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Joan B. Hooper
Sandra A. Thompson

On the Applicability of Root Transformations

1. Root Transformations

Emonds (1969) distinguishes two large classes of transformations, structure-preserving transformations and root transformations.[1] The structure-preserving transformations are constrained so that they may move a node only into a position in which a node of that category would be generated by the phrase structure rules. The root transformations (RTs) may move nodes into non phrase-structure positions, but these transformations are constrained in another way: according to Emonds, they are not allowed to apply in embedded sentences. The purpose of this article is to examine in detail this latter class of transformations. As we will see below, Emonds's claims about RTs are not entirely correct; in fact RTs can operate in many embedded sentences. In the following discussion we will examine carefully the distribution of RTs, and we will attempt to express and explain their distribution in terms of the semantic notion of assertion.

Emonds's definition of RT presupposes a definition of root sentence. The two definitions are given as follows:

> *Root sentence*: "a root will mean either the highest S in a tree, an S immediately dominated by the highest S or the reported S in direct discourse." (Emonds 1969, 6)
> *Root transformation*: "a RT is one in which any constituents moved, inserted or copied are immediately dominated by a root in the derived structure." (Emonds 1969, 7)

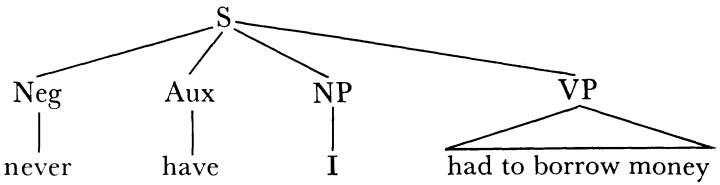
As an example, consider the RT that Emonds calls Negative Constituent Preposing, which relates sentences (1a) and (1b):

(1) a. I have never had to borrow money.
    b. Never have I had to borrow money.

Negative Constituent Preposing fronts a negative constituent and triggers Subject Auxiliary Inversion (SAI). The derived structure of (1b) is given roughly in (2).

[1] Emonds also postulates a third, smaller class of transformations called Minor Movement Transformations. We will not be concerned with this group at all.

(2)



The two elements, Neg and Aux, which were moved by the RTs are now immediately dominated by the highest S.

Coordinately conjoined sentences qualify as roots, so Emonds's definition correctly predicts that Negative Constituent Preposing will apply in (3), and that the examples in (4) will be ungrammatical:

(3) I've been out of work before, but never have I had to borrow money.

(4) *The fact that never has he had to borrow money makes him very proud.
*The children that never in their lives had had such fun fell into bed exhausted.

Emonds's definition would also predict that the examples in (5) are ungrammatical, but most speakers find these sentences quite acceptable.

(5) Robert was quite nervous, because never before had he had to borrow money.[2]

Alice vowed that under no circumstances would she loan me the key.

Although the primary goal of this article is to describe and explain the distributional peculiarities of RTs, we must first examine the individual RTs to discern their nature and function. In Sections 2, 3, and 4 we will describe and explain the limitations on the applicability of RTs.

The movement transformations that are the subject of this discussion are listed below. Each of these transformations produces a word order that would not ordinarily be considered the word order generated in the base component of the grammar. The list of RTs is accompanied by illustrative sentences. In each case the first sentence in the pair represents the result of the application of the RT, and, wherever possible, a second sentence showing the nontransformed version of the sentence is given.

Root Transformations

VP Preposing

(6) Mary plans for John to marry her, and marry her he will.
Mary plans for John to marry her, and he will marry her.

[2] Emonds analyzes *because* clauses as prepositional phrases with sentential objects (1969, 139).

Negative Constituent Preposing

(7) Never in my life have I seen such a crowd.
I have never in my life seen such a crowd.

(8) Seldom have the children had so much fun.
The children have seldom had so much fun.

Directional Adverb Preposing

(9) Up the street trotted the dog.
The dog trotted up the street.

(10) Here comes John.

Preposing around *be*

(11) More significant would be the development of a semantic theory.
The development of a semantic theory would be more significant.

Participle Preposing

(12) Standing next to me was the president of the company.
The president of the company was standing next to me.

Prepositional Phrase Substitution

(13) On the wall hangs a portrait of Mao.
A portrait of Mao hangs on the wall.

Subject Replacement[3]

(14) That Henry forgot the key irritated Carmen.
It irritated Carmen that Henry forgot the key.

(15) To read so many magazines is a waste of time.
It's a waste of time to read so many magazines.

Direct Quote Preposing

(16) "I won first prize," Bill exclaimed.
Bill exclaimed, "I won first prize."

[3] Emonds presents considerable evidence that sentential subjects such as those in (14) and (15) are generated in "extraposed" position and moved by this RT to subject position.

Complement Preposing

(17) Syntax and semantics are related, I think.
I think that syntax and semantics are related.

Adverb Dislocation[4]

(18) The thief sneaked away in time, evidently.
(19) Mary was singing, strangely.

Topicalization

(20) This book you should read.
You should read this book.
(21) Each part Steve examined carefully.
Steve examined each part carefully.

Left Dislocation

(22) This book, it has the recipe in it.
This book has the recipe in it.

Right Dislocation

(23) You should go to see it, that movie.
You should go to see that movie.

Tag Question Formation

(24) The square root of nine is three, isn't it?

Subject Auxiliary Inversion

Questions: (25) Will James ever finish reading that book?
Exclamations: (26) Isn't that a beautiful baby!
(27) Am I glad to see you!
Tags: (28) Fred didn't go to the rock concert, and neither did Will.

Subject Auxiliary Inversion (SAI) distinguishes itself from all the other RTs in several ways. First, it is the only RT that has more than one syntactic function. For example, in (25) the inverted auxiliary carries the message that the utterance is a question, and in (26) that the sentence is an exclamation. On the other hand, in the tag sentence in (28) and in Negative Constituent Preposing, SAI is obligatory, but it

[4] The details of this transformation are discussed below.

does not in itself carry any meaning. These are two quite different uses of the same movement rule. None of the other RTs is automatically triggered by some other transformation, and none of them is obligatory in the same way that SAI is obligatory in a yes-no question.

Ignoring for the moment the use of SAI in conjunction with other transformations, we see that SAI's function is to mark certain constructions such as yes-no questions and exclamations. Therefore, SAI's operation is limited to certain sentences—those which are going to surface as yes-no questions or exclamations. That is, the limited distribution of SAI is directly related to its function as a marker of these two sentence types.

In view of these facts, it seems possible that the distribution of SAI might differ from that of the other RTs. In fact SAI does have quite a different distribution from that of the other RTs. SAI is used in questions, where the other RTs are not possible:

(29) *Did up the street trot the dog?
*What does on the wall hang?

Thus SAI and the other RTs do not have the same distribution, although Emonds's definition implies that they do. The exact difference between the distribution of SAI and that of the other RTs will become clearer as we examine the distributional properties of the other RTs. The important point here is that SAI's application is limited because it has a specific function; since it marks questions and exclamations, it can be used only in these types of sentences.

Most of the remaining members of the group of movement rules called RTs fall naturally into the same class because of two characteristics they have in common: (a) they have a similar effect on the sentence they transform, and (b) they have similar limitations on their distribution. The first characteristic will be discussed here, and the second is the subject of the discussion in Sections 3, 4, and 5.

The following three transformations are similar in that they prepose a certain element in the sentence:

VP Preposing

(30) Mary plans for John to marry her, and marry her he will.

Negative Constituent Preposing

(31) Never in my life have I seen such a crowd.

Directional Adverb Preposing

(32) Up the street trotted the dog.

In the last two examples the subject is also moved, and in all three examples the subject, as well as elements of the VP, is out of normal order. In each case the result is a more emphatic sentence. These three transformations create sentences which would

appear in writing with exclamatory punctuation or in speech with emphatic intonation. The last transformation, Directional Adverbial Preposing, is characteristic of formal or narrative styles of speech.

The following three transformations prepose around *be*, or in the case of Prepositional Phrase (PP) Substitution, around a locative verb such as *hang*, *stand*, or *sit*.

Comparative Preposing

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

Participle Preposing

(34) Standing next to me was the president of the company.

PP Substitution

(35) On the wall hangs a portrait of Mao.

In each of these examples the part of the VP which follows *be* in the underlying structure is preposed and the subject is postposed. In each case, also, the subject is given added importance or emphasis by its position at the end of the sentence.

The effect of Subject Replacement (see (14) and (15)) is more difficult to evaluate. The sentential complement in subject position is typical of more formal styles of speech. It seems in this case, as in the preceding examples, that the sentence-final elements receive more emphasis. Thus we find that the more complex element, the sentential complement, seems more natural at the end of the sentence. We will return to a discussion of this rule in Section 2.2.

Emonds does not take a definite stand on the deep structure source of the adverbial that undergoes adverbial dislocation in (36):

(36) The thief sneaked away in time, evidently.

We accept one of his suggestions and interpret the effects of Adverb Dislocation as analogous to those of Direct Quote Preposing and Complement Preposing. That is, we suggest that the deep structure source of (36) has the meaning of (37).

(37) It is evident that the thief sneaked away in time.

We claim that the function of Direct Quote Preposing, Complement Preposing, and Adverb Dislocation is to give the complement sentence added importance by moving it to the beginning of the sentence. Since the complementizer is not present, the preposed sentence is taken as the main assertion, and thus receives more emphasis than if it were in the usual complement position. Complement Preposing is discussed again in detail in Section 2.

Topicalization and Right and Left Dislocation emphasize one NP of the sentence by moving it into one of the prominent sentence positions, either sentence-initial or

sentence-final position. Excluding SAI and Tag Question Formation, the function of all the RTs is to emphasize some particular element in the sentence.

Tag Question Formation is obviously not an emphatic RT. Its function is to ask for confirmation about the truth of an assertion, or to express doubt or uncertainty about the truth of an assertion. The set of sentences that tag questions can be formed from is smaller than the set of sentences that RTs can operate on. Tag questions can be formed from any main sentence that is not itself a question, and they can be formed from the complements of a small class of verbs (such as *think*, *believe*, *suppose*) when the subject is the first person singular and the verb is in the present tense. We will present evidence below that in such cases the propositions in the complements of these verbs are asserted by the speaker. Thus it seems that tag questions may be formed only from sentences that are assertions.[5] Given the function of Tag Question Formation, we can see that, as in the case of SAI, the limited applicability of this RT is directly related to its function. The following examples illustrate the difference between the distribution of Tag Question Formation and that of the emphatic RTs. This difference will be explained in Section 2.

Tag Question Formation

(38) I suppose acupuncture really works, doesn't it?
*Gloria supposes acupuncture really works, doesn't it?

Prepositional Phrase Substitution

(39) I thought that on the top shelf stood a large archery trophy.
Sam thought that on the top shelf stood a large archery trophy.

Although we will discuss Tag Question Formation again, the subject of the remainder of the discussion will be the distribution of those RTs that have an emphasizing function. SAI will be excluded from this discussion for the reasons given above.

We should also make it clear that not all emphasis transformations are RTs. The primary distinguishing characteristic of RTs, as we have noted previously, is that they produce word orders that could not be generated by the phrase structure rules.

[5] We do not consider the tag question formed from an imperative sentence to be a case of the application of the transformation in question here. We view a sentence such as (i) to be derived from the structure underlying (ii).

(i) Sit down, won't you?
(ii) Won't you sit down?

Tag Question Formation produces a tag with a negativity value opposite to that of the main verb, but there is no such restriction on the "tag" with an imperative:

(iii) Come in, { will you / won't you / could you / couldn't you }?

For illustration, compare the emphatic transformations Topicalization and Clefting, which have similar results in that they both focus attention on one NP in the sentence.

(40) Topicalization: This book you should read.
Clefting: It's this book that you should read.

The word order produced by Topicalization is NP-NP-VP, a sequence which the phrase structure rules of English would not generate. The word order produced by Clefting is NP-V-NP-S (relative clause), which is a sequence easily generated by the phrase structure rules of English. Thus Topicalization is an RT, and Clefting is not; Clefting is a structure-preserving transformation in Emonds's terms.

In Chapter III, Emonds claims that *Wh* Fronting may not apply in an S to which a preposing RT applies. He intends this condition to account for the prohibition of RTs in questions and analyzes yes-no questions as having underlying *Wh* words. But we claim that it is question formation in general and not *Wh* Fronting itself that cannot cooccur with RTs, since nonrestrictive relative clauses, which apparently undergo *Wh* Fronting, can have RTs applied in them:

(41) This hilltop, on which will be built a memorial, overlooks the city.
Hal, who under no circumstances would I trust, asked for a key to the vault.

The restriction against the operation of both question formation and RTs in the same S is not surprising if we look again at the functions of these transformations. Questions are requests for information. RTs produce emphatic statements, statements with focused or foregrounded constituents; such statements characteristically give information. Like SAI, the emphatic RTs are restricted by their function to application in certain semantic contexts. Emonds showed that RTs may not apply in some embedded structures. We claim that their restricted distribution is a natural consequence of their emphatic function, since many embedded structures cannot be made emphatic. Thus we claim that RTs may not apply in questions for semantic reasons that will be explained below.

As we noted above, Emonds's claim that RTs may not apply in any embedded Ss is incorrect. In the next sections we will illustrate which embedded structures allow RTs and which do not. We will associate the restrictions on the applicability of RTs with a semantic notion of assertion. As we examine sentential complements, relative clauses, and adverbial clauses, we will show that RTs are restricted to application in asserted clauses, and we will attempt to establish independently which clauses are asserted and which are not. Furthermore, stating the restrictions on the applicability of RTs in terms of a semantic notion of assertion allows us to formulate an explanation for the constrained distribution of RTs. RTs that produce emphasis are restricted to asserted clauses because emphasis would be unacceptable in clauses that are not

asserted, e.g. embedded clauses which are presupposed, or clauses which are questions or imperatives.

2. Sentential Complements

The assertion of a sentence is its core meaning or main proposition. In most cases the assertion of a declarative sentence is found in the main clause. The assertion of a sentence may be identified as that part which can be negated or questioned by the usual application of the processes of negation and interrogation. It is usually assumed that all assertions are speaker assertions. We will claim here, however, that some embedded statements have the characteristics of assertions, as can be seen when the tests of negation and questioning are strictly applied.

A single sentence—for example, one consisting of two coordinately conjoined Ss—may contain more than one assertion. Less obvious, however, is the fact that there are also some subordinate clauses that are asserted, even though they are slightly subordinate to the main assertion of the sentence.

Although we will not present an absolute definition of assertion, we will present considerable evidence to support our extension of this notion to cover structures that are not traditionally considered assertions. It will be seen that there is a striking correspondence between various grammatical processes which are explainable in terms of assertion and the applicability of RTs. We claim that this correspondence results from the condition on RTs that restricts them to application in asserted clauses.

2.1. That-S Complements

In order to study the applicability of RTs in S complements, we must distinguish five classes of verbs that may have *that* complements. The verbs listed in (42) are representative of the five classes, of which two are factive and three nonfactive.

(42) *Nonfactive*

A	*B*	*C*
say	suppose	be (un)likely
report	believe	be (im)possible
exclaim	think	be (im)probable
assert	expect	doubt
claim	guess	deny
vow	imagine	
be true	it seems	
be certain	it happens	
be sure	it appears	
be obvious		

Factive	
D	*E*
resent	realize
regret	learn
be sorry	find out
be surprised	discover
bother	know
be odd	see
be strange	recognize
be interesting	

We will discuss each class of verbs in the order they are given in (42). In Sections 2.2 through 2.6 we will discuss some syntactic and semantic characteristics of these classes of verbs that can be correlated with the notion of assertion. We will find in particular that the sentential complements that can undergo Complement Preposing are exactly those which allow RTs. In Section 2.7 we will see that the effects of questioning and negation on the complements of these verbs support our hypothesis that the complements of some of these predicates are asserted while the complements of others are not.

2.2 Class A Verbs

The verbs of class A that take object complements are all verbs of saying, and have as their complements reported discourse. As we might expect, RTs are acceptable in the complements of these verbs. The complement propositions are not presupposed, but rather are cited or reported assertions:

(43) Sally plans for Gary to marry her, and he vows that marry her he will.
(44) I exclaimed that never in my life had I seen such a crowd.
(45) Wendy said she opened the window and in flew Peter Pan.
(46) Carol said that most embarrassing of all was falling off the stage.
(47) The program announced that playing in next month's concert would be Artur Rubinstein.
(48) The scout reported that beyond the next hill stood a large fortress.
(49) My mother claims that to read so many comic books is a waste of time.
(50) The inspector explained that each part he had examined very carefully.
(51) Carl told me that this book, it has the recipes in it.
(52) Alice complained that it almost asphyxiated her, that disgusting cigar.

Emonds is aware of the acceptability of such sentences and suggests that RT word order can occur in indirect discourse in order to preserve the exact meaning of the reported statement. We agree with this suggestion; in terms of what we have discussed above, these RTs produce emphasis in the sentences they transform. If this emphasis is to be expressed in the indirect discourse, the RTs must be allowed to apply.

We will call the complements to verbs of class A indirect assertions, by which we mean that they are assertions that are not necessarily speaker assertions. Sentence (53) is an example of what might be called a speaker assertion.

(53) It's just started to rain.

An indirect assertion is not necessarily the sole assertion of the sentence. The main verb also makes an assertion. Thus a sentence such as (54) has two assertions:

(54) He said it's just started to rain.

The two assertions are:

(a) He said X.
(b) It's just started to rain.

There are at least two readings of (54). On one reading, assertion (a) is taken to be the important assertion, the assertion whose truth is in question or being discussed in the discourse context. On another reading, assertion (b) may be taken as the assertion under consideration, the assertion whose truth is at stake in the discourse.

If (b) is the main assertion of the sentence, then (a) is used in its "parenthetical sense", to use the term of Urmson (1963). Urmson called this sense "parenthetical", because the reading of (54) in which (b) is the main assertion is synonymous with (55).

(55) It's just started to rain, he said.

A similar point is made and discussed at some length in Rusiecki (1971). In (55), to which Complement Preposing has applied, there is no doubt that the complement proposition is the main assertion, and the original main verb merely parenthetical, because the complement takes the position of the main assertion. Further evidence that the complement proposition is actually asserted in (55) is the unacceptability of a preposed complement with a negated parenthetical verb.

(56) *It's just started to rain, he didn't say.

When class A verbs are used as parentheticals, they suffer a reduction of semantic content, which is even more apparent in the class B verbs. Both class A and class B verbs are weaker in parenthetical usage because the main assertion is found in the complement (see Section 2.3).

It is important to note the difference between the complement in preposed position as in (55), and the complement in subject position as in (57). In the latter case, the complement is actually embedded and obligatorily takes the complementizer *that*, and the class A verb occurs at the end of the main clause. When the sentential complement occurs in subject position, the class A predicate may not have a parenthetical sense. Verbs which take object complements may have sentential subjects in the passive construction:

(57) That the president was dead was reported by the UPI.

Kiparsky and Kiparsky (1971) have noticed that the complement proposition in (57) is actually presupposed. The negation of (57) does not affect the complement proposition:

(58) That the president was dead was not reported by the UPI.

However, with the complement in object position the complement proposition is not presupposed. Compare the effect of negation:

(59) The UPI reported that the president was dead.
(60) The UPI didn't report that the president was dead.

We have been discussing class A predicates with object complements. The class A predicates that have subject complements may also have a parenthetical sense:

(61) It is true that German beer is better than American beer.
(62) German beer is better than American beer, it's true.
(63) It's certain that we'll be arriving on time.
(64) We'll be arriving on time, it's certain.

But if the complement occurs in subject position, the parenthetical interpretation is not possible:

(65) That German beer is better than American beer is true.
(66) That we'll be arriving on time is certain.

In Emonds's framework the subject complement originates in "extraposed" position, at the end of the VP, and is moved by the RT Subject Replacement to subject position. This RT is like other fronting RTs in that it creates a structure in which greater emphasis is placed on the element (here, the predicate) in sentence-final position. When these predicates are emphasized, they cannot have a parenthetical or weakened interpretation. Therefore, since placing the complement in subject position subordinates it, the sentential complement cannot be the main assertion if it occurs in subject position. In the case of verbs like *report*, the complement is actually presupposed, and in no case is the subject complement interpreted as the main assertion. Because it is not the main assertion, RTs may not apply in Sentential Complements in subject position, even though the same complement in "extraposed" position may contain an RT:

(67) *That never in his life has he had to borrow money is true.
(68) It's true that never in his life has he had to borrow money.
(69) *That over the entrance should hang the gargoyle was written in the plans.
(70) It was written in the plans that over the entrance should hang the gargoyle.
(71) *That playing in tomorrow's concert will be Artur Rubinstein is certain.
(72) It's certain that playing in tomorrow's concert will be Artur Rubinstein.
(73) *That this building, it would be demolished was decided.
(74) It was decided that this building, it would be demolished.

To summarize, then, a sentence with a class A predicate and a sentential complement has two possible semantic readings. On one reading, the only one possible when the sentential complement occupies the subject position in surface structure, the main S represents the main assertion. On the other reading, the main predicate is used in its parenthetical sense, and the complement proposition represents the main assertion. In the latter case, RTs may occur in the complement sentence.

2.3. Class B Verbs

The verbs of class B (*think*, *suppose*, *seem*, etc.) also have assertions as their complements. These verbs, too, have two possible meanings. On one reading class B verbs literally describe a mental process. They have their literal meaning when followed by a simple NP (although not all these verbs can be used in this way).

(75) I believe the report.
(76) We expected a surprise.
(77) He guessed the answer.
(78) I imagined Xanadu.

The other (parenthetical) reading is the most natural one for sentences containing complements to class B verbs. On this interpretation, class B verbs are practically meaningless in themselves, neither denoting a mental process nor making an independent assertion, but merely qualifying the main assertion contained in the complement.

(79) I suppose that most embarrassing of all was falling off the stage.
(80) I guess to read so many comic books is a waste of time.

Sentences (79) and (80) differ from the plain assertions (81) and (82) only in that in (79) and (80) the speaker is indicating that he is not fully committed to the truth of the assertion.

(81) Most embarrassing of all was falling off the stage.
(82) To read so many comic books is a waste of time.

The complements to verbs of class B may be preposed:

(83) Most embarrassing of all was falling off the stage, I suppose.
(84) To read so many comic books is a waste of time, I guess.

As we mentioned in Section 1, when verbs of class B are used in the first person of the present tense, a tag question may be formed from the complement sentence.

(85) I suppose falling off the stage was quite embarrassing, wasn't it?
(86) I guess it's a waste of time to read so many comic books, isn't it?

Given that the function of the tag question is to ask for confirmation about the truth of an assertion made by the speaker, it follows that the complements in (85) and (86) are speaker assertions, and furthermore, the main assertions of the sentences.

A significant difference between the predicates of classes A and B is that a tag question may be formed from the complement of a class B predicate, but not from the complement of a class A predicate, even if it is the first person of the present tense:

(87) I claim that deep structures are green, {*aren't they / don't I}?

(88) I say that Hannah is the best wrestler, {*isn't she / don't I}?

The reason for the difference is that even in their parenthetical sense, the class A predicates make an assertion independent of the complement assertion. Class B predicates, however, do not make any assertion themselves. The only assertion in sentences such as (79) and (80) is the assertion contained in the complement.

Class B is also distinguished from class A in that *Neg* Raising applies in sentences with verbs of class B, but not those of class A. Furthermore, sentence pronominalization differs for the two classes (Lindholm 1969, Cushing 1972). A semantic explanation for differences between the two classes of verbs is presented in Hooper (1973).

As illustrated in (79) and (80), RTs may apply in the complements to class B verbs. Here are a few more examples:

(89) It seems that on the opposite corner stood a large Victorian mansion.
(90) I imagine that among the guests was the Shah of Iran.
(91) I expect that speaking at today's luncheon will be our congressman.
(92) It appears that this book he read thoroughly.

To this point we have presented evidence that some sentential complements are assertions. More evidence, that involving the diagnostics of questioning and negating, will be presented in Section 2.7. From the evidence presented so far, we find that the complements of predicates of these two classes, which are asserted, tolerate RTs.

2.4. Class C Verbs

The complements of class C verbs (*be likely*, *be possible*, etc.) are neither asserted nor presupposed. While in a sentence such as (93) the speaker may be predisposed to believe that the complement proposition is true, he is *not* asserting that proposition. Rather the main assertion in (93) is *it is likely*.

(93) It is likely that Kissinger is negotiating for peace.

This can be demonstrated by the fact that the complements of class C verbs cannot be fronted by Complement Preposing.

(94) *Kissinger is negotiating for peace, it is likely.

That is, verbs of class C cannot be demoted to parenthetical status.[6]

[6] A possible paraphrase for (94) is (i):

(i) Kissinger is negotiating for peace, in all likelihood.

Similarly, *it is possible* could be converted to *possibly*, etc. But the important point is that these predicates cannot remain predicates when used parenthetically. Compare class D, footnote 7.

For most speakers, RTs may not be applied in the complements of these verbs:

(95) *Sally plans for Gary to marry her and it's possible that marry her he will.
(96) *It's likely that seldom did he drive that car.
(97) *It's probable that Wendy opened the window and in flew Peter Pan.
(98) *It's unlikely that most embarrassing of all was falling off the stage.
(99) *It was impossible that each part he had examined carefully.

A few speakers do accept sentences of this type, and this is a problem to which we will return. For the majority of speakers, who reject (95) through (99), the evidence supports our claim that RTs are limited in application to asserted sentences.

2.5. Class D Verbs

The factive verbs listed in class D (*resent, regret, be odd, be interesting*, etc.) express some emotion or subjective attitude about a presupposed complement. Presupposition and assertion are usually assumed to be mutually exclusive, and for this class of verbs the assumption holds. The complements in (100) and (101) are clearly not asserted and for this reason may not be preposed.[7]

(100) I regret that I didn't attend the concert.
(101) It is odd that the door was unlocked.

For most speakers, sentences with RTs in the complements of these factive verbs are ungrammatical:

(102) *Sally plans for Gary to marry her, and it bothers me that marry her he will.
(103) *He was surprised that never in my life had I seen a hippopotamus.
(104) *Wendy was sorry that she opened the window and in flew Peter Pan.
(105) *Harry was annoyed that even more corrupt was the Republican Party.
(106) *I forgot that playing in the concert was Artur Rubinstein.
(107) *The guide was surprised that beyond the next hill stood a large fortress.
(108) *It's interesting that for John to finish the pie took less than a minute.
(109) *I resent the fact that each part he had to examine carefully.
(110) *It's strange that this book, it has all the recipes in it.
(111) *Marvin regretted that he went to see it, that movie.

A few speakers consider these examples acceptable, and it is significant that they are exactly the same ones who accept RTs in complements to class C verbs. Thus, a few speakers allow RTs in all *that*-S complements. For the majority of speakers, however, clauses which are presupposed and not asserted may not undergo RTs. We will return to this point.

[7] As in the class C verbs, however, a paraphrase of the preposed complement can be constructed with sentence adverbials:

(i) Oddly, the door was unlocked.

We will notice other similarities between classes C and D in the text.

2.6. Class E Verbs

The verbs of class E (*realize*, *know*, *see*, etc.) are also considered to be factive. Unlike class D verbs, which express a subjective attitude about the presupposed complement, these verbs assert the manner in which the subject came to know that the complement proposition is true. Originally all factive verbs were grouped together (Kiparsky and Kiparsky 1971). Karttunen (1971) has pointed out one difference between the factive verbs of classes D and E, noting that verbs of class E (which he calls semifactives) can lose their factivity in questions and conditionals. Compare (112) and (113).

(112) If I regret later that I have not told the truth, I will confess it to everyone.

(113) If I {realize / discover} later that I have not told the truth, I will confess it to everyone.

He points out that in (112) one can infer the truth of the complement, but that in (113) this is not the case.

There are other differences between these two classes of factive verbs, the most important for our purposes being the seemingly incongruous fact that the complements of semifactives may be preposed.

(114) Santa has lost a lot of weight, I notice.
(115) She was a compulsive liar, he soon realized.
(116) Many problems remain to be solved, I learned.

These sentences show that the complement of a semifactive verb can be raised to the position of a main assertion. As with the nonfactives, this means that on the reading of (117) that is synonymous with (114), the complement proposition is the main assertion.

(117) I notice that Santa has lost a lot of weight.

Also as with the nonfactives, there is a reading of (117) in which the main assertion resides in the main clause.

Given the possibility that the complement of a semifactive verb may be asserted, it is not surprising that RTs may apply in the complements of these verbs.

(118) Sally plans for Gary to marry her, and he recognizes that, whether he likes it or not, marry her he will.
(119) I found out that never before had he had to borrow money.
(120) Tinker Bell saw that Wendy opened the window and in flew Peter Pan.
(121) The public doesn't realize that even more corrupt is the Republican Party.
(122) I noticed that playing in next month's concert would be Artur Rubinstein.
(123) The scout discovered that beyond the next hill stood a large fortress.
(124) The boys finally realized that to read so many comic books is a waste of time.

(125) We saw that each part he had examined carefully.
(126) I discovered that this book, it has the recipes in it.
(127) The Mayor didn't know that it was bothering everyone, his big cigar.

The characteristics of this class of verbs are very interesting because their complements appear to be presupposed. Kiparsky and Kiparsky argue that a complement of such a verb is presupposed, and according to the characterization of presupposition given by Keenan (1971), the complement proposition is presupposed. That is, the complement is logically implied by the sentence in which it appears, and its truth value remains constant when the class E verb is negated, for at least some such verbs (see below). Yet in no other respect does such a complement behave like a factive complement. As was pointed out just above, these complements can undergo Complement Preposing, while true factive complements cannot:

(128) Santa has lost a lot of weight, $\left\{\begin{matrix}*\text{I regret}\\ \text{I notice}\end{matrix}\right\}$.

This means that the verbs of class E, like those of classes A and B, have a parenthetical reading on which the complement proposition is considered the main assertion. Furthermore, complements of semifactive verbs allow tag questions to be formed from them, but complements of true factives do not.

Semifactives:

(129) I see that Harry drank all the beer, didn't he?
(130) I notice that the grant proposal has been approved, hasn't it?

True Factives:

(131) *I am sorry that Suzanne isn't here, is she?
(132) *It bothers me that Bernard has forgotten the meeting, hasn't he?

As we have said, Complement Preposing and Tag Question Formation are generally processes which apply only to main assertions. Another respect in which semifactive complements do not seem to be presupposed is that they cannot appear in gerund form or with the head noun *fact*:

(133) *I learned Lucy's getting a speeding ticket.
(134) *Mary found out Daniel's cutting class.[8]
(135) *I see the fact that the Bruins lost.
(136) *I know the fact that you're not speaking to me.

What these facts suggest to us is that the complements of these semifactive verbs of "coming to know" have at least one reading on which they are in fact assertions.[9]

[8] We will claim below that assertions cannot ever appear as reduced clauses. The assertive nature of the complement to class E verbs may explain the unacceptability of the reduced clause (gerund).

[9] This indicates that the "diagnostics" for presupposition which have been suggested in the literature may be faulty, but we will not pursue this problem here. Semifactives are discussed in greater detail in Hooper (1973).

2.7. Questions, Negations, and Assertions

If a proposition is asserted by a sentence, then questioning or negating that sentence should question or negate the assertion it is making. Let us look at each of the types of clauses discussed above from this point of view.

Class A Verbs. A question with a verb of saying, such as (137), has two possible readings.

(137) Did he say that it's just started to rain?

On one reading (the nonparenthetical reading) the question is merely (138):

(138) Did he say X?

On the reading in which the main verb has a parenthetical sense, there are two questions asked, (138) *and* (139).

(139) Has it just started to rain?

Although two questions are asked, the questioner's main concern on this reading is whether or not it has started to rain. These two readings parallel the two readings of a declarative sentence with a class A verb, as described in Section 2.2. Similarly if we negate the statement underlying (137), we have an "unfinished" negative sentence:

(140) He didn't say that it's just started to rain.

While this sentence does not actually negate the proposition (141), it raises doubts about its truth, and the hearer waits to hear more.

(141) It's just started to rain.

To see the effect that negation has on such a clause, one need only compare a factive sentence, in which the complement is quite untouched by the negation of the main verb and the sentence is complete in itself:

(142) He isn't sorry that it's just started to rain.

These questions and negation data support the claim which we made above, that verbs of class A take indirect assertions as complements.

Class B Verbs. As mentioned above, verbs such as *suppose*, *guess*, *think*, and *believe* are the *Neg* Raising verbs of English. We suggested that there are two readings for each of these verbs. On the reading of a sentence in which the verb is virtually without meaning, as is well known, negating or questioning that verb is the same as negating or questioning the complement:

(143) Do you believe he'll be acquitted?
(144) I don't believe he'll be acquitted.

(145) Did you think the article was interesting?
(146) I didn't think the article was interesting.

On this reading, as we suggested above on independent grounds, the complement is the main assertion of the sentence.

Class C Verbs. Questioning a sentence with a class C verb does not affect the complement proposition:

(147) Is it possible that *War and Peace* will be shown tonight?

As we mentioned in Section 2.4, the stated version of (147) does express a mild belief in the truth of the complement proposition. Nevertheless it is clear that a "yes" answer to (147) does not affirm the truth of the complement; it affirms only the main proposition, "it is possible."

The negation of a class C verb also leaves the complement untouched. This is most clearly demonstrated by comparing the verbs of classes A and C. We noted above that a negated class A verb casts some doubt on the truth of the complement. Further, a sentence with a negated class A verb sounds unfinished. Adding a clause that finishes the sentence produces an example such as (148).

(148) John didn't say his girl friend speaks Basque, he said she speaks Russian.

On the other hand, a negated sentence with a class C complement is not felt to be incomplete.

(149) a. It's not likely she speaks Basque.

If we attempt to finish (149a) as we have finished (148), the result is ungrammatical.

(149) b. *It's not likely she speaks Basque, it's likely she speaks Russian.

This demonstrates that the complement is not negated in (148). Again, negation and questioning affirm our claim that class C complements are not asserted.

Class D Verbs. That questioning and negation do not affect the complements of factive "judgmental" verbs such as *be odd*, *be strange*, and *resent* has been demonstrated by the Kiparskys (1971), as has the claim that these complements are not asserted but presupposed.

Class E Verbs. Above we suggested that the complements of semifactive verbs behave very much like assertions. Negating and questioning such verbs produce sentences which confirm this suggestion.

Karttunen's example illustrating that the complement to a semifactive verb may be questioned is (150).

(150) Did you $\left\{\begin{matrix}\text{realize}\\ \text{find out}\end{matrix}\right\}$ that you had not told the truth?

On the nonparenthetical reading of the main verb, (150) merely asks (151).

(151) Did you realize X?

The parenthetical reading of the main verb allows two questions to be asked, (151) and (152).

(152) Did you or did you not tell the truth?

There is some variation among speakers regarding the ability to interpret some of the semifactives parenthetically when used in questions. The same variation applies to negating a semifactive verb. However, most speakers agree that there is a reading on which the complements in the following sentences are affected by negation of the main verb:

(153) They didn't see that the door was locked.
(154) Herb didn't discover that the concert had been canceled.

On the parenthetical reading of these sentences, it seems that the negation of the main verb raises the same kind of doubt about the truth of the complement as we discussed in connection with the verbs of class A. Correspondingly, the negative sentences seem to be unfinished. These facts offer further support for our contention that the complements in sentences with semifactives are asserted.

2.8. Applicability of RTs

For ordinary *that* complements, we have correlated the ability of the complement to be preposed with the acceptability of RTs in the complement. Furthermore, we have claimed that both processes are related to a notion of assertion, so that for sentential complements we may offer a positive condition on the applicability of RTs: RTs may apply only in assertions. This hypothesis about the restriction on the applicability of RTs automatically accounts for the fact noted in Section 1 that RTs may not apply in questions. We are assuming that assertions and questions differ in underlying structure in some way, and that RTs may be sensitive to this difference.

In the following subsections we will examine two of the consequences of the claim that RTs may apply only in asserted clauses.

2.8.1. Reduced Clauses Though RTs may apply in some complements that are full sentences introduced by the complementizer *that*, they may never apply in any complements that are reduced clauses. By reduced clause we mean infinitives, gerunds, and subjunctive clauses, i.e. those complement types which have uninflected verbs. The following examples are illustrative of the ungrammaticality that results from an RT's application in a reduced S.

Infinitives

(155) *It bothers me that big cigar, for the mayor to smoke it.
(156) *That book for me to read would be impossible.

(157) *I believed hiding behind the curtain to be Polonius.
(158) *The director wanted up the street to trot the dog.
(159) *Mary plans for John to marry her, and her parents plan to marry her for him.
(160) *My friends tend the more liberal candidates to support.

Gerunds

(161) *I disapprove of such books your reading.
(162) *Up the street('s) trotting the dog caught us by surprise.
(163) *The idea of more significant being the development of a semantic theory intrigued Bill.
(164) *I resent my book, his stealing it.

Present Subjunctives

(165) *The senator proposed that the troops, they be withdrawn immediately.
(166) *It's important that the book he study carefully.
(167) *This scene requires that up the street trot the dog.
(168) *It's mandatory that in the halls stand the guards.

It would be possible to state this restriction by writing each RT in such a way that it can operate only on a full S. Clearly, however, a more general statement would be desirable, and such a statement is provided by the observation given above: RTs apply only in asserted clauses. Reduced clauses are never assertions, as can easily be seen by examining the role they play in sentences in which they occur. Further evidence that they are never asserted is their inability to occur in isolation and their lack of a person-number marker on the verb.

2.8.2. Noun Complements The complements with head nouns like *claim, report, announcement,* and *idea* are neither presupposed nor asserted. For instance, in the sentence (169), the proposition (170) is not a claim to truth on the part of either the speaker or the logical subject of (169); nor does (169) logically imply (170).

(169) The claim that the math department was folding was denied by Professor Cantor.
(170) The math department was folding.

The condition proposed here for the application of RTs predicts that they would not be applicable in such complements, and indeed this is the case:

(171) *Your notion that never before have the children had so much fun is absurd.
(172) *I don't believe the report that up the street trotted the dog.

(173) *The announcement that speaking at today's luncheon will be our local congressman turned out to be false.
(174) *The claim that on the wall hangs a portrait of Mao is still unsubstantiated.
(175) *The idea that syntax and semantics are related, I think, is funny.
(176) *John has disproved the theory that the thief sneaked away in time, evidently.
(177) *Bill's claim that each part he examined carefully is clearly false.
(178) *I am dubious about your theory that this book, it has good recipes in it.
(179) *His opinion that it was bad, that movie, impressed Bill.

3. Presupposition

For the sentential complements just discussed, we avoided basing our arguments on presupposition, since there were cases in which a clause was neither presupposed nor asserted. This meant that to show that a clause was asserted, it was not enough just to show that it was not presupposed. In the cases we are about to discuss, however, there do not seem to be any such conflicts. Whenever a relative clause or adverbial clause is not presupposed, it is asserted. Thus, our purpose is served, and our central claim is supported, if we can show that RTs do not apply in presupposed relative and adverbial clauses, while they do apply in nonpresupposed relative and adverbial clauses. We will also present positive evidence indicating that the nonpresupposed clauses are indeed assertions.

Perhaps the clearest definition of presupposition in the linguistic literature is that of Keenan (1971, 45–46). His definition has two parts, since the concept of logical implication is necessary for defining (logical) presupposition:

> . . . a sentence S is said to be a logical consequence of a set of sentences S* just in case S is true in every world (that is, under all the conditions) in which all the sentences of S* are true. In such a case we also say that S follows logically from S*, and that S* logically implies S.
>
> A sentence S logically presupposes a sentence S′ just in case S logically implies S′ and the negation of S, ~S, also logically implies S′. In other words, the truth of S′ is a necessary condition on the truth or falsity of S. Thus if S′ is not true then S can be neither true nor false.

One of the types of clauses which Keenan claims is presupposed according to this definition is a nonrestrictive relative clause (NR).[10] Keenan's example is given here as (180):

(180) The Tiv, who respected Bohannon, are (are not) a generous people.

[10] For the sake of ease and clarity of exposition, we are following Keenan in talking as if *sentences* could presuppose other *sentences*, though in fact we believe that only a *speaker* of some utterance *token* can do any presupposing, and that it need not be a proposition which is presupposed. For an example of the latter, see below, footnote 14.

Here, he says, the truth of the NR (181) is a necessary condition for the truth of the entire sentence (180).

(181) The Tiv respected Bohannon.

Furthermore, the truth of the NR remains constant when the main verb is negated.

It can be demonstrated that Keenan's definition does not cover NRs, because sentences containing NRs do not necessarily logically imply their NRs.[11] J. Schachter (1971) has pointed out that there are NRs which have no truth value, such as that in (182):

(182) This broken lamp base, which I promise to fix, is an eyesore.

Since sentences with performative verbs in them cannot be either true or false, the NR *which I promise to fix* has no truth value. However, it is certainly not obvious that sentence (182) itself may have no truth value; in fact, we think that most people would agree that (182) may have a truth value. Yet if (182) presupposed its NR, then the NR would have to be true in order for (182) to have a truth value. A similar point can be made for the following sentence:

(183) The Confederates, who were led by Ulysses Grant, won the war.

Although the NR in (183) is false, it is not clear that (183) itself has no truth value. In fact, most people would agree that it is false. Notice that in a clear case of presupposition, the truth of the presupposed clause *is* a necessary condition for the truth or falsity of the whole sentence. Thus (184) and (185) have no truth value.

(184) ?I regret that I promise to fix that broken lamp base.
(185) ?It's interesting that the Confederates were led by Ulysses S. Grant.

These facts show that sentences containing NRs do not logically imply those NRs, since the NR is not necessarily true "in every world" in which the sentence containing it could be said to be true. (See the first part of Keenan's definition.) If the NR is not logically implied by the sentence containing it, then it cannot be presupposed by that sentence. Therefore we accept Keenan's definition of presupposition, but deny that it covers NRs.

There are some other facts that support our belief that NRs are not presupposed. One reason for our doubt involves the effect of negating a presupposed clause. Consider these two sentences:

(186) I forgot that Harry had opened the package.
(187) I forgot that Harry hadn't opened the package.

Sentences (186) and (187) are entirely different assertions, since the presupposed direct

[11] This discussion owes much to the insights of Jacquelyn Schachter (personal communication).

object in (186) is affirmative, while that in (187) is negative. They are as different from each other as (188) and (189):

(188) I forgot my name.
(189) I forgot my phone number.

Restrictive relative clauses with definite head nouns, which are also presupposed, work in exactly the same way. A sentence with a negative relative clause does not make the same assertion as one with an affirmative relative clause:

(190) The man who's wearing a party hat is my uncle.
(191) The man who isn't wearing a party hat is my uncle.

These are claims as different as are (192) and (193):

(192) Herbert is my uncle.
(193) Marvin is my uncle.

However, (194) and (195), with affirmative and negative NRs respectively, both assert that the Tiv are a generous people:

(194) The Tiv, who respected Bohannon, are a generous people.
(195) The Tiv, who didn't respect Bohannon, are a generous people.

Again, the evidence suggests that (194) and (195) do not presuppose their NRs.

A second reason for doubting that NRs are presupposed relates to the fact that, as pointed out in Thompson (1971), there are two types of NRs, one in which the relative pronoun is coreferential with a noun phrase, as in examples (194) and (195), and one in which the relative pronoun is coreferential with an entire clause, as in (196):

(196) It rained, which surprised me.

Intuitively a clausal NR is more difficult to view as presupposed than a nominal NR; correspondingly, as might be expected, the truth of the clausal NR does not remain constant when the main verb of the sentence is negated:

(197) It didn't rain, which surprised me.

It is not the case that (196) and (197) can both logically imply (in Keenan's sense) the NR *which surprised me*. Thus, a clausal NR could not be claimed to be presupposed on any grounds. This fact lends additional, though indirect, support to the contention that no NR is presupposed.

Finally, we note that NRs are always set apart from the main clause by pauses. This is typical of nonpresupposed material, such as conjunctions, parentheticals, right and left dislocated material, tag questions, and direct quotes.

All of these facts support our conclusion, but the main reason for believing that Keenan's definition of presupposition does not include NRs is that a sentence does not necessarily logically imply the NRs that it contains.

Let us now turn to a discussion of RTs in relative clauses.

4. Relative Clauses

RTs may not apply in restrictive relative clauses on definite head nouns, but they may apply in NRs. The former are presupposed, but the latter are not, as we argued above. Consider the example of Negative Constituent Preposing, which applies easily in NRs, but produces ungrammaticality in restrictive relatives:

(198) This car, which only rarely did I drive, is in excellent condition.
(199) *The car that only rarely did I drive is in excellent condition.

The same restriction holds for the other RTs.[12] Consider the following pairs of sentences:

Prepositional Phrase Substitution

(200) The rotunda, in which stands a statue of Washington, will be repainted.
(201) *The rotunda in which stands a statue of Washington will be repainted.

Preposing around *be*

(202) It's likely that the philosophers, to whom more significant would be the development of a semantic theory, will not pay much attention to your proposal.
(203) *It's likely that the philosopher to whom more significant would be the development of a semantic theory will not pay much attention to your proposal.

Participle Preposing

(204) The track meet, running in which will be Jerry Jones, will start at 3:00.
(205) *The track meet running in which will be Jerry Jones will start at 3:00.

Complement Preposing

(206) The captain, who is, I think, our best player, will graduate next year.
(207) *The boy that is, I think, our best player will graduate next year.

Adverb Dislocation (interpret the adverb as part of the relative clause)

(208) The driver, who took a wrong turn, unfortunately, managed to find the house anyway.

[12] There are some RTs, such as Directional Adverb Preposing and Left and Right Dislocation, which do not apply easily in NRs. The incompatibility has to do with factors other than the ones we are discussing here. Examples (198) through (213), we feel, sufficiently reveal the difference between NRs and restrictive relative clauses with respect to the relationship between RTs and presupposition.

(209) *The driver that took a wrong turn, unfortunately, managed to find the house anyway.

Tag Question Formation

(210) I just ran into Susan, who was your roommate at Radcliffe, wasn't she?
(211) *I just ran into the girl who was your roommate at Radcliffe, wasn't she?
(212) Paul wants to take the children to Disneyland, which would be a nice thing to do, wouldn't it?
(213) *Paul wants to take the children to the place where you can meet Donald Duck in person, can't you?

Intuitively there seems to be little reason for doubting that NRs are asserted rather than presupposed, and in fact there is positive evidence to indicate that they are asserted. Thompson (1971) discusses the semantic and syntactic identity of NRs and surface conjunctions. Any sentence consisting of two conjoined assertions will have associated with it a sentence containing an NR, which must, then, also be a combination of two assertions. A similar argument can be given by showing that reversing the syntactic roles of the main clause and the NR has no discernible effect on the meaning of the sentence. Compare (214) and (215):

(214) The TV, which has been misbehaving for weeks, finally gave out.
(215) The TV, which finally gave out, had been misbehaving for weeks.

The synonymy between these examples is a natural consequence of the hypothesis that both clauses in these sentences are assertions.

Although restrictive relative clauses with definite head nouns are always presupposed, restrictive relative clauses with indefinite head nouns are *not* presupposed.[13] Our hypothesis predicts that RTs can apply in the latter type of clause. This prediction is correct: relative clauses under indefinite head nouns pattern with NRs, since both allow RTs.

(216) I saw a dress which under no circumstances would I have bought.
(217) Between the lobby and the vault is a hallway in which stands an armed guard.

Once again, there appears to be evidence confirming the hypothesis that relative clauses with indefinite head nouns are assertions. Consider first the fact, also mentioned in Thompson (1971), that (218) is nearly synonymous with (219).

(218) I know a girl who speaks Basque.
(219) A girl I know speaks Basque.

[13] See Thompson (1971), Kooij (1972), and P. Schachter (1973) for a discussion of restrictive relative clauses with definite and indefinite head nouns.

The extent to which these are synonymous is striking, especially when contrasted with the nonsynonymy of (220) and (221), which are identical to (218) and (219) except for the definite determiner:

(220) I know the girl who speaks Basque.
(221) The girl I know speaks Basque.

The similarity in meaning between (218) and (219) is again very strong evidence that neither of the clauses they contain is semantically subordinate to the other to any significant degree. That is, they are assertions of nearly equal importance. It apparently matters very little which clause is syntactically the main one.

Next, notice that negating the syntactic main verb may cast doubt on the truth of the relative clause.

(222) I didn't meet a girl who speaks Basque.

This sentence sounds unfinished, and the hearer waits for some clarification, just as we suggested happens in a complement to a verb of saying.

(223) John didn't say his girl friend speaks Basque.

On one of the readings of (222), what is being denied is that the girl speaks Basque. This is another indication, then, that the proposition contained in the relative clause with an indefinite head noun is part of what is asserted by the sentence in which it occurs.

These observations add to our understanding of the differences between types of relative clauses. The difference between restrictive and nonrestrictive clauses has typically been illustrated in the literature with definite nouns and has been assumed to be that restrictives "further delimit" the class of items named by the head noun, while NRs "give more information" about the item named by the head noun. Restrictives with indefinite head nouns do not fit nicely into this dichotomy and have generally been ignored.

The data presented here make it clear that the important distinction between restrictive and nonrestrictive relative clauses is the distinction between presupposition and lack of presupposition. When semantic notions are taken into account, we find that restrictive relative clauses with indefinite head nouns are more like NRs than they are like restrictive relatives with definite head nouns.[14]

[14] Related to these facts about presupposition is the matter of the scope of the definite determiner. Restrictive relative clauses under definite head nouns fall within the scope of the definite determiner, but NRs do not. When a speaker uses a definite determiner, he presupposes that the hearer knows what is being referred to. There is no such presupposition associated with the indefinite determiner. Thus there are two ways in which relative clauses under indefinite head nouns are like NRs: neither is within the scope of a definite determiner, and neither is presupposed. A consequence of the second similarity is that these two types of relative clauses allow RTs to apply within them, while restrictive relative clauses under definite head nouns do not.

5. Adverbial Subordinate Clauses

Rutherford (1970) divides adverbial subordinate clauses into two groups, which he calls restrictive and nonrestrictive. The difference can easily be illustrated by these sentences:

(224) Sam is going out for dinner because his wife is cooking Japanese food. (Restrictive)

(225) Sam is going out for dinner, because I just talked to his wife. (Nonrestrictive)

In (225), both clauses are asserted; the *because* clause does not give a reason for the proposition in the first clause, but rather tells how the speaker came by the knowledge upon which his assertion is based. In (224), however, the first clause is presupposed, the second clause may or may not be presupposed, and the causal relationship between them is asserted. These properties may be brought out more clearly by noticing the effect of question formation in these sentences. In (224), the sentence with the restrictive *because* clause, syntactically questioning the first clause can be understood as questioning only the causal relationship and/or the second clause, but never the first clause:

(226) Is Sam going out for dinner because his wife is cooking Japanese food?

However, question formation applied to the first clause of (225), the sentence with the nonrestrictive *because* clause, is understood only as questioning that first clause, the *because* clause still giving the speaker's reason for raising the question:

(227) Is Sam going out for dinner(?), because his wife is cooking Japanese food.

These facts can be predicted if the first clause of (225) is asserted and the first clause of (224) is presupposed.

Let us examine (224) and (225) more closely, As we would expect, RTs may apply in both clauses of sentences like (225), containing the nonrestrictive *because* clause.

RT in first clause

(228) Under no circumstances will Herbert be at this party, because I talked to his mother this morning.

(229) That house, it has ghosts in it, because one night I heard them.

(230) Just as important to him must have been his new job, because he's been very light-hearted recently.

RT in second clause

(231) Herbert will certainly be at this party, because his mother, I talked to her this morning.

(232) It's been raining, because there are puddles outside, I'm afraid.
(233) They must be Disney freaks, because on the wall is a huge portrait of Donald Duck.

Let us return to the sentence with the restrictive *because* clause, (224), repeated here:

(224) Sam is going out for dinner because his wife is cooking Japanese food.

As we have said, the first clause of a sentence with a nonrestrictive *because* clause is always presupposed. Our hypothesis predicts that RTs should not be able to apply in such clauses, and indeed, this is the case.

(234) *In came Jerry because it was raining.
(235) *That house, there are ghosts in it because they like it there.
(236) *Sitting in the corner was Tom because he'd hidden grandma's teeth.

The fact that RTs do not apply in the main clause of a restrictive *because* clause is significant, since this main clause is a root sentence by Emonds's definition and should, therefore, take RTs. The fact that it does not is anomalous for Emonds but follows naturally from our hypothesis.

Notice that in sentence (237) it appears that an RT has applied in the presupposed main clause.

(237) Never in his life had Sam gone out for dinner because his wife was cooking Japanese food.

But closer examination reveals that the *never* does not negate the main clause *Sam had gone out to dinner*, but rather negates the asserted causal relationship (see (242) and (243)). Therefore, the position of *never in his life* results from an RT's being applied to the entire assertion, and not just to the main clause. Support for this view of (237) comes from the ungrammaticality of (234)–(236), for which no such explanation is possible.

As we pointed out above, the restrictive *because* clause itself may be presupposed or not. When it is not, RTs may apply:

(238) Yvette had to bribe the teacher, because to have done otherwise would have meant flunking the course.
(239) Gary is going to order chile relleno, because never in his life has he had a chance to try Mexican food.
(240) Mildred drives a Mercedes because her son, he owns stock in Xerox.
(241) You came in here because you like me, don't you?

When the restrictive *because* is presupposed, however, no RTs can apply. To illustrate this, we need to point out that the only unambiguously presupposed restrictive

because clause is one which occurs in a sentence in which the causal relationship is negated. Thus, the following sentence presupposes the first *because* clause:

(242) Sam is going out for dinner, not because his wife is cooking Japanese food, but because his uncle George is in town.

This is, of course, equivalent to (243):

(243) Sam is not going out for dinner because his wife is cooking Japanese food, but because his uncle George is in town.

RTs are unacceptable in such a *because* clause:

(244) *Sam is going out for dinner, not because visiting him is his mother-in-law, but because he yearns for a MacDonald's triple-burger.
(245) *Sam is going out for dinner, not because his wife, she can't cook, but because he wants to discuss Q-magic with Stella.
(246) *Sam is going out for dinner, not because to eat lima beans au gratin makes him sick, but because it would be his turn to do the dishes.

We see, then, that the presupposed portions of a *because* sentence do not admit RTs, whereas the nonpresupposed portions do, irrespective of whether these clauses are roots or not.

Adverbial clauses may be ambiguous between presupposed and nonpresupposed interpretations. RTs can apply when the clause is nonpresupposed, but not when it is presupposed. Thus:

Asserted

(247) She loves her husband, (al)though Sarah, she told me he's unfaithful.
(248) He has written a good thesis, (al)though to have spent a whole chapter on Preposition Hopping was probably a mistake.

Presupposed

(249) *Mildred loves her husband (even) though seldom does he bring her flowers.
(250) *Lottie got a C in the course (even) though the final, she flunked it.

Some adverbial subordinate clauses, such as those beginning with *when*, *before*, and *after*, are never used nonrestrictively. Such clauses are always presupposed,[15] and

[15] Note that Keenan (1971) lists "Temporal Subordinate Clauses" with just these subordinators as examples of presupposed clauses.

RTs do not apply within them:

(251) *Helen and Jack had dinner before into the kitchen trooped the children.
(252) *The villagers all burst into song when in came the bride and groom.[16]
(253) *We were all much happier when upstairs lived the Browns.
(254) *The guests laughed out loud after Mary stopped singing, strangely.
(255) *The customer stomped out after the clerk, I guess, insulted her.

6. Conclusion

We have shown that a certain class of transformations, the emphatic root transformations, can apply only in certain sentence types and are excluded from operating on questions and presupposed clauses. As a positive environment we can say that these transformations operate only on Ss that are asserted. RTs are not applicable in presupposed sentences because it is not appropriate to emphasize elements of a sentence whose proposition is already known, whose truth is presupposed, and whose content is relegated to the background.

The facts isolated and discussed here suggest to us that some transformations are sensitive to more than just syntactic configurations. It does not seem possible to define the domain of an RT in terms of syntactic structures in any general way. However, it is important to point out that, even if it were possible to define in syntactic terms the conditions under which RTs can apply, this correlation would still require an explanation. That is, the question of *why* these transformations can apply in certain syntactic environments and not others would still be unanswered. What we have done here is to provide an explanation for the restricted applicability of RTs, in terms of the communicative function of this class of rules.

Currently, a number of proposals exist for formalizing various semantic notions. Some linguists might be tempted to try to use the facts we have discussed to decide between competing formalisms. But in the absence of a formalized semantic theory which at least attempts to be comprehensive, and within which such notions as assertion, presupposition, and emphasis can be precisely defined, it is our opinion that such an endeavor is premature. We have no such semantic theory to offer; what we want to suggest is that the facts we have put forth here should be significant input for the construction of one.

In particular, we have tried to characterize a linguistically significant notion of assertion and have suggested that assertion is a somewhat broader notion than has generally been assumed. We have presented evidence that asserted propositions may be embedded as sentential complements, NRs, or adverbial clauses.

[16] This "ordinary" *when* clause is not to be confused with the assertion *when* clause following *just* or with another nonpresupposed use of *when*:

(i) We were *just* about to unveil the statue *when* in swept Mrs. Von der Vogelweide.
(ii) Bill is such a fool: he looked all over the house for his keys *when* he had them in his hand all along.

If we look again at the whole class of RTs as enumerated by Emonds, including SAI and Tag Question Formation, we see that the operation of all these transformations is restricted to certain sentence types. SAI occurs in questions, conditionals, certain tags, and certain exclamations. Tag Question Formation copies a tag only from speaker assertions. We suggest that the distinguishing characteristic of all RTs is that their application is restricted to certain sentence types. Not coincidentally, RTs also produce word orders that differ markedly from what is usually considered "normal" word order. In fact it may be the nonnormal word order that carries the signal of sentence type.

In conclusion, we have presented evidence that Emonds's definition of root transformation is inadequate in two directions. His definition would prohibit RTs in structures where they may apply, such as NRs, certain adverbial clauses, and certain sentential complements, and it would allow RTs in structures where they are prohibited, such as the presupposed main clause of a *because* sentence. We have outlined a definition of RT that correctly predicts the applicability of these transformations. A minor advantage of this definition is that it does not require any ad hoc proviso concerning direct quotes, as does Emonds's definition. In his definition, Emonds had to mention direct discourse specifically (1969, 2), but a semantic definition that restricts emphatic RTs to assertions automatically includes assertions reported in direct discourse.

Of greater significance, however, is the fact that a definition of root transformation in terms of its linguistic function rather than in terms of syntactic structures enables us to explain the otherwise mysterious facts about its applicability. We have demonstrated that emphatic RTs apply in assertions, but not in presupposeed clauses and questions, and we have suggested that this is because it is inappropriate in language to emphasize backgrounded or information-seeking material.

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Hooper
Department of Linguistics
State University of New York at Buffalo
Buffalo, New York 14214

Thompson
Department of Linguistics
University of California
Los Angeles, California 90024