CO-OCCURRENCE OF DETERMINERS WITH RESTRICTIVE/APPOSITIVE RELATIVE CLAUSES IN ENGLISH

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1. INTRODUCTION

The purpose of this paper is to give semantic explanation for the restrictions on the co-occurrence of head NP determiners with restrictive/appositive relative clauses in English. It has long been observed that certain determiners can co-occur with only one type of relative clause. For example:

(1) a. { Every, Each, Any, No } student that Professor Hall teaches learns fast and well.
b. *{ Every, Each, Any, No } student, whom Professor Hall teaches, learns fast and well.

In (1), we see that universal quantifiers can co-occur only with the restrictive relative clause; they cannot co-occur with the appositive.

By contrast, consider:

(2) a. John's book, which was on the desk a moment ago, is missing.
b. *John's book that was on the desk a moment ago is missing.

In (2), we see that possessives as head NP determiners can co-occur only with the appositive relative clause; they cannot co-occur with the restrictive.[1]

Some determiners can take both types of relative clause in certain constructions, but allow only one type of relative in other constructions. For example, the indefinite article, "a(n)", can co-occur with both types of relative; however in

(3) a. William Labov is a linguist who has just conducted an important study on Black English.
b. *William Labov is a linguist, who has just conducted an important study on Black English.

we see that the indefinite article as the determiner of a predicate NP cannot co-occur with the appositive relative.

In this paper it is argued that the semantic properties of the head NP determiner decide which type of relative clause this head NP can take. If there is incompatability between the semantic properties of the determiner and those of the relative clause, ungrammaticality arises. It is contended that being non-referential is inconsistent with

appositive relatives. And determiners which have a genuine inclusive reference (not including the surface "the") are inconsistent with restrictive relatives.

2. PREVIOUS ANALYSES

In the literature of generative grammar, linguists usually try to solve the co-occurrence problem by setting up different classes of determiners and then stipulating what class of determiner co-occurs with what type of relative clause. Smith (1964) provides a good example of this approach.

Smith (1964, pp. 248-9) sets up three classes of determiners: (a) Unspecified determiners: "any", "all" etc., co-occurring only with restrictives; (b) Specified determiners: "a(n)", "the", ϕ, co-occurring both with restrictives and appositives; and (c) Unique determiner: ϕ (for proper names), co-occurring only with appositives. With this classification, she can account for cases like the following:

(4) a. Any book which is about linguists is interesting.
b. *Any book, which is about linguists, is interesting.

(5) a. John, who knows the way, has offered to guide us.
b. *John who is from the South hates cold weather.

Smith's triple division of determiners to account for the co-occurrence of determiners and relative clauses has two problems. First, it is not clear whether or not she includes existential quantifiers ("many", "several", "a few", etc.) in her category of Unspecified determiners. If she does, then her claim that Unspecified determiners co-occur only with restrictives does not hold up in cases like the following:

(6) a. A few linguists, who have been working on Black English Vernacular, are giving lectures tonight.
b. A few linguists who have been working on Black English Vernacular are giving lectures tonight.

(7) a. Several boys, who are standing in front of the class now, have just been punished by the teacher.
b. Several boys who are standing in front of the class now have just been punished by the teacher.

In (6) and (7), we see that existential quantifiers can co-occur with both restrictives and appositives. On the other hand, if Smith does not intend to include existential quantifiers in her category of Unspecified determiners, her triple division of determiners suffers from a shortcoming of being not exhaustive.

The second problem for Smith is that her category of Unique determiner, ϕ, for

proper names, which she claims to co-occur only with appositives, fails to account for cases like the following:

(8) a. The Mary who is from South Africa has returned to her home country.
b. *The Mary, who is from South Africa, has returned to her home country.

In (8), we see that a proper name can be used as a common noun in the sense that it can be modified by the definite article "the". But it is different from a common noun in that when modified by "the", it can co-occur only with restrictives.

3. FOUR SEMANTIC FEATURES

To solve Smith's problms and at the same time to be able to achieve what Smith attempts to account for, I propose a semantic approach. My contention is that it is the semantic properties of a head NP determiner that decide the acceptability of the co-occurrence of this particular NP with the restrictive/appositive relative clause. The semantic properties of the head NP determiner are determined by the context where it occurs. The same determiner may have different semantic properties in different contexts. And the same semantic property may be carried by different determiners.

In this paper, I will use four semantic features and their combinations to deal with the co-occurrence problem. They are [+/- Def] (Def = definite), [+/- Uni] (Uni = unique), [+/- Spec] (Spec = specific) and [+/- FM] (FM = first-mention). These four features will be defined one by one as follows.

First of all, by [+/- Def] it is meant that within the relevant domain of interpretation, or the speaker-hearer shared set, a determiner with the feature [+Def] enables its NP to refer to the totality of the shared set. In other words, [+Def] equals Hawkins' (1978) inclusiveness concept. In English, concerning [+Def] and [-Def], we have the following:

[+Def]	proper names	e.g.	John, New York City
	demonstratives	e.g.	this man, that book
	definite article	e.g.	the sun, the man
	possessives	e.g.	John's book, the man's car, my friend
[-Def]	indefinite article	e.g.	a book, a man
	cardinals	e.g.	three books, five girls
	existential quantifiers	e.g.	{ several, some, a few } books
	universal quantifiers	e.g.	{ all, every, any, no } books

Secondly, by [+Uni] it is meant 'one and only one.' For example, the proper name "John" refers to the unique individual John. In the NP "John", its determiner is null. The feature [+Uni] is assigned to this null determiner. However, if there are two people named "John" within the speaker-hearer shared set, the term "John" loses its uniqueness feature and the determiner which goes with it becomes [−Uni]. For example, in the NP "the John", the feature [−Uni] is assigned to "the".

Thirdly, specificity refers to the semantic property of a determiner, or an NP, to be specific or non-specific. For example, the indefinite article in the following sentence is ambiguous between a specific and a non-specific reading:

(9) Mary wants to marry a Norwegian.

On the specific reading, (9) means that Mary wants to marry a certain Norwegian, a particular individual; whereas on the non-specific reading, it simply means that Mary would like a husband who is a Norwegian. The specific/non-specific dichotomy is related to Donnellan's (1966) distinction between referential and attributive use of a definite description. In (9), on the specific reading, the NP "a Norwegian" is intended in the referential sense and on the non-specific reading, it is intended in the attributive sense. In the former sense, the NP is used to pick out a unique referent, whereas in the latter sense, the NP is used to denote a type of objects.[2]

A syntactic diagnostic for specificity has been proposed by Karttunen (1968). Ioup (1977, p. 237) summarizes Karttunen's position as follows:

> He [Karttunen] distinguishes the specific and non-specific readings linguistically by whether or not they establish discourse referents. The specific reading is capable of being talked about at a later point in the discourse by using a personal pronoun or definite description, i.e., a discourse referent. The non-specific reading does not permit such later references.

To see this point, let's take (9) for example again. On the specific reading, (9) can be followed by (10):

(10) She wants to marry him in June.

In (10), the personal pronoun "him" is used to substitute for "a Norwegian". Hence the specific reading of (9) is capable of establishing a discourse referent. By contrast, on the non-specific reading, (9) cannot be followed by (10). Instead, it can be followed by (11):

(11) She wants to marry one in June.

In (11), the indefinite "one" is used to substitute for "a Norwegian". Hence the non-specific reading of (9) is not capable of establishing a discourse referent.[3]

Finally, [+FM] refers to the definite article's being used as a first-mention. For example:

(12) I'm fed up with the plumber who came to fix my kitchen sink this morning.

"The" in (12) can be [+FM] because it can be used in the case that the plumber in question has never been mentioned before. However, in

(13) The girl who lives in Detroit sent me a nice Valentine card.

"the" cannot be [+FM] because the girl under discussion must have been mentioned before. Here, "the" is anaphoric; it is [−FM].[4]

4. SEMANTIC EXPLANATION FOR CO-OCCURRENCE RESTRICTIONS

Having defined the four semantic features that I am going to use in dealing with the co-occurrence problem, I now present briefly the most important semantic difference between restrictive and appositive relative clauses. As is well known, a restrictive relative clause functions as a restrictive modifier of the head noun, and it is used to restrict the set of objects that the head noun refers to; whereas an appositive relative is generally used to provide additional parenthetical information about the head noun.

I turn now to the discussion of different types of co-occurrence problem. First of all, determiners which are [+Def, +Uni] occur only with appositives. Consider Smith's example:

(14) a. John, who knows the way, has offered to guide us.
b. *John who knows the way has offered to guide us.

This fact can be easily accounted for on semantic grounds. A restrictive relative is to restrict the set of objects referred to by the head noun. In (14b), since the head noun is a proper name, "John", which refers to a unique individual, there is no need for any further restriction for the head noun. By contrast, in (14a), an appositive is used. There is no problem for this because an appositive merely serves to add parenthetical information about the referent of the head noun. Thus we have a semantic explanation why the form 'ϕ + proper name' occurs only with appositives.

However, there are cases where proper names can be followed by restrictives, such as in:

(15) a. The John who knows the way has offered to guide us.
b. *The John, who knows the way, has offered to guide us.

In (15), we see that a proper name modified by the definite article cannot be followed by an appositive. Here, the proper name "John" has lost its property of referring to a unique individual. Instead, the use of "the" before "John" indicates that there is more than one person named "John" in the discourse context and that the speaker, at the point of uttering this sentence, is talking about a particular John. This particular John needs to be specified by a restrictive relative, but not an appositive. This is why (15a) is well-formed and (15b) ill-formed. In (15), "the" in "the John" is [+Def, -Uni]. Hence we have another co-occurrence type which can be stated as follows. Determiners which are [+Def, −Uni] occur only with restrictives.

Another type of co-occurrence problem is found in cases like:

(16) a. John's book, which was on the desk a moment ago, is missing.
b. *John's book which was on the desk a moment ago is missing.

In (16), we see that genitive NP's such as "John's book" co-occur only with appositives. This fact becomes explainable when we consider the semantic properties of both the head NP and the restrictive/appositive relatives. When a speaker utters (17):

(17) John's book is missing.

instead of (18a) or (18b):

(18) a. A book of John's is missing.
b. One of John's books is missing.

we know that in the relevant domain of interpretation, John has one and only one book. Otherwise, the speaker will not use (17); instead he will use (18a), which indicates that John may or may not have more than one book, or he will use (18b), which indicates that John has more than one book. In other words, "John's book" in (17) carries the inclusiveness presupposition. The same presupposition holds true with plural genitive NP's. For example:

(19) John's books are missing.

In (19), "John's books" has an inclusive reference; that is, it refers to all of John's books. Hence we can see that possessives as determiners are [+Def].

Having worked out the semantic properties of the head NP, we can see why (16b) is ungrammatical. Since the head NP "John's book" implies that John has one and only one book in the relevant domain of interpretation, there is no need of any restriction for it.

At this point, the reader might point out that in cases like the following:

(20) The book of John's which was on the desk a moment ago is missing.

the head NP "the book of John's" (note that this expression is ungrammatical by itself) is also [+Def], why can it be followed by a restrictive relative clause?

This is an interesting point, indeed. The whole story goes back to the behavior of possessives as determiners. Consider:

(21) a. *a John's book
b. a book of John's

(22) a. *This John's book
b. this book of John's

(23) a. *several John's books
b. several books of John's

From (21)-(23) we see that "John's" as a determiner must be postposed obligatorily when immediately following another determiner, such as "a", "this", and "several".

However, in (24):

(24) a. *the John's book
b. *the book of John's

we see that with the determiner "the", even if "John's" is postposed, (24b) remains ungrammatical. But interestingly enough, the ungrammaticality of (24b) can be cured by embedding a restrictive relative clause to it, as in:

(25) the book of John's that is on the desk

By contrast, if we embed an appositive to (24b), as in:

(26) *the book of John's, which is on the desk

the ungrammaticality of (24b) cannot be cured. Here we see what a restrictive relative can do and what an appositive cannot do. An appositive does not have any effect on the head NP syntactically. It has only a semantic function, that is, to add parenthetical information about the head NP. In contrast, a restrictive relative can serve as a grammatical previous mention and make an indefinite head NP definite. (25) actually is related to (27):

(27) There is a book of John's on the desk.

Why? Notice that in (25), the restrictive "that is on the desk" relates the new referent "the book of John's" to the immediate situation of utterance. In such a case, "the" is a first-mention, originating from "a".

Similarly, in (20), "the" in "the book of John's" carries the feature [+Def, +FM]. To make it more explicit, this "the" is different from the anaphoric "the", which carries the feature [+Def, −FM]. It is the restrictive relative that makes definite the head NP "the book of John's" in (20).[5]

To summarize briefly, an explanation for the interesting facts such as:

(28) a. John's book
b. John's book, which is on the desk
c. *John's book which is on the desk

(29) a. *the book of John's
b. *the book of John's, which is on the desk
c. the book of John's which is on the desk

has been offered. Determiners which are [+Def], such as "John's" in (28), occur only with appositives because the head NP does not need any further restrictions.[6] However, the determiner "the", besides being [+Def], sometimes carrying an additional feature [+FM], such as the first "the in (29c), occurs only with restrictives, because it is the restrictive relative that makes "the" possible in that particular context.

Now let's look at anaphoric "the", i.e. [−FM] "the". Consider:

(30) The girl is coming to see me this Sunday.

In (30), "the" is [+Def, −FM]. To an NP with a determiner carrying this feature, we can embed an appositive, as in:

(31) The girl, who lives in Detroit, is coming to see me this Sunday.

because the appositive merely serves to add parenthetical information about the head NP. We can also embed a restrictive relative to the same NP, as in:

(32) The girl who lives in Detroit is coming to see me this Sunday.

In (32), it is the case that in a previous discussion, either a certain girl has been mentioned and that she lives in Detroit has already been mentioned, too, or several girls have been mentioned and that one of these girls lives in Detroit has been mentioned, too. In the former situation, the whole NP "the girl who lives in Detroit" is purely anaphoric; whereas in the latter situation, the whole NP is also anaphoric, but at the same time, the restrictive relative serves to restrict the class of girls referred to to the

one who lives in Detroit.

In the above discussion, we have seen the co-occurrence of relative clauses with the determiners, ϕ (for proper names), [−Uni] "the", [+FM] "the", and [−FM] "the", and possessives such as "John's", all of which carry a common feature [+Def]. Now let's proceed to another type of co-occurrence problem where the head NP determiners are [Def]. Let's look at universal quantifiers first.

The fact that a noun preceded by a universal quantifier "all", "any", "each", "every" or "no" (="not any") cannot be followed by an appositive has been observed by various linguists. Besides Smith, Ross (1967, p. 435), Hawkins (1978, pp. 286-87), and Emonds (1979, pp. 235-36) all point out this fact. Although it has long been observed, no semantic explanation has been given for this well-known fact. Here I will present a semantic account for it.

Consider:

(33) a. { All, Every, Each, Any } student(s) that Professor Hall teaches learn(s) fast and well.
b. { All, Every, Each, Any } student(s), whom Professor Hall teaches, learn(s) fast and well.

In order to give semantic explanations for cases like (33), we need to look into semantic properties of universal quantifiers. Vendler (1967), McCawley (1977), and others have presented nice analyses of "all", "every", "each", and "any". They all emphasize the semantic distinctions among the four quantifiers. What concerns us most here, however, is their common properties, especially their specificity.

In terms of specificity, "any" has the most clear-cut property being non-specific. Consider:

(34) Any student that Professor Hall teaches learns fast and well.

Following Vendler (1967, p. 85), in (34), the speaker offers a challenge to us that whichever student we pick from the set of students that Professor Hall teaches, this student learns fast and well. In other words, the NP "any student" in (34) is non-specific, and non-referential.

How about "all", "every", and "each"? Consider:

(35) a. All students that Professor Hall teaches learn fast and well.
b. Every student that Professor Hall teaches learns fast and well.
c. Each student that Professor Hall teaches learns fast and well.

Are the three head NP's in (35) specific or non-specific? Let's use Karttuen's syntactic diagnostic for specificity to decide it. Consider:

(36) a. All students learn fast and well.
b. *All students$_i$ learn fast and well. Professor Hall teaches them$_i$

(37) a. Every student learns fast and well.
b. *Every student$_i$ learns fast and well. Professor Hall teaches him$_i$

(38) a. Each student learns fast and well.
b. *Each student$_i$ learns fast and well. Professor Hall teaches him$_i$.

From (36)-(38), we see that none of the three NP's with universal quantifiers is able to establish a discourse referent. Hence we can say that the three head NP's are all non-specific. The same result arises when this diagnostic applies to "any":

(39) a. Any student learns fast and well.
b. *Any student$_i$ learns fast and well. Professor Hall teaches him$_i$.

Having ensured that universal quantifiers are non-specific, now we can give a semantic explanation for the badness of (33b). As a matter of fact, from (36)-(39), we have already had a syntactic explanation for the badness of (33b). A sentence containing an appositive relative clause originates from two sequenced sentences in which the first sentence is the matrix sentence and the second the appositive. Hence (36)-(39) are the sources for (33b). Their badness automatically accounts for the badness of (33b).

From a semantic standpoint, the badness of (33b) is also explainable. A non-specific NP such as "any student" is non-referential; that is, it cannot be used to pick out a particular referent. Then, how can a piece of parenthetical information about a particular referent be added to a head NP which does not refer to this particular referent? Thus, we can see that there is incompatability between the semantic property of the head NP and that of the appositive. Where there is incompatability of rules, ungrammaticality arises.

One problem needs to be address before we proceed to discuss other types of co-occurrence problem. It was pointed out that (36b), repeated here:

(36) a. All students learn fast and well.
b. *All students$_i$ learn fast and well. Professor Hall teaches them$_i$.

did not sound too bad. A similar example was given:

(40) All students study hard. They have to or they'd fail.[7]

In the above two cases, although they pass Karttunen's syntactic test for specificity, this does not entail that "all students" in either case is specific because non-specific

NP's in some contexts are able to establish discourse referents (see Note 3). (40) is actually a sentence sequence with a general statement. Hence, "they" in (40) is different from the ordinary pronoun, "they", used to substitute for, say, "John", "Mary", and "Tom", or "the students". Consider more sentences with general statements such as the following:

(41) a. Cats that have short tails tend to live longer.
b. A woman who marries young can expect to have a lot of troubles.
c. The hand that rocks the cradle rules the world.
d. The person who goes looking for trouble usually finds it.

Can the restrictive relatives in (41) be changed to appositives? Consider:

(42) a. ?Cats, which have short tails, tend to live longer.
b. ?A woman, who marries young, can expect to have a lot of troubles.
c. ?The hand, which rocks the cradle, rules the world.
d. ?The person, who goes looking for trouble, usually finds it.

When we are making a general statement, we are not talking about any particular individual. Therefore, none of the head NP's in (41) can be specific. This is why none of the sentences in (42) is well-formed.[8]

A similar case of ungrammaticality is found in the case where an indefinite predicate NP is followed by an appositive. Consider:

(44) a. William Labov is a linguist.
b. *William Labov is a linguist, who has just conducted an important study on Black English.
c. William Labov is a linguist who has just conducted an important study on Black English.

In (44a), "a linguist" is an indefinite predicate NP. A predicate NP is non-referential. That is, in (44a), it is the NP "William Labov" that is used to pick out the individual in question, but not the predicate NP "a linguist". "A linguist" is used to ascribe a property to William Labov, saying that he belongs to the species of linguists. To put it in another way, a predicate NP is non-specific in that it does not refer to a particular individual. This non-specificity can be further confirmed by Karttunen's syntactic diagnostic:

(45) *William Labov is a linguist_i. He_i has just conducted an important study on Black English.

Here again we see the incompatability of the semantic properties of the appositive and

the head NP. How can parenthetical information about a particular individual be added to an NP which does not refer to this particular individual?

From the above discussion, we see that the universal quantifiers and the indefinite article in a predicate NP have a common semantic property; that is, they are [- Def, Spec]. Any head NP carrying this property cannot be followed by an appositive.

As stated beofre, the same determiner may have different semantic properties in different contexts. We have seen that the definite article is sometimes [+FM], and sometimes [−FM]. The indefinite article provides another good example of this point. It has been pointed out that "a" can be either [+Spec] or [Spec]. When it is [−Spec], it cannot co-occur with the appositive. How about when it is [+Spec]?

Consider:

(46) a. A linguist is giving a lecture today.
b. A linguist, whom I met at a party last night, is giving a lecture today.
c. A linguist whom I met at a party last night is giving a lecture today.

In (46a), the underlined "a" can be either [+Spec] or [−Spec]. When "a" is [+Spec], it can co-occur with both restrictives and appositives, as shown in (46b) and (46c).

A similar category of determiners which is capable of being interpreted either as [+Spec] or [−Spec] is found in cardinals and existential quantifiers. For example:

(47) a. I'm going to buy { three, several, a few } books.
b. I'm going to buy { three, several, a few } books, which deal with the history of World War II.
c. I'm going to buy { three, several, a few } books which deal with the history of World War II.

In (47a), the underlined determiners can be interpreted either as [+Spec] or as [-Spec]. In (47b), they are forced to be interpreted on the specific reading because of the appositive. And in (47c), they again can be either [+Spec] or [-Spec]. Thus, cardinals and existential quantifiers have the same occurrence phenomenon as the indefinite article "a". When they are [+Spec], they can co-occur with both restrictives and appositives, and when they are [−Spec], they can co-occur only with restrictives. To put it in another way, they can co-occur with restrictives wehther they are [+Spec] or [Spec].

Carlson (1977), however, points out the following facts:

(48) *{ Most, Several, Many } dollars that Marx owes Bill will be paid. (p. 531)

(49) *{ Several, Twenty } miles that the road went on for past Dry Gulch were tough ones indeed. (p. 530)

In these examples, the cardinal and existential quantifiers, whether interpreted as [+Spec] or as [−spec], do not allow restrictives.

This seems to constitute an exception to our generalization that cardinals and existential quantifiers can co-occur with restrictives. However, as Carlson argues, contexts like those in (48) and (49) actually require a very different type of relative clause. Carlson argues that these relatives constitute a distinct class of relative clause called "amount relatives." He points out that amount relatives occur only with the following determiners: "all", "any", "the", "that" ("those"), "what", and "every", all of which can precede an expression of amount.

Whether or not amount relatives should be postulated as a distinct class of relative clause is not my concern here. What is interesting is that the ungrammaticality of (48) and (49) both can be cured by "the", which has an inclusive reference:

(48') { Most, Several, Many } of *the* dollars that Marx owes Bill will be paid.

(49') *The* { Several, Twenty } miles that the road went on for past Dry Gulch were touch ones indeed.

One more example of this kind:

(50) a. *{ Some, Much, Most, Little } headway that Mel made was satisfactory.
b. { Some, Much, Most, Little } of *the* headway that Mel made was satisfactory.

It is found that in fact abstract mass nouns as head NP's followed by restrictive relatives (or amount relatives) all behave in the same way as found in (50). Why? Is it because non-count nouns cannot be individuated and have to be talked about as a whole amount and hence the inclusive "the" is needed? As for count nouns, as in (48) and (49), is it because the predicate of the relative clause and/or the matrix predicate act(s) upon the head NP as a whole amount, but not individually, and hence a determiner which has inclusive reference such as "the" is required? The answers to these questions are not evident at this point.

5. CONCLUSION

In conclusion, I have attempted to deal with the cooccurrence of determiners with relative clauses from a semantic approach. In the above discussion, I have left out stacked relatives and pied piping. Thus, what I have attempted to account for is expressions of the form 'X + head NP + relative clause + Y' where the head NP contains a single determiner and Y is not a relative clause. It has been pointed out that semantic properties of the head NP determiner decide what type of relative clause this head NP can take. If there is incompatability between the semantic properties of the head NP determiner and the type of relative clause this head NP takes, ungrammaticality

arises.

For all the different types of co-occurrence problem discussed in this paper, I present the following diagram as a summary:

	+Def	+Def +Uni	+Def −Uni	+Def +FM	+Def −FM	−Def +Spec	−Def −Spec
R	*	*					
A			*	*			*

In this diagram, we can see that there are two cases where restrictives are disallowed. One is in the case where determiners are [+Def, +Uni]. For determiners which are [+Def, +Uni], such as ϕ in the NP "John" and "the" in the NP "the sun", they do not co-occur with restrictives, because the NP's with such determiners are unique and hence there is no need for any further restriction. The other case where restrictives are disallowed is found in determiners carrying the feature [+Def]. Like [+Def, +Uni] determiners, [+Def] NP's such as "John's book(s)" have inclusive reference and therefore restrictives are blocked.

By contrast, in this diagram, we see that there are three cases where appositives are disallowed. First, the [+Def, −Uni] determiner, such as "the" in "the John", does not co-occur with appositives. Why? If the appositive, instead of the restrictive, were used, the hearer would not know which John is being referred to in the case that there is more than one John in the relevant domain of interpretation. On the other hand, if which John being referred to is known to the hearer, then there is no need to use "the" before "John".

Second, the [+Def, +FM] determiner, such as "the" in "the plumber who came to fix my kitchen sink", does not co-occur with appositives. This is because it is exactly the restrictive relative that makes "the" possible in this particular context. If, instead, an appositive were used, the determiner of the head NP must be [−FM]. In the case of the plumber, the hearer must have already known which plumber is being referred to so that the appositive can be allowed.

Finally, [−Def, −Spec] determiners, such as "a" in a predicate NP and universal quantifiers, disallow appositives. This is because appositives cannot be embedded to NP's which are not referential.

In brief, if the head NP determiner has an inclusive reference, the restrictive relative is disallowed. However, there are cases where the head NP determiner has a superficial inclusive reference, the restrictive relative is needed to make this inclusive reference possible; hence, appositives are disallowed. By contrast, if the head NP determiner is non-referential, appositives are disallowed. The co-occurrence of determiners and relative clauses, therefore, is explainable on these semantic principles.

NOTES

1. In "Remarks on Nominalization", Chomsky (1970, p. 202) says, "In general, expressions of the form '(prearticle of) the N of NPs and NPs N that S' are unnatural." His examples are:

   (i) a. *the picture of John's
   b. *several of the pictures of John's
   (Chomsky's (35))

   (ii) *John's picture that Bill painted
   (Chomsky's (36))

2. The feature [+/− Specific] is introduced by Fillmore (1967), and it is restricted to indefinites. By contrast, Donnellan's referential/attributive distinction is restricted to definites. Partee (1972), however, argues that Donnellan's distinction also applies to indefinites. One of her examples is:

   (i) John succeeded in marrying a girl his parents didn't approve of.
   (Partee's (12))

   She suggests that there are two interpretations for (i): i.e. either he succeeded in marrying *that girl* or he succeeded in marrying *such a girl*. In this paper, [+Spec] entails 'referential' and [− Spec] 'non-referential'.

3. Karttunen (1969, 1976) modifies his diagnostic to allow non-specific indefinites in some contexts to be able to establish discourse referents, as in:

   (i) a. You must give her *a call*. ?She is expecting *the call*.
   b. You must give her *a call*. She will be very happy to receive *the call*.

   In both (a) and (b), the indefinite NP "a call" is non-specific. The modal "must" creates a discourse world and the modal "will" in (b) keeps the same world. We can use a definite description or a personal pronoun to refer to an entity denoted by a non-specific NP so long as this entity is being talked about in the same discourse world.

   Partee (1972) also argues that personal pronouns can have non-referential indefinite antecedents, as in:

   (ii) a. Susan would like to marry *a millionaire* and run off with all his money. If she doesn't divorce *him* within a couple of years, her plan will probably go awry.

b. ?Susan would like to marry *a millionaire* and run off with all his money. If she doesn't meet *him* within a couple of years, her plan will probably go awry.

(Partee's (59) and (60))

The only difference between (a) and (b) is that between the verb "divorce", which maintains the marriage world, and "meet", which does not.

4. [+FM] "the" introduces so-called 'novel definites' (See Heim 1982). Some details about this feature will be given later in this paper. Further discussion can be found in Chen (1988) and both the philosophical and the linguistic literature on definiteness such as Zeevat (1989).

5. Hawkins (1980) argues that in constructions such as:

(i) I recalled the sweet child that Harry used to be (p. 41).

the definite article in (i) "is a surface definite article only, derivable from an underlying indefinite" (p. 41).

In (20), we can also say that the definite article of the head NP is only a surface definite article, originating from an indefinite.

However, there is a difference between these two cases. In (i), the underlying indefinite cannot remain indefinite in the surface structure:

(ii) a. I recalled that Harry used to be *a* sweet little child.
b. *I recalled *a* sweet little child that Harry used to be.

But for (20), the underlying indefinite can remain indefinite in the surface structure:

(iii) a. There was *a* book of John's on the desk a moment ago. It is missing.
b. *A* book of John's that was on the desk a moment ago is missing.

6. Pedagogical grammar books often give examples such as:

(i) a. My sister who lives in N.Y. had a baby last night.
b. My sister, who lives in N.Y., had a baby last night.

(Wohl, 1978, p. 123)

It is commented that if the speaker has more than one sister, then (ia) is used and that if he has only one sister, then (ib) is used. However, according to Chomsky's intuition, as mentioned in Note 1, (ia) is *unnatural*. A native speaker that I con-

sulted told me that if he had more than one sister, he would not simply say "my sister" because it misled the hearer into thinking that he had only one sister; hence, instead of "my sister", he would say "my oldest sister" or "my youngest sister", or the like. This intuition further supports our analysis that possessives as determiners have inclusive reference.

7. I am indebted to Barbara Abbott for this example and that given in (41).

8. J. D. Fodor and I. A. Sag (1982, p. 355) note that "all", "each", "every", and "no" do not appear to have a referential interpretation. My discussion is by no means a thorough discussion on sentences with general statements or genericity. For genericity, among others, see Burton-Roberts (1976), and Carlson (1989).

Note that a generic sentence like:

(i) Cats are warm-blooded

does admit an appositive relative as in:

(ii) Cats, which are mammals, are warm-blooded.

However, notice that the appositive itself is also generic.

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