

On the Syntax of "Stylistic" Rules*

Koji Ono

Norimi Kimura

Masaki Sano

0. Introduction

This paper deals with the phenomena apparently involving preposing and/or postposing certain categories, which some linguists have treated under the rubric of "stylistic" rules. These phenomena are largely divided into three types each of which is illustrated with the following examples:

- (1) a. In the picture John took, he found a scratch.
- b. Fighting with his enemy was a tall man.
- c. Against him collided a beautiful woman John had never seen before.

The a-example has a PP in the initial position which appears to have been moved from the sentence-final position. The b- and c-examples appear to involve both preposing what follows the verb and postposing the subject NP. In fact, many linguists have claimed that these sentences are derived from the structures underlying (2):

- (2) a. He found a scratch in the picture John took.
- b. A tall man was fighting with his enemy.
- c. A most beautiful woman John had never seen before collided against him.

Whatever rules it may be that relate (1) and (2), however, they cannot be stylistic rules in the sense of Chomsky and Lasnik (1977). This is because coreference relation

must not be affected by stylistic rules under the conception of Chomsky and Lasnik, which is now widely accepted among generative grammarians, and yet there is a clear difference in coreference relation between the corresponding sentences in question. Thus John and he may be coreferential in (1a) but not in (2a); his may refer to a tall man in (2b) but not in (1b); and him can be in coreference relation with John in (2c) but not in (1c). Therefore, sentences like (1) must be generated by some mechanisms that are not stylistic in nature. We will discuss what these mechanisms look like, and propose some general rules applying cross-categorially.

The sentences of the type (1a), those beginning with a PP followed by the subject, are considered in section 1. Those of the type (1b) where the verb be is followed by what appears to be the subject are examined in section 2. Finally, those of the type (1c) similar in form to (1b), except that the main verb is other than be, are discussed in section 3.

1.0. It is often claimed that prepositional phrases fall mainly into two types: one is what may be called sentence prepositional phrase (S-PP) and the other, verb phrase prepositional phrase (VP-PP). We will first review briefly the difference between these two kinds of PP's on the basis of both syntactical and semantical points of view. After that, we will examine how to generate an S-PP, arguing for a rule to be called Association Rule that is responsible for its generation. As for VP-PP, we will especially be concerned with the position to which

it is preposed, and conclude that it is adjoined to S.

1.1. Consider first the following examples:¹

- (3) a. Rosa is riding a horse in Ben's picture.
 b. Rosa found a scratch in Ben's picture.

There are a number of reasons to believe, as argued by Reinhart (1976), that the syntactic and semantic functions of the PP in (3a) and those of the PP in (3b) should be distinguished from each other, in spite of the fact that both of these PP's are identical in form and placed at the same sentence-final position. For example, observe what happens when the above examples are psuedo-clefted as in the following:

- (4) a. *What Rosa did was ride a horse in Ben's picture.
 b. What Rosa did was find a scratch in Ben's picture.
 (5) a. What Rosa did in Ben's picture was ride a horse.
 b. *What Rosa did in Ben's picture was find a scratch.

The contrast in grammaticality as shown in (4) indicates that the PP in (3a) is located outside the VP and the PP in (3b), inside the VP. The contrast shown in (5) is a further indication that the PP in (3a) is hanging from S, whereas the PP in (3b) cannot be. Reinhart (1976) calls the type of PP exemplified by (3a), S-PP and that exemplified by (3b), VP-PP.

Another piece of evidence for the distinction between S-PP and VP-PP is concerned with their distributional properties. S-PP can appear in various positions of a given sentence, while VP-PP is more restricted in its

occurrence than S-PP. For instance, S-PP can occur between the subject and the main verb, but VP-PP cannot, as in the following:

- (6) a. Rosa, in Ben's picture, looks sick. (S-PP)
 b. *Rosa, in Ben's picture, found a scratch. (VP-PP)

Furthermore, it is possible for S-PP, but not VP-PP, to appear in the initial positions of the Wh-question and Yes/No-question constructions:

- (7) a. In Ben's picture, how does she look? (S-PP)
 b. *In Ben's picture, what did she find? (VP-PP)
 (8) a. In Ben's picture, does Rosa look sick? (S-PP)
 b. *In Ben's picture, did Rosa find a scratch?
 (VP-PP)

Note that the declarative counterparts to (8) are both grammatical:

- (9) a. In Ben's picture, Rosa looks sick.
 b. In Ben's picture, Rosa found scratch.

Therefore, we cannot attribute the grammaticality of the b-sentences in (7) and (8) to the absolute impossibility of placing VP-PP in the sentence-initial position.

S-PP and VP-PP behave differently with respect to the quantifier scope interpretation as well. Thus, consider the following examples:

- (10) a. Someone is riding a horse in all of Ben's pictures. (S-PP)
 b. Someone found scratches in all of Ben's pictures. (VP-PP)
 (11) a. In all of Ben's pictures someone is riding

a horse. (S-PP)

- b. In all of Ben's pictures someone found scratches. (VP-PP)

(10a) with an S-PP in the sentence-final position can be interpreted in either of the following two ways:

- (12) a. the same person is riding a horse in all of Ben's pictures
 b. a different person is riding a horse in all of Ben's pictures

Under the reading (12a), the scope of someone in (10a) is wider than that of all, while under the reading (12b), it is narrower. On the other hand, (10b) with a VP-PP in the final position allows only one interpretation where someone has wider scope than all, namely (13):

- (13) the same person found scratches in all of Ben's pictures

Turning to (11a), in which the same S-PP as (10a) is placed in the sentence-initial position, this sentence does not show any semantic ambiguity, in contrast to (10a); it has only one reading under which all has wider scope than someone, that is, the reading corresponding to (12b). However, with VP-PP in the initial position as in (11b), there arises a semantic ambiguity: (11b) may have either the same reading as (10b), namely (13), or else the following reading:

- (14) a different person found scratches in all of Ben's pictures

That is, the scope of someone relative to all in (11b) is

ambiguous, in sharp contrast to (10b) where the scope of someone is unambiguously wider than all.

1.2. We have observed that S-PP occurs in various positions of a given sentence: sentence-finally as in (3a), between the subject and the main verb as in (6b), and in the sentence-initial position of a wh-question construction as in (7a). In addition, it can be placed between the COMP position and the subject NP:

- (15) I found that in Ben's picture Rosa was riding
a horse.

The question to be asked here is whether some movement rule preposing or postposing an S-PP is involved in order for an S-PP to appear in its surface position and, if not, how they are generated.

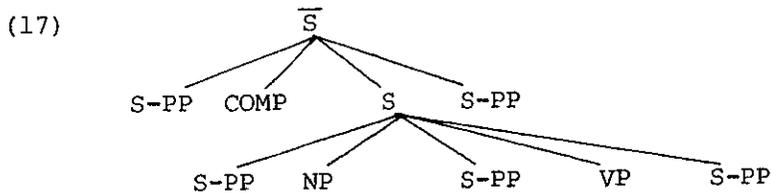
There are at least two reasons not to adopt the movement analysis. First, the movement analysis presupposes that there is a 'basic,' original position of an element to be moved. As far as S-PP is concerned, however, it is hard if not impossible to decide what position is its original one. This is because S-PP never, by the nature of things, functions as a complement of any lexical category such as N, A, or V.² Under the natural assumption that S, unlike NP, AP, or VP, does not have its head, therefore, there cannot be a fixed position in which S-PP should be generated in the base. Second, even if we could fix on the base position of S-PP, it would also be impossible to determine uniquely to which position it is moved (i.e., its "landing site"), since there exists more than one derived position. In general, there must be one and only

one landing site for a category to move to. These observations suggest that S-PP should be treated in terms of an approach quite different from Move α .

We propose, in order to account for the peculiarities of S-PP noted above, to introduce into the grammar a rule called Association Rule,³ which may be formulated in (16) with respect to S-PP:

- (16) Association Rule (preliminary version)
Associate S-PP with S-system⁴

This rule permits S-PP to appear in such positions as indicated in the configuration (17):



Every sentence with S-PP exemplified so far is in one of the positions in (17). Although S-PP may occupy the sentence-final position as in (3a), we are not concerned with the question whether it is dominated by \bar{S} or S in such a case.

We have presented Association Rule (16) as a rule for generation of S-PP. It might seem, however, that it is ad hoc in that it applies only to S-PP. Actually, the Association Rule can apply to not only S-PP but also sentence adverbs that also appear various positions in a sentence. In the latter case, the rule would take the form: "associate a sentence adverb with S-system." One of such examples is shown in (18):

- (18) a. Probably, George has read the book.
b. George probably has read the book.

- c. George has probably read the book.
- d. George has read the book probably.

Furthermore, the rule can also handle parenthetical phrases such as I think, illustrated in the following:

- (19) a. John, I think, is honest.
- b. John is, I think, honest.
- c. John is honest, I think.

Suppose that materials associated with S-system are determined by an independent principle of grammar. Association Rule would then take the following form:

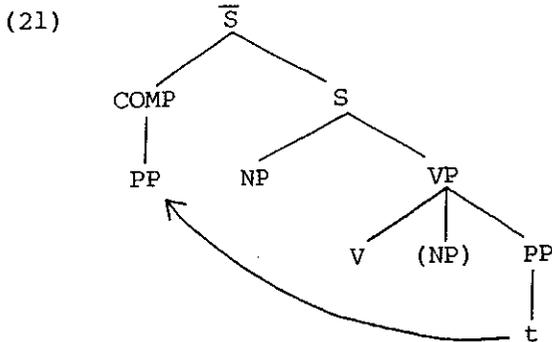
- (20) Association Rule
- Associate α with S-system

Obviously, the most general version of Association Rule is: Associate α with β . This is in fact what Haraguchi (1983) proposes, although he excludes S-PPs from being generated via his association rule.

1.3. We will assume without argument that VP-PP's in (9b) and (11b) are moved from their base-generated positions to the surface sentence-initial ones by a preposing rule of some sort. The main concern in this section is to decide where the PP in question is moved to.

Two possibilities suggest themselves: PP is moved to COMP, or it is adjoined to the node S. We will first examine the first possibility. This is proposed in Reinhart

(1981, 1983), and is illustrated with the following figure:



According to this analysis, VP-PP preposing is permissible only if COMP is empty. This receives support from the fact that two elements never appear in COMP in English, as in (22):

- (22) *{What who } bought?
 {Who what }

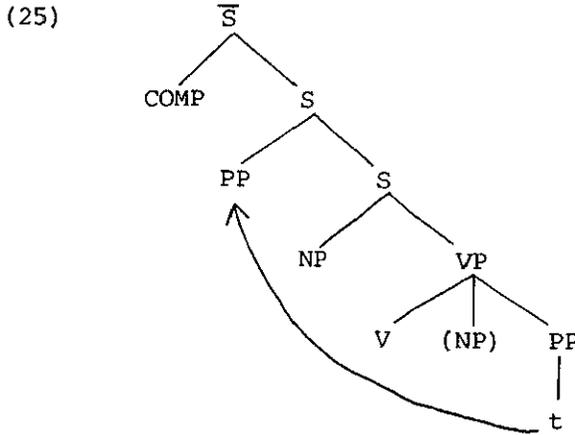
What this analysis predicts is that the string PP-COMP-Subject never occurs. This prediction proves true since the sentence with such a string is ungrammatical, as in (23):

- (23) *On this desk, who put this book? (cf. (7a))

However, this analysis also excludes sentences with the string COMP-PP-Subject as ungrammatical. But, there are acceptable sentences with the COMP-PP-Subject sequence:

- (24) I believe that on this desk John put this pen.

Let us turn to the second possibility, namely the analysis according to which VP-PP is adjoined to the node S, as illustrated in (25):



This analysis makes it possible to account for the fact that VP-PP can be preposed to the sentence-initial position as in (9b), but not to the position followed by COMP as in (23). It also guarantees that the sentence (24) in which VP-PP is between COMP and the subject is grammatical. In this respect, this second analysis is preferable to the first. We therefore adopt tentatively this second approach.

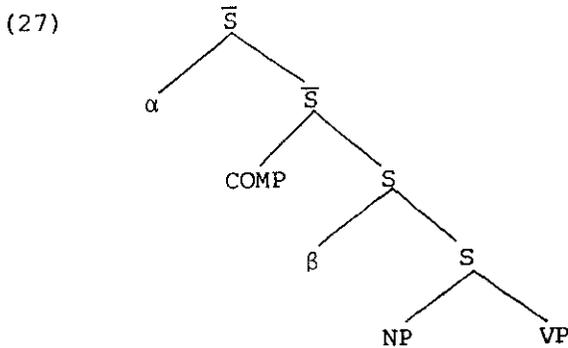
What seems to be a problem at this point is that if the category to be adjoined to S is restricted to VP-PP, the rule involved might as well be regarded as a rather *ad hoc* rule. Fortunately for our analysis, however, there are strong evidence that the rule applies to all maximal categories including VP-PP.

All of the sentences in (26) show that NP, VP, AP and \bar{S} may be preposed to the sentence-initial position:

- (26) a. Mary John talked to. (NP)
 b. Kiss Mary John did. (VP)
 c. Afraid of Mary John is. (AP)
 d. That John went to the supermarket, I deny. (\bar{S})

The question, then, is to what position these categories

are adjoined. There are two possibilities conceivable; they are adjoined either to \bar{S} or S , as in (27):



The possibility of preposing them to the position α is rejected by the ungrammaticality of sentences such as (28):

- (28) a. *Mary, who talked to? (NP)
 b. *Kiss Mary, who did? (VP)
 c. *Afraid of Mary, who is? (AP)
 d. *That John went to the supermarket, who denies. (\bar{S})

What about the other possibility, namely preposing them to the position β ? This indeed seems to be the exact position we want, given the grammaticality of examples like the following:

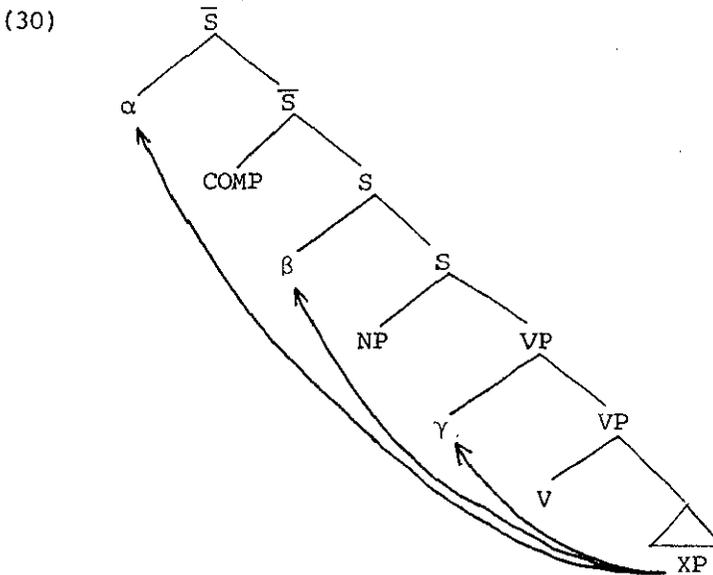
- (29) a. I believe that Mary John talked to.
 b. I believe that talked to Mary John did.
 c. I believe that afraid of Mary John is.⁵

The preposed materials (NP, VP, AP) in (29) are all preceded by COMP and followed by the subject, and therefore must be located in β in (27).

These observations suggest that the rule preposing VP-PP is a special case of a more general rule, XP-Adjunction,⁶

whose role is to adjoin XP (NP, VP, AP, PP and \bar{S}) to S.

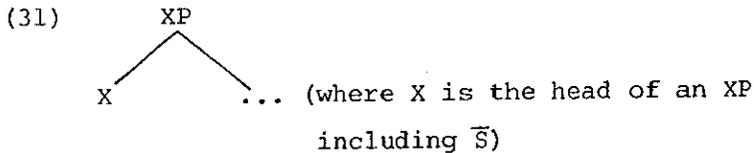
One might ask why XP is adjoined only to S rather than other nodes, in spite of the fact that there are other possible landing sites. It should be noted here that logically possible landing sites are generally subject to the following requirements: (i) the position to which a category α moves c-commands the position originally occupied by α (cf. Chomsky (1981, p. 59)) (ii) adjunction is permissible to peripheral positions of certain categories (cf. Chomsky (1981, p. 184)). By virtue of these two conditions (i) and (ii), the possible landing sites for a category to be preposed, XP, are limited α , β and γ in (30):



All of the three positions c-command the position originally occupied by XP, and furthermore α is peripheral to \bar{S} , β to S and γ to VP.

The question is why β is the only position available

for XP- Adjunction. We claim that the answer is traced to what we call the Head Initial Constraint. In English, as is well-known, the head of a maximal projection must precede every complement it takes, at least at the base. This property, of course, is language-specific and not universal. Specifiers apart, this property entails that the head X of XP must appear to the left-most position in XP. Call this the Head Initial Constraint (HIC). Let us assume that HIC must hold through mapping of D-structure to S-structure by Move α (including XP-Adjunction). Thus, at every stage of derivation involving movement rules, the following structure must hold:⁷



Given this condition, both α and β will be excluded as appropriate landing sites: under the reasonable assumption that COMP is the head of \bar{S} ,⁸ α cannot be a possible landing site because otherwise there is a violation of HIC, and γ is also an impossible landing site for the same reason, V being the head of VP. By contrast, there is no violation of HIC with respect to β because S does not have its head. We see, then, that landing sites for a category moved by XP-Adjunction need not be stipulated, given HIC and some auxiliary assumptions. What remains to be stipulated at present seems to be only the direction of XP-Adjunction--all of the cases of XP-Adjunction we have seen thus far are those of leftward adjunction. However, we will see in section 3 that this too need not be stipulated.

2.0. XP-be-NP (XP stands for maximal projections)

In this section, we will discuss the derivational process yielding the following structural configurations:

$$(32) \quad \left\{ \begin{array}{c} \text{NP} \\ \text{AP} \\ \text{PP} \\ \text{VP} \\ \text{S} \end{array} \right\} \text{ be NP}$$

It is generally claimed that (32) is derived transformationally from (33):

$$(33) \quad \text{NP be} \left\{ \begin{array}{c} \text{NP} \\ \text{AP} \\ \text{PP} \\ \text{VP} \\ \text{S} \end{array} \right\}$$

We will first observe and criticize the previous proposals. Secondly, we will propose an alternative to the transformational analysis assumed so far. Finally, observing some peculiarities of sentences of the form (32), we will make a significant generalization concerning movement to A-position, that is, movement to the 'potential argument position.'⁹

2.1. The previous proposal and the problem

It is generally believed (e.g., Emonds 1976, Hooper and Thompson 1973) that there is a rule which permutes with the NP subject a predicate adjective phrase, yielding examples like the following:

- (34) a. More important has been the establishment of legal services.
- b. Equally difficult would be a solution to Russell's

paradox.

c. Most embarrassing of all was losing my keys.

However, there are examples headed by AP which have no putative sources. Thus, although a sentence such as (35a) could have been derived from (35b), there would be no comparable source for a sentence such as (36):

(35) a. More significant would be the development of a semantic theory.

b. The development of a semantic theory would be more significant.

(36) Consistent with these data is in the fact that the signing children tended to show a right visual field superiority in recognition of the line drawings.

(Kubota 1981)

The sentence (36) would pose a problem to any analysis that assumes that the syntactic category functioning as the subject must be NP and not other categories; there is no matrix NP subject, apparently.

Furthermore, consider the following example:

(37) a. ?Important has been the establishment of legal services.

(Kubota 1981)

b. The establishment of legal services has been important.

(37a) must have been derived transformationally from the underlying structure (37b). But the transformed version is not perfectly acceptable.

Consider now the following examples:

- (38) a. Speaking at today's lunch will be our local congressman.
 b. Examined today and found in good health was our nation's chief executive.

To generate examples like these, Emonds (1976) and Hooper and Thompson (1973) assume the same means as the "comparative substitution." Thus, (39) is assumed to have been derived transformationally from (40):

- (39) Standing next to me was the president of the company.
 (40) The president of the company was standing next to me.

According to their analyses, the present participle (or VP) standing next to me is preposed and the NP subject the president of the company is postposed. However, observe the following examples:

- (41) a. Branching off from the War Room is a warren of powerfully built and beautifully orchestrated rooms.
 b. ?A warren of powerfully built and beautifully orchestrated rooms is branching off from the War Room.
 (42) a. Adjoining the library is an anteroom.
 b. ?An anteroom is adjoining the library.

(Sundby 1976)

(41a) and (42a) must have been derived from their putative sources (41b) and (42b), respectively, by means of the rule "participle preposing". But these sources are not quite well-formed.

Furthermore, consider the following examples ((43a) and

(44a) are from Bolinger (1977)):

- (43) a. *Standing was my brother.
 b. My brother was standing.
- (44) a. ?Staring were two beady little eyes.
 b. Two beady little eyes were staring.

According to the "participle preposing", (43a) and (44a) must have been derived from their underlying structures (43b) and (44b), respectively. But both transformed versions are unacceptable, or, at least unnatural.

In short, if we assume the transformational approach to the derivation of "comparative substitution" and "participle preposing" constructions, we must sometimes hypothesize almost impossible sources to derive well-formed sentences, and cannot prevent ill-formed sentences from being derived from well-formed underlying sources.

2.2. A proposal for the derivation of the XP-be-NP constructions

We will assume the following phrase structure rule:

- (45) $S \longrightarrow \alpha \text{ AUX } \beta$
 where α and β stand for maximal projections
 (NP, AP, PP, VP, \bar{S})

Let us consider the cases where the maximal projections or syntactic categories of various types occupy the position of α :¹⁰

- (46) α is an NP
 a. John is [_{NP} a student].
 b. John is [_{AP} handsome].

- c. John is [_{VP} hitting Bill].
- d. John is [_{PP} in New York].
- e. John is [_S to leave tomorrow].

(47) α is an AP

- a. More important has been [_{NP} the establishment of legal services].
- b. More comfortable is [_{PP} under the bed].
- c. Taciturn is [_S what I have never been]. (Ross 1973)
- d. More important is [_S that there is a flaw in his analysis].

(48) α is a PP

- a. In the doorway was [_{NP} an old man].
- b. Under the bed is [_{AP} more comfortable].
- c. Under the bathtub was [_S where we slept].
(Ross 1973)

(49) α is a VP

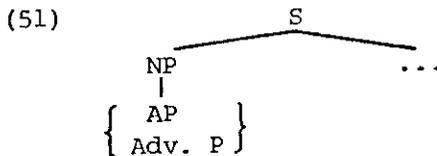
- a. Speaking at today's lunch will be [_{NP} our local congressman].

(50) α is an \bar{S}

- a. What I found was [_{NP} a poisoned grapenut].
- b. What I have never been is [_{AP} taciturn].
- c. Where we slept was [_{PP} under the bathtub].
- d. That under the bathtub is where you slept is [_{VP} staggering].
- e. What I realized was [_S that we were being duped].
(Ross 1973)
- f. To be noted here is [_S that there is a subject that is not an NP].

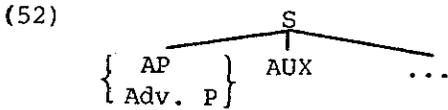
(46-50) show that in the case where α is an NP or \bar{S} , β may be a maximal projection of any categorial type, but in the case where α is a PP, AP, or VP, the category occupying the position β seems to be restricted. In other words, PP, AP, and VP have less chance of being the subject than NP and \bar{S} do. This seems to be accounted for in terms of the difference in "argumentness". That is, the higher the degree of the argumentness of syntactic categories is, the higher the degree to which they occupy the subject position is. And conversely, the lower the degree of the argumentness of syntactic categories is, the lower the degree to which they occupy the subject position. (This idea basically follows Kubota (1981).) Assuming that PP, AP, and VP are lower than NP and \bar{S} in the degree of the argumentness, they are less likely to occupy the subject position α .

Consider in passing a structure such as (51), which is assumed by Kubota (1981):



It is widely accepted that the phrase structure of a language is restricted in accordance with one or the other version of \bar{X} theory. (Chomsky 1970, Jackendoff 1977) Thus, the structure (51) must be excluded because it does not satisfy two general conditions of \bar{X} theory: One is that X^n or XP must dominate the same categorial types as itself. The other is that the dominated category must be one level lower than the dominating one in the \bar{X} hierarchy. In (51), however, NP dominates AP or Adv. P, which is not the same categorial type as NP, nor one level lower than

NP (NP and AP/Adv.P both being maximal). But our phrase structure rule (45) makes it possible to avoid the problems inherent to a structure like (51). According to (45), the structure (52) is entirely possible because α in (45) may be a maximal projection of any categorial type:



Thus, in the "comparative substitution" constructions, α in (45) is an AP. In the "participle preposing" constructions, α in (45) is a VP. In the "PP substitution" constructions, α in (45) is a PP. By adopting the phrase structure rule (45), we will be able to overcome some problems with the transformational approach.

Let us return to some examples observed in 2.1. we consider first (41-44). (41a) and (42a) are generated in place at the base according to the phrase structure rule (45). (41b) and (42b) are also generated, but they are excluded by virtue of the general requirement that the main verb in its progressive form must not be stative. Furthermore, their imperfectness may also due to indefiniteness of the subject NP. Thus, as branch and adjoin are not "verbs of appearance", the indefinite NP may not easily occupy the subject position in (41b) and (42b). Note that this line of account is not peculiar to our analysis but is necessary in any case whether we take a transformational or a base generation approach. (43-44) are generated according to (45), but (43a) and (44a) violate functional constraints of some sort.¹¹ Consider now the examples (36-37). (36) is also generable directly at the base according to (45). (37a) and (37b) are also generable, but (37a) is not completely

grammatical, on discourse grounds as discussed by Kubota (1981).

It should be pointed out that there is some evidence that in the "PP substitution" and the "comparative substitution" constructions, PP or AP occupies the subject position. Consider:

(53) Who do you think (*that) saw Bill?

(Chomsky and Lasnik 1977)

(54) How much important do you believe (*that) is the establishment of legal services?

(55) It's in these villages that we all believe (*that) can be found the best examples of this cuisine.

(Bresnan 1977)

These are well known as the that-trace phenomena. (53-55) show that the AP How much important in (54) and the PP in these villages in (55) behave just like the NP Who in (53) with respect to that-trace effect. This indicates that PP or AP certainly behaves like the subject.

2.3. Movement to A-position as XP-Movement: the extension of Chomsky's NP-Movement

Consider the following examples:

(56) More significant turns out to be the attitude of the Japanese people toward pollution.

(57) Standing in the corner turned out to be a blue-eyed rabbit.

(58) At issue turns out to be the right of students to vote on this question.

(Araki et al, 1982)

(59) That the earth is round is believed to be obvious to

everyone.

(Kuno 1973)

(60) John seems to like ice cream.

(Chomsky 1981)

In each of the examples (56-60), the main verb is a 'raising predicate' and the matrix subject position is occupied by an NP, AP, PP, VP, or \bar{S} . We propose to derive sentences like above in the following way:

- (61) a. [_{AP} e] turns out [_{AP} more significant] to be the attitude of the Japanese people toward pollution.
 b. [_{AP} More significant] turns out to be the attitude of the Japanese people toward pollution.
- (62) a. [_{VP} e] turned out [_{VP} standing in the corner] to be a blue-eyed rabbit.
 b. [_{VP} Standing in the corner] turned out to be a blue-eyed rabbit.
- (63) a. [_{PP} e] turns out [_{PP} at issue] to be the right of students to vote on this question.
 b. [_{PP} At issue] turns out to be the right of students to vote on this question.
- (64) a. [\bar{S} e] is believed [\bar{S} that the earth is round] to be obvious to everyone.
 b. [\bar{S} That the earth is round] is believed to be obvious to everyone.
- (65) a. [_{NP} e] seems [_{NP} John] to like ice cream.
 b. [_{NP} John] seems to like ice cream.

The claim underlying this proposal is that Chomsky's NP-movement is in fact a special case of more general rule, XP-movement,

where XP is a maximal projection of any categorial type (including \bar{S}). This claim, if correct, is quite natural. Consider what categories are subject to, say, wh-movement. Clearly, NP, PP, AP, and Adv. P are subject to this rule:

- (66) a. Who did John get angry with?
 b. With whom did John get angry?
 c. How angry with Mary did John get?
 d. How often does John get angry with Mary?

Although wh-movement of VP or \bar{S} in English is only marginally possible or else completely impossible, as seen in the following examples taken from Ross (1973),

- (67) a. *Eloise, [\bar{S}_i { that we loved }
 { for us to love } whom] they liked
 (it) t_i , is an accomplished washboardiste.
 b. *Eloise, [\bar{S}_i for us to renominate whom] t_i
 will be expensive, is a consummate triangularian.
 c. ??Eloise, [\bar{S}/\bar{VP}_i to renominate whom] t_i will
 be expensive, is a consummate triangularian.

such movement is possible in a language like Dutch. Furthermore, we have seen in the previous section that a maximal projection of any categorial type is subject to the adjunction rule, namely XP-Adjunction. These observations suggest that no specific restriction is imposed on movement rules concerning the categorial specification of a target of movement. If so, then what is referred to as NP-movement must be able to apply in principle to any phrase, which indeed seems to be the case.

3. Locative Inversion Constructions

This section deals with the process that relates pairs of sentences like the following:

- (68) a. An elegant fountain stands in the Italian garden.
 b. In the Italian garden stands an elegant fountain.

(Langendoen 1973)

- (69) a. A large poster of Lincoln hangs in each hallway.
 b. In each hallway hangs a large poster of Lincoln.

(Emonds 1976)

- (70) a. All the wine we bought in Europe lies upstairs.
 b. Upstairs lies all the wine we bought in Europe.

(Ibid.)

Since Emonds (1970), the process in question has been discussed by a number of linguists including Langendoen (1973), Bowers (1976), Iwakura (1978) and Langendoen (1979). We are not, however, concerned with reviewing these previous works; rather, we will examine how the sentences exemplified above fall into the system of rules proposed in this paper and elsewhere.

Following the previous works cited above, we assume that sentences like the b-examples above, which we will henceforth refer to as L(ocative) I(nversion) C(onstruction), are derived from the structures underlying the corresponding a-examples. The question to be asked is how LIC is to be generated. It is most unlikely that the grammar of English has special rules only to derive LIC. The optimal situation is, of course, one in which no such special rules are called for: independently needed rules and principles of grammar interact to yield LIC as a special case. We will show that such is indeed the case.

English has a rule that moves some phrase, typically a complement of VP, to the sentence final position, relating such pairs of examples as the following:

- (71) a. John arrived at Tokyo yesterday.
 b. John arrived t_i yesterday [α_i at Tokyo].
- (72) a. John saw a picture of Mary yesterday
 b. John saw t_i yesterday [α_i a picture of Mary].

The rule deriving a sentence like (71b) from (71a) is sometimes called PP Shift, and the one deriving a sentence like (72b) from (72a), Heavy (or Focus) NP Shift. However, Hirose et al. (1983; this volume) argue that they are in fact special cases of a more general rule which they refer to as X-Shift. Although the material to be moved by this rule is most typically a complement of VP¹², it seems to us that there is no reason to restrict the targets of X-Shift to such complements; in fact, assuming no rule like Raising-to-Object, X-Shift applies to the subject of a clausal complement to a verb of the believe-category:

- (73) a. John believes the analysis of relative clauses that Bill proposed to nonsense.
 b. John believes t_i to be nonsense [α_i the analysis of relative clauses that Bill proposed].

Let us assume, in contradistinction to Hirose et al. (cf. note 12), that any phrase, whether it is a (post-verbal) complement or the subject, is subject to X-Shift. Now suppose that X-Shift applies to the subject of (the structures underlying) the examples in (68)-(70). Then we obtain the following structure from (68a):

- (74) t_i stands in the Italian garden [α_i an elegant fountain]

But (74), if it surfaced as it is, would be ungrammatical. Note that the application of X-Shift to the subject of a sentence like (68a) does not violate the recoverability condition on X-Shift that Hirose et al. discuss (i.e., the Generalized Thematic Constraint; cf. Hirose et al., *ibid.*, pp. 138-140¹³), for the subject NP moved by X-Shift is Theme in this case, and, according to them, the thematic relation to V of the shifted phrase X is recoverable if X functions as Theme. Therefore, if X-Shift is allowed to apply to any phrase, it should generate (74) as well as the b-examples in (71)-(72). Some principle must then ensure that (74) cannot surface as it stands. A promising candidate of such a principle seems to be Chomsky's Empty Category Principle, discussed in detail in Chomsky (1981). ECP requires that traces, or empty categories in general, be "properly governed". Assuming, as is natural, that the subject trace in (74) is not properly governed, (74) violates ECP if the trace remains at whatever level is relevant to ECP. If the presence of the trace in (74) is indeed what is to make (74) ungrammatical, the 'erasure' of the trace must yield a grammatical result. One of such devices erasing empty categories is the well-known there-insertion; the insertion of there into the subject position gives the following grammatical output:

(75) There stands in the Italian garden an elegant fountain.

Now, recall that there is another device filling the position of an empty category that cannot surface--what is generally called NP-movement. This movement always moves a category to the empty subject position. In the last section, we argued that this rule should be generalized to XP-movement. There is no reason, then, not to suppose that the same rule applies to move the PP complement

of LIC to the vacated subject position; the application of XP movement to (74) yields (68b), an instance of LIC.

Chomsky (1981, p. 46 et passim) claims that movement must always be to a position to which no thematic role is assigned, particularly because there is otherwise a violation of the theta-criterion which stipulates that, inter alia, each argument bears one and only one thematic role. Within Chomsky's framework, an argument is assigned its thematic role in its original position (at D-structure). If this argument already bearing a thematic role should move to a position to which a thematic role is assigned, it would then receive the second thematic role, violating the theta-criterion. However, the theta-criterion, even if correct, is not directly relevant to our claim that XP movement is responsible for generating a sentence like (68b) from such a structure as (74). This is because the material moved in this case is not an argument but a PP requiring no thematic role (an argument must be either an NP or a clause), and therefore there can be no violation of the theta-criterion regardless of whether the subject position of LIC is one to which a thematic role is assigned. Therefore, movement of PP (by the general rule XP movement) to the vacated subject position in LIC is no more relevant to the theta-criterion than is the there-insertion as in (75).

If our analysis of LIC is correct, the PP of LIC, being in the subject position, must behave as such. Consider in this regard the following examples:

- (76) a. What stands in the Italian garden?
- b. In which garden stands an elegant fountain?
- (77) a. What do you believe (*that) stands in the Italian Italian garden?

- b. In which garden do you believe (*that) stands an elegant fountain?

The above examples show that the PP of LIC does behave like the "normal" subject; it undergoes wh-movement, subject to the well-known that-trace effect (which Chomsky attributes to ECP). Furthermore, note that no element in the PP of LIC is subject to extraction, recalling the Subject Condition that prohibits an element from being extracted from the subject phrase (cf. Chomsky 1973):¹⁴

- (78) a. A picture of Mary hangs in John's room.
 b. *Who_i does [_α a picture of t_i] hang in John's room?
 (79) a. In John's room hangs a picture of Mary.
 b. *Whose room_i does [_α in t_i] hang a picture of Mary?

Notice that the NP object of the PP is extractable if the PP remains in its original position rather than the subject position:

- (80) Whose room_i does the picture hang [_α in t_i]?

Returning to the rule Hirose et al. call X-Shift, note that the phrase shifted by this rule constitutes an extraction island:

- (81) a. Which station_i did John arrive [_α at t_i] yesterday?
 b. ?*Which station_i did John arrive t_j yesterday [_{α_j} at t_i]?
 (82) a. Who_i did John see [_α a picture of t_i] yesterday?
 b. ?*Who_i did John see t_j yesterday [_{α_j} a picture of t_i]?
 (83) a. Who_i did John say [_α that Mary likes t_i] yesterday?
 b. ?*Who_i did John say t_j yesterday [_{α_j} that Mary likes t_i]?

What interests us here is the fact that the rightmost NP in LIC

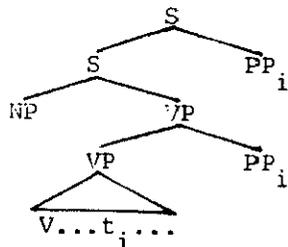
is also an extraction island:

(84) *Who_i does in John's room hang [_α a picture of t_i]?

This is consistent with the claim that the same rule that yields sentences like the b-examples in (71)-(72), namely X-Shift, is also responsible for the generation of the rightmost NP in LIC; it moves the NP originally occupying the subject position to the sentence final position, yielding a structure like (74).

Once X-Shift is generalized to apply to any phrase, we notice that this rule resembles, except the direction of movement, the rule that we have proposed in section 1--XP-Adjunction. XP-Adjunction proposed there is a rule adjoining XP to the left of an S node. We have argued that, given the Head Initial Constraint, there is no need to stipulate possible landing sites for a phrase to be moved by XP-Adjunction. However, we noted at the end of section 1 that the direction of XP-Adjunction must apparently be stipulated: XP-Adjunction is leftward adjunction. Suppose that we discard this stipulation. Then it follows that all of the cases of X-Shift are subsumed under the cases of XP-Adjunction as rightward adjunction. As for the landing sites for this rightward XP-Adjunction, they cannot be restricted, as in the case of the leftward XP-Adjunction, to an S node, since there can be no violation of HIC. Suppose, for example, that a PP complement of VP is to undergo the rightward XP-Adjunction, that is, X-Shift of Hirose et al. Being free from HIC, the PP may be adjoined to the VP that it is a complement of, as well as to the S node, as in the following:

(85)



Hirose et al. assume without argument that a VP complement is adjoined to the S that immediately dominates the VP (cf. note 12). In actuality, however, the VP itself seems to be a possible landing site for a VP complement, as predicted by the non-applicability of HIC. Thus consider the following examples:

- (86) a. John and Bill argued about transformations so often that they should now be able to write a paper on some movement rules.
- b. John and Bill argued t_i so often [α_i about transformations] that they should now be able to write a paper on some movement rules.

Clearly, the PP complement of the matrix VP is moved rightward in (86b)--an instance of XP-Adjunction. Now the adverbial so often is a VP-modifier located within the matrix VP (cf. Jackendoff 1977), whereas the result clause associated with so plausibly hangs from the matrix S node. (See Reinhart 1976, Williams 1974, 1975 and Terazu 1979 for relevant discussions.) If so, then the only possible node to which the moved PP is adjoined is the VP, rather than the S, node.

In the case of the subject phrase of an S, however, this phrase cannot be adjoined to the VP of this S by the rightward XP-Adjunction, because of the c-command requirement already noted.

Thus α_i in (74), and a rightmost NP in LIC in general, must be adjoined to the S node.

4. Concluding Remarks

We have argued in this paper for three rules: Association Rule, XP-Adjunction, and XP movement. XP-Adjunction is a kind of movement to \bar{A} -position, whereas XP movement is to A-position. Although XP movement is a leftward movement, XP-Adjunction is both leftward and rightward; a category may be adjoined either to the left or else to the right of certain nodes. We suggested that the nodes to which a category is to be adjoined to are in a large measure determined by independent principles of grammar.

We conclude by noting some topics left untouched so far. The first one is related to the theory of markedness: although NP movement has been generalized to XP movement, it seems clear that movement of NP is the most unmarked case. Similarly, although (verb phrasal) PP preposing and complement PP shift, among others, are subsumed under XP-Adjunction, the most unmarked category subject to this adjunction rule seems to be PP. In general, there seem to be differences among categories in the degree of applicability of rules.

The second one is concerned with the direction of movement. As argued by Hirose et al., X-Shift, which we regard as the rightward XP-Adjunction, is subject to thematic constraint of some sort. However, it seems that this constraint is irrelevant to the leftward XP-Adjunction. Thus, according to Hirose et al. (pp. 141-143), AP is not subject to X-Shift--hence the rightward XP-Adjunction--due to their thematic constraint, as in the following:

(87) ??John was t_i yesterday [α_i afraid of Mary].

But AP is easily preposable by the leftward XP-Adjunction as seen in (26c), repeated below as (88):

(88) Afraid of Mary John is.

Obviously, this fact calls for explanation. Now recall that there are more possible landing sites of the rightward XP-Adjunction than the leftward XP-Adjunction, because of the applicability of HIC. Thus, the rightward adjunction is constrained by some thematic constraint but is immune to HIC, and exactly the converse is true of the leftward adjunction.

NOTES

* This joint work is based on the paper read at the Third Meeting of the Tsukuba English Linguistic Society on November 14, 1982. However, lively discussions held among us ever since have led to the drastic changes and extension of the original ideas put forth at that time.

We wish to express our gratitude to Minoru Yasui, Minoru Nakau and Shosuke Haraguchi for comments and suggestions they gave us at the Meeting, which served to clarify the insufficiencies of our ideas and motivated further inquiry. Thanks also go to our friends, the graduate students of the University of Tsukuba, for moral support and constant encouragement. None of them, however, is responsible for any errors, factual or logical, that might have remained in the present paper.

¹ Examples in this section are largely from Reinhart (1976).

² We are assuming that S is not a projection of V but constitutes a distinct system in \bar{X} -theory; hence the possibility that S-PP is a complement (in a broader sense of the term) of V is excluded.

³ Association Rule was first used in phonology. The existence of a rule of this sort is first proposed in syntax by Haraguchi (1983).

⁴ We refer to S-system as projections of S, that is, S, \bar{S} and possibly $\bar{\bar{S}}$.

⁵ Note that a sentence like (26d) does not appear in the embedded clause:

- (i) *I believe (that) that John went to the supermarket Mary denies.

But the ungrammaticality of (i) seems to be due to whatever reason it may be that accounts for the ungrammaticality of a sentence such as the following:

- (ii) *I believe (that) that John talked to Mary is obvious.

⁶ This rule is kind of movement-to-A position. As for movement-to-A position, see section 2.

⁷ Note that HIC is not relevant to the Association Rule proposed above, which is not a movement rule.

⁸ Chomsky (1981, p. 274) also suggests that COMP is the head of \bar{S} .

⁹ See Chomsky (1981, p. 47) for the definition A/ \bar{A} -position.

¹⁰ We assume, following Kaga (1983; this volume), that the (stative) be is base-generated in the AUX position-- there is no rule like Have/Be Raising. See Kaga (1982) for details.

¹¹ See, e.g., Bolinger (1977).

¹² In fact, Hirose et al. characterize X-Shift as "a rule which moves a post-verbal X-complement rightward and Chomsky-

adjoins it to the S that immediately dominates the VP" (p. 137).

¹³ See also Iwasawa (1982).

¹⁴ It is interesting to note that the formulation of the Subject Condition given by Chomsky (1973, p. 250) does not refer to the categorial status of the subject. In fact, Chomsky applies the Subject Condition to the phrase functioning as the subject that must be analyzed as PP rather than NP. (Chomsky, *ibid.*, pp. 251-252)

REFERENCES

- Araki, k. et al. 1982. 『現代の英文法 文法論』 東京:研究社.
- Bolinger, D. L. 1977. Meaning and form. Longman.
- Bowers, J. B. 1976. "On surface structure grammatical relations and the structure-preserving hypothesis," Linguistic Analysis 2. 225-242.
- Bresnan, J. 1977. "Variables in the theory of transformations," in Culicover et al. (eds.) 157-96.
- Chomsky, N. 1970. "Remarks on nominalization," in Jacobs and Rosenbaum (eds.) 184-221.
- . 1973. "Conditions on transformations," in Anderson and Kiparsky 1973.
- . 1977. "Filters and Control," Linguistic Inquiry 8. 425-504.
- . 1981. Lectures on Binding and Government. Dordrecht: Foris.
- Emonds, J. E. 1970. "Root and structure preserving transformations," unpublished ditto. Bloomington, Indiana: Indiana University Linguistics Club.
- . 1976. A transformational approach to English syntax:

- root, structure-preserving, and local transformation.
Academic Press.
- Haraguchi, S. 1983. 『多元的文法理論』 東京:リ-ベル出版
- Hooper, J. B. and S. A. Thompson. 1973. "On the applicability of root transformations," Linguistic Inquiry 4. 465-497.
- Iwakura, K. 1978. "On root transformations and the structure-preserving hypothesis," Linguistic Analysis 4. 321-364.
- Iwasawa, K. 1982. "On predicational and presentational sentences," Studies in English Literature 59. 279-290.
- Jackendoff, R. 1977. X̄ Syntax: a study of phrase structure. MIT Press.
- Kaga, N. 1982. "The syntax of be and have: AUX or main verb," MA Thesis, University of Tsukuba.
- . 1983. "Where does John is being polite come from?" in K. Iwasawa and M. Sano (eds.) Tsukuba English Studies 2. 81-95.
- Kato, M. 1980. "Principle of anaphora in English," English Linguistics 22. 68-88.
- Kubota, M. 1981. "The function and markedness of the non-NP phrasal categories in subject position," English Linguistic 24. 25-43.
- Kuno, S. 1971. "The position of locatives in existential sentence," Linguistic Inquiry 12. 55-91.
- . 1973. "Constraints on internal clauses and sentential subjects," Linguistic Inquiry 4. 363-385.
- Langendoen, D. T. 1973. "The problem of grammatical relations in surface structure," in K. R. Jankowsky (ed.) Language and International Studies. Washington: Georgetown University Press.

- . 1979. "More on locative-inversion sentence and the structure-preserving hypothesis," Linguistic Analysis 5. 421-437.
- Reinhart, T. 1976. The syntactic domain of anaphora. Doctoral dissertation, MIT. Cambridge: Massachusetts.
- . 1981. "Definite NP anaphora and C-command domains," Linguistic Inquiry 12.
- . 1983. Anaphora and semantic interpretation. Croom Helm.
- Rochemont, M. S. 1978. A theory of stylistic rules in English. Doctoral dissertation, U/Mass.
- Ross, J. R. 1973. "Nouniness," in Fujimura (ed.) Three dimensions of linguistic theory. Tokyo: TEC. 137-257.
- Sundby, B. 1976. "The '-ing' form revisited," Lingua 40. 321-330.
- Terazu, N. 1979. "A note on the derived structure of extraposition rules," Studies in English Linguistics 8. 86-99.
- Williams, E. 1974. Rule ordering in syntax. Doctoral dissertation, MIT. Indiana University Linguistic Club.
- . 1975. "Small clauses in English," in J. Kimball (ed.) Syntax and semantics 4. 249-273.