (3ii) that the rule involved with RNR constructions is an interpretive (or semantic interpretation) rule. We will present three pieces of evidence supporting our analysis.

#### 3.1. RNR Constructions and Symmetric Predicates

Symmetric predicates may occur as the right-node-raised sequences of RNR constructions. Let us look at the following sentences:

- (21) a. John hummed, and Mary sang, the same tune.  
 b. John gave Mary, and Joan presented to Fred, books which looked remarkably similar.

(Gazdar 1981)

In order to derive these sentences with symmetric predicates,

under the transformational analysis the following examples (22) must be set up as underlying structures, where symmetric predicates are included in both conjuncts:<sup>13</sup>

- (22) a. \*John hummed the same tune, and Mary sang the same tune.  
 b. \*John gave Mary books which looked remarkably similar, and Joan presented to Fred books which looked remarkably similar.

However, (22) as structures underlying (21) are ungrammatical. The impossibility of relating (21) with (22) shows that RNR cannot be a movement or deletion rule, as Gazdar (1981) also points out.<sup>14</sup>

### 3.2. RNR Constructions and Constraints on Movement/Deletion Rules

Since Ross (1967) it has been generally claimed that movement or deletion rules obey constraints on the application of rules. The constraints on the application of RNR that we are concerned with are the Complex Noun Phrase Constraint (CNPC) and the Sentential Subject Constraint (SSC).<sup>15</sup>

Before examining the relation between RNR and constraints on the application of rules, let us observe the relationship between movement/deletion rules and the CNPC and the SSC. Consider the following examples:

- (23) a. I believed the claim that Otto was wearing this hat.  
 b. \*The hat which I believed the claim that Otto was wearing is red.
- (24) a. That the principal would fire some teacher was expected by the reporters.  
 b. \*The teacher who that the principal would fire was expected by the reporters is a crusty old battleax.

(Ross 1967)

In (23b), wh-movement applies to the string this hat contained in the complex noun phrase the claim that Otto was wearing this hat in (23a). This application of wh-movement violates the CNPC;

therefore, (23b) is ungrammatical. Similarly, wh-movement applies to the string some teacher in the sentential subject That the principal would fire some teacher in (24a). This violates the SSC; as a result, (24b) is ungrammatical.

Now let us see that deletion rules are subject to the CNPC and the SSC. Here we will regard Comparative Deletion<sup>16</sup> as a syntactic deletion rule, following Williams (1977) and Wasow (1979). Consider the following examples:

- (25) a. \*John is taller than Mary believed the claim that he is.  
 b. \*John is taller than for Bill to be would be amazing.

(Wasow 1979)

(25a) and (25b) are ungrammatical in that they violate the CNPC and the SSC, respectively. Hence we stress that if some rule is a syntactic movement or deletion rule, it is subject to the constraints in question.

Let us now examine whether such constraints as the CNPC and the SSC apply to interpretive rules. Here we will treat VP Deletion as an interpretive rule, following Williams (1977) and Wasow (1979). It has been often claimed that VP Deletion fails to obey these constraints. The following sentences illustrate this:

- (26) a. John didn't take LSD, but Bill believed the claim that he did.  
 b. Although Ford didn't resign, that many people wanted to is encouraging.

(Wasow 1979)

(26a) is grammatical though the missing VP take LSD is contained in a complex noun phrase. Similarly, (26b) is grammatical though the missing VP resign is included in the sentential subject; thus, the rule relating the missing VP to its antecedent is not subject to the CNPC and the SSC. We emphasize that if a rule is an interpretive rule, it does not obey these constraints on transformational rules. This offers a criterion

to distinguish formally between movement/deletion transformations on the one hand, and interpretive rules on the other.

With this in mind, let us turn to the question of whether or not RNR is subject to these constraints:

- (27) a. Mary buys, and Bill knows a man who sells, pictures of Fred.  
 b. Mary knows a man who buys, and Bill knows a man who sells, pictures of Fred.  
 (Wexler and Culicover 1980)  
 c. John didn't, but Bill believed the claim that he did, take LSD.

- (28) That Alfonse cooked  $\emptyset$  and that Harry ate the rice is fantastic.

(Neijt 1979)

(27) and (28) indicate that RNR does not obey constraints on the application of syntactic movement or deletion rules; then, on the basis of the criterion noted above, we conclude that RNR is a kind of interpretive rule. This phenomenon is consistent with our analysis. On the other hand, under the transformational analysis, special provision must be made that the "syntactic" rule of RNR is not subject to general constraints on the application of syntactic movement or deletion rules; otherwise, grammatical sentences (27) and (28) cannot be generated.

### 3.3. RNR Constructions and Sloppy Identity

Wasow (1979) distinguishes between syntactic rules and anaphora rules (in our terms, interpretive rules) on the basis of the difference of identity phenomena. The point is that anaphora (or interpretive) rules allow sloppy identity, while syntactic rules do not. This is illustrated in the following examples:

- (29) a. Bob knows how to crane his neck, but I don't know how.  
 b. John lost more of his books than Bill lost.

(Wasow 1979)

(29a) involves Sluicing<sup>17</sup> as an interpretive rule, and (29b),

the syntactic deletion rule of Comparative Deletion. According to Wasow (1979), (29a) may have the sloppy reading, and its second conjunct can have two readings: the non-sloppy reading that I do not know how to crane his neck, and the sloppy reading that I do not know how to crane my neck. On the other hand, (29b) does not allow the sloppy reading, but requires strict identity; thus, (29b) unambiguously means that Bill lost John's books, but not Bill's books.

With this difference in mind, let us now examine which type of rules RNR belongs to:

- (30) a. Bob knows, but Tom doesn't know, how to crane his neck.  
 b. John wants to, and Bill actually does, beat Mary because he hates her.

The pronoun his of (30a) can refer to both Tom and Bob, and he in subordinate clause in (30b), to both Bill and John. This clearly shows that RNR allows the sloppy reading. From this sloppy identity phenomenon, we conclude that RNR is an interpretive rule, and not a kind of syntactic movement or deletion rule as has been claimed.

#### 4. The Constituency Debate

In section 1.3 where we discussed the constituency of RNR constructions, we tentatively claimed that the sequences, which do not form syntactic single constituents, cannot occur as right-node-raised elements. This claim is primarily based on the analyses of Postal (1974), Bresnan (1974), and Gazdar (1981). Contrastively, Abbott (1976) argues against these opinions, and advocates the idea that those which are syntactic nonconstituents may appear as material to the right of the conjoined portions. However, any nonconstituent cannot necessarily work as a right-node-raised element. Among the strings which do not make single constituents, some strings may appear on the right in RNR constructions, but others may not. With regard to which kinds of nonconstituents can occur as the "identical" items on the right

of RNR constructions, there is definite regularity. This section addresses this issue.

#### 4.1. Sister Relationship Restriction

We proposed the DIR (I) in section 1.4, which functions as a rule accounting for the case that only constituents may appear as materials to the right of the conjoined or subordinate portions, namely, right-node-raised strings. Here we will propose another kind of Delta Interpretation Rule for RNR Constructions (DIR), in order to guarantee that some nonconstituents may be right-node-raised elements.

Speakers sometimes make different judgements on the constituency of the identical items on the right of RNR sentences. Every speaker, however, judges the following sentences to be completely ungrammatical:

- (31) (= (8)) a. \*I find it easy to believe, but Joan finds it hard to believe, Tom to be dishonest.  
 b. \*John offered, and Harry gave Sally a Cadillac.  
 c. \*He tried to persuade, but he couldn't convince, them that he was right.  
 (Underlines are mine.)

Apart from (31), some speakers reject the sentences (32), while others accept them:

- (32) a. John has sliced, and Mary also seems to have sliced, a large piece of cake with a shining new knife.  
 b. Bill may present, and Mary certainly will present, a series of papers at tomorrow's linguistic meetings.  
 (Grosu 1976)  
 c. Leslie played, and Mary sang, some C&W songs at George's party.  
 (Abbott 1976)

(Underlines are mine.)

By comparison of (31) and (32), we see that in (31), more than

one element which strictly subcategorizes verbs appears as a right-node-raised element, while in (32), two items occur but one is an element which strictly subcategorizes verbs, and the other is an element which does not.

Speakers who reject both (31) and (32) have the DIR (I), capturing the fact that only constituents may be right-node-raised items. On the other hand, in order to account for the intuition of speakers who reject (31) but accept (32), we must add an additional condition to the semantic rule (I). Here we will consider strictly subcategorized elements as being in a sister relationship, but will not treat a strictly subcategorized item and an element which does not as being in a sister relationship. The Delta Interpretation Rule involving an additional condition based on the sister relationship is stated as follows:

(33) Delta Interpretation Rule for RNR Constructions (II)

$$[ {}_{\alpha} \dots \Delta ] \subset [ {}_{\alpha} \dots X ]$$

X controls  $\Delta$ .

where X is not analyzable as sister-adjoined.

According to this rule, we can properly account for the linguistic intuition of speakers who reject (31) but accept (32).

Based on two kinds of DIRs ((I) and (II)), we can easily account for the fact that nonfinite VPs can appear as a right-node-raised element, but finite VPs cannot. Observe the contrast in the following examples:

- (34) a. Mary will, and John will not, buy the truck.  
(Wexler and Culicover 1980)

- b. Tom said he would, and Bill certainly did,  
eat a raw eggplant.  
(Postal 1974)

- (35) a. \*John claims that Mary, and Tom thinks that  
Nancy, stole the ring.  
(Terazu 1975)

- b. \*John swore that Kathy, and Albert succeeded in  
proving that Sally, was a virgin.  
(Hankamer 1972)

In (34), nonfinite VPs which form single constituents appear as the shared items of RNR constructions. This satisfies the conditions of DIRs ((I) and (II)); hence, the rules relate to deltas the right-node-raised elements as antecedents. Therefore, (34) are grammatical.

On the other hand, (35) do not satisfy these conditions. Here let us look at each structure of the shared items of (35). It will be roughly as follows according to Chomsky's (1981) phrase structure rules:<sup>18</sup>

- (36) a. [ <sub>INFL</sub> PAST ] [ <sub>VP</sub> steal the ring ]  
 b. [ <sub>INFL</sub> PAST [ <sub>AUX</sub> be ] ] [ <sub>NP</sub> a virgin ]

As is obvious from the structures in (36), each string does not form a syntactic single constituent; then, this is incompatible with the condition in (11). Furthermore, it has a sister-relationship; then, this is inconsistent with the condition in (33). Hence, the DIRs ((I) and (II)) fail to relate to deltas the shared items on the right of RNR constructions. Sentences including uninterpreted nodes will be excluded by the well formedness condition, as mentioned above; as a result, (35) are ungrammatical.

#### 4.2. Apparent Counterexamples

This subsection discusses apparent counterexamples to the DIRs ((11) and (33)). When the sequence NP PP of double object constructions (henceforth, DO constructions) appears as the identical items of RNR constructions, speakers form different judgements on their grammaticality. Observe the following sentences:

- (37) a. \*John gave, but Bill didn't give, a present to Mary.  
 (Grosu 1976)  
 b. \*The bouncer took, and de la Vin mailed, toys to Daphne's kitten.  
 (George 1980)
- (38) a. Joan offered, and Mary actually gave, a gold Cadillac to Billy Schwarz.  
 (Abbott 1976)

- b. John gave, and Peter sold, a book to the girl in the red sweater.

(Oirsouw 1983)

The DIRs ((11) and (33)) can correctly predict the linguistic intuition of speakers who reject (37), since the shared items of (37) (a present and to Mary in (37a), or toys and to Daphne's kitten in (37b)) do not satisfy the conditions of (11) and (33).

On the other hand, sentences (38) apparently seem to be counterexamples to the semantic rules (11) and (33). For, as opposed to (37) of the same type, (38) are completely grammatical sentences contrary to our expectation. However, we contend that (38) do not form true counterexamples to our general rules. In fact, there is a possibility that our semantic rule (33) can account for this grammaticality of (38).

Generally, the object NP and the dative PP of DO constructions have been taken to be obligatorily strictly subcategorized elements, namely, constituents occurring inside  $V^1$ . However, notice that there is a subtle difference of strict subcategorization between them. Thus, Culicover and Wilkins (1984) distinctly claim that the PPs are outside  $V^1$ ; therefore, they are not strictly subcategorized. Observe the contrast of the following examples:

- (39) Who put the book where?

\*John did on the table.

- (40) Who sent the letter to who(m)?

John did to Mary.

(Culicover and Wilkins 1984)

(39) shows that the constituent  $V^1$  must be deleted by the VP Rule of Williams (1977). In light of this rule, we can say that the PPs of DO constructions are outside  $V^1$  since (40) is grammatical.<sup>19</sup>

Furthermore, let us take notice of the difference in grammaticality between the strings NP NP and NP PP in Do So sentences:

- (41) a. ?John gave Mary a book, and Bob did so a magazine.  
 b. John gave a book to Mary, and Bob did so to Susan.

My informant reports that (41b) is much more acceptable than (41a).<sup>20</sup> This result definitely suggests that the PPs are not strictly subcategorized; thus, they are outside  $V^1$ . If so, the NPs and PPs of DO constructions do not have sister relationships; then, they will satisfy the condition in (33). Therefore, (38) will be acceptable or grammatical.

A second argument involves the same exceptional property of the PPs in other constructions. In other words, that the string NP PP has very peculiar status is not restricted to RNR constructions. It is also observed in Gapping or Pseudo-Cleft constructions. The following examples illustrate this:

(42) Gapping

- a. \*John gave Mary a book, and Bill, Fred a magazine.  
 b. John gave a book to Mary, and Bill, a magazine to Fred.

(43) Pseudo-Clefting

- a. \*What Smith loaned, and his widow later donated, was the library a valuable collection of manuscripts.  
 b. What Smith loaned, and his widow later donated, was a valuable collection of manuscripts to the library.

(44) Right Node Raising

- a. \*Joan offered, and Mary actually gave, Billy Schwarz a gold Cadillac.  
 b. Joan offered, and Mary actually gave, a gold Cadillac to Billy Schwarz.

(45) Clefting

- a. \*It was Billy Schwarz a gold Cadillac that Joan offered, and Mary actually gave.  
 b. \*It was a gold Cadillac to Billy Schwarz that Joan offered, and Mary actually gave.

Anyway, constituency is involved with Gapping and Pseudo-Clefting. Only constituents can follow the "gap" in the gapped sentences, and must occupy the focal position in the pseudo-cleft sentences. (See (42a) and (43a)) However, (42b) and (43b) are completely grammatical. This behavior of syntactic nonconstituents in (42) and (43) corresponds to that of the string NP PP in (44); they behave as if they were constituents. (In effect, it is obvious from (45) that the string NP PP does not form a syntactic constituent.)

From these considerations, we conclude that (38) are not true counterexamples to our analysis. Furthermore, (42) and (43) will present supporting evidence to indicate that our approach is moving in the right direction. The grammaticality of the b-sentences of (42)-(44) with the syntactic nonconstituent NP PP will urge the need of reconsideration of the constituency problem of various syntactic phenomena.

## 5. Conclusion

In section 1, we formalized a rule of RNR based on two kinds of hypotheses: i) the structure-preserving nature of RNR constructions, and ii) an interpretive analysis of RNR constructions. In section 2, we considered the validity of the first hypothesis (3i), and verified that there is no syntactic evidence for the output structure of RNR sentences assumed so far under the transformational analysis. In section 3, we presented sufficient evidence to indicate that RNR constructions exhibit characteristics of constructions which involve interpretive rules, and verified that the second hypothesis (3ii) is valid. In section 4, we disclosed that there is definite regularity with respect to what kinds of nonconstituents may appear as right-node-raised strings, and proposed two rules of Delta Interpretation Rules (11) and (33) with conditions capturing this regularity.

## NOTES

\* This is a slightly revised version of my unpublished paper "An Interpretive Analysis of Right Node Raising in English" presented in 1985 to Prof. Minoru Nakau, to whom I would like to express my deepest gratitude for his invaluable comments and suggestions. I am also grateful to Wayne Lawrence, Shoichi Tanaka, Takeshi Omuro, Hiroaki Horiuchi, and Naohiro Takizawa for their comments on an earlier draft. The essence of this paper was also read at the regular meeting of Tsukuba English Linguistic Circle held on January 27, 1985.

<sup>1</sup> This term "Right Node Raising" is founded on the terminology of Postal (1974).

<sup>2</sup> Throughout, the judgements of sentences in this paper are due to my informant, Wayne Lawrence unless we indicate the source of examples.

<sup>3</sup> RNR applies to (5g) after the application of Complex NP Shift. See Terazu (1975: 53-4). On the structure-preserving analysis of Complex NP Shift, see Emonds (1976: 111-3). Therefore (5g) is not a counterexample to our assumption (3i).

<sup>4</sup> But consider the following examples:

- (i) He tried to persuade, but he couldn't convince,  
 { a. \*them  
 b. the students that he liked } .

(Bresnan 1974)

Bresnan cites (i) as examples showing that if a string is a constituent, it may not undergo RNR. But we emphasize that this decision is basically incorrect in light of the syntactic view. The grammaticality of (ia) is not due to a syntactic or categorial factor, but a kind of the information-structural one. In other words, (ia) is unacceptable since a right-node-raised element is a pronoun them, violating the constraint that right-node-raised strings generally must function as the unmarked focus. The existence of this condition turns out to be defended by the following sentences:

- (ii) a. My friend enjoyed and my family liked  

$$\left\{ \begin{array}{l} **it \\ ?*the\ book \\ \quad Ingroid's\ book\ of\ Attic\ etchings \end{array} \right\} .$$
- b. My friend enjoyed thoroughly  

$$\left\{ \begin{array}{l} **it \\ ?*the\ book \\ \quad Ingroid's\ book\ of\ Attic\ etchings \end{array} \right\} .$$
- (George 1980)

Sentences (ii) indicate that the shared items have the same status in the information structure as the heavy noun phrase; thus, we assume here that (ia) is grammatical but unacceptable.

<sup>5</sup> Some, but not all, nonconstituents may appear as the identical sequences of RNR constructions. We will return to a more comprehensive consideration of the constituency of RNR constructions in section 4.

<sup>6</sup> Every subordinating conjunction cannot occur as a connecting element. RNR sentences containing some subordinators in (i)-(iv) are judged to be ungrammatical:

- (i) \*John has been practicing to,  $\left\{ \begin{array}{l} \text{because} \\ \text{ever since} \\ \text{since} \\ \text{as} \\ \text{for} \end{array} \right\}$  he  
 decided to, clean his own room every other day.
- (ii) \*John wanted to destroy, while he read, the Book of Genesis.
- (iii) \*George studied hard to be, so that he became, a teacher of English at a secondary school.
- (iv) ?\*John sent his book to, so that he might impress, the influential professor at Harvard University.

At the present time, I do not know what kinds of subordinators can occur as connecting elements within RNR constructions.

<sup>7</sup> Takeshi Omuro has pointed out to me that in addition to

this assumption, we must assume a formal mechanism which checks whether sentences including interpreted nodes are semantically or syntactically acceptable, in order to exclude the following sentences:

- (i) \*Tom is [ <sub>AP</sub>  $\Delta$  ] and Mary is [ <sub>AP</sub> pregnant ].  
 (ii) \*John gave a camera [ <sub>pp</sub>  $\Delta$  ] and Tom bought a camera [ <sub>pp</sub> for Mary ].

<sup>8</sup> On this matter, see Postal (1974), Terazu (1975), and Neijt (1979). Gazdar (1981: 178-80), who asserts that RNR constructions can be generated by means of a very general schema for rightward displacement, but not a movement or deletion rule, supposes the same type of output structure as schematized in (13).

<sup>9</sup> On the definition of root transformations, see Emonds (1976).

<sup>10</sup> See Hooper and Thompson (1973) on the classification of verbs.

<sup>11</sup> In order to capture this point, McCawley (1982) analyzes RNR constructions as discontinuous structures.

<sup>12</sup> It has been often claimed that RNR constructions involve a sharp intonational marking as one piece of evidence supporting the idea that RNR constructions have the output structures like (13). On this matter, see also Postal (1974: 125). However, the syntactic structure and the phonological structure do not always correspond with each other. (This has been pointed out to me by Prof. Minoru Nakau.) In this paper, therefore, in order to capture several syntactic properties of RNR constructions, we pay no attention to phonological factors, and assume the structure like (14) as the output structure of RNR derivations.

<sup>13</sup> The asterisk mark (\*) of (22b) is added to indicate that (22b) is not equivalent in meaning to (21b). Of course, (22b) is a perfectly acceptable sentence.

<sup>14</sup> Wayne Lawrence has suggested to me that sentences (22) as deep structures do not have to be grammatical; (21) may be derived by a transformational rule from (22). But we assume

here that the underlying as well as surface structures are basically grammatical.

<sup>15</sup> On the Complex Noun Phrase Constraint (CNPC) and the Sentential Subject Constraint (SSC), see Ross (1967: 70) and Ross (1967: 134), respectively.

<sup>16</sup> Opinions are divided on whether Comparative Deletion is a movement or a deletion rule. Here we assume that this rule is a deletion rule, following Wasow (1979). Observe the following example, which counts as evidence against postulating a movement rule for Comparative Deletion:

- (i) John gave more of my money to the WCTU than he gave of your money to the ASPCA.

(Wasow 1979)

Comparative Deletion may delete left branches of NP's, but these may never be moved by movement rules in general, as Wasow mentioned. If so, Comparative Deletion must be a deletion rule in order to generate (i).

<sup>17</sup> We will regard Sluicing as an interpretive rule, for this rule is not subject to the CNPC, as illustrated in (i):

- (i) John accused a man who teaches at an Ivy League university, but I don't know which university.

(Wasow 1979)

<sup>18</sup> We will assume the following phrase structure rules:

- (i) a.  $\bar{S} \longrightarrow \text{COMP S}$   
 b.  $S \longrightarrow \text{NP INFL VP}$  (Chomsky 1981: 52)

<sup>19</sup> On other arguments supporting the claim that the PPs of DO constructions are not strictly subcategorized, see Culicover and Wilkins (1984: 26-31).

<sup>20</sup> The judgements of (41-45) are due to my informant. He judges (38) grammatical, and (31b) ungrammatical.

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Institute of Literature and Linguistics  
University of Tsukuba