

# Aspects of Free Relatives in English

Lee Ki-suk \*

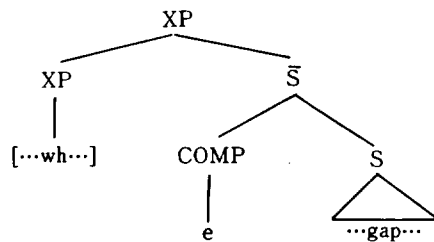
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## I. Introduction

There are essentially two hypotheses about English free relatives: the Head Hypothesis and the COMP Hypothesis, depending on the assumed position of the *wh*-phrase in the free relatives. In the Head Hypothesis, the *wh*-phrase is assumed to be base-generated in the head position. In the COMP Hypothesis, on the other hand, it is assumed to occur in the COMP position by being *wh*-moved from the free relative clauses. These two hypotheses are schematically the following:

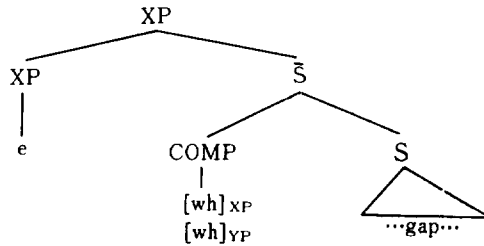
### (1) a. The Head Hypothesis



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\* 人文大學 專任講師

b. The COMP Hypothesis



Now consider the following sentence, cited by Bresnan and Grimshaw (1978).

(2) I'll buy *what* you are selling.

Following the above two hypotheses in (1), sentence (2) might be analyzed as in (3a) and (3b), respectively.

(3) a. I'll buy [NP *what* [S you are selling [PRO]]]

b. I'll buy [NP [S you are selling *what*]]

According to the Head Hypothesis (1a), the *wh*-phrase in (3a) *what* is assumed to be generated in the base and to be subject to the rule of Controlled Pro Deletion whereby the *pro* in (3a) is deleted and coindexed with the controller *what*. According to the COMP Hypothesis (1b), however, it is assumed to be *wh*-moved to the COMP position of (1b) from the relative clause and to be subject to the rule of Head Raising whereby the *wh*-moved *wh*-phrase is raised to the empty head position marked *e* in (1b).

This paper has two major aims. The first is to show that the *wh*-phrase of free relatives stands in the COMP position of (1b), but not in the head position of (1a), as in the case of the *wh*-phrase of a "normal"<sup>1)</sup> relative clause; the second is to attempt to account for the matching effect, which has generally been taken to support the Head Hypothesis, under the COMP Hypothesis. In doing so, the evidences in favor of the Head Hypothesis will be closely examined and some other evidences in support of the COMP Hypothesis will be given. For the second aim, in particular, it will be pointed out that the rule of Head

1) By "normal" we mean "ordinary", and thus a "normal" relative clause refers to an ordinary relative clause in contrast to a free relative clause.

Raising is not necessary for the syntactic properties of free relatives, and that the problems with the matching effect and the pied piping can be plausibly accounted for by a filter prohibiting the case in which the head and the wh-phrase under COMP are not nondistinct.

## II. Head vs. COMP

In this section, I'll examine Bresnan and Grimshaw's Base Hypothesis,<sup>2)</sup> approximately equivalent to the Head Hypothesis of (1a) and point out that it is descriptively less adequate than the COMP Hypothesis by showing a number of evidences for the COMP Hypothesis and against the Head Hypothesis. In their brilliant paper (1978), Bresnan and Grimshaw (henceforth B & G) cite the following facts as evidence in favor of their hypothesis.

(4) a. (B & G's 3) Matching Effect

the syntactic category of the wh-phrase of a free relative is the same as that of the whole free relative:

I'll buy [NP [NP *whatever*] you want to sell]  
John will be [AP [AP *however tall*] his father was]

b. (B & G's 4.1) Number Agreement

the wh-phrases of free relatives in subject position induce number agreement on the main verb:

*Whatever books* she has { <sup>\*is</sup> / are } marked up with her notes.

c. (B & G's 4.2) The Internal NP over S Constraint

Free Relatives occur in internal NP positions:  
Can *what you want* be on the table?

d. (B & G's 4.3) Independent Generation of wh-ever phrases

wh-ever phrases may occur without accompanying clauses:  
She vowed to do *whatever possible* to vindicate herself.

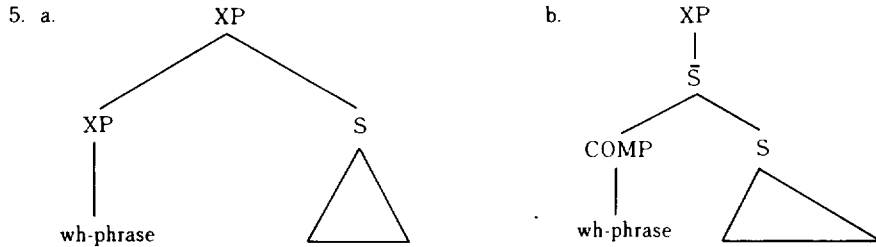
e. (B & G's 4.4) Pied Piping

it is impossible to prepose a governing preposition along with a wh-phrase of a free relative:

\*I'll reread *on whatever paper* John has worked.

2) See (5). B & G's Base Hypothesis is a variant of the Head Hypothesis in that although the COMP is absent altogether and the relative consists of an S only the wh-phrase is assumed to be base-generated in the head.

On the basis of these facts concerning the properties of free relatives, they assert that free relatives have a structure such as (5a) rather than (5b):



The most decisive reason for proposing (5a) seems to be in relation to the matching effects of free relatives, as indicated in (4a). That is, it is true that the syntactic category of the wh-phrase of a free relative is the same as that of the whole free relative. This is indeed in harmony with the constraint formulated in terms of the  $\bar{X}$ -theory of phrase structure, specifying that a phrase and its head have the same categorial specification. Their logic is just that if the wh-phrase of free relatives is assumed to be in the head position, then the matching effects in question are straightforwardly accounted for by the  $\bar{X}$ -theory of phrase structure. It should be noted here that they do not present any theoretical implication of why the wh-phrase must be in the head position, but not in any other position, particularly not in the COMP position. In order to be really with (5a) instead of (5b), they will have to show that if, for example, the wh-phrase is in the COMP position then it cannot be identical with the XP of (5b) in a categorial specification. If it is proved that the assumed position of the wh-phrase is in COMP and that the wh-phrase can be nondistinct with the XP of (5b) in terms of some mechanism, then the COMP Hypothesis would be a more coherent theory in English syntax than the Head Hypothesis.

In what follows, I would like to give a number of evidences in support of the COMP Hypothesis by supposing that the wh-phrase is wh-moved to the COMP position from the gap of free relative clauses.

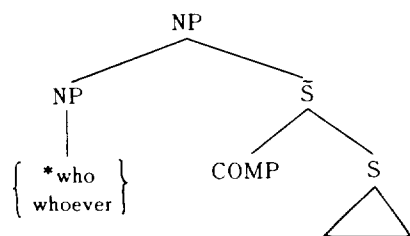
Note, first, that in general ordinary relative pronouns in English can occur as indefinites with an *-ever* suffix, as in the following pairs:

- (6) a. who ——— whoever  
 b. which ——— whichever  
 c. what ——— whatever<sup>3)</sup>

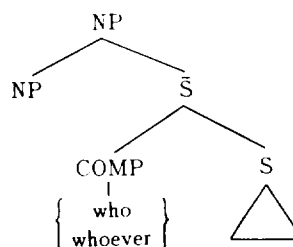
3) Note that in (6c) *what* is not an ordinary relative pronoun, even though it is morphologically paralleled to an ordinary relative to the left of the pairs.

In (6a) and (6b), the *wh*-forms to the left are ordinary relative pronouns in contrast to those to the right in which an *-ever* suffix is added to form free relative pronouns. In other words, ordinary relative pronouns are morphologically distinguished from free relative pronouns. By analogy of what we see in this sharp contrast, it might be supposed that in the case of (6c) *what* should be in parallel with ordinary relative pronouns. In reality, however, such is not the case. It is both *what* and *whatever* that function as free relative pronouns. From this it follows that the morphologically ordinary (i.e. non-free) relative pronoun *what* has the same syntactic function as its counterpart in free relative pronouns. Note here that exactly the same phenomenon occurred in Middle English with respect to (6a). It is true that the earliest examples of the relative *who* are all either pseudo-relatives to an indefinite *men* or generic indefinites equivalent to *whoever*. Given this, it is not plausible to say that *who* in Middle English is positioned in the head while in Modern English it is in the COMP position as an ordinary relative pronoun. Instead, it will be plausible to say that *who* and *whoever* are to be in the same position, whether in the head or in the COMP, in the light of what we have seen in the relation between *what* and *whatever* in (6c). Thus it follows that there are two possibilities in relation to the position of both *who* and *whoever*: Head vs. COMP, as indicated in the following.

(7) a.

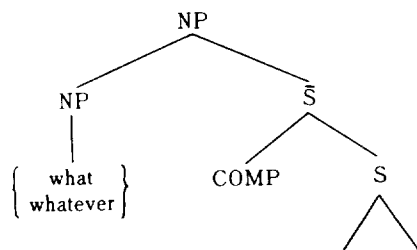


b.

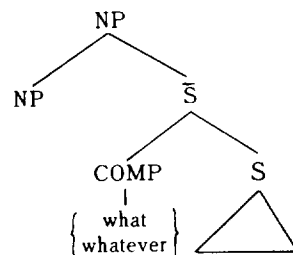


Of the two, (7a) is not acceptable since the ordinary relative pronoun *who* is not possible to be in the head position. So (7b) is taken to be a correct analysis for relative pronouns. By analogy of the comparison between (7a) and (7b), it can be suggested that (8a) is not correct for the same reason.

(8) a.



b.



Another argument against (7a) and (8a) is supported by the fact that in Middle English there was the possibility of *that* immediately following any wh-relative words. Consider the following Middle English sentences cited by Lightfoot (1979).

- (9) a. for we all see that it is Goddes wille that he shalle be our kyng. and *who that* holdeth agaynst it we wille slee hym.  
 b. thy zodiak of thin Astralabie is shapen as a compas *wich þat* contenith a large brede.  
 c. only the sight of hire *whom that* I serve ... wolde han suffised right ynough for me.  
 d. syk lay the gode man, *whos that* the place is.

Note, however, that in Modern English the ordinary relative pronouns in COMP cannot be in conjunction with another COMP constituent, or *that* complementizer. The situation of the ordinary relative pronoun immediately followed by *that* is ruled out by Chomsky and Lasnik's filter specifying the structure of COMP: i.e. cf. Chomsky and Lasnik's (1977) "Filters and Control", in which the filter is  $*[\text{COMP wh-phrase } \varphi], \varphi \neq e$ .

If the wh-phrase of free relatives is base-generated in the head position, as in the case of (7a) or (8a), then there would be no way of accounting for the unacceptable juxtaposition of the wh-phrase and *that*-complementizer within COMP, since *that*-complementizer is not subject to the filter blocking doubly-filled COMP. To put it in another way, (7a) or (8a) leads to the wrong prediction that the following examples in (10) and (11) are grammatical, which are cited by Groos & Riemsdijk and Jespersen, respectively.

- (10) a. John cooks *what* (*\*that*) Susan wants to eat.  
 b. Susan was frightened by *whatever* (*\*that*) she saw in the bathroom.
- (11) a. *Who* (*\*that*) steals my purse, steales trash.  
 b. *Whoever* (*\*that*) says so is a liar.  
 c. *What* (*\*that*) you say is quite true.  
 d. He wants to shoot *whoever* (*\*that*) comes near him.

If the wh-phrase of free relatives is in the COMP position, as in the case of (7b) or (8b), on the other hand, then it follows that Chomsky and Lasnik's filter is operative and what cannot be accounted for in terms of the Head Hypothesis can be accounted for. Hence the ungrammaticality of those in (10) and (11).

A second piece of evidence against B & G's analysis is provided by the following examples, due to Iwakura (1979).

- (12) a. He abuses  $\left\{ \begin{array}{l} *whomever \\ whoever \end{array} \right\}$  crosses his path.  
 b. John was angry with  $\left\{ \begin{array}{l} whoever \\ *whomever \end{array} \right\}$  dated his daughter.

According to the framework of Chomsky (1980)<sup>4</sup> the relative clauses in (12) are assigned objective Case and oblique Case, respectively, since in (12a) the relative clause is governed by the verb *abuses* and in (12b) by the preposition *with*. Given this, it follows that B & G's Base Hypothesis leads to the wrong prediction that the wh-phrase in (12) would be assigned *whomever* rather than *whoever*. Assuming, however, that the head NP of a relative clause is assigned the case of the relative clause and that the wh-phrase of free relative is in COMP, no problem would arise with respect to the Case of the free relative in (12).

Now turn to another argument against B & G's analysis of free relatives. Note that English has a rule of person-number agreement whereby a verb has to agree in person and number with the NP immediately preceding it. Consider the following examples cited by Radford.

- (13) a. He might say this boy  $\left\{ \begin{array}{l} \text{likes} \\ * \text{like} \end{array} \right\}$  Mary.  
 b. He might say those boys  $\left\{ \begin{array}{l} \text{like} \\ * \text{likes} \end{array} \right\}$  Mary.
- (14) a. Which boy might he say —  $\left\{ \begin{array}{l} \text{likes} \\ * \text{like} \end{array} \right\}$  Mary?  
 b. Which boys might he say —  $\left\{ \begin{array}{l} \text{like} \\ * \text{likes} \end{array} \right\}$ ?

In contrast to the examples in (13), those in (14) show that the verb agrees in person and number with the moved wh-phrase which is assumed to occupy the position marked — in the underlying structure. In the absence of any NP preceding the verb, there seems to be no alternative to give an account of the person-number agreement, unless a rule of wh-movement is assumed in wh-questions. As far as the agreement is concerned, it seems that exactly the same is the case of free relatives. Consider the following examples.

- (15) a. What  $\left\{ \begin{array}{l} \text{stands} \\ * \text{stand} \end{array} \right\}$  over there is my church.  
 b. What  $\left\{ \begin{array}{l} \text{is} \\ * \text{are} \end{array} \right\}$  needed is clearly a convention.

In (15), the grammatical contrast with respect to the choice of verb shows that there really exists an agreement between the wh-phrase and the verb following it. If so, this agreement can only be determined when the wh-phrase is preceded by the verb within the

4) Note that Chomsky(1980)'s Case Assignment Rule (68) states:  
 a. NP is oblique when governed by P and certain marked verbs;  
 b. NP is objective when governed by V;  
 c. NP is nominative when governed by Tense.

same finite clause; here in the same relative clause. If we suppose that the wh-phrases in (15) are in the head position, as claimed by B & G, then there would be no way of accounting for the choice of verb agreeing with the subject in number and person.

Now let us turn to (4b), which states that the wh-phrases of free relatives in subject position induce number agreement on the main verb. As for the evidence for their analysis, B & G present the following sentences.

(16) *The books* she has  $\left\{ \begin{array}{l} \text{are} \\ *_{\text{is}} \end{array} \right\}$  marked up with her notes.

(17) *What books* she has  $\left\{ \begin{array}{l} \text{isn't} \\ *_{\text{aren't}} \end{array} \right\}$  certain.

(18) *Whatever books* she has  $\left\{ \begin{array}{l} \text{are} \\ *_{\text{is}} \end{array} \right\}$  marked up with her notes.

Assuming that the number feature of a category is added to the phrase of which it is a head, they claim that just as the head of the ordinary relative clause in (16) induces number agreement on the main verb, so the wh-phrase of free relative does in (18). In other words, the number agreement on the main verb in (16) and (18) is induced for the very same reason that the subject position is occupied by the head NP. In (17), by contrast, the number agreement on the main verb is not available since the wh-phrase of the interrogative complement is not a head NP. This is simply that the wh-phrase, if any, in ordinary relatives is in COMP while the wh-phrase in free relatives is in the head position, but that the two are the same at least in that both of them have the head NP. If they are really the same, however, the two heads would have to have the same syntactic pattern. Consider then the following examples, where the complement, whether relative or interrogative, is deleted.

(19) *The books* [ $\phi$ ] are marked up with her notes.

(20) \**What books* [ $\phi$ ] isn't certain.

(21) \**Whatever books* [ $\phi$ ] are marked up with her notes.

Unlike the similarity between (16) and (18) with respect to the head NP, (19) is in contrast to (21) to the effect that the head of ordinary relatives allows the complement to be deleted whereas the head of free relatives does not. As to the undeletability of complement, the wh-phrase of free relatives is in the same situation as that of interrogative complements, as indicated by the ungrammaticality of both (20) and (21). This observation about the undeletability of the wh-phrase of free relatives challenges B & G's hypothesis and leads to the claim that the wh-phrase in free relatives cannot be positioned in the head. Note here that the undeletability of the complement in (20) and (21) can be accounted for in a unified way if we assume that the wh-phrases are in the COMP position. That is, assuming that the lower



S alone cannot be deleted with the COMP constituent left behind as it stands whereas  $\bar{S}$  dominating COMP and S can, the deletion of the complement in (20) and (21) would not be possible with the *wh*-phrases left behind in COMP. Note that this assumption is also applicable to (19), where the lower S is deleted along with any possible relative pronoun in COMP. If it is not deleted along with the complement, the ungrammatical sentence would be generated, as indicated in the following sentence.

(22) The books  $\left\{ \begin{array}{l} * \text{which} \\ * \text{that} \end{array} \right\}$  [S  $\phi$ ] are marked up with her notes.

In the light of what we have observed above, it might be concluded that the *wh*-phrase of free relatives is in the COMP position, for the very same reason that the *wh*-phrase of ordinary relatives is in the COMP position.

Now look at another syntactic fact. In English there is an informal rule of contraction, which states: Contracted forms cannot be used when there is a 'missing' constituent immediately following. Consider the following sentence pairs, which are due to Radford.

- (23) a. Mary is good at hockey, and Jean *is* good at volleyball.  
 b. Mary is good at hockey, and Jean's good at volleyball.
- (24) a. Mary is good at hockey, and Jean *is* \_\_\_\_\_ at volleyball.  
 b. \*Mary is good at hockey, and Jean's \_\_\_\_\_ at volleyball.

It seems true that the possibility of contraction is determined by the presence or absence of the 'missing' element. Thus the ungrammaticality of (24b) is attributed to the deletion of *good*. Given this observation, now consider the following:

(25) The books  $\left\{ \begin{array}{l} * \text{she's} \\ \text{she has} \end{array} \right\}$  are marked up with her notes.

(26) Whatever books  $\left\{ \begin{array}{l} * \text{she's} \\ \text{she has} \end{array} \right\}$  are marked up with her notes.

In (25) the impossibility of contraction means that there is a 'missing' constituent following the auxiliary *has*. In the same fashion, it is expected that in (26) there is also a 'missing' constituent following *has* in the underlying structure. Following the Head Hypothesis whereby the *wh*-phrase in (26) is in the head position and thus there is no 'missing' element following *has*, there would be no way of accounting for the impossible contraction. Notice, however, that the COMP Hypothesis provides an explicit account of why the contraction is impossible in (26), when we assume that the *wh*-phrase is *wh*-moved from the relative clause. Let us proceed to show that the *wanna*-contraction does also contribute to the COMP Hypothesis rather than the Head Hypothesis. In some varieties of English, *want* and *to* can

contract to *wanna*. For some speakers of this type of dialect, *wanna-contraction* is possible in the following sentences cited by Radford.

- (27) a. Who do you want to beat \_\_\_\_\_?  
 b. Who do you wanna beat?  
 (28) a. Who do you want \_\_\_\_\_ to win?  
 b. \*Who do you wanna win?

Following a general assumption about contraction mentioned above, in (27a) *want to* can contract to *wanna* since no 'missing' constituent is preceded by *want*. However, this is not the case in (28). In (28a) *want* is assumed to be followed by a 'missing' constituent marked \_\_\_\_\_. Notice that the rule of *wanna-contraction* is applied even to the free relatives. Consider the following examples:

- (29) a. *Whatever books* you want to buy \_\_\_\_\_ are in the bookstore.  
 b. *Whatever books* you wanna buy are in the bookstore.  
 (30) a. *Whoever* you want \_\_\_\_\_ to win the game will lose it.  
 b. \**Whoever* you wanna win the game will lose it.

Since there is no 'missing' constituent immediately following *want* in (29a), the *wanna-contraction* is possible. In (30b), by contrast, the *wanna-contraction* is not possible. The sharp contrast between the possible contraction in (29b) and the impossible contraction in (30b) implies that in (30a) the *wh*-phrase of free relatives is moved from the position marked \_\_\_\_\_, but not base-generated in the head position. According to the Head Hypothesis, however, it is wrongly suggested that in (30) the *wanna-contraction* should be possible in the same manner that it is possible in (29).

Here is another piece of syntactic evidence against B & G's analysis of free relatives. English has a class of noun phrases which occur only in conjunction with some specific verb. Radford presents the following examples to give an argument in support of postulating a rule of WH-Movement.

- (31) a. John *took advantage* of her generosity.  
 b. The government *kept tabs* on his operations.  
 c. I want you to *take note* of what I say.  
 d. The committee will *pay heed* to my proposals.

He proceeds to show that the idiom chunk NPs in (31) cannot occur in any other NP-positions. Hence the ungrammaticality of the following sentences.

- (32) a. John is really interested in  $\left. \begin{array}{l} * \text{advantage} \\ * \text{tabs} \\ * \text{note} \\ * \text{heed} \end{array} \right\} .$
- b.  $\left. \begin{array}{l} * \text{Advantage} \\ * \text{Tabs} \\ * \text{Note} \\ * \text{Heed} \end{array} \right\} \text{ really turn(s) me on.}$

Given this sharp contrast in grammaticality between (31) and (32) by means of the idiom chunk argument, it is that the grammaticality of the following sentences in (33) can only be accounted for by the assumption that the wh-phrases are moved from the positions marked \_\_\_\_\_. Otherwise, the sentences are ruled out by the general constraint on the idiom chunk observed above.

- (33) a. *How much advantage* does Reagan think he can take \_\_\_\_\_ of his opponents' misdemeanours?  
 b. *How close tabs* do you think the FBI will keep \_\_\_\_\_ on the CIA?  
 c. *How much note* did you say you think she will take \_\_\_\_\_ of what I said?  
 d. *How much heed* do you think the committee will pay \_\_\_\_\_ to my proposals?

Note that this assumption about the idiom chunk is also true of the case of the wh-phrases of free relatives. Consider the following examples cited by Iwakura.

- (34) a. *The headway* that we *made* was insufficient.  
 b. \**The headway* that we *enjoyed* was insufficient.  
 (35) a. *Whatever headway* we *made* was insufficient.  
 b. \**Whatever headway* we *enjoyed* was insufficient.

The ungrammaticality of (34b) and (35b) should be accounted for in a principled way. If the grammatical contrast between (34a) and (34b) results from the idiom chunk *make headway*, then the grammatical contrast between (35a) and (35b) should also result from the same idiom chunk construction. If this is really the case, it is not valid to assume that the wh-phrase of free relatives in (35) *whatever headway* is base-generated, as postulated by B & G. Instead, it seems valid that the wh-phrase of free relatives is assumed to be wh-moved from the relative clause, where the idiom chunk NP can occur in conjunction with a specific verb. Hence the COMP Hypothesis rather than the Head Hypothesis.

Thus far, we have presented arguments against the Head Hypothesis and instead for the COMP Hypothesis. Now let us look at another piece of evidence against the Head Hypothesis

in the syntax of free relatives in German and Dutch. Consider the following examples cited by Groos & Riemsdijk.

German:

- (36) a. Der Hans hat das Geld, das er gestohlen hat, zurückgegeben.  
 The Hans has the money that he stolen has returned  
 'Hans has returned the money that he has stolen.'  
 b. Der Hans hat das Geld zurückgegeben, das er gestohlen hat.  
 c.\*Der Hans hat zurückgegeben das Geld, das er gestohlen hat.  
 d. Der Hans hat zurückgegeben, was er gestohlen hat.

Dutch:

- (37) a. Ik heb de vis die over was opgegeten.  
 I have the fish that left was eaten  
 'I have eaten the fish that was left.'  
 b. Ik heb de vis opgegeten die over was.  
 c.\*Ik heb opgegeten de vis dis over was.  
 d. Ik heb opgegeten wat (er) over was.

In (36) and (37), the b-sentences are the cases in which the ordinary relatives can extrapose whereas the c-sentences are the cases in which the headed NP-construction can not. The d-sentences, on the other hand, indicate that the free relatives can extrapose freely. That is, as pointed out by Groos and Riemsdijk, 'the free relative (d) patterns with the normal relative (b), not with the full NP (c).' Thus, it follows that 'the relative pronoun of free relative participates in the extraposition process, just as in the case of the normal relative.' Given this, it may be concluded that just as it is an  $\bar{S}$ , but not an NP that extraposes in the ordinary relative, so does in the free relative. Therefore, the wh-phrase of free relatives must be in the COMP position and cannot in the head position. If it were in the head position, however, the wh-phrase of free relative would be stranded to the left of the verb.

- (38) a.\*Der Hans hat *was* zurückgegeben er gestohlen hat.  
 b.\*Ik heb *wat* opgegeten (er) over was.

So far, we have shown that the COMP Hypothesis (1b) is a correct analysis of the free relatives in English and further that the syntactic evidence from German and Dutch supports the COMP Hypothesis rather than the Head Hypothesis.

Now let us turn to look at the facts of (4c) and (4d) presented by B & G as evidence in favor of their analysis. In (4c) they pointed out that free relatives occur in internal NP positions. They further pointed out that ordinary relative clauses can occur freely in internal

NP positions whereas wh-complements are less acceptable. Hence (39) vs. (40) below.

- (39) a. Can [<sub>NP</sub> *the books* Mary bought] be on the table?  
 b. I found [<sub>NP</sub> *the books* Mary bought] unreadable.  
 (40) a. ?Can [<sub>NP</sub> *whether* you are right or not] matter?  
 b. ?I found [<sub>NP</sub> *what* the consequences were] unclear.

Given the fact that the possible *Internal NP over S* in ordinary relative clauses in which there is a head contrasts with the impossible or less acceptable *Internal NP over S* in wh-complements in which there is no head, they conclude that the possible *Internal NP over S* in free relatives in (41) indicates that the wh-phrase of free relatives is in the head position.

- (41) a. Can [<sub>NP</sub> *what* you want] be on the table?  
 b. I found [<sub>NP</sub> *what* she cooked] delicious.

If their account is really correct in saying that the wh-phrase of free relatives functions as a head, however, the syntactic pattern in relation to the deletion of the relative clause should be exactly the same in both ordinary relatives and free relatives. However, such is not the case. Consider the following.

- (42) a. Can [<sub>NP</sub> *the books*  $\phi$  ] be on the table?  
 b. I found [<sub>NP</sub> *the books*  $\phi$  ] unreadable.  
 (43) a. \*Can [<sub>NP</sub> *what*  $\phi$  ] be on the table?  
 b. \*I found [<sub>NP</sub> *what*  $\phi$  ] delicious.

As we see above, in (42) the deletion of the relative clause is possible and the head NP *the books* functions as a head independently of the clause immediately following. In (43), by contrast, the deletion is not possible and the wh-phrase cannot function as an independent head. As far as the possibility of deletion is concerned, the free relatives seem to pattern with the wh-complements, since in (40) it is impossible to delete the clause within the internal NP.

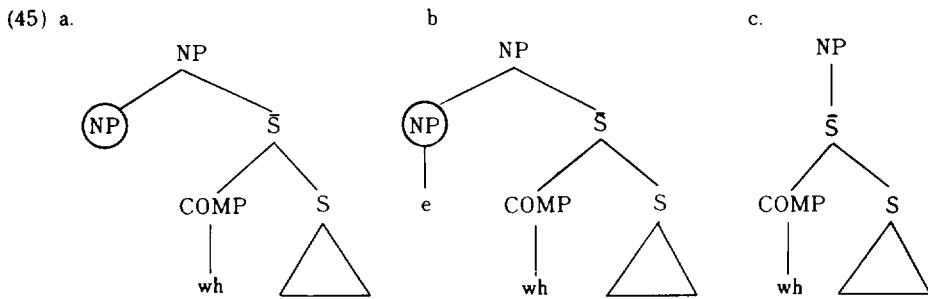
- (44) a. \*Can [<sub>NP</sub> *whether*  $\phi$  ] matter?  
 b. \*I found [<sub>NP</sub> *what*  $\phi$  ] unclear.

The possible deletion in (42) and the impossible deletion in (43) and (44) may imply that the wh-phrase, whether in free relatives or in interrogative complements, is in the COMP position and that what is deleted is not an S, but an  $\bar{S}$ . Notice, however, that if we assume

that the *wh*-phrase in (41) is in the head position rather than in the COMP position and that an  $\bar{S}$  is deleted, then (43) would have to be acceptable.

Hitherto, we have observed two facts. The first is that as far as the Internal NP over S Constraint is concerned, free relatives run parallel with ordinary relatives; the second is that as far as the Deletion of the clause is concerned, on the other hand, with interrogative complements. Of the two, it is the second fact that supports the COMP Hypothesis with regard to the position of the *wh*-phrase of free relatives. Thus the first fact about the Internal NP over S Constraint is no longer available to the argument for the Head Hypothesis. Instead, we propose that the two structures of free relatives and ordinary relatives have a head in common, although the former has an empty head while the latter has a non-empty [i.e. a lexical or full] head. It is then that these two structures differ from that of interrogative complements in that the latter does not have any head, whether an empty head or a non-empty head.

On the basis of what we have observed above, we might suggest the following triple structures: the ordinary relatives, the free relatives and the interrogative complements, in order.



Given (45), it may be suggested that a circled head NP in (45a) cannot be combined with the *wh*-phrase in (45b) and that the NP in (45c) cannot with the higher NP in (45b), either. Consider the following pairs,<sup>5)</sup>

5) For further examples, consider the following pairs of sentences:

- (i) a. I insist on paying *what* it has cost and I insist on knowing *what* it has cost.
- b. \*I insist on paying and knowing *what* it has cost.
- (ii) a. I'll buy *what* he is selling and I'll inquire *what* he is selling.
- b. \*I'll buy and inquire *what* he is selling.

Note that in the a-sentences of both (i) and (ii), *what* is a free relative in the first conjunct while it is an interrogative complement in the second conjunct. The ungrammaticality of the b-sentences above shows that the two different VPs cannot be conjoined because each requires a different structure of NP in the sense of (45).

- (46) a. *The books* John bought are expensive and *whatever notebooks* John bought are expensive.  
 b. \**The books* and *whatever notebooks* John bought are expensive.
- (47) a. He didn't tell me *when* he went out and he didn't<sup>6)</sup> tell me *when* he would be back.  
 b. \*He didn't tell me *when* he went out and he would be back.

Finally, let's have a brief look at (4d). B & G present the fact about (4d) as another evidence in favor of the Head Hypothesis. More specifically, they point out that wh-pronouns are generated independently of their relative clauses in at least two situations: with adjectives like *possible* and with phrases of conditional possibility. They further claim that such wh-pronouns are like other indefinite pronouns and interpreted as universal quantifiers. Hence their examples below.

- (48) a. I'd do *anything*  $\left\{ \begin{array}{l} \text{possible to help} \\ \text{I please} \\ \text{you ask me to do} \end{array} \right\}$ .
- b. I'd do *whatever*  $\left\{ \begin{array}{l} \text{possible to help} \\ \text{I please} \\ \text{you ask me to do} \end{array} \right\}$ .

Note again that in (48a) whatever follows *anything* can be deleted while in (48b) *whatever* follows *whatever* cannot be deleted. We see this contrast in deletion between the two above in the following pair.

- (49) a. I'd do *anything*.  
 b. \*I'd do *whatever*.

It seems obvious that in (49) *anything* is different from *whatever* in the syntactic behavior. As a result of it, the deletion gives rise to the contrast that *anything* in (49a) can function as an independent object noun and *whatever* in (49b) cannot. Consider further the following examples.

- (50) a. The famine was severe  $\left\{ \begin{array}{l} \text{everywhere} \\ * \text{wherever} \end{array} \right\}$
- b. They were the poorest cows that I have seen  $\left\{ \begin{array}{l} \text{anywhere} \\ * \text{wherever} \end{array} \right\}$

6) This example is taken from Jespersen's "Essentials of English Grammar." Cf. p.356.

c.  $\left\{ \begin{array}{l} \textit{Anytime} \\ * \textit{Whenever} \end{array} \right\}$  is OK.

Here is another difference in the syntactic behavior. The ordinary NP allows to be followed by any PP, but the wh-phrase of free relatives does not. Consider (51).

(51) a. The famine was severe  $\left\{ \begin{array}{l} \textit{everywhere} \\ * \textit{wherever} \end{array} \right\}$  in Africa.

b.  $\left\{ \begin{array}{l} \textit{Anytime} \\ * \textit{Whenever} \end{array} \right\}$  in the afternoon will be a good time.

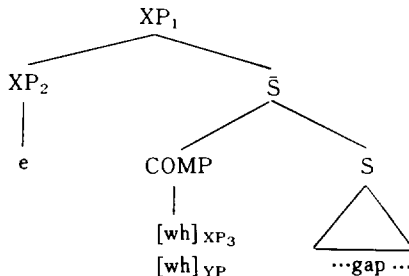
So far, we have clearly shown that free relatives cannot be deleted and thus that the wh-phrase does not allow to be a head independently of the relative clause. Notice that the grammatical difference in (49), (50), and even in (51) can be simply explained by the structural difference between (45a) and (45b). As mentioned earlier, it is an  $\bar{S}$  instead of S that participates in a rule of deletion. That is, in (45a)  $\bar{S}$  can be deleted and in (45b) S can not be deleted. Hence the assumption of (45b) for free relatives, and hence the COMP Hypothesis!

In this section, we have examined all the facts in (4) with the exception of (4e), which will be discussed in the next section. On the basis of what we have observed we may conclude that the COMP Hypothesis is a more coherent theory than the Head Hypothesis.

### III. Problems

In the preceding section we have concluded that the wh-phrase is in the COMP position rather than in the Head position. More specifically, free relatives should have the structure of (1b), repeated here for convenience sake.

(52) The COMP Hypothesis





In (52) there are three XPs, which we will refer to as higher XP for  $XP_1$ , head XP for  $XP_2$  and COMP XP for  $XP_3$  in what follows.

One of the most conspicuous properties of free relatives in English is the phenomenon of matching effects in the sense of (53) (from Groos & Riemsdijk).

(53) Where the matrix requires a phrase of category XP.

- a. \* ... [ <sub>FR</sub> <sub>+wh</sub> YP ... ] ...  
 b. ... [ <sub>FR</sub> <sub>+wh</sub> XP ... ] ...

Given (53), there are two possibilities of expressing the matching effects in (52): one is the  $XP_1$ - $XP_2$  relation and the other is  $XP_1$ - $XP_3$  relation, which are supposed by the Head Hypothesis and the COMP Hypothesis, respectively. The  $XP_1$ - $XP_2$  relation is determined by the  $\bar{X}$ -theory of phrase structure. Specifically, a phrase and its head have the same categorial specification. Thus the  $XP_1$ - $XP_2$  relation in this sense is not limited to only the case of free relatives. Note that it is also available even when  $XP_2$  is not a wh-phrase of free relatives. Consider the following.

- (54) a. He'll reach [<sub>NP</sub>[<sub>NP</sub> that height]]  
 b. \*He'll reach [<sub>NP</sub>[<sub>AP</sub> that tall]]  
 (55) a. He'll get [<sub>AP</sub>[<sub>AP</sub> that tall]]  
 b. \*He'll get [<sub>AP</sub>[<sub>NP</sub> that height]]

As pointed out by B & G themselves, the verb *reach* requires an NP whereas the verb *get* in the sense of 'become' requires an AP. Such being the case, the b-sentences in (54) and (55) are ungrammatical because of the wrong relation of  $XP_1$ - $XP_2$ . Then it follows that the  $XP_1$ - $XP_2$  relation is not specific to free relatives. Added to this is the fact that the  $XP_2$  position may be realized as a place marker *it* in a certain situation. Consider the following.

- (56) a. Can *it* matter whether you are right or not?  
 b. I found *it* unclear what the consequences were.<sup>7)</sup>

Given this observation, the question remains as to why the wh-phrase of free relatives should be in the head XP position. Another question arises as to why the wh-phrase of

7) Note that the examples in (56) are those transformed from (40) by Extraposition. Compare these with those in (40) with respect to the grammaticality.

interrogatives cannot be in that position if and when it is identical with the higher XP<sub>1</sub> in categorial specification. More essentially, however, the wh-phrase of free relatives, following the COMP Hypothesis (52), turned out to be in the COMP XP position. Therefore, it may be concluded that the matching effects (53b) cannot be any longer accounted for by the XP<sub>1</sub>-XP<sub>2</sub> relation.

The second possibility of explaining the matching effects' may be in the relation of XP<sub>1</sub>-XP<sub>3</sub>. An apparent problem with the XP<sub>1</sub>-XP<sub>3</sub> relation is that there is nothing to predict or ensure that the COMP XP has the same categorial specification as the higher XP.

A possible approach to this problem is a rule of Head Raising proposed by Iwakura (1981).

(57) Head Raising

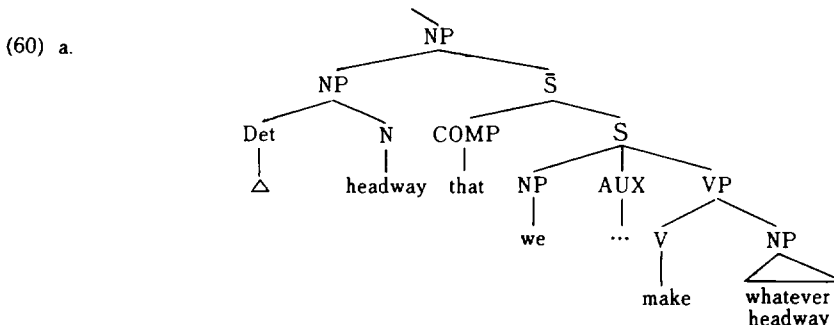
$$\underbrace{[XP \dots \Delta \dots]}_1 [\text{COMP} [\underbrace{XP}_{2} \text{ wh-phrase} \dots]] \rightarrow 2 \quad t \quad 3$$

- where (i) 1 and 2 are nondistinct  
 (ii) 2 contains free relative  
 (iii) 2 ≠ [P NP]

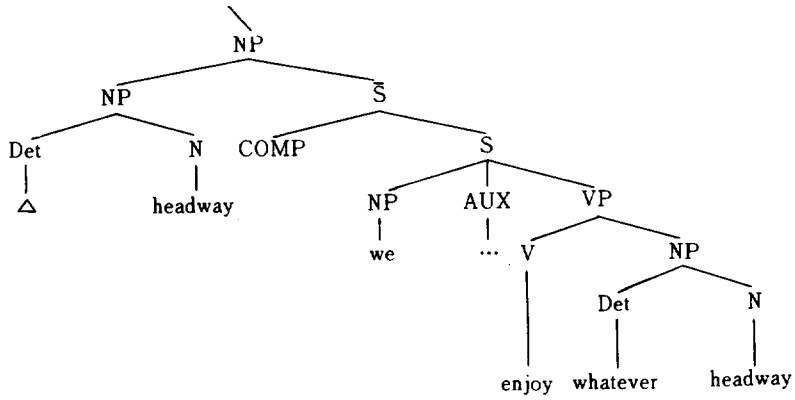
In terms of the assumption of the COMP Hypothesis (52) and the Head Raising (57), Iwakura provides an account of the grammatical difference in (35), repeated here again as (58), and in (59) below.

- (58) a. *Whatever headway* we made was insufficient.  
 b. \**Whatever headway* we enjoyed was insufficient.  
 (59) a. We didn't make *Whatever headway* was expected of us.  
 b. \* We didn't enjoy *Whatever headway* was expected of us.

Following his analysis, for example, free relatives in (58a) and (58b) are assigned the underlying structures like (60a) and (60b), respectively.

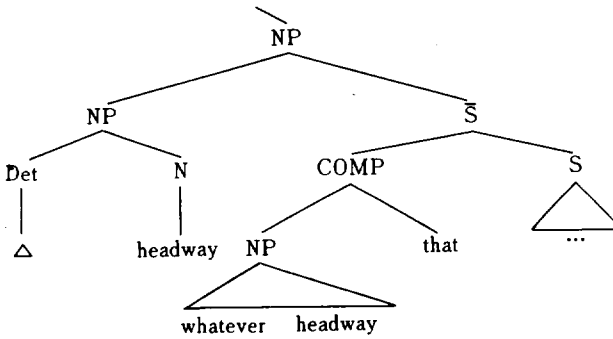


b.\*



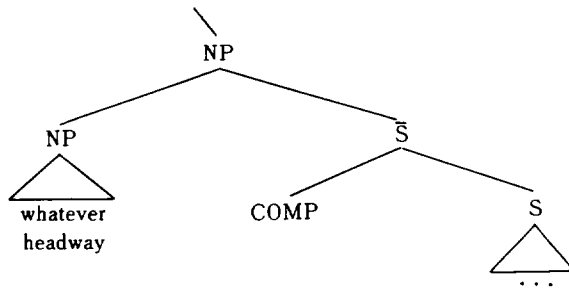
It should be noted that the rule of *wh*-Movement is not applied to (60b) since it is ruled out by a constraint on idiom chunk constructions. The rule of *wh*-Movement is, however, applied to (60a) to yield (61).

(61)



Then the rule of Head Raising (57), applied to (61), gives rise to (62).

(62)



As we see in (62), the application of the Head Raising (57) results in the structure assumed in the Head Hypothesis and refuted by our arguments against the Head Hypothesis. But how can we prevent an  $\bar{S}$  from being deleted and being led to the ungrammaticality?

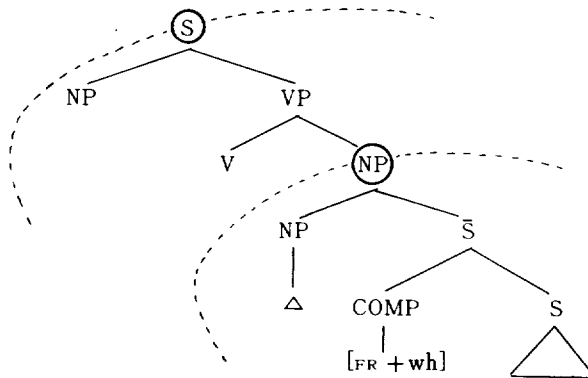
- (63) a. \**Whatever headway* [ $\bar{S}$   $\phi$  ] was insufficient.  
 b. \*We didn't make *Whatever headway* [ $\bar{S}$   $\phi$  ].

This shows that the COMP XP cannot move to the position of the Head XP by any rule such as the Head Raising (57). In other words, the wh-phrase of free relatives should be in the position of COMP XP. We have another evidence to show that the COMP XP cannot move to the Head XP. Consider the following examples from Groos and Riemsdijk.

- (64) a. \**What* Susan likes to eat does John cook?  
 b. \**Who* Mary loved did Susan say she wouldn't invite?

The ungrammaticality of (64) indicates that the free relatives cannot be fronted. Why is it impossible to front the free relatives if the wh-phrase is in the Head XP position, whether generated in the base or moved by a rule of Head Raising? As pointed out by Groos and Riemsdijk, the fronting in this case is possible since it does not violate the Subjacency. Note, in passing, that any relative clause cannot be fronted since the fronting results in the violation of Subjacency. This problem does not arise when the wh-phrase of free relatives is in the COMP XP position. Consider the following structure.

(65)



In (65), following the Subjacency, an  $\bar{S}$  cannot move to the front out of the two bounding nodes, circled NP and circled S. On the other hand, a circled NP, when assumed that the

wh-phrase is in the Head XP position, can move to the front out of only one bounding node, circled S. It is clear that the wh-phrase of free relatives is in the COMP XP position. In this respect, Iwakura's rule of Head Raising is not the correct way to the account of the matching effects in English free relatives. Then the question still remains as to how the matching effects can be accounted for in the relation of  $XP_1$ - $XP_3$ .

Notice further that our argument against the rule of Head Raising (57) is strongly supported by the fact that the free relatives can extrapose. Consider the following pairs of sentences, due to Groos and Riemsdijk.

- (66) a. Harry always invites *e* to dinner *whatever people Susan doesn't like*.  
 b. Susan used to give *e* to her friends *whatever she didn't wear anymore*.  
 (67) a. \*Harry always invites *whichever people* to dinner *Susan doesn't like*.  
 b. \*Susan used to give *whatever* to her friends *she didn't wear anymore*.

Assuming that Extraposition applies to  $\bar{S}$ , not to S (reduced), the possibility of Extraposition in (66) proves that the wh-phrase of free relatives is in the COMP XP position dominated by  $\bar{S}$ . If it is moved (or raised) to the Head XP position by any rule such as the Head Raising, however, there would be no explanation for the ungrammaticality of (67). Hence no rule of Head Raising!

Hitherto, we have argued against the rule of Head Raising (57) in the syntax of English free relatives in terms of three syntactic phenomena: Deletion, Fronting and Extraposition.

Having missed discussing (4e) in the previous section, we now turn to (4e): Pied Piping. That is, in English it is impossible to prepose a governing preposition along with a wh-phrase of free relative. Consider the following:

- (68) a. I'll reread *whatever paper* John has worked on.  
 b. \*I'll reread *on whatever paper* John has worked.

Indeed, there is no free relative construction which has a wh-phrase of PP category. Thus, added to the rule of Head Raising (57) is an ad hoc condition (iii), specifying that a wh-phrase is not a [PNP] (in (57),  $2 \neq [P NP]$ ). By "ad hoc" we mean that the condition (iii) of (57) is a special case of a more general constraint on the  $XP_1$ - $XP_3$  relation. In other words, the constraint on Pied Piping in free relatives is no more than a special case of the matching effects discussed earlier. Note here that the constraint on Pied Piping may be informally interpreted as follows.

(69) If there is no PP in the  $XP_1$  position there cannot occur a PP in the  $XP_3$  position.

Note further that the matching effects, in the sense of (53b), may be informally interpreted as follows.

(70) If there is no XP in the  $XP_1$  position there cannot occur an XP in the  $XP_3$  position.

As seen in (54) and (55), it is true that a higher XP (i.e.  $XP_1$ ) must be identical with a lower XP (i.e.  $XP_3$  in the sense of our  $XP_1$ - $XP_3$  relation). More examples to show the matching effects in  $XP_1$ - $XP_3$  relation are given in the following (71), which are due to Groos and Riemsdijk.

- (71) a. [<sub>NP</sub>[<sub>NP</sub> *whoever*] wants to participate in the game] must let me know  
 b. I will invite [<sub>NP</sub>[<sub>NP</sub> *whoever*] promises not to smoke]  
 c. I will play with [<sub>NP</sub>[<sub>NP</sub> *whoever*] chooses to play]  
 d. \*Susan was looking at [<sub>NP</sub>[<sub>PP</sub> *with whom*] Sam danced]  
 e. \* [<sub>NP</sub>[<sub>PP</sub> *of whom*] I'll fond] arrived today  
 f. He'll grow [<sub>AP</sub> e [<sub>AP</sub> *however tall*] his father was]  
 g. I'll word my letter [<sub>ADVP</sub> e [<sub>ADVP</sub> *however*] you word yours]

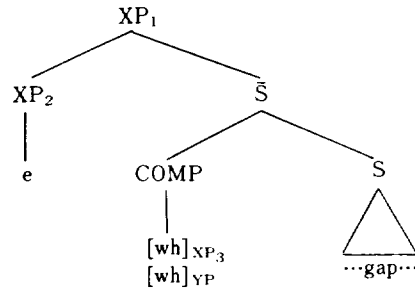
Given (70), (71 d-e) are ungrammatical because of the violation of (70). More specifically, in (71d) an NP in the  $XP_1$  position is in relation to a PP in the  $XP_3$  position. Exactly the same is true of (71e). (71 a-c) and (71 f-g) are all grammatical because they do not violate (70) to the effect that an XP in the  $XP_1$  position is in relation to an XP in the  $XP_3$  position. Therefore, it can also be said that (68b) is ungrammatical because of the violation of (70). (57)(iii) may be true, but it is not necessary in explaining the Pied Piping of free relatives. Note, in addition, that the condition (ii) of (57) is not necessary since an empty head marked  $\Delta$  implies that the wh-phrase following it is a free relative.

In this section, we have pointed out that the wh-moved wh-phrase of free relatives must be in the COMP XP position and must not be moved (or raised) to the Head XP position, and thus that the rule of Head Raising cannot account for the matching effects. We have also pointed out that the Pied Piping constraint in free relatives can be explained with no ad hoc condition, if the matching effects can be accounted for by any principle on the relation between the Higher XP and the COMP XP.

## IV. A Possible Solution

In the preceding section we have already shown that the matching effects in English free relatives should be explained by the  $XP_1$ - $XP_3$  relation in the sense of (70). Then the question remains as to how the  $XP_1$ - $XP_3$  relation can be formally expressed to account for the matching effects. Now let's look at (52), which is repeated again for the sake of our discussion.

(52) The COMP Hypothesis



As pointed out in the previous section, in (52) there are two possibilities of explaining the matching effects:  $XP_1$ - $XP_2$  relation and  $XP_1$ - $XP_3$  relation. These may be schematically indicated by the form of (72):

(72)  $[XP_1 [XP_2 e] [\bar{S} [COMP XP_3 \dots]]]$

On the basis of what we have observed so far, the two facts in (72) are clear:  $XP_1$  and  $XP_2$  have the same categorial specification in the sense of the  $\bar{X}$ -theory of phrase structure;  $XP_1$  and  $XP_3$  are nondistinct in the sense of our (70). Then it follows that  $XP_2$  and  $XP_3$  are nondistinct. Hence we propose the following filter blocking non-matching effects in terms of the Head XP and the COMP XP.

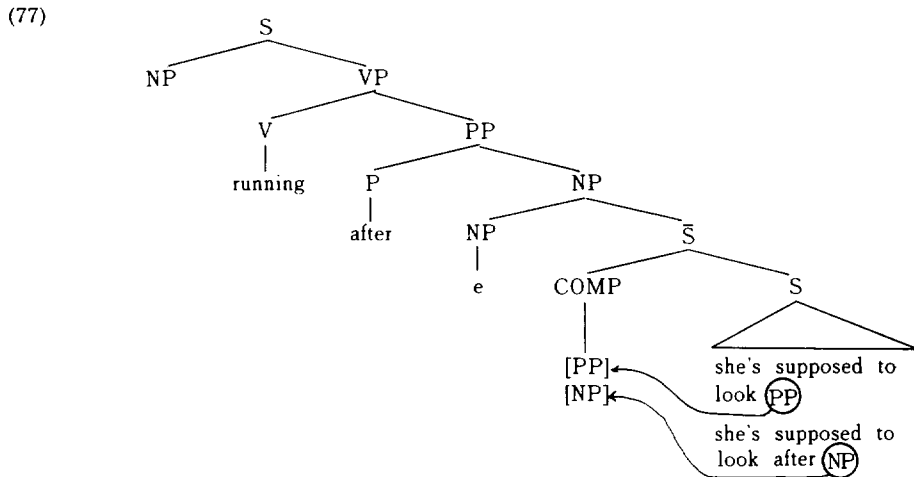
(73)  $*[XP e] [COMP YP \dots] (X \neq Y)$

We will refer to (73) as *Matching Effect Filter* (henceforth, MEF). Given the MEF, it is worthwhile showing that it can account for the matching effects in free relatives in a unified

way.<sup>8)</sup> Consider the following examples:

- (74) a. \*Mary never goes for walks *with whoever* she's friends.  
 b. Mary never goes for walks *with whoever* she's friends with.
- (75) a. \*You'll always see Harry running *after what* few children he's supposed to look.  
 b. You'll always see Harry running *after what* few children he's supposed to look after.
- (76) a. \*Alice's rabbit insists on playing *with what* the cat plays.  
 b. Alice's rabbit insists on playing *with what* the cat plays with.

How can we account for the contrast between the grammaticality of the b-sentences above and the ungrammaticality of the corresponding a-sentences? The structure of (75), for example, we assume to be like (77).



In (77), both the circled PP and circled NP are free to move to the COMP position. In addition, the circled NP is allowed to remain in COMP by the MEF, since the Head XP is an NP. But such is not the case with the circled PP, which is blocked by the MEF to be in COMP. Hence the grammaticality of the b-sentences vs. the ungrammaticality of the a-sentences in (74)–(76).

8) By "in a unified way" we mean that the a-sentences and the b-sentences of (74)–(76) can be accounted for in terms of one underlying structure (77). Note that Groos and Riemsdijk assume two different underlying structures in order to distinguish the grammaticality of the b-sentences from the ungrammaticality of the a-sentences. For further study, cf. Groos and Riemsdijk (1981, 3.3. Restrictions on Pied Piping).



In this section, we have proposed the Matching Effect Filter (73) to account for the matching effects in English free relatives, and showed that it can also account for the Pied Piping constraint in a unified way.

#### IV. Conclusion

To summarize, we have shown that, contrary to Bresnan & Grimshaw's analysis, the *wh*-phrase of free relatives in English must be in COMP, by examining all the facts in (4) presented as evidences in favor of the Head Hypothesis. Hence the COMP Hypothesis (52). Then it has been pointed out that the matching effects cannot be explained by a rule of Head Raising nor by the  $\bar{X}$ -theory of  $XP_1$  (i.e. Higher XP)– $XP_2$  (i.e. Head XP) relation. Instead, we have proposed the Matching Effect Filter (73) to block any case in which an  $XP_3$  in COMP is not nondistinct with an  $XP_2$ .

(73) \*[ $XP$  e] [COMP YP ... ] ( $X \neq Y$ )

We have also pointed out that, given the Matching Effect Filter (73), the Pied Piping constraint in English free relatives can be simply accounted for.

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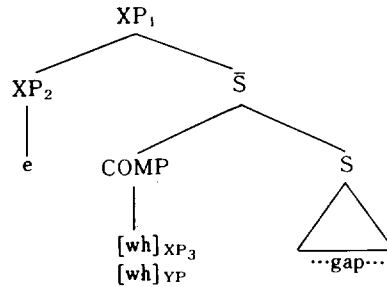
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## 국문초록

## 영어의 Free Relatives에 관한 연구

李 基 錫

이 논문은 영어의 Free Relative에서 wh-phrase의 위치에 관한 두개의 큰 학설, 즉 Head Hypothesis와 COMP Hypothesis에 대한 통사론적 분석을 하는 데 그 목적이 있다. 이를 위해 Bresnan과 Grimshaw가 Head Hypothesis를 뒷받침하기 위해 제시했던 Free Relative의 특성—특히 Matching Effects와 Pied Piping제약—을 여러가지 통사규칙을 가지고 분석하였다. 그 결과 다음의 COMP Hypothesis를 지지하게 되었다.



여기서 Matching Effects를 설명하기 위해 wh-phrase가 XP<sub>3</sub>에서 XP<sub>2</sub>로 이동될 수 있는 조건을 규정하는 Head Raising 규칙이 제안되는데, 통사규칙의 특성을 고려해 볼 때 wh-phrase는 절대로 Head Position, 즉 XP<sub>2</sub>에 들어갈 수 없음을 지적하였다. 그 대신 XP<sub>1</sub>-XP<sub>3</sub>의 관계에서 Matching Effects는 설명되어야 하는데 X̄-theory에서 XP<sub>2</sub>는 항상 XP<sub>1</sub>과 같은 범주에 있게 되므로 결국 XP<sub>2</sub>-XP<sub>3</sub>의 관계만 설정해 주면 된다. 이를 토대로 다음과 같은 Matching Effect Filter를 제안하였다.

\*[XP e] [COMP YP ...] (X ≠ Y)

이에 의하면 COMP에 PP가 올 수 없다는 Pied Piping제약에 대한 특별한 조건을 제시하지 않고도 모든 경우의 Matching Effects를 설명할 수 있음을 밝혔다.