WHY NOT A TOPIC IN A RELATIVE CLAUSE?

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1. What is of interest in the interaction of relativization and topicalization is that it is not possible for the two rules to apply in a single clause and produce a topic within a relative clause. Consider the following Korean sentences.

(1) *i salam-i (*i chaek-un* Chelswu-ka cwun) Yenghi-ita.
    this man SM this book TOP   SM gave   be
    '*This is Yenghi whom the book Chelswu gave to.'

(2) '*(*Yenghi-nun* Chelswu-ka manna-n) hakkyo-ka phakoytoyessta.
         TOP   SM met   school SM was-detroyed
    '*The school which Yenghi Chelswu met in was destroyed.'

(3) *(*ku totwuk-un*   caphi-n) swunkyeung-i sang-ul patassta.
     the thief   TOP was-caught policeman   prize   received.
    '*The policeman whom the thief he was caught by was awarded.'

The italicized phrases in (1-3) are the topics derived by topicalization within the relative clauses. And the resulting sentences are all ungrammatical.

The same phenomenon is also observed in English, as we see in (4-6) following (Gundel 974: 80, Chomsky 1977):

(4) *This is the boy (whom *the book*, John gave away to)
(5) *The man (who *that book*, wrote) is a well-known linguist.
(6) *I love Mary (who *the dog*, was running after).

Again, the italicized phrases in (4-6) are the topics derived by topicalization in relative clauses and the result is that the whole sentences are totally unintelligible.

That the topic cannot occur in a relative clause is not an isolated phenomenon unique to Korean and English. The same is also true of Japanese (Kuno 1973) and Tok Pisin (Woolford 1979), and other languages are also reported to exhibit the same phenomenon (Keenan 1972). Thus, it seems to be a phenomenon universally true across languages.

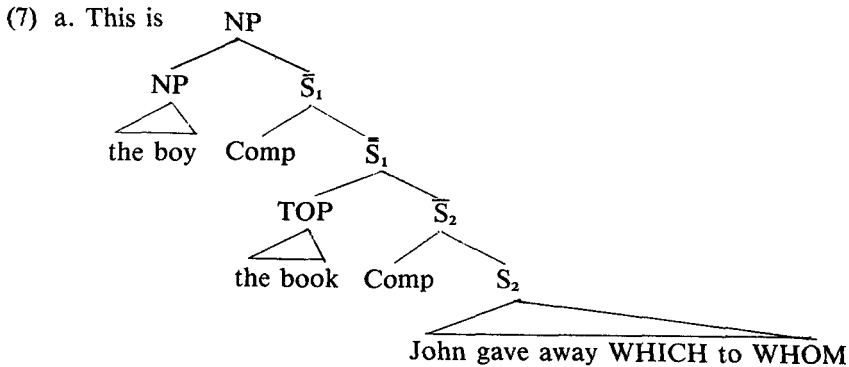The prupose of this paper is to suggest, for this phenomenon, an explanation

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that has cross-linguistic validity. Section 2 reviews Chomsky's (1977) formal account and points out a number of problems with it. Section 3 deals with other possible alternative analyses within Chomsky's framework and discusses their problems. Section 4 presents our own alternative proposal for the phenomenon, which is a functional explanation based on perceptual principles in sentence processing. Attempts are also made to prove the validity of this explanation by means of other general principles govering human perception and discourse organization. A brief summary follows in Section 5.

2. Chomsky's Formal Account

2.1 Within the framework of Extended Standard Theory, Chomsky (1977) offers a theory-internal explanation as to why sentences (4-6) are ungrammatical in English. Chomsky claims that the traditional rule of topicalization is actually a case of *wh*-movement, and that the D-structure underlying (4-6) may be represented as (7a), if (4) is taken for illustration:

(7) a. This is

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                NP
              /    \
           NP        S̄₁
          /  \      /  \
     the boy  Comp     S̄₁
                      /   \
                   TOP     S̄₂
                  /  \     /  \
          the book  Comp    S₂
                         /        \
              John gave away WHICH to WHOM
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In (7a), *which* of S_2 moves to the COMP node of $\bar{S}_2$ by *wh*-movement, thereby converting (7a) to (7b):

(7) b. This is the boy $(_{\bar{S}_1} (_{Comp})_{\bar{S}_1} (_{Top}$ the book$) (_{\bar{S}_1} (_{Comp}$ WHICH$) (_{S_2}$ John gave away t to WHOM$))))$

Then, *whom* of S_2 should move to the COMP node of S_1 by another application of *wh*-movement (relativization in this case), but this is impossible for the following two reasons.

   First, *wh*-movement is a cyclic rule subject to the principle of strict cyclicity. Thus, *whom* of S_2 moves to the COMP node of $\bar{S}_2$ first, but this is blocked by the so-called 'Mutiply-filled Comp Constraint' (henceforth, MFCC), because the internal COMP node is already filled by *which*. Second, movement of *whom* to the COMP node of $\bar{S}_1$ is not allowed, either, due to the violations of SSC (Specified Subject Condition), PIC (Propositional Island Condition) and Subjacency. Thus, there is

no way in which (7a) is surface-realized to (4), and (4) is ungrammatical.

2.2 Our critique of Chomsky's explanation starts with the question of whether topicalization is really a rule of *wh*-movement. The major factor which led Chomsky to conclude that topicalization is *wh*-movement is that topicalization exhibits the typical syntatic properties of *wh*-movement: namely, it violates SSC, PIC and Subjacency when there is a COMP bridge, as we see in (8).

(8)   This book, I asked Bill to get his students to read t.

and it also observes CNPC (Complex NP Constraint) as in (9):

(9)   *This book, I accept the argument that John should read t.

The syntactic properties shown in (8-9) are not the characteristics of NP-movement, so topicalization cannot be analyzed as anything other than *wh*-movement in Chomsky's theory.

However, Bresnan (1975, 1976) and Borsley (1981) demonstrated, on the basis of comparative deletion rules in English and Polish respectively, that the properties displayed in (8-9) cannot be considered fool-proof diagnostic criteria for showing that a rule, if it exhibits these properties, is a case of *wh*-movement. Steriade (1980) and Woolford (1979) have also made the same point with regard to the topicalization rules in Romanian and Tok Pisin, respectively. Therefore, the conclusion is doubtful that topicalization in English involves *wh*-movement simply because it displays such properties. Actually a number of other problems pop up if topicalization is analyzed as *wh*-movement.

2.3 As Iwakura (1980: 55-56) has correctly pointed out, the topic of the following sentence is *to John* (in Chomsky's view):

(10)   *To John* Mary gave a copy of her book.

This is because there is a cleft sentence corresponding to (10) and, according to Chomsky, a cleft NP is the topic (Chomsky 1977: 95):

(11)   It is *to John* that Mary gave a copy of her book.
Then, underlying (10) will be a D-structure along the lines of (12):

(12) $(_{\bar{S}}(_{Top}$to John) $(_{\bar{S}}(_S$Mary gave a copy of her book to WHOM$_S)_{\bar{S}})_{\bar{S}})$

Since pied piping of a preposition is optional with *wh*-movement, an application of *wh*-movement to (12) will yield either (13a) or (13b), depending upon whether it moves the *wh*-phrase alone or the PP containing *who*:

(13) a. $(_{\bar{S}}(_{Top}$to John) $(_{\bar{S}}(_{Comp}$ $\begin{bmatrix} \text{WHOM} \\ \text{to WHOM} \end{bmatrix}$ $)(_S$Mary gave a copy of her book

b.

$\begin{bmatrix} \text{to t} \\ \text{t} \end{bmatrix}$ $_S)_{\bar{S}})_{\bar{S}})$

According to Chomsky, the *wh*-phrase moved into the COMP node by *wh*-movement is obligatorily deleted up to recoverability, i.e., as long as it is recoverable from the context (Chomsky 1977: 91). Then, *whom* in (13a) must be deleted, whereas *to whom* in (13b) cannot, because the deletion of the latter is a violation of the recoverability condition. Thus, (13) changes to (14):

(14) a.* $(_{\bar{S}}(_{Top}$ to John) $(_{\bar{S}}(_{Comp}\begin{bmatrix} \phi \\ \text{to WHOM} \end{bmatrix})$ $(_{S}$ Mary gave a copy of her book
　　 b.*
　　$\begin{bmatrix} \text{to} \\ \phi \end{bmatrix}_{S})_{\bar{S}})_{\bar{S}})$

The problem is that both (14a) and (14b) are ungrammatical. One might say that (14b) is out because the obligatory rule of *wh*-deletion has not applied, but there is no way to explain why (14a) is not possible. Furthermore, in Chomsky's analysis, sentences like (10) cannot be generated at all.

2.4 As already mentioned, the *wh*-deletion rule is obligatory in Chomsky's analysis of topicalization, and the *wh*-phrase following the topic must be deleted. This is a queer state of affairs because, as we see in (15) following, *wh*-deletion is normally optional in other cases:

(15)   This is the girl $\begin{Bmatrix} \text{whom} \\ \phi \end{Bmatrix}$ John loves.

It is not clear why only the *wh*-phrase after the topic must be deleted.

Chomsky states that $\bar{S}$ with the *wh*-phrase, which follows the topic, is a "kind of free relative" (1977: 91). However, the *wh*-phrase in other free relatives can never delete, as in (16):

(16) $\begin{bmatrix} \text{What} \\ *.\ \phi \end{bmatrix}$ you have done is surprising.

Thus, the *wh*-phrase which is assumed to exist after the topic in Chomsky's analysis is also different from the *wh*-phrases in other free relatives.

The *wh*-phrase which Chomsky posits in his *wh*-movement analysis of topicalization is an entity peculiar to his analysis which differs not only from other usual *wh*-phrases but also from the *wh*-phrases of free relatives. It seems that this *wh*-phrase which Chomsky has to posit and destroy in analyzing topicalization as *wh*-movement is an ad hoc theoretical artifact which is difficult to justify and seems to have no reality at all.

2.5 As a piece of evidence that topicalization involves *wh*-movement, Chomsky gives a dialectal form which has an overt *wh*-form on surface. In some dialects, for instance, there is a sentence like (18) corresponding to (17):

(17)   This book, I really enjoyed.
(18)   This book is *what* I really enjoyed.

The problem is, however, that (17) and (18) are not identical in meaning. According to Gundel (personal communication), (17) has two readings depending upon where stress falls:

(19) a. This book, I really ENJOYED.
      b. THIS BOOK, I really enjoyed.

Out of these two readings, only (19b) has the same meaning as (18). Note that what is presupposed in (18) is $\overline{S}$ containing the *wh*-phrase and it is only (19b), but not (19a), that shares the same presupposition. If this is correct, it is problematic to ignore such a meaning difference and regard (17) and (18) as identical in syntactic generation.

2.6 Chomsky's argument can be reduced to the point that as long as MFCC is accepted as valid in English, no other *wh*-movement can apply within a relative clause because relativization itself is a case of *wh*-movement.

But topicalization is not the only rule which Chomsky claims to be a case of *wh*-movement. Coreferential deletion which applies in what he calls "adjective qualifier complement" is also claimed to involve *wh*-movement. Therefore, if Chomsky's argument is correct, this rule should also not apply in a relative clause.

Unlike topicalization, however, this rule is not always incompatible with relativization. Consider the following sentences:
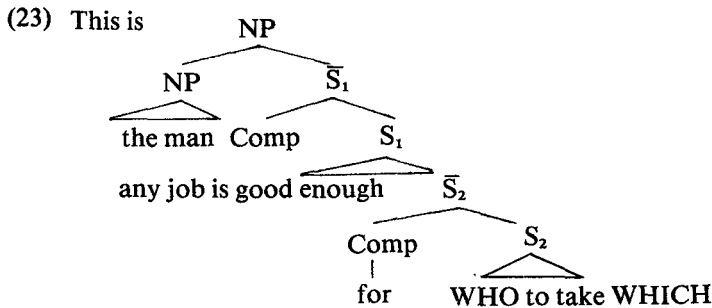
(20)   This is the man [for whom any job is good enough ϕ to take].
(21)   I know a man [for whom the house is big enough ϕ to buy].

In (20-21), the embedded sentences in bracket are derived by *wh*-movement from a D-structure like (22), if (20) is taken for illustration:

(22)   Any job is good enough $(_{\overline{S}}(_{COMP}$for$)$ $(_{S}$the man to take which$)_{\overline{S}})$

In (22), *which* moves to the COMP node first and is subsequently deleted by *wh*-deletion.

Then, the D-structure for sentences like (20-21) may be represented schematically as follows:

(23)   This is

NP
├── NP
│   └── the man
└── $\overline{S}_1$
    ├── Comp
    └── S_1
        ├── any job is good enough
        └── $\overline{S}_2$
            ├── Comp
            │   └── for
            └── S_2
                └── WHO to take WHICH

In (23), *which* is first moved to the internal COMP node by *wh*-movement; then, movement of *who* to the COMP node of $\bar{\bar{S}}_1$ is not possible due to MFCC and the strict cycle condition. Therefore, (23) should be ungrammatical in Chomsky's analysis, but this prediction is not borne out.

Thus, if coreferential deletion in adjective qualifier complements is really a case of *wh*-movement, as Chomsky argues, sentences like (20-21) show that more than one application of *wh*-movement should be allowed within a single S-bar. If this is correct, the Chomskyan explanation—that sentences (4-6) are not possible because two applications of *wh*-movement (i.e., topicalization and relativization) apply in a single S-bar in violation of MFCC—is not convincing.

2.7 What cannot occur in a relative clause is not only a topic but a left-dislocated NP as well. Consider the following left-dislocated sentences corresponding to (4-6).

(24) *This is the boy (who, (as for) the book, John gave it away to).
(25) *The man (who, (as for) the book, wrote it) is a well-known linguist.
(26) *The beans (which, (as for) your brother, he ate) made him sick.

Chomsky claims that left-dislocated sentences are not generated transformationally by *wh*-movement, but that they are base-generated as such,[1] because there is a problem of "structure creation" (e.g., *as for* phrase) and left-dislocation does not exhibit the diagnostic properties of *wh*-movement we mentioned in 2.2. Left-dislocated sentences like (24-26) derive from a D-structure like (27), if (24) is taken for illustration.

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[1] Another problem with Chomsky's analysis of topicalization and left-dislocation concerns the base rules he proposes. The topic is generated by (i):
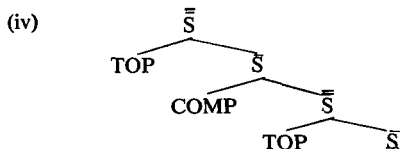
(i) $\bar{\bar{S}}$ → TOP $\bar{S}$

Since a topic or a left-dislocated NP can appear within an embedded sentence such as (ii):

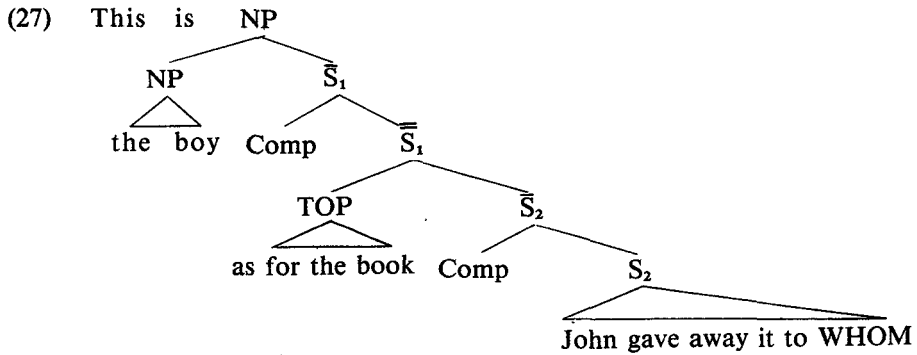(ii) I informed the student that *the book*, he would definitely have to read it.

Chomsky proposes another rule like (iii):

(iii) S → Comp $\left[\begin{matrix} S \\ \bar{\bar{S}} \end{matrix} \right]$

The problem is that the interaction of the rules (i) and (iii) produces a structure like (iv), which has indefinitely long embedded topics:

(iv)

There are no languages which allow such a recursion of topics.

(27) This is NP

NP $\bar{\bar{S}}_1$

the boy Comp $\bar{\bar{S}}_1$

TOP $\bar{\bar{S}}_2$

as for the book Comp S_2

John gave away it to WHOM

In (27), the pronoun *it* is interpreted as referring to the topic *book* by a "special rule of predication" (though Chomsky does not formulate it); syntactically, (24) is derived by moving *whom* to the internal COMP node first and subsequently to the higher COMP node.

Since there is only one *wh*-phrase moving in (27), the kind of explanation based on MFCC which he used for topicalization is not applicable to this case. Thus, non-occurrence of a left-dislocated NP in a relative clause must be accounted for in some other way. Chomsky claims that left-dislocation is blocked in a relative clause because $\bar{\bar{S}}$ containing the topic in a structure like (27) is a cyclic (i.e., bounding) node. If S-double bar is a cyclic node, (27) is out because movement of *whom* to the higher COMP node is in violation of Subjacency.

What is crucial in this case is whether $\bar{\bar{S}}$ is really a cyclic node. It seems, however, that there is little evidence that this is so. Moreover, Chomsky has to turn to two totally distinct syntactic conditions in explaining the ungrammaticality of the relative clauses involving topicalization (e.g., (4-6)) and of those involving left-dislocation (e.g., (24-26)). As Gundel (1974: 143) points out, the two constructions are quite similar in that both the topic and the left-dislocated NP are entities which the following clause is predicated about. Consider the following contrast:

(28) *This is the boy (whom *the book,* John gave ϕ away to).
(29) *This is the boy (whom *the book,* John gave *it* away to).

The major difference between these two constructions is the absence or presence of the pronominal copy. However, Chomsky explains (28) as a violation of MFCC and (29) as a violation of Subjacency and $\bar{\bar{S}}$-bounding.

It seems that, regardless of the absence or presence of a pronominal copy, (28) and (29) are both ungrammatical because an NP functioning as the topic appears in a relative clause in both constructions. A unitary explanation for both constructions would be better, everything being equal, than a bifurcated approach like Chomsky's. We will later see how this is possible in our proposed analysis.

2.8 Chomsky's proposal is purely syntactic: it is based on a syntactic constraint,

MFCC, and another syntactic hypothesis that both topicalization and relativization are cases of *wh*-movement.

Note that a language-universal explanation for the phenomenon under discussion may not be possible in this approach. This is because the syntactic properties of the two rules involved may differ from language to language or even in a single language. For example, the two rules in Korean do not involve *wh*-movement, and they may even differ from each other on syntactic grounds. Thus, the Korean data such as (1-3) must be explained differently from the way the English (4-6) are. Since the same may turn out to be true of other languages, we may have to devise a language-particular explanation for each language.

However, the issue under discussion is a cross-linguistic phenomenon and so it may be due to some reason universal to all languages. Then, the validity of Chomsky's proposal, which is applicable only to English, is highly dubious.

3. Alternative Analyses within Chomsky's Framework

3.1 If one wishes to develop within Chomsky's framework an alternative analysis that has cross-linguistic validity, it should not be based on such an English-particular movement constraint as MFCC; rather it may be framed under the bounding theory as Chomsky did to account for the cases of left-dislocation (e.g., (24-26)). If S is a bounding node in English, the ungrammaticality of the topicalized sentences (4-6) may be explained as a violation of Subjacency, because *whom* of S_2 should, for example, move across two bounding nodes in (7a).

Since it is accepted in EST that bounding nodes may vary from language to language, one might say that $\bar{S}$ is a bounding node in Korean and try to account for the Korean data such as (1-3) within the bounding theory, assuming that topicalization is a movement rule.[2] For instance, the S-structure of (1) may be given along the lines of (30):

(30)   i salam-i   NP   ita

Chelswu-ka ϕ_1- ul ϕ_2-eykey cwuessta

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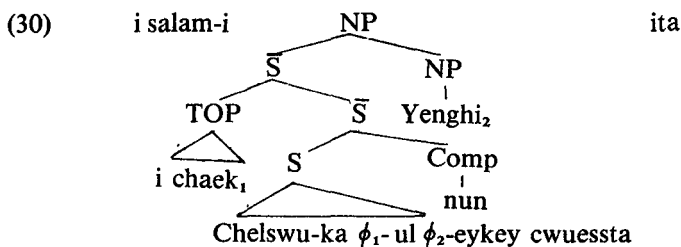
[2] There are a number of problems with the transformational NP-movement analysis of the topic in Korean. First, many are loosely connected on pragmatic grounds, not by any syntactic means. E.g.,

(i) mwusepki-nun mwues-i mwusewe?
    fear   TOP what SM fearful
    'What are you afraid of?'

(ii) talun pwun-un saengkak-i an na.
    other people TOP thought not come
    'I cannot remember others.'

See Sohn (1980) for other problems with a movement analysis of topicalization in Korean. Also see 3.2.

In (30)ϕ_1 is properly bound to the topic *i chaek,* but ϕ_2 is bound across two bounding nodes to the antecedent *Yenghi,* thus violating Subjacency. Hence, the ungrammaticality of (30).

Here, one might generalize from the structures shown in English (7a) and Korean (30)

(31)
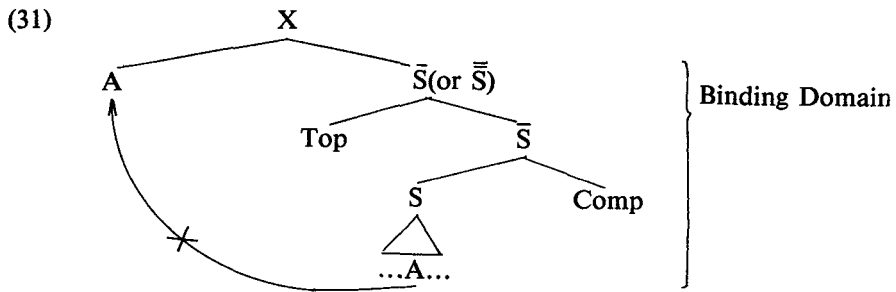
and say that $\bar{S}$ or $\bar{\bar{S}}$ which dominates the TOP node in a configuration like (31) constitutes a binding domain within which the antecedent and the gap must be interpreted as being coreferential. This approach might be able to explain why the topic cannot appear within a relative clause in both languages. It also seems to be preferrable to the one based on movement constraints in that it is more general and is applicable to other languages. However, this analysis is also faced with several serious problems, of which we will mention just one.

Just as there is little evidence in English that $\bar{\bar{S}}$ is a bounding node, it is not clear, either, whether the principle of Subjacency holds true in Korean. As is well-known, Korean is rich with examples showing that it does not observe Subjacency including CNPC. Consider

(32) a. Chelswu-nun($_S$($_{NP}$($_{\bar{S}}$($_{NP}$($_{\bar{S}}$ ϕkyelhonhalyeko haten) yeca)-ka
          TOP   is-going-to-marry   woman SM
      cwukessta-nun) somwun)-i natolko issta).
      died   rumor SM spread out
      'As for Chelswu, there is the rumor that the girl whom he was going to marry died.'

  b. (((((ϕ kyelhonhalyeko haten $_{\bar{S}}$) yeca $_{NP}$)-ka cwukessta-nun $_{\bar{S}}$) somwun $_{NP}$)-i natonun $_{\bar{S}}$) Chelswu
      'Chelswu, about whom there is the rumor that the girl whom he was going to marry died.'

In (32a-b) there are four or five bounding nodes between the antecedent and the gap, but the results are still acceptable. These examples seem to show that the principle of Subjacency in terms of $\bar{S}$ or NP does not hold true in Korean. Then the

attempt to explain the ungrammaticality of (30) by Subjacency (and $\bar{S}$-bounding) is not convincing.[3]

3.2 Another possible alternative within Chomsky's framework may be one based on the binding theory (Chomsky 1981). According to the binding theory, an anaphor (including a trace left behind by NP-movement) and a pronominal must be bound and free respectively in their governing categories. Note that the gaps in (32a-b) are all free (i.e., not bound) in their governing categories and that (32a-b) are all grammatical. Therefore, if Chomsky's binding theory can apply to Korean *in toto*, we have to assume that the gaps in (32a-b) are all zero pronominals, not bound anaphors.[4]

Assuming that S or $\bar{S}$ is the governing category in Korean, let us consider the structure (30). In (30), the zero pronominal gaps are all free in the governing category; thus, the binding theory predicts that (30) is grammatical. But this prediction is not borne out. Therefore, it seems that the ungrammaticality of (30) cannot be accounted for even by the binding theory.

3.3 To summarize, we have argued that Chomsky's proposal for the unavailability of the topic in a relative clause suffers from various theoretical problems and empirical exceptions. It cannot offer a unitary explanation as to why a topic and a left-dislocated NP cannot occur in a relative clause. Its explanatory value is highly dubious because it does not have cross-linguistic validity. We have also shown that alternative proposals within the bounding and binding theories are not adequate, either.

4. A Proposal for Analysis

4.1 Apart from the question whether relativization and topicalization are syntactically one and the same rule or not, it is well-known that there exists a close relationship between relative clauses and topicalized sentences. For example, there are languages which only allow relativization of the topic: Malagasy (Keenan 1972) and Dyirbal.[5] In Hittite (Justus 1976) the topic marker is formally identical to the relative marker, which developed historically from the former.

As for Japanese, Kuno (1973) argued that there exist four syntactic parallels between relative clauses and topicalized sentences: namely, parallels in particle deletion, in leaving an optional pronominal copy and in violating island constraints, and finally relative clauses whose derivational sources are only topicalized sentences. In order to account for these syntactic parallels between relative clauses and topicaliz-

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[3] Another problem is the fact that a general characterization of bounding nodes for subjacency is extremely difficult and elusive in EST. It is generally accepted that bounding nodes may differ from language to language. But it has also been suggested that they may vary even within a single language depending upon the dialect or structure under discussion (Chomsky 1981: 303-308) or even in rule types (Battistella 1983).

[4] This may be considered another piece of evidence that topicalization is not a movement rule in Korean.

[5] These languages allow relativizing of the subject only, which is actually the topic in these languages.

ed sentences, Kuno argued that the head of a relative clause is the topic of the same clause in underlying structure.

On the basis of the coreferentiality of the anaphoric pronoun *caki* 'self', C.M.Lee (1973) reached the same conclusion that the head of a relative clause is the topic of the same clause in underlying structure in Korean. Lee's examples are as follows:

(33) *(caki$_i$-ka   anun) yeca-ka ku namca$_i$-lul cwukyessta.
       self SM know woman the man OM killed
       'The woman that he$_i$ knows killed the man$_i$.'
(34) (ϕ_1 (caki$_i$-ka anun) yeca-ka ϕ_2 cwukin) ku namca$_i$
          self   know woman   killed   the man
       'the man$_i$ whom the woman that he$_i$ knows killed'

In Lee's analysis, reflexivization is well-formed only when *caki* is coreferential either with the subject or the topic. This explains why (33) is not acceptable. However, *caki*, which was not coreferential with *ku namca* in (33), becomes coreferential with *ku namca* in (34). This can be explained, according to Lee, by assuming that *ku namca* did not come directly from ϕ_2, but ϕ_1, which is the topic of the sentence to be relativized.

In a similar vein, Gundel (1974: 75) also claimed for English that a relative clause is underlyingly a topic-comment structure in this language. All these findings point to the same conclusion: whatever rules are involved in the generation of relative clauses and topicalized sentences, the two constructions are closely related and the head of a relative clause is the topic of the same clause in underlying structure.

Relative clauses and topicalized sentences(or topic-comment structures in general which include topicalized as well as left-dislocated sentences) are also similar on semantic grounds. In a topic-comment structure, the topic is what the comment is said 'about,' and, as Kuno (1976) correctly points out, in a noun phrase consisting of a relative clause and its head, the head is what the relative clause is said 'about.' Thus, both the topic and the relative head share the same semantic property of 'aboutness.' And, as Chomsky himself (1977: 81) admits, topic-comment structures and relative clauses are also similar in that both constructions predicate something of an entity. In short, the topic is to the comment what the relative head is to the relative clause.

For instance, in the following two constructions

(35) Chelswu-nun Yenghi-lul   salanghanta.
             TOP   OM love
       'Chelswu is in love with Yenghi.'
(36) Yenghi-lul salanghanun Chelswu
       'Chelswu who is in love with Yenghi'

the underlined phrase in (35) is talked about the topic *Chelswu*, and in (36) it is talked about the relative head *Chelswu*, both phrases carrying the same function

of predicating a property to *Chelswu.*

Now, the relativized NP of sentence (1), which will be repeated here as (37)

(37) *(i chaek-un   (Chelswu-ka cwun) Yenghi $(=(1))$
     this book TOP   SM gave
     '*Yenghi whom this book Chelswu gave away to'

is analyzed as being derived from an underlying structure such as (38):

(38) i chaek$_1$-un($_S$Chelswu-ka ϕ_1-ul ϕ_2-eykey cwuessta) Yenghi$_2$

In (38), the embedded S is a predication about *i chaek,* which is evidenced by the
fact that *i chaek* is associated withϕ_1. Due to the relationship bewteen ϕ_2 and
Yenghi$_2$, however, the same S is also a predication about *Yenghi.* Thus, one and
the same embedded S is simultaneously predicated about the topic *i chaek* and the
relative head *Yenghi* in (38).

A relative clause and its head constitute a single semantic unit, which is also a
unit of informational processing.[6] Now, our claim is that if there are two conflict-
ing topics or 'points-of-view' within a single semantic and informational process-
ing unit (e.g., *i chaek* and *Yenghi* in (37-38)), then there arises confusion as to what
is talked about by what in the whole stucture. Thus, the whole structure is difficult
to be processed coherently, thereby leading to unintelligibility.

According to Slobin (1979: Chapters 2-3), speech processing starts immediately
after a sentence is uttered and is carried out linearly as it passes. Then, a phrase
such as (37) may be processed in a schematic form as follows:

(39)   i chaek-un   Chelswu-ka cwun Yenghi

                    A   B   C

When the hearer comes to point A, he expects that what follows will be about point
A. Coming to point B, he actually interprets that B is about A. However, when
he proceeds further to point C, he is forced to interpret B as being about C. Thus,
at this point, a perceptual conflict arises due to a split in topichood, and no fur-
ther "mental computation" is possible. Hence, (39) becomes unintelligible.

As another example, let us consider sentence (3). Passivization is an instance
of topicalization, in which the patient argument of the sentence is taken as its gram-
matical subject, which also functions as the topic of the sentence. Sentence (3) is
assumed to be derived from an underlying structure such as (40)

(40) a. (swunkyeng-i ku totwuk-ul capassta) swunkyeng-i   sang-ul
         policeman   the thief OM caught policeman SM award OM

         patassta.
         received

---

[6] Slobin (1979: 39) claims that "the unit of speech perception [which is the unit of informational
processing] corresponds to the constituent."

Passivization applies to the embedded sentence, turning (40a) to (40b):

(40) b. (ku totwuk-un swunkyeng-eykey caphiessta) swungkyeng-i
     the thief TOP policeman by was-caught

     sang-ul patassta.

(40b) undergoes relativization to yield (3), repeated here as (40c):

(40) c. *(ku totwuk-un   *caphin*)   swunkyeng-i sang-ul patassta.
     the thief TOP was-caught policeman   was awarded

     '*The poliman whom the thief he was caught by was awarded.'

In (40c), the italicized *caphin* (or *caphiessta* in (40b)) is a predication about the topic *ku totwuk,* but never about the *by*-agent NP *swunkyeng.* (Note that the by-agent NP occupies the lowest position in topic hierarchy proposed by Kuno (1976). However, the relative clause must be predicated about the head, so *caphin* should be interpreted as being talked about *swunkyeng.* But this is not possible; so (3) is unacceptable.

The relativized NP in (3) may be represented in topic-comment structure as follows:

(41)
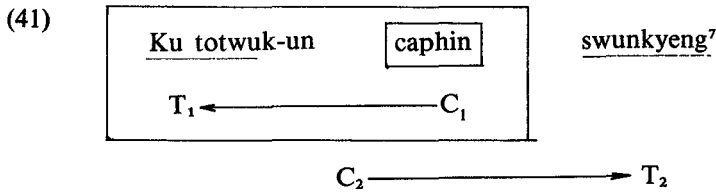
In (41), part of a single comment (e.g., *caphin*) is predicated about two distinct topics simultaneously, thus obscuring what the target of the predication is.

4.2 The proposed explanation as to why the topic cannot appear in a relative clause is one based on a perceptual conflict occurring in human speech processing. Below we will try to justify the validity of this explanation by showing that it receives support from a more general perceptual principle which governs human perception in general, as well as another discourse prinicple which is independently justified in topic-comment theory.

4.2.1. Bever (1976) has proposed a general perceptual principle, which he claims applies to all dimensions of human perception. Let us call this a Double Function Principle.
   Double Function Principle (DFP):
   A stimulus may not be perceived as simultaneously having two positions on the

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[7] T and C represent Topic and Comment respectively.

same classificatory relation. (Bever 1976: 70 emphasis added)
DFP is a perceptual constraint to the effect that "in a closed system a component of a stimulus cannot serve two opposite functions at the same time" (p.71).

In the realm of visual perception DFP may be represented as (42):

(42)
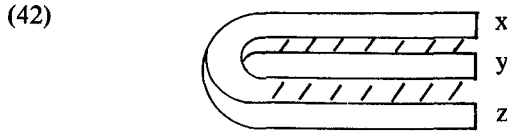
In (42) the middle pole y is perceived, seen from inside, as being adjacent, i.e., belonging, to the pole labeled x. But the same pole is perceived, from outside, as being adjacent (or belonging) to pole z. Seen as a whole on the same plane, however, figure (42) represents a perceptual impossibility, in which pole y can neither be perceived as belonging to z nor as belonging to x. Thus, pole y is perceived in two incompatible ways at the same time in (42). Note that pole x is to pole y what pole y is to pole z. This is why a figure such as (42) cannot be perceived coherently in visual perception.[8]

What we should note here is the fact that the relative clauses in (1-6) are all playing a double function with regard to the topic and the relative head. For instance, in (37), the embedded clause *Chelswu-ka cwun* belongs to the topic *i chaek* inside the relative clause, but the same clause belongs to the relative head *Yenghi* outside the relative clause, i.e., from the view-point of the relativized NP. The relationship which the embedded clause maintains with *i chaek* is the same as it does with *Yenghi*, i.e., 'aboutness.' Seen as a whole, however, (37) cannot be processed coherently; this is because the embedded clause cannot be perceived either as belonging to the topic or as belonging to the relative head. Therefore, just as figure (42) is not possible in visual perception, a configuration such as (37) is not possible in speech perception.

4.2.2 Let us consider sentences like the following, which Kuno (1976) has tried to explain by the term "empathy", namely, the speaker's attitude toward the participants of the event under description.

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[8] Bever's original explanation for figure (42) is different from what is presented here:

(i)
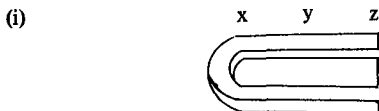
According to Bever's explanation, (i) is perceptually impossible because the segment y has a double function in that it both ends the 3-dimensional u opening right in the segment labeled x-y and begins the 2-dimensional three poles in the segments labeled y-z. But, both Bever's account and ours are identical in spirit.

(43) a. John hit his wife.
      b. ??? *John's wife* was hit by him.
(44) a. John married his present wife in 1960.
      b. ??? *John's present wife* married him in 1960.

Let us assume that John's wife is Mary. In the (b) sentences above, the speaker is describing the events from Mary's side rather than John's. However, the description of Mary within the italicized phrases is made with the speaker's empathy placed on John. Thus, the (b) sentences have two conflicting foci of the speaker's empathy (i.e., John and Mary) and so are unacceptable. In our terms, the noun *wife* has a double function in the (b) sentences. It functions as a predicate to *John* within the italicized noun phrases, but it is predicated at the same time by *John* in the whole sentences. Thus, the empathy phenomena shown in (43-44) are actually a linguistic reflex of DFP and they support the validity of our explanation for the non-occurrence of the topic in relative clauses, because both phenomena are similarly due to perceptual conflicts in speech processing.

4.3 Translated into topic-comment relation, our explanation for the phenomenon in question can be reduced to the suggestion that a sentence is acceptable only if the topic-comment nexuses involved, i.e., which topics are connected to which comments, are clear on surface. Actually there are other pieces of evidence which show that a good topic-comment nexus is a requirement for the well-formedness of a sentence.

Consider the following sentences, some of which were discussed by Kuno (1976).

(45) a. Speaking of violence, <u>John is the only Englishman who condones it.</u>
      b. ??Speaking of violence, '<u>John is the only Englishman who condones it.</u>
      c. *Speaking of violence, as for John, he is the only Englishman who condones it.
(46) a. Speaking of this man, <u>many innocent people have been wronged by him.</u>
      b. ??Speaking of this man, <u>Mary was wronged by him.</u>
      c. *Speaking of this man, as for Mary, she was wronged by him.

In (45a), the topic of the underlined clause is not *John* (because it is stressed) but what *it* stands for, i.e., *violence*. And *violence* is also the topic of the whole sentence. Thus, (45a) has a single topic, *violence*, in it.

In (45b), *John*, which is unstressed, is normally interpreted as the topic of the underlined clause. Since the topic of the whole sentence is *violence*, (45b) has two topics in a single sentence. This is why (45b) is unacceptable. The correctness of this interpretation is shown by the fact that when (45b) is changed to (45c), in which two overtly marked topics appear on surface, the latter becomes ungrammatical.

Sentences such as (45-46) reveal the discourse principle that the existence of two topics in a clause always results in unacceptability due to confusion in topic-comment nexus. And this accords well with our explanation that a relative clause cannot have internal topics because it creates two distinct topics that are predicated by a single comment.

5. Thus far, we have tried to explain the linguistically universal phenomenon--that the topic cannot occur within a relative clause. First, we have reviewed Chomsky's analysis. Under the hypothesis that both topicalization and relativization are cases of *wh*-movement, Chomsky (1977) has tried to explain this phenomenon syntactically in terms of Multiply-filled Comp Constraint. We have argued that such a formal account of Chomsky's faces a number of problems, and discussed other possible alternatives within Chomsky's framework.

As an alternative explanation for the phenomenon, we have presented a functional explanation -- that the existence of the topic in a relative clause causes a perceptual conflict in sentence processing by having a single comment be predicated about two distinct topics at the same time. Then, we have tried to show that such an account is supported by the general perceptual principle that a stimulus cannot be perceived simultaneously in two incompatible ways (Bever 1976) as well as by the discourse principle that ambiguity in topic-comment nexus leads to unintelligibility and hampers communication.

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