Relative Clauses in a Minimalist Framework¹

Takayuki SUGAWARA

*Graduate School of Information Sciences, Tohoku University,
Aoba-ku, Sendai 980, Japan*

Received August 21, 1997; final version accepted December 26, 1997

In this paper, we will discuss relative clause constructions within the minimalist framework developed by Chomsky (1993). Although it is observed that there are many syntactic and semantic contrasts between restrictive and non-restrictive relative clauses, we will show that they come from the following points: (i) restrictive relative clauses are attached to NPs while non-restrictive relative clauses occur in the right of DP, and (ii) only non-restrictive relative clauses are operationally raised to matrix CP at LF. After stating these points, we will give a principled account for the contrasts between them.

KEYWORDS: Relative Clauses, DP-hypothesis, Predication, Adjunction, LF-Raising

1. Introduction

The main purpose of this paper is to present a full-fledged analysis of relative clauses. In so doing, we will argue that many syntactico-semantic contrasts which have been observed so far between restrictive and non-restrictive relative clauses come from two points. One is concerned with the target of adjunction which differs between restrictive and non-restrictive relative clauses. We will assume that restrictive relative clauses are adjoined to NP whereas non-restrictive relative clauses are attached to DP. The other is a LF raising which I will propose for the analysis of non-restrictive relative clauses. We will claim that non-restrictive relative clauses be raised to CP of the main clause at a derivational stage of LF, although they retain subordinate clause status in overt syntax, being base-generated at a DP-adjoined position. This has an effect of incorporating insights from the two major analyses of non-restrictives: main clause hypothesis and subordinate clause hypothesis.

The organization of this article is as follows: Section 2 presents our theory of relative clauses. In Section 3 and 4, we account for the contrasts between restrictive and non-restrictive relative clauses under our two assumptions. The final section presents a conclusion of this paper. We will proceed our discussion within the Minimalist framework (Chomsky (1993)), but in illustrating syntactic structures we will omit AGR from the configurations for space limitation. This does not affect the point of our argumentation.²

2. Adjunction Sites and Raising in Relative Clauses

In this section, we will make two assumptions about the syntactic structure of relative clauses. One is specifying different adjunction sites for restrictive and non-restrictive relative clauses, and the other is positing a raising operation for non-restrictive clauses.³

2.1. Two Adjunction Sites of Relative Clauses

It is well known that there is a conspicuous semantic contrast between restrictive and non-restrictive relative constructions, as is shown in (1) and (2).

- (1) The swans which are white are in that part of the lake.
- (2) The swans, which are white, are in that part of the lake.

The sentence (1) says that white swans are distinguished from other swans which are not white, whereas the example (2) implies that all the swans under discussion are white. This means that a restrictive clause works to restrict the set of the referents that are denoted by the antecedent, and on the other hand, a non-restrictive clause works simply to provide additional description for its antecedent.

How can this semantic difference be represented? It has been a traditional linguistic practice to correlate difference in semantic relation with difference in syntactic configuration. Since relative constructions are a type of complex noun phrase, it is not unreasonable to assume that the semantic difference in (1) and (2) is attributed to some difference in the internal structure of the complex NP.

¹ This article is partly based on the paper I read at the 51st annual meeting of the Tohoku English Literary Society held at Seirei Women's Junior College in September 1996. I would like to express my sincere gratitude and appreciation to Hajime Fukuchi, Teruo Asakawa, Akira Kikuchi, and all of the people who have contributed to this article. I am, of course, solely responsible for its contents.

² We will make use of AGR projections only when we discuss the contrast of possible antecedents of relative clauses in 3.1.

³ As far as the configuration of relative clauses is concerned, we will continue to adopt Ross's (1986) analysis.

Abney (1987) demonstrates that there exists Determiner Phrase (DP) as a functional category of the noun phrase. He says that a determiner sits in the head of DP, and that NP occurs in the complement of the head of DP. If this is the case, the configuration of the phrase can be given as in (3).

(3) [DP[D·DNP]]

Furthermore, Longobardi (1994) argues that DP and NP have inherent semantic interpretations. He states that head nouns in the N position always refer to kinds: the interpretations of the nouns are similar to those of indefinite sets, existentially quantified NP, and on the other hands, pronouns are base-generated in the D position, and never appear in the N position; nouns which involve the interpretations of definite NPs can appear in DP positions. If so, we can say that NP involves existential property, while DP contains a definite character. In relation to relative constructions, this claim is substantiated by positing a structural relation like (4), where restrictive relative clauses are adjoined to NP, whereas non-restrictive relative clauses are attached to DP.

(4)

From this, we can tentatively say that a relative clause works to restrict the set of the referents denoted by the antecedent when it is attached to NP; on the other hand, a relative clause plays a role of providing additional description for the head if it is adjoined to DP.

If this is correct, we can account for the grammatical contrasts between (a) and (b) in (5) and (6).

- (5) a. The fish that I caught, Bill ate.
 b.* The fish, Bill ate that I caught.
- (6) a. Stella, who I love, many people can't stand.
 b.* Stella, many people can't stand, who I love.

These instances show that when an antecedent is topicalized, it must be pied-piped with the relative clause. If we apply our idea to these sentences, we will obtain structures like (7).⁴

Note that when topicalization is to apply in (7a), it cannot affect the position of the antecedent. The string of *the fish*, which is not a constituent, is supposed to resist any movement operations. On the other hand, nothing prevents the whole DP from being topicalized: the head and the relative clause form a constituent, so (5a) is completely grammatical.

In (7b), it is also impossible to move the part of antecedent, *Stella*, but this is because the single node that

⁴ These are the relevant substructures prior to topicalization. We are assuming that proper names occupy the head position of DP because they refer to individual persons. If this is the case, we can account for the following contrast concerning proper names.

- (i) a.* John who came to dinner sneezed. (Restrictive clause)
 b. John, who came to dinner, sneezed. (Non-restrictive clause)

As these sentences show, proper names can occur with non-restrictive relative clauses, not with restrictive ones. From the well-known assumption that predication relation holds between restrictive clauses and NP, nothing can be associated with the relative pronoun via predication relation (ia), because a proper name, *John*, sits in the DP position. This means that the pronoun cannot receive a semantic content from the antecedent, yielding the ill-formedness of (ia). In contrast, in (ib), the relative pronoun can receive the same interpretation as the proper name properly, because non-restrictive relative clauses are associated with DP. Thus, we can correctly predict the well-formedness of (ib).

dominates it is not a category, but a segment. Chomsky (1986b) says that the category DP, as in (7b), consists of two segments of DP. If a category is to be moved, all the segments in it must necessarily be affected. This means that *Stella*, a segment DP of a category DP, is prohibited from being removed, as is seen in (6b). On the other hand, the raising of the whole DP, *Stella, who I love*, is permitted, because the two segment DPs are equivalent to a category DP. Thus (6a) is grammatical, being compatible to our assumption.

2.2. A Raising of Non-restrictive Relative Clauses

Emonds (1976) says that root transformations can be applied only in matrix clauses, not in subordinate clauses. This observation is interesting when we consider the linguistic status of relative clauses. If restrictive and non-restrictive relative clauses are regarded as “subordinate”, in the sense that they play roles of modifying some elements of a main clause, we can readily conjecture that root transformations cannot apply in either of them. Factually, however, there are many cases where root transformations work successfully in non-restrictive relative clauses. Consider (8)–(10).⁵

Negative Constituent Preposing

- (8) a. This car, *which only rarely did I drive*, is in excellent condition. (NR)
 b.* This car *that only rarely did I drive* is in excellent condition. (RR)

Adverb Dislocation⁶ (the adverb interpreted as part of the relative clause)

- (9) a. The driver, *who took a wrong turn, unfortunately*, managed to find the house anyway. (NR)
 b.* The driver *who took a wrong turn, unfortunately*, managed to find the house anyway. (RR)

Tag Question Formation

- (10) a. I just ran into Susan, *who was your roommate at Radcliffe, wasn't she?* (NR)
 b.* I just ran into the girl *who was your roommate at Radcliffe, wasn't she?* (RR)

If Emonds' claim is correct, it should be the case that non-restrictive relative clauses have a main clause status in some way or other.

Let us assume that there exists a “main clause feature (MC)”, which gives some main clause status to non-restrictive relative clauses. This feature is thought to be contained in non-restrictive relative clauses and matrix clauses, being realized in the head of CP.^{7,8} We will assume that the feature must be checked at LF. In order to do this task, the whole structure of non-restrictive relative clauses must be moved to the CP of the matrix clause, a position for feature-checking.⁹

Having these assumptions in mind, we will see how they work for the two types of relative clauses. Let us firstly see the derivation of a restrictive relative clause.

- (11) a. I know the man who broke the window.

⁵ The relevant clauses are represented by italics.

⁶ Hooper and Thompson (1973) note that some root transformations, such as Directional Adverb Preposing and Left and Right Dislocations are not easily applied to non-restrictive relative clauses. The incompatibility is associated with other factors than the ones we are discussing.

⁷ We tentatively assume that a main clause feature is involved in CP of the main clause only when non-restrictive clauses are realized in a sentence.

⁸ A similar distinction between the two types of relative clauses may be observed in subordinate clauses headed by *if*, *because*, and so on. For example, *because* clauses could be either restrictive or non-restrictive, just as relative clauses are. But we do not conclude from the fact that they involve the same operation because subordinate clauses do not contain main clause status even if a subordinate clause is non-restrictive. So we will think of relative clauses as the ones which are different from subordinate clauses.

In (11b), which represents the relevant structure of the sentence (11a), *who* raises to the embedded CP position. Since restrictive relative clauses and CP in the main clause do not contain MC feature, the restrictive relative clause does not raise to the matrix clause in covert syntax. So we will have the same configuration at LF.

Something different ensues in the derivation of a non-restrictive relative clause.

- (12) a. I know the man, who broke the window.
b. (overt syntax)

- c. (covert syntax)

In overt syntax, (12b), *who* moves to the embedded CP position. After raising the *wh*-word to that position, the whole relative clause is raised and adjoined to matrix CP position in order to check the MC feature at LF, as in (12c) shows. If the relative clause adjoins to CP position of the matrix clause, MC features which are contained in the head of the matrix CP and the relative clause are checked via spec-head relation. This operation gives the status of matrix clause to the non-restrictive relative clause.

3. Contrasts between Restrictive and Non-restrictive Relative Clauses

Having presented assumptions concerning the positions the two types of relative clauses take, and the main clause feature which is relevant to non-restrictive relative clauses, we are now in a position to see how they account for contrasts in the two types of relative clauses.

This section is devoted to accounting for three contrasts, from the idea of assigning different positions to restrictive and non-restrictive relative clauses: the possible heads of relative clauses (in 3.1.), the precedence relation between restrictive and non-restrictive relative clauses (in 3.2.), and the applicability of relative extraposition (in 3.3.).

⁹ Note that we are not saying that all of the constructions to which some of root transformations can be applied possess the main clause feature. Then a diagnostics will be required to judge whether a construction has MC feature or not. But our main purpose in this paper is to account for several behavioral differences between restrictive and non-restrictive relative clauses. So we commit the issue to future research.

3.1. Possible Heads of Relative Clauses

Let us begin with the contrast in the possible antecedents which can be associated with restrictive and non-restrictive relative clauses. It is widely known that restrictive relative clauses take only nominal heads, while non-restrictive relative clauses can be associated with projections of N, V, A, P as their antecedents.¹⁰

- (13) a. I bought the *cheese* which was made in Ireland. (NP)
 b. I bought *the cheese*, which was made in Ireland.
 (14) a.* *The cheese was bought by John* which was fortunate. (S)
 b. *The cheese was bought by John*, which was fortunate.
 (15) a.* John luckily *escaped* which I unluckily didn't. (VP)
 b. John luckily *escaped*, which I unluckily didn't.
 (16) a.* Bill was *drunk* which was disgusting. (AP)
 b. Bill is *drunk* all the time, which is probably how you'd like to be.

Chomsky (1982) suggests that the relation of relative clauses and their antecedents is determined by a rule of predication which works at overt syntax.¹¹

(17) Predication

If NP and X are co-indexed, NP must c-command X or a variable bound to X in the same maximal projection. (Williams (1980))

The predication relation guarantees a semantic relation between the relative pronoun and its antecedent via co-indexing at overt syntax. Furthermore, Williams (1980) states that, in situations where a predication relation holds, the predicate can be AP, NP, VP, or PP, whereas the antecedent necessarily requires the category of NP, as the sentences in (18) show:¹²

- (18) a. John made *Bill a doctor*. (NP)
 b. John made *Bill sick*. (AP)
 c. John wanted *the garbage out of the house*. (PP)
 d. *John died*. (VP)

If a predication relation holds in relative constructions, this restriction on antecedents should have its effect on the antecedent of relative configurations, irrespective of whether they are restrictive clauses or non-restrictive clauses: the heads of both relative clauses must be NP or DP. However, a serious problem arises for the generalization in that non-restrictive relative clauses may take other categories than DP or NP as their antecedents, as is seen (13)~(16).

It seems to me that this problem can be taken care of if the non-nominal categories can be generalized into a meta-category which shows a nominal character in some sense or other. Mahajan (1990) says that AGR has an inherently pronominal character. In addition, Yusa (1992) states from an analysis of Mahajan that, if AGR is inherently pronominal, the projection of AGR is also pronominal. These assumptions come from the following statements. Chomsky (1981) states that AGR is basically nominal in character in that it has the features of person, gender, and number. Furthermore, Rizzi (1986) says that *pro* must be licensed by AGR.¹³ Since *pro* is pronominal, AGR which licenses *pro* should be pronominal. Pronoun semantically refers to an individual (specific) object, so it must be attached to DP. If so, AGR contains the same categorial property as DP, so that it should play a role of DP which allows relative pronouns of non-restrictive relative clauses to be associated with their antecedents via predication relation.

If we apply ideas of Mahajan and Yusa to the sentences in (19), we will obtain structures like (20).^{14,15}

- (19) a. [_S*The cheese was bought by John*], which was fortunate.
 b. That Sheila was [_{AP}*beautiful*], which she was, was not realized until later.
 c. Solving this problem will take [_{PP}*from now until doomsday*], which is more time than we've got.
 d. Bill [_{VP}*came late*], which bothered Susan.

¹⁰ Note that the antecedents of relative clauses are indicated by italics. In each pair (a) and (b) show instances of restrictive relative clauses and non-restrictive relative clauses, respectively.

¹¹ As for a more precise discussion of the relation between the relative clause and its head, see Chomsky (1982), footnote 11.

¹² Note that the parts of predication relations are indicated by italics.

¹³ See Rizzi (1986) for further discussion of the licensed *pro*.

¹⁴ Structures in the subsection are based on AGR-based Case theory, and, furthermore, we suppose that there exist categories of AgrAP (cf. Chomsky (1993)) and AgrpP (cf. Watanabe (1993)).

¹⁵ In (19b), *which she was* moves to the matrix CP over the lower CP at covert syntax. This means that the clause is extracted from subject position. But, as we have usually assumed, if subject condition is applied to overt syntax, nothing prevents it from raising to the matrix CP.

(20) a. (= (19a))

b. (= (19b))

c. (= (19c))

d. (= (19d))

In (20a), the relative pronoun of a relative clause is associated with AgrsP through predication relation at overt syntax. Since AGR contains the same categorial property as DP, it must not be a restrictive relative clause, but be a non-restrictive relative clause. This follows from our assumption that restrictive relative-clauses cannot be adjoined to DP (hence AGR). Thus, AGR mediates the predication relation between a relative clause and an antecedent other than DP or NP. This fact leads to the conclusion that only non-restrictive relative clauses can take categories other than DP or NP as their antecedents.

3.2. Precedence Restriction between Restrictive and Non-restrictive Relative Clauses

Let us turn our attention to the precedence restriction on restrictive and non-restrictive relative clauses. This restriction is observed in situations where a restrictive and non-restrictive relative clause modifies an NP at the same time.

- (21) a. The man that came to dinner, who was drunk, fainted. (RR-NR)
 b.* The man, who was drunk, that came to dinner fainted. (NR-RR)
 (22) a. The man that brought the strawberries, who was dangerous. (RR-NR)
 b.* The man, who was dangerous, that brought the strawberries. (NR-RR)

As is seen from (21) and (22), where a restrictive and a non-restrictive relative clauses co-occur in the same sentence, the non-restrictive clause never precedes the restrictive one. The possible order is that of restrictive relative clauses being followed by non-restrictive relative clauses.¹⁶

¹⁶ Nagahama (1990) shows the following example:

(i) In such a setting most Americans follow a rule, *which is all the more binding because we seldom think about it*, that can be stated as follows: . . .

He states that the non-restrictive relative clause, *which is all the more binding because we seldom think about it*, is put purely for the purpose of inserting the comments; otherwise the phrase will affect the fluency of discourse in the sentence. But we have no way to account for this grammatical sentence.

This follows from our assumption straightforwardly. Recall that we assumed that restrictive relative clauses are adjoined to NP and non-restrictive relative clauses are attached to DP, as in (23).

(23)

In this structure, the restrictive relative clause cannot be attached to a higher position than that of the non-restrictive relative clause unless the movement operation is applied to the restrictive clause. Restrictive relative clauses are basically adjoined to the NP position, not to the DP position.

If these arguments are correct, there is no possibility that such a sentence as (21b) occurs. In order for the linear order of (21b) to be realized, the restrictive relative clause must be attached to a higher position than that of the non-restrictive relative clause as a base-position. However, we cannot have such a position to satisfy the requirement configurationally. Therefore, we can correctly predict that non-restrictive relative clauses cannot precede restrictive relative clauses in a sentence. The grammaticality difference between (21a) and (21b) follows from the difference of structural positions that are taken by restrictive and non-restrictive relative clauses.

3.3. *Extraposition as a Syntactic Operation*

Now we will examine the phenomena of relative extraposition. By assuming different structural positions for the two types of relative clauses, we can explicate the applicability of extraposition as well. Consider (24) and (25).¹⁷

- (24) a. Some men appeared at the door that Mary had been insulting. (RR)
 b. A boy was kissing Mary that I had never seen before.
 (25) a.* A boy was kissing Mary, whom I had never seen before. (NR)
 b.* Marcia has just arrived, who you wanted to meet.

The fact that the possibility of extraposition is restricted to restrictive relative clauses seems to be related to the Name Constraint proposed by Guéron (1980). According to Guéron, A'-movement (of which extraposition is an instance) is impossible only when something is to be extracted from Name domain which is characterized semantically. The definition of Name is described as (26).

(26) NP Interpretation (Guéron (1980))

- a. A Name is a complete referring expression. It designates a unique object or individual in the world of the discourse.
 b. A Quantifying Phrase is an operator ranging over a set of entities. It does not designate a unique individual.

Note that these characterizations of NP correspond to DP and NP, respectively. That is, the name domain corresponds to DP since we can think of unique object or individual as definite interpretation, while the quantifying domain is equivalent to NP because the interpretations of a set of entities are similar to those of indefinite sets. We will assume that Name domain is realized if an element is attached to DP.

If this is the case, the issue can be accounted for in the following way: extraposition of non-restrictive clauses is not permitted because it is a movement from DP, which is a domain of Name (26a). On the other hand, extraposition of restrictive clauses is possible because it is a movement from NP, a domain for non-Name expression by the definition (26b). If so, we can account for the contrast by using structures in (27).¹⁸

¹⁷ Fabb (1991) cites an example of extraposition in non-restrictive relative clauses. See the following sentence:

(i) I met John yesterday, who I like a lot.

In (i), the relative clause, *who I like a lot*, is extraposed from the object position to VP. We have no idea how to explain why it is a well-formed sentence.

¹⁸ For the analysis of relative extraposition, we will adopt an operation of rightward movement proposed by Ross (1986).

(27) a. (= (24a))

b. (= (25a))

In (27a), the relative clause can be extracted from NP without violating the Name Constraint, because NP is non-specific (quantifying) domain. However, in (27b), the relative clause cannot be extraposed because DP forms specific (name) domain.¹⁹

Furthermore, we can account for a restriction on extraposition displayed in (28).

(28) a. The man who is carrying a large package is here.

b.* The man is here who is carrying a large package.

(Rochemont and Culicover (1990))

As in (28b) shows, extraposition of the relative clause is impossible even if the operation is taken place from the domain of NP. Notice that the part of the antecedent, *the*, occupies in DP position. This means that Name domain appears at DP. If so, we can say that (28b) is ungrammatical because the clause moves over the domain.

4. LF Movements of Relative Clauses

In this section, we will concentrate on the assumptions of MC feature and non-restrictive raising in an effort to explicate the following contrasts; stacking of relative clauses (in 4.1.), distribution of null operator in relative clauses (in 4.2.), quantifiers and negative polarity items (in 4.3.), and distribution of sentential adverbs (in 4.4.).

4.1. Stacking of Relative Clauses

As (29) and (30) show, restrictive relative clauses can be stacked whereas non-restrictive relative clauses cannot.

(29) a. the man who came to dinner who hated lox

(RR)

b. the horse that started late that finished fast won the race

(30) a.* the man, who came to dinner, who hated lox

(NR)

b.* the lion, which was five weeks old, which was fed twice a day, ate only fillet of salmon.

The point of the problem can be made clear by comparing the two configurations (31).

(31) a. (= (29a))

b. (= (30a))

Look at (31b) first. Since this structure contains two (non-restrictive) relative clauses, it is reasonable to suppose that there are two MC features involved. But this structure has a single main clause. This means that check-

¹⁹ Note that, although the antecedent, *a boy*, occurs in NP, it involves a specific reading, since NP is contained as a part of DP when predication holds between DP and CP.

ing does not go satisfactorily. If the upper clause is raised to the matrix CP to check its MC feature, the feature of the matrix CP is checked off by the raised clause, and it is not available any more for the lower relative clause, which must also be raised to check its MC feature. That is, the MC feature of the lower clause will have to remain unchecked, a case of derivational crash.²⁰ On the other hand, in (31a), because this configuration contains two restrictive relative clauses, the MC feature is not involved in restrictive relative clauses and the main clause. Thus, checking operation does not take place. If so, there is no factor preventing a multiple realization of restrictive relative clauses: no possibility arises that, like (31b), a MC feature of a non-restrictive clause remains unchecked. Therefore, the derivation of the structure converges even if multiple restrictive relative clauses are realized in a sentence.

4.2. Distribution of Null Operator in Relative Clauses

Let us turn our attention to relative pronouns of relative clauses. In this point, restrictive relative clauses exhibit a different behavior from non-restrictive relative clauses: the former accept *that* and null *wh*-word instead of overt *wh*-words, whereas the latter do not.

- (32) a. the man {who/that/ ϕ } you saw yesterday. (RR)
 b. the man {who/that/ ϕ } Bill saw sneezed.
 (33) a. George, {who/*that/* ϕ } likes no one, enjoys Handel. (NR)
 b. the man, {who/*that/* ϕ } Bill saw, sneezed.

In (32a), for example, the sentence is grammatical even if *that*/ ϕ is realized instead of *who* as a relative pronoun, although (33a) yields ungrammaticality when we replace *who* by *that*/ ϕ . If we assume, following recent generative analyses, that *that*/ ϕ is a null operator, then we will obtain the following structure when a sentence like (32a) takes *that*:

- (34) the man [OP that [you saw e yesterday]].

In this sentence, OP is an empty category which works as null operator. This category has moved from the object position indicated by a variable. This variable is bound by the operator. Notice that the variable in (34), although bound by the null operator, does not have its range specified by the null operator, since it has a status of empty category. If so, the semantic role of the variable must be determined in some other way: the value of the variable is fixed by the antecedent of the relative clause, *the man*. In the example cited above, the relative clause is associated with its head, so that the index of the head is shared by OP, and *e* is interpreted as identical with *man*.

Chomsky (1986a) set up a condition of Strong Binding in order to determine the value of variable when a null operator binds it.

- (35) *Strong Binding* (Chomsky 1986a)

A variable must be strongly bound.

This principle requires that the trace in the relative clause must be “strongly bound”: a variable must not only be bound by an operator but must be also bound by the antecedent (its range must be determined by an operator or its value must be determined by an antecedent that binds it).

Assuming that the strong binding is applied at LF, we can distinguish the grammatical status of restrictive relative clauses from that of non-restrictive relative clauses, in relation to our claims. The following structures display the configurations of restrictive and non-restrictive relative clauses at LF:

- (36) a. (= (32b)) b. (= (33b))

²⁰ One may ask how we can account for the case when a sentence contains two non-restrictive relative clause which have different antecedents. We will assume CP recursion analysis proposed by Browning (1996) only if two non-restrictive relative clauses are realized without stacking in a sentence. If so, both MC features which are involved in relative clauses can be checked since the sentence contains multiple CP with MC features.

In (36b), the embedded relative clause adjoins to the matrix CP position to check the main clause feature, while the restrictive relative clause, in (36a), is not subject to the movement because it does not have the main clause feature. So a non-restrictive relative clause like (33b) becomes ungrammatical when a null operator is involved in it, because the variable of the null operator is not in the c-command domain of the antecedent *the man* at LF. On the other hand, a restrictive relative clause, (36a), forms a well-formed sentence even though it involves a null operator, because the variable in it is in the c-command domain of the antecedent *the man* at LF.

If the operator is non-null, a variable need not be subject to strong binding because the variable has its range specified by the overt operator. So, in order for the value of the variable to be fixed, it is necessary for the semantic role of the operator to be determined by its antecedent. This requirement is satisfied when the operator make predication relation with its head at overt syntax. Since predication relation holds in restrictive and non-restrictive relative clauses at overt syntax, they are grammatical when overt operator is realized as an relative pronoun.

4.3. Quantifiers and Negative Polarity Items

We will see how quantifiers and negative polarity items work in relative clauses, from point of the scope of quantifiers. As is seen from (37) and (38), non-restrictive relative clauses are not in the domains of quantifier scopes, whereas restrictive relative clauses are.²¹

- (37) a. I gave every_i assistant who loved his_i uniform a new one. (RR)
 b. Everyone_i got from Boston to a place he_i had been to before.
 (38) a.* I gave every_i assistant, who loved his_i uniform, a new one. (NR)
 b.* Everyone_i got from Boston to Cincinnati, which seemed to him_i like a long way. (Emonds (1979))

This follows from the main clause hypothesis about non-restrictive relative clauses.

Let us assume tentatively that the scope of quantifiers is determined at LF. The following figures exhibit the structures of (37a) and (38a) at LF.

(39) a. (= (37a))

b. (= (38a))

In (39a), *every* c-commands *his* in the embedded clause, while such a relation does not hold between them in the case of (39b), since non-restrictive relative clauses must adjoin to the matrix CP to check the feature. Accordingly, we can correctly predict that relative clauses are in the domain of quantifier scope only when they are restrictive relative clauses.

The same account can be offered to the case of negative polarity items.

- (40) a. I didn't see a man who had any drinks. (RR)
 b. I didn't see Bill, who had some/*any drinks. (NR)
 (41) a. Only the tourists who have any imagination go to visit Sicily. (RR)
 b.* Only the tourists, who have any imagination, go to visit Sicily. (NR)

(40) and (41) show that negative polarity items are licensed only in restrictive relative clauses, not in non-restrictive relative clauses.

²¹ Note that not all of the restrictive relative clause are in the scope of Negative Polarity Items, although such a difference cannot be seen in the case of Quantifier Scope. Consider the following data:

(i) Quantifier Scope

- a. Every pilot_i hit some MIG that chased him_i.
 b. Everyone_i likes the man who just kissed his_i mother.
 c. Every man who owns a single gun must report to the police station. (May (1985))

(ii) Negative Polarity Item

- a. John never reads books which have any pages missing.
 b.* John never read the book that has any pages missing. (Progovac (1994))

In (ii), restrictive relative clauses involve negative polarity items only when heads of the relative clauses are definite. Such a contrast is not observed in Quantifier Scope. These facts are due to the difference between the definiteness and the indefiniteness of the relative head.

tive relative clauses. This follows from our assumption in the following way:²²

(42) a. (=LF structure of (40a))

b. (=LF structure of (40b))

In (42a), *not* can c-command elements of the restrictive relative clause, so that negative polarity item, *any*, can be licensed at LF. On the other hand, in (42b), it cannot be licensed because non-restrictive relative clause raises to the matrix clause for feature-checking at LF, so that *any* does not sit in the c-command domain of the negative.

4.4. Distribution of Sentential Adverbs

Emonds (1976) demonstrates that certain sentence adverbs, although they appear only in main clauses in general, can occur in non-restrictive relative clauses but not in restrictive relative clauses, as in (43).²³

(43) a.* The boys that have frankly lost their case should give up. (RR)

b. The boys, who have frankly lost their case, should give up. (NR)

He states that a sentential adverb such as *frankly* cannot modify the content of subordinate clauses. If so, we should predict that *frankly* cannot appear inside not only restrictive relative clause but also non-restrictive relative clauses. But these sentences show that *frankly* can appear inside the non-restrictive relative clause, but not inside the restrictive relative clause.

If we appeal to our idea that non-restrictive relative clause is raised to the CP position of the main clause, the relative clause (hence the adverb inside) is in a position juxtaposed with the main clause. This means that the adverb *frankly* will be structurally permitted to modify the content of non-restrictive relative clause because it possesses a main clause status. In (43b), the embedded clause, *who have frankly lost their case*, moves to the matrix CP position in order to check the main clause feature. So the adverb *frankly* can be structurally permitted to modify the content of the relative clause. But, in (43a), the restrictive clause has no means to raise to matrix CP position because they do not have the main clause feature. This indicates that the restrictive relative clause never occurs in a position juxtaposed with the main clause. If so, since they always have a subordinate clause status, a sentential adverb in a restrictive clause cannot modify the content of it. Therefore sentential adverbs like *frankly* cannot appear inside restrictive relative clauses, but they can be seen in non-restrictive relative clauses.

5. Conclusion

In this article, we have proposed two points in differentiating restrictive relative clauses from non-restrictive relative clauses. One is that restrictive relative clauses are attached to NPs while non-restrictive relative clauses occur in the right of DP. The other is that only non-restrictive relative clauses are operationally adjoined to matrix CP at LF to obtain a main clause status, having properties of main and subordinate clause. These assumptions make it possible to account for the contrasts between restrictive and non-restrictive relative clauses from a new perspective.

The important point of this study is to claim that there is no sense in distinguishing restrictive and non-restrictive relative clauses semantically. What we have argued is that the properties of the two types of relative clauses are by no means inherent, but they are obtained positionally. A relative clause is restrictive when it is attached to NP, and it is non-restrictive when it is attached to DP. The remaining property of being “main-clause-like” is guaranteed positionally and established through the operation of raising at LF.

²² We assume that negative polarity items must be c-commanded by negative in order to license them at LF.

²³ Note that appearing “in” a clause means that a sentential adverb appears “next to” and modifying that clause.

REFERENCES

- Abney, Steven. (1987) The English noun phrase in its sentential aspect. Doctoral dissertation, MIT, Cambridge, Mass.
- Browning, M. A. (1996) CP recursion and *that-t* effects. *Linguistic Inquiry* 27: 237–255.
- Chomsky, Noam. (1981) *Lectures on government and binding*. Dordrecht: Foris.
- Chomsky, Noam. (1982) *Some concepts and consequences of the theory of government and binding*. Cambridge, Mass.: MIT Press.
- Chomsky, Noam. (1986a) *Knowledge of language: Its nature, origin, and use*. New York: Praeger.
- Chomsky, Noam. (1986b) *Barriers*. Cambridge, Mass.: MIT Press.
- Chomsky, Noam. (1993) A minimalist program for linguistic theory. In *The View from Building 20: Essays in linguistics in honor of Sylvain Bromberger*, ed. Ken Hale and Samuel Jay Keyser, 1–52. Cambridge, Mass.: MIT Press.
- Chomsky, Noam. (1995) *Minimalist program*. Cambridge, Mass.: MIT Press.
- Culicover, Peter, and Michael Rochemont. (1990) Extraposition and the complement principle. *Linguistic Inquiry* 21: 23–47.
- Emonds, Joseph. (1976) *A transformational approach to English syntax: Root, structure-preserving, and local transformations*. New York: Academic Press.
- Emonds, Joseph. (1979) Appositive relatives have no properties. *Linguistic Inquiry* 10: 211–243.
- Fabb, Nigel. (1990) The difference between English restrictive and non-restrictive relative clauses. *Journal of Linguistics* 26: 57–78.
- Guéron, Jacqueline. (1980) On the syntax and semantics of PP extraposition. *Linguistic Inquiry* 11: 637–678.
- Guéron, Jacqueline, and Robert May. (1984) Extraposition and logical form. *Linguistic Inquiry* 15: 1–31.
- Hooper, Joan, and Sandra Thompson. (1973) On the applicability of root transformations. *Linguistic Inquiry* 4: 465–497.
- Jackendoff, Ray. (1977) *X' syntax: A study of phrase structure*. Cambridge, Mass.: MIT Press.
- Longobardi, Giuseppe. (1994) Reference and proper names: A theory of N-movement in syntax and logical form. *Linguistic Inquiry* 25: 609–665.
- Mahajan, Klummar Anoop. (1990) The A/A-bar distinction and movement theory, Doctoral dissertation, MIT, Cambridge, Mass.
- May, Robert. (1985) *Logical Form: Its structure and derivation*. Cambridge, Mass.: MIT Press.
- McCawley, James. D. (1981) The syntax and semantics of English relative clauses. *Lingua* 53: 99–149.
- McCawley, James. D. (1988) *The syntactic phenomena of English*. Chicago: The University of Chicago Press.
- Nagahara, Yukio. (1990) *Relative clauses*. Tokyo: Taishukan.
- Progovac, Ljiljana. (1994) *Negative and positive polarity: A binding approach*. Cambridge Studies in Linguistics 68. Cambridge: Cambridge University Press.
- Rizzi, Luigi. (1986) Null objects in Italian and the theory of *pro*. *Linguistic Inquiry* 17: 501–557.
- Rochemont, Michael, and Peter Culicover. (1990) *English focus constructions and the theory of grammar*. Cambridge: Cambridge University Press.
- Ross, John Robert. (1986) *Infinite syntax!* Norwood, N. J.: Ablex Publishing Corporation.
- Safir, Ken. (1986) Relative clauses in a theory of binding and levels. *Linguistic Inquiry* 17: 663–689.
- Watanabe, Akira. (1993) Agr-based case theory and its interaction with the A-bar system. Doctoral dissertation, MIT, Cambridge, Mass.
- Williams, Edwin. (1980) Predication. *Linguistic Inquiry* 11: 203–238.
- Yusa, Noriaki. (1992) The syntax of predicate nominals. *English Linguistics* 9: 84–109.