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Artemis Alexiadou, Paul Law, André Meinunger and Chris Wilder (eds.)

*The Syntax of Relative Clauses*

## THE SYNTAX OF RELATIVE CLAUSES

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# An Antisymmetry Analysis of Japanese Relative Clauses\*

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## 1. Introduction

The purpose of this paper is two-fold. The first is to discuss the basic properties of Japanese relative clauses, both head-external and head-internal. The second is to consider how those properties may be analyzed within Kayne's (1994) antisymmetry theory.

In Section 2, I will first go over the basic properties of head-external relatives in Japanese. The most important among them is that those relatives are never derived by movement. Then, I will briefly discuss the hypothesis I proposed in Murasugi (1991) that Japanese relative clauses are IPs, as opposed to CPs. It will be shown that this hypothesis provides a straightforward explanation for the non-movement property and also for some curious acquisition data.

The IP hypothesis mentioned above shares some similarities with Kayne's antisymmetry analysis of N-final relatives. According to his analysis, prenominal relative clauses are IPs. Yet, Kayne's theory, overall, is much more radical. In the remainder of this paper, I will present a detailed analysis of Japanese relatives within his theory. In Section 3, I will consider how the non-movement property of Japanese relatives may be derived within his theory. There, I will suggest the possibility that this property is related to another peculiar property of Japanese relative clauses: According to Keenan (1985), Japanese relatives are unique among N-final relatives in that their main verbs appear in the regular finite form.

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\* This is a slightly revised version of the paper presented at the Berlin Workshop on Relative Clauses held in November, 1996. I would like to thank the audience there and Mamoru Saito for helpful comments and suggestions on the earlier version.

In Section 4, I will turn to Kayne's analysis of head-internal relatives. I will first show that his analysis, together with the non-movement property of Japanese relatives, predicts that Japanese does not have head-internal relatives. This is apparently a wrong prediction as it is widely assumed since Kuroda (1976) that there are head-internal relatives in Japanese. But I will argue, following Murasugi (1994) and Mihara (1994), that what have been called Japanese head-internal relatives are not relative clauses, but adverbial adjuncts, and hence, that the prediction is borne out.

Finally, in Section 5, I will reexamine the antisymmetry analysis of Japanese head-external relatives presented in Section 3, and suggest that Japanese, after all, does not have relative clauses. This suggestion is based on the observation that the antisymmetry analysis makes Japanese relatives virtually indistinguishable from sentential modifiers in pure complex NPs. Further, I will show that if Japanese relatives are not relatives but pure sentential modifiers, the acquisition data considered in Section 2 receive a natural account.

## 2. The basic properties of Japanese relative clauses

In this section, I will discuss the basic properties of Japanese relative clauses. I will first consider the generalization proposed in Kuno (1973) and Perlmutter (1972) that Japanese relative clauses need not involve movement. I will then discuss the stronger generalization found in Hoji (1985) that Japanese relative clauses cannot involve movement. Finally, I will briefly present a slightly revised version of the analysis proposed in Murasugi (1991), which is based on the hypothesis that Japanese relative clauses are IPs, and not CPs.

### 2.1 The absence of movement in Japanese relative clauses

Kuno (1973) notes that Japanese relative clauses need not contain a gap as shown in (1), and also do not exhibit Subjacency effects as illustrated in (2).

- (1)  $[_{NP}[_{IP}$  syuusyoku-ga muzukasii]  $[_{NP}$  buturigaku]  
 getting job-NOM is-hard physics  
 'physics, which is hard to get a job in'
- (2)  $[_{NP}[_{IP}[_{NP}[_{IP}$  e<sub>i</sub> e<sub>j</sub> kiteiru] yoohuku<sub>j</sub>]-ga yogoreteiru]  
 is-wearing suit -NOM is-dirty  
 $[_{NP}$ sinsi<sub>i</sub>]  
 gentleman  
 'the gentleman who [the suit that he is wearing] is dirty'

He argues, based on the former fact, that there need not be a relative operator movement in Japanese relatives, and that what is required between the relative head and the relative clause is only the "aboutness relation". Perlmutter (1972) demonstrates convincingly that nothing prevents the gap in a Japanese relative clause from being *pro*, and hence, the gap need not be produced by movement. This accounts for the absence of Subjacency effects noted above.

Hoji (1985) proposes a stronger generalization based on the absence of the connectivity or reconstruction effect. (3) is an example illustrating the connectivity effect in an English relative clause.

- (3) the picture of himself that John likes best

This kind of effect is observed with movement, but not with a based-generated NP-pronoun structure, as shown in (4).

- (4) a. That picture of himself, John liked  
 b. \*That picture of himself, John liked it

Hoji (1985) observes that the Japanese counterpart of (3) is out. A relevant example is shown in (5).

- (5) \* $[_{NP}$  [John<sub>i</sub>-ga e<sub>j</sub> taipu-sita] [zibun<sub>i</sub>-no ronbun]<sub>j</sub>]  
 J.-NOM typed self-GEN paper  
 'self<sub>i</sub>'s paper that John<sub>i</sub> typed' (lit.)

As Hoji notes, this absence of the connectivity effect indicates that Japanese relative clauses **cannot** involve movement.

Further evidence for Hoji's generalization can be found when we examine the relativization of adjuncts. First, (6) apparently shows that the relativization of reason/manner adjuncts, in distinction with that of arguments, is constrained by Subjacency.

- (6) a. \* $[_{NP}[_{IP}[_{NP}[_{IP}$  e<sub>i</sub> e<sub>j</sub> kubi-ni natta] hito<sub>j</sub>]-ga minna okotteiru]  
 was fired person-NOM all angry  
 riyuu<sub>j</sub>  
 reason  
 'the reason that [all of the students who were fired (for it)] are angry'



*No* as a C appears in cleft sentences as shown in (14).

- (14) a. [[Yamada-ga atta] no]-wa Russell da  
           Y.-NOM met C -TOP R. is  
           'It was Russell that Yamada met.'  
       b. [[Yamada-ga atta] no]-wa Russell ni da  
           Y.-NOM met C -TOP R. with is  
           'It was with Russell that Yamada met'

Then, I argued that Japanese speaking children initially hypothesize that a Japanese relative clause is a CP, and hence, produce *no* in its head position.

This analysis of (13) implies that CP is the unmarked category for relative clauses. It also implies that Japanese-speaking children eventually discover that Japanese relative clauses are IPs, and thus, cease to produce *no*. And there is positive evidence that they can use to make this shift. As shown in (15), an overt complementizer is not allowed in Japanese pure complex NPs.

- (15) a. [[sakana-ga yakeru (\*no)] nioi]  
           fish-NOM burn C smell  
           'the smell that a fish burns' (Lit.)  
       b. [[doa-ga simaru (\*no)] oto]  
           door-NOM shut C sound  
           'the sound that a door shuts' (Lit.)

This is in clear contrast with English pure complex NPs. As shown in (16), an overt complementizer is required in English.

- (16) [the claim [<sub>CP</sub> \*(that) [Bill had left the party]]]

That is, in examples such as (16), *that* must be present in the head position of the CP. Stowell (1981), extending the hypothesis of Kayne (1981), analyzes this fact as follows. If the complementizer *that* is missing, there must be an empty category in the C position. But this empty category would then violate the ECP. Thus, the complementizer *that* must be present in examples like (16).

If we extend this analysis to the Japanese (15), it follows that the sentential modifier cannot be of the category CP. If it is, its head C position would be occupied by an empty category, and the empty category would be in violation of the ECP. Hence, given the ECP, the sentential modifier in (15) must be of the category IP. This means that Japanese speaking children can infer, on the basis of positive evidence like (15), that the sentential modifier in a pure complex NP is of the category IP. Suppose, as seems plausible, that the children generalize this conclusion to all prenominal sentential modifiers. Then, (15) serves as

positive evidence that Japanese relative clauses are of the category IP.

If this analysis of the acquisition data in (13) is correct, it provides further support for the IP hypothesis for Japanese relative clauses. According to this analysis, the category for relative clauses is parametrized between CP and IP, CP being the unmarked case. And Japanese speaking children eventually choose IP.

In the remainder of this paper, I will examine how Kayne's (1994) analysis of N-final relatives fares with the data discussed so far. First, in Section 3, I will show that his analysis makes it possible to present a different, yet, quite attractive account for why Japanese relative clauses can never involve movement.

### 3. An antisymmetry analysis

#### 3.1 Kayne's proposal and the non-movement property

Kayne (1994), based on his antisymmetry theory, proposes that N-final relative clauses have the structure in (17).<sup>2</sup>

- (17) [<sub>DP</sub> [<sub>IP</sub> ... *t<sub>i</sub>* ...]<sub>j</sub> [<sub>D'</sub> D [<sub>CP</sub> NP<sub>i</sub> [<sub>C'</sub> C *t<sub>j</sub>*]]]]

This structure is derived as in (18).

- (18) a. [<sub>DP</sub> [<sub>D'</sub> D [<sub>CP</sub> [<sub>C'</sub> C [<sub>IP</sub> ... NP ...]]]]]  
       b. [<sub>DP</sub> [<sub>D'</sub> D [<sub>CP</sub> NP<sub>i</sub> [<sub>C'</sub> C [<sub>IP</sub> ... *t<sub>i</sub>* ...]]]]]

From (18a), first, the relative head moves to the SpecCP position as in (18b). Then, the IP moves to the SpecDP position to yield (17).

This analysis appears, at first sight, to be totally inconsistent with the non-movement property of Japanese relative clauses discussed above: It includes the movement of the relative head to the SpecCP position. But if we can find in this analysis a principled reason that prevents this movement particularly in the case of Japanese, then, the non-movement property of Japanese relatives will turn out to be supporting evidence for Kayne's analysis. In what follows, I will argue that there is in fact such a principled reason.

As Kayne notes himself, the structure in (17) contains an unbound trace, namely *t<sub>i</sub>*. It thus apparently violates the Proper Binding Condition, shown in (19).

- (19) Traces must be bound. (Fiengo 1977)

However, Kayne also notes that this is not necessarily a problem, since there are cases where unbound traces are allowed. The case he cites is remnant topicalization in German.

At this point, let us examine more closely the contexts where unbound traces are allowed. Saito (1986) argues that there is a clear asymmetry between A and A' traces with respect to the application of Proper Binding.<sup>3</sup> For examples, (20a) is fine, but (20b) is totally out.

- (20) a. [How likely [ $t_i$  to win]]<sub>j</sub> is John<sub>i</sub>  $t_i$   
 b. \*[Which picture of  $t_i$ ]<sub>j</sub> does John wonder who<sub>i</sub> Mary likes  $t_i$

In (20a), *John* raises to the matrix subject position, and then, the *Wh*-phrase *how likely  $t_i$  to win*, which contains the trace of *John*, moves to the SpecCP position. The trace of raising  $t_i$  is not bound, and yet the example is grammatical. In (20b), on the other hand, the *Wh*-phrase *who* first moves to the embedded SpecCP, and then, the larger *Wh*-phrase *which picture of  $t_i$* , which contains the trace of *who*, moves to the matrix SpecCP. The example is simply uninterpretable. It seems then that traces of A-movement such as  $t_i$  in (20a) can be licensed through reconstruction or connectivity, but those of A'-movement, like  $t_i$  in (20b), have to be bound in the strict sense.

Let us apply this generalization to the structure in (17). If movement to SpecCP is in general A'-movement, the trace  $t_i$  should be an A'-trace. Since A'-traces must be bound, the structure should be excluded. As long as  $t_i$  is a trace of movement, there does not seem to be any way to save the structure. It follows then that the structure in (17) cannot be derived by movement. Thus, the non-movement property of Japanese relative clauses is derived. The only way to generate the structure in (17) would be to base-generate  $NP_i$  in the SpecCP position, and to base-generate *pro* in the place of  $t_i$ , as in (21).

- (21) [<sub>DP</sub> [<sub>IP</sub> ... *pro*<sub>i</sub> ...]<sub>j</sub> [<sub>D'</sub> D [<sub>CP</sub>  $NP_i$  [<sub>C'</sub> C  $t_i$ ]]]]

This is a variant of Perlmutter's (1972) analysis discussed above.<sup>4</sup>

### 3.2 The peculiarity of Japanese relatives among N-final relatives

We saw above that the non-movement property of Japanese relative clauses follows from Kayne's analysis in a principled way. At this point, we may ask if this explanation implies that all N-final relatives cannot involve movement to SpecCP. The answer, I think, is not necessarily positive. My guess is that it very much depends on the property of the SpecCP position and the nature of the relative clause itself.

Keenan (1985), who discusses the typology of relatives, singles out Japanese relatives as being unique among the N-final relatives. His discussion is quoted directly in (22).

- (22) A more regular difference between prenominal and postnominal RCs concerns the form of the main verb of  $S_{Rel}$ , which we shall denote by  $V_{Rel}$ . In prenominal RCs,  $V_{Rel}$  is almost always in some sort of non-finite form, that is a form different from the one it would have as the main verb of a simple declarative sentence. Typically  $V_{Rel}$  exhibits a reduction in tense-aspect marking and in verb agreement morphology compared with main clause declarative verbs. ... We may note that the prenominal RCs in Japanese do not put  $V_{Rel}$  in a non-finite or specifically relative form, but the Japanese case appears to be the exception among prenominal RCs here. (Keenan 1985: 160–161)

Simply put, Japanese relatives are unique among N-final relatives in that their main verbs are in the regular finite form.

Mahajan (1990) observes that the non-finite/finite distinction relates to the A/A' distinction in Hindi scrambling in an interesting way. As it is shown in Nemoto (1993) that his generalization holds in Japanese as well, I will use Japanese examples to illustrate his observation here. Let us first consider the examples in (23) and (24).<sup>5</sup>

- (23) ?Karera-o<sub>i</sub> [[otagai<sub>i</sub>-no sensei]-ga  $t_i$  hihansita]  
 they-ACC each other-GEN teacher-NOM criticized  
 'Them<sub>i</sub>, each other's<sub>i</sub> teachers criticized  $t_i$ .'  
 (24) a. Karera-o<sub>i</sub> [John-ga [Mary-ga  $t_i$  hihansita to] itta]  
 they-ACC J.-NOM M.-NOM criticized C said  
 'Them<sub>i</sub>, John said that Mary criticized  $t_i$ .'  
 b. \*Karera-o<sub>i</sub> [[otagai<sub>i</sub>-no sensei]-ga [Mary-ga  $t_i$  hihansita  
 they-ACC each other-GEN teacher-NOM M.-NOM criticized  
 to] itta]  
 C said  
 'Them<sub>i</sub>, each other's<sub>i</sub> teachers said that Mary criticized  $t_i$ .'

(23) shows that a phrase preposed by clause-internal scrambling can serve as the antecedent for a lexical anaphor. This implies that clause-internal scrambling can be A-movement. (24a) shows that long scrambling out of a finite clause is possible in Japanese. On the other hand, (24b) shows that a phrase preposed by this kind of scrambling cannot be the antecedent of a lexical anaphor. This means that long scrambling out of a finite clause is necessarily A'-movement.

Here, interestingly, long scrambling out of a non-finite clause patterns with clause-internal scrambling, and not with long scrambling out of a finite clause.

The Japanese example in (25) is adopted from Nemoto (1993).

- (25) <sup>?</sup>Karera-o<sub>i</sub> [Mary-ga [otagai<sub>i</sub>-no sensei]<sub>j</sub>-ni [PRO<sub>j</sub> *t<sub>i</sub>* homeru  
they-ACC M.-NOM each other-GEN teacher-to praise  
yooni] tanonda]  
to asked  
'Them<sub>i</sub>, Mary asked each other's<sub>j</sub> teachers to praise *t<sub>i</sub>*.'

This shows that long scrambling out of a non-finite clause can be A-movement. Mahajan (1990) thus arrives at the generalization in (26).

- (26) a. Long scrambling out of a finite clause must be A'-movement.  
b. Long scrambling out of a non-finite clause can be A-movement.

Since it is shown convincingly in Webelhuth (1989) and Saito (1989) that scrambling is not to the SpecIP position and yet it is non-operator movement, it is reasonable to suppose that the generalization in (26) holds for this kind of movement in general.<sup>6</sup>

Let us now return to the discussion of relative clauses, and consider again the structure in (17).

- (17) [<sub>DP</sub> [<sub>IP</sub> ... *t<sub>i</sub>* ...]<sub>j</sub> [<sub>D'</sub> D [<sub>CP</sub> NP<sub>i</sub> [<sub>C'</sub> C *t<sub>j</sub>*]]]]

Suppose that the SpecCP position in a relative clause, at least in some languages, can be a non-operator position. This is not implausible, since relativization does not establish an operator-variable relation in the way that *Wh*-question movement does. Then, the generalization in (26) implies that relativization, that is, the movement of NP<sub>i</sub> to SpecCP in (17), can be an A-movement as long as the relative clause is non-finite. In this case, *t<sub>i</sub>* is an A-trace, and there is nothing wrong with the structure in (17). As shown in (20) above, an A-trace need not be bound in the strict sense, and can be licensed through reconstruction or connectivity.

The discussion here is quite speculative. But I believe it shows that Kayne's analysis need not imply that an N-final relative can never be derived by movement. There seems to be a way to allow movement in those languages where relative clauses have non-finite main verbs. Note that even if this speculation is correct, Japanese relative clauses still cannot be derived by movement to SpecCP. Since Japanese relatives have finite main verbs, the movement to SpecCP will involve extraction out of a finite clause. Hence, the movement is necessarily A'-movement, and *t<sub>i</sub>* in (17) is an A'-trace. The structure is ruled out in this language exactly like (20b). Therefore, the non-movement property of Japanese relative clauses still follows.

#### 4. Head-internal relatives in Japanese

It was shown above that one of the main properties of Japanese relative clauses, i.e., the non-movement property, can be derived from Kayne's analysis in a principled way. I would now like to turn to the so called head-internal relative clauses in Japanese. It has been assumed since Kuroda (1976) that Japanese has head-internal relative clauses. An example is shown in (27).

- (27) Keikan-wa [doroboo-ga ginkoo-kara detekita no]-o  
policeman-TOP robber-NOM bank-from came out *no*-ACC  
tukamaeta  
arrested  
'The policeman arrested the robber who came out from the bank.'

It is assumed that this example has the same basic meaning as (28), which contains a regular head-external relative.

- (28) Keikan-wa [[*pro* ginkoo-kara detekita] doroboo]-o tukamaeta  
policeman-TOP bank-from came out robber-ACC arrested  
'The policeman arrested the robber who came out from the bank.'

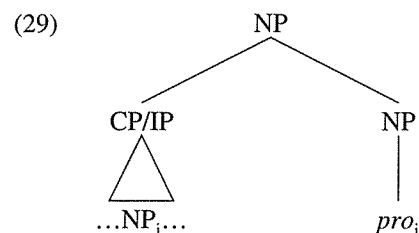
I will argue that Kayne's analysis makes another correct prediction here, that is, contrary to appearance, Japanese does not have head-internal relative clauses.

I will first briefly discuss Cole's (1987) analysis of head-internal relatives, which forms the basis of Kayne's proposal. Then, I will go over Kayne's analysis and the prediction it makes for Japanese. Finally, I will present the arguments in Murasugi (1994) and Mihara (1994) that Japanese does not have head-internal relatives.

##### 4.1 Cole's generalization and analysis

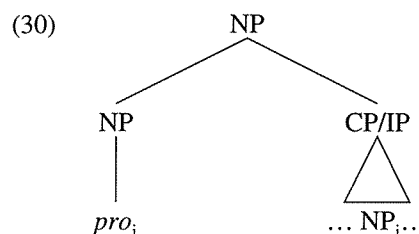
Cole (1987) observes that head-internal relatives are found only in languages with *pro* and N-final relatives. Given this fact, he first proposes that the head position of a head-internal relative clause is occupied by *pro*, as shown in (29).





Here, the *pro* is coindexed at S-structure with the lexical NP to be interpreted as the head of the relative clause. This explains why only *pro*-drop languages have such relative clauses.

Then, he turns to the question regarding why only languages with N-final relatives have head-internal relatives. Given that the head position is occupied by *pro*, the structure of an N-initial head-internal relative would be as in (30).



He points out that the structure in (30), with the proposed coindexation, is ruled out by Condition C of Binding theory. This is rather straightforward, since the head pronoun binds the coindexed R-expression in the relative clause. And this explains why head-initial languages, or languages with N-initial relatives, do not have head-internal relatives.

However, one problem remains. It must be explained why the structure in (29), as opposed to that in (30), is allowed with the proposed coindexation. As Cole notes, this structure is also ruled out by Condition C, if the condition is formulated only in terms of command along the lines of Reinhart (1976). Thus, he proposes that, at least in those languages with the head-internal relatives, Condition C is formulated as in (31), in terms of precedence and command.

(31) An anaphor cannot both precede and command its antecedent.

This condition rules out (30) with the proposed coindexation, since the *pro* both precedes and commands the coindexed R-expression in the relative clause. And importantly, it allows (29) since in this structure the *pro* does not precede the coindexed R-expression.

Cole's (1987) hypothesis is very attractive. However, there is reason that it cannot be maintained for Japanese. As Cole (1987) notes himself, it has been controversial whether precedence plays any role in the Binding theory, and in particular, in the formulation of Condition C. Discussing this problem, Saito (1985:45) presents the examples in (32) as evidence against 'precedence'.

- (32) a. [[*kare*<sub>i</sub>-no hahaoya-ga genkidatta koro]-no John<sub>i</sub>]  
           he-GEN mother-NOM was-fine time-GEN J.  
           'John<sub>i</sub> of the time when his<sub>i</sub> mother was well  
           = John<sub>i</sub> as he<sub>i</sub> was when his<sub>i</sub> mother was well'  
       b. \*[[John<sub>i</sub>-no hahaoya-ga genkidatta koro]-no *kare*<sub>i</sub>]  
           J.-GEN mother-NOM was-fine time-GEN he  
           'He<sub>i</sub> of the time when John's<sub>i</sub> mother was well  
           = John<sub>i</sub> as he<sub>i</sub> was when his<sub>i</sub> mother was well'

These examples are directly relevant for the assessment of the configuration in (29). If Condition C is formulated as in (31), then (32b) is incorrectly allowed since the pronoun *kare* does not precede *John*. On the other hand, if the condition is stated only in terms of a command relation, the example is correctly ruled out. Independently of the controversy on the role of precedence in the Binding theory, (32b) clearly indicates that a pronoun in the nominal head position cannot be coindexed with an R-expression in a modifying phrase.<sup>7</sup>

The discussion above indicates that the structure in (29) is illicit in Japanese. And if coreference is constrained in the same way across languages, as seems plausible, then it casts doubts on Cole's analysis in general.<sup>8</sup>

#### 4.2 Kayne's suggestion

Interestingly, given Kayne's analysis of N-final relatives, it is not clear that Cole's *pro*-head analysis of head-internal relatives is incompatible with Condition C. Let us consider again the structure in (17):

- (17) [<sub>DP</sub> [<sub>IP</sub> ... *t<sub>i</sub>* ...]<sub>j</sub> [<sub>D'</sub> D [<sub>CP</sub> NP<sub>i</sub> [<sub>C'</sub> C *t<sub>j</sub>*]]]]

As noted above, NP<sub>i</sub> does not bind *t<sub>i</sub>* in this structure. Thus, even if we substitute *pro* for NP<sub>i</sub> and a full NP for *t<sub>i</sub>*, the resulting structure will not violate Condition C. This is illustrated in (33):

- (33) [<sub>DP</sub> [<sub>IP</sub> ... NP<sub>i</sub> ...]<sub>j</sub> [<sub>D'</sub> D [<sub>CP</sub> *pro*<sub>i</sub> [<sub>C'</sub> C *t<sub>j</sub>*]]]]

However, if we interpret the fact in (32) more generally, and assume, as seems reasonable, that a pronoun in the head position cannot take an NP in a modifying

phrase as its antecedent, the problem remains. And Kayne in fact suggests an alternative which does not have this problem.

Kayne's alternative is based on the copy + deletion analysis of movement. According to this analysis, the movement to SpecCP is copying as shown in (34).

- (34)  $[_{DP} [_{IP} \dots NP_i \dots]_j [_{D'} D [_{CP} NP_i [_{C'} C t_j]]]]$

The standard copy + deletion analysis assumes that the PF representation is derived by the deletion of the  $NP_i$  and the  $IP_j$  in the tail positions of their respective chains. But it is possible to modify this slightly without any effect on the analysis of the core cases: Kayne suggests that in a chain ( $A_1, A_2$ ), one of  $A_1$  and  $A_2$  must delete, and further, that  $A_2$  must delete when  $A_1$  c-commands  $A_2$ . This suggestion is illustrated in (35).

- (35) Given a chain ( $A_1, A_2$ ),  
 a.  $A_2 \rightarrow \emptyset$  when  $A_1$  c-commands  $A_2$ .  
 b.  $A_1$  or  $A_2 \rightarrow \emptyset$  when there is no c-command relation between  $A_1$  and  $A_2$ .

Then, by (35a), the second  $IP_j$  must be deleted in (34). But when it comes to  $NP_i$ , by (35b), either one can be deleted. If we delete the  $NP_i$  within the preposed IP, we obtain a regular head-external relative clause. On the other hand, if we delete the  $NP_i$  in SpecCP, we obtain a head-internal relative clause. This predicts, as in Cole's account, that head-internal relative clauses are possible only in languages with N-final relatives. There is no IP movement to SpecDP in N-initial relatives. Thus, the  $NP_i$  in SpecCP c-commands the  $NP_i$  within the IP. Hence, by (35a), only the latter can be deleted. Consequently, N-initial relatives are necessarily head-external.

This analysis is clearly an improvement over Cole's, which was based on the dubious assumption that a pronoun can appear as the relative head, coindexed with a full NP within the relative clause. And it also makes different predictions from Cole's analysis. It relies on the copy + deletion analysis of movement, and more specifically, on this analysis as it is applied to the movement to SpecCP. As the movement to SpecCP results in the configuration in (34), either  $NP_i$  can be deleted. In particular, the  $NP_i$  in SpecCP can be deleted, and this is how a head-internal relative is derived. This implies that head-internal relatives are possible only when there is movement of the relative head to SpecCP. In other words, if there is no movement to SpecCP, there is no way to derive a head-internal relative.

Let us take the case of Japanese as a concrete example. I argued above that Japanese relatives do not involve movement to SpecCP, and have the structure

in (21), repeated in (36).

- (36)  $[_{DP} [_{IP} \dots pro_i \dots]_j [_{D'} D [_{CP} NP_i [_{C'} C t_j]]]]$

Here, *pro* is base-generated within the relative clause IP, and the relative head  $NP_i$  is based-generated in the SpecCP position. As no copying takes place, no deletion applies either. In particular, no operation is available to delete the  $NP_i$  in the SpecCP position. It follows that Japanese does not have head-internal relative clauses.

This prediction goes against the prevailing view that Japanese has head-internal relatives, (27) being a typical example. (27) is repeated as (37).

- (37) Keikan-wa [doroboo-ga ginkoo-kara detekita no]-o  
 policeman-TOP robber-NOM bank-from came out *no*-ACC  
 tukamaeta  
 arrested  
 'The policeman arrested the robber who came out from the bank.'

In what follows, I will argue, presenting the discussion in Murasugi (1994) and Mihara (1994), that examples like (37) are not head-internal relative clauses, and hence, that Kayne's prediction is indeed correct.

#### 4.3 Head-internal relatives as sentential adjuncts

##### 4.3.1 The status of *no*

The first thing that has to be investigated in the analysis of (37) is the status of the particle *no*, which appears at the end of the embedded clause. *No* in Japanese is categorially three-ways ambiguous, as illustrated in (38).

- (38) a. John-no berurin e-no ryokoo [Genitive]  
 J.-GEN Berlin to-GEN trip  
 'John's trip to Berlin'  
 b. [[Yamada-ga atta] no]-wa Russell ni da [Complementizer]  
 Y.-NOM met C-TOP R. with is  
 'It was with Russell that Yamada met.'  
 c. John-ga [akai no]-o tabeta [Pronoun]  
 J.-NOM red one-ACC ate  
 'John ate the red one.'

In (38a), *no* is the genitive Case marker, corresponding to 's in English. (38b) shows that *no* appears as a complementizer in a cleft sentence. And in (38c), *no* is a pronoun, corresponding roughly in meaning to *one* in English.

It is often assumed that there is another *no* of the category N, in addition to the pronoun *no*. This is the so called nominalizer *no*, shown in (39).

- (39) a. [Tabesugiru *no*] -wa yokunai  
eat too much -*no* -TOP is-not-good  
'It is not good to eat too much.'  
b. John-wa [Mary-ga ringo-o hirou *no*]-o mita  
J.-TOP M.-NOM apple-ACC pick up *no*-ACC saw  
'John saw Mary pick up an apple.'

Here, the function of *no* is simply to turn a sentence into a nominal category. This *no* is somewhat difficult to distinguish from the *no* as a complementizer.

Then, which one is the *no* in (37)? It does not seem plausible that it is the genitive Case marker. Can it be the pronoun *no*? If it is, (37) goes very well with Cole's analysis. The example would have a pronoun in the relative head position, coindexed with a full NP within the relative clause. But we have seen already that this analysis is untenable. Further, Kuroda (1976), who first analyzed (37) as a head-internal relative clause, presents a convincing argument that the *no* is not a pronoun.

The pronoun *no* has a derogatory connotation, and is not compatible with the honorific marking on the main verb as shown in (40).

- (40) a. Wakai sensei-ga oozei orareru  
young teachers-NOM many there-are (Hon.)  
'There are many young teachers.'  
b. #Wakai *no*-ga oozei orareru  
young ones-NOM many there-are (Hon.)  
'There are many young teachers.'

The 'strangeness' of (40b) is due to the incompatibility of the derogatory connotation imposed on the subject by the pronoun *no* and the verb in the 'subject honorification' form. On the other hand, the nominalizer *no* does not have any such connotation, since it simply has no reference. (41) is a perfectly natural sentence, since the *no* in this example does not refer to *otosi-no sensei* 'old teachers'.

- (41) [otosi-no sensei-ga otabeninarisugiru *no*]-wa yokunai  
old-GEN teacher-NOM eating-too-much (Hon.) *no* -TOP not-good  
'It is not good for old teachers to eat too much.'

Here, Kuroda (1976) and Ito (1986) point out that the *no* in what they call head-internal relatives do not have any derogatory connotation. A relevant example is shown in (42).

- (42) John-wa [sensei-ga kuukoo-ni otukininatta *no*]-o  
J.-TOP teacher-NOM airport-at arrived (Hon.) *no* -ACC  
omukaesita  
greeted (Hon.)  
'John greeted the teacher, who arrived at the airport.'

If the *no* in (42) is a pronoun coindexed with the full NP *sensei*, it should be incompatible with the 'object honorification' form of the matrix verb. But the example does not at all have the 'strangeness' of (40b). Hence, the *no* in head-internal relatives cannot be the pronoun *no*.

The discussion above suggests that the *no* in question is either a complementizer or the 'semantically empty' nominalizer.<sup>9</sup> Then, the structure of the so called head-internal relative clause in Japanese is as in (43a) or (43b).

- (43) a. [<sub>CP</sub> [<sub>IP</sub> ...] [<sub>C</sub> *no*]]  
b. [<sub>NP</sub> [<sub>IP</sub> ...] [<sub>N</sub> *no*]], where *no* is a semantically empty nominalizer.

This indicates that syntactically, what has been called a head-internal relative clause in Japanese is a simple embedded clause.

#### 4.3.2 *There are no head-internal relatives in Japanese*

Kuroda's hypothesis is that the simple embedded clause in (43) is interpreted as a referential argument NP. Let us consider again the example in (37).

- (37) Keikan-wa [doroboo-ga ginkoo-kara detekita *no*]-o  
policeman-TOP robber-NOM bank-from came out *no*-ACC  
tukamaeta  
arrested  
'The policeman arrested the robber who came out from the bank.'

According to Kuroda, the embedded clause refers to 'the robber who came out from the bank', and is interpreted as the object of the matrix verb *tukamaeta* 'arrested'. However, there is another possibility. That is, the embedded clause in question is an adverbial, and the object position of the matrix sentence is occupied by *pro*. This possibility is illustrated in (44).

- (44) Keikan-wa [doroboo<sub>i</sub>-ga ginkoo-kara detekita *no*]-o *pro*<sub>i</sub>  
policeman-TOP robber-NOM bank-from came out *no* -acc  
tukamaeta  
arrested  
'The policeman arrested the robber as he came out from the bank.'

And arguments for this latter analysis are in fact presented in Murasugi (1994) and Mihara (1994). I will here briefly go over those arguments.

In Japanese, interestingly enough, there is another construction which is very similar to what has been called the head-internal relative. In this construction, a pure complex NP headed by *tokoro* appears as an adverbial, as shown in (45a).

- (45) a. Keikan-wa [[doroboo-ga ginkoo-kara detekita] tokoro]  
policeman-TOP robber-NOM bank-from came out place  
-o tukamaeta  
-ACC arrested  
'The policeman arrested the robber as he came out from the bank.'
- b. Keikan-wa [[doroboo<sub>i</sub>-ga ginkoo-kara detekita] tokoro]  
policeman-TOP robber-NOM bank-from came out place  
-o *pro*<sub>i</sub> tukamaeta  
-ACC arrested

*Tokoro* literally means 'place', and the *tokoro*-phrase in this example is a circumstantial adverbial indicating the scene of the matrix event. It is marked by the accusative Case marker *o*, as adverbials can be marked by *o* in Japanese, as shown in (46).

- (46) John-ga sono miti-o aruku  
J.-NOM that road-ACC walk  
'John walks on that road.'

And the semantic object of the matrix verb in (45a) is *doroboo* 'the robber', which is contained within the *tokoro*-phrase. It is the robber coming out from the bank that the policeman arrested.

For examples like (45a), Harada (1973) proposes that *doroboo* does appear as the matrix object at D-structure, but is deleted under identity with the subject of the adverbial *tokoro*-phrase. He calls the relevant rule "counter equi NP deletion." If we express his main idea in more modern terms, we would say that there is an empty pronoun, *pro*, in the matrix object position, coindexed with *doroboo* within the *tokoro*-phrase, as in (45b). This analysis with *pro* is proposed in Hale & Kitagawa (1976).

Given this analysis, a possibility arises that head-internal relatives are adverbials exactly like *tokoro*-phrases, and the matrix object position of examples like (37) is occupied by *pro*, as in (44). And in fact, Harada's arguments for the adverbial status of the *tokoro*-phrase are directly applicable to what have been called head-internal relative clauses.

One of Harada's arguments is based on examples such as (47).

- (47) ??Keikan-wa [[doroboo<sub>i</sub>-ga ginkoo-kara detekita] tokoro]-o  
policeman-TOP robber-NOM bank-from came out place-ACC  
soitu<sub>i</sub>-o tukamaeta  
the guy-ACC arrested  
'The policeman arrested the robber as he came out from the bank.'

This example shows that when the matrix object is overt in examples like (45), the sentence is degraded. Harada first attributes this marginality to the constraint described in (48):

- (48) *The double-'o' constraint* (Harada 1973)  
A derivation is marked as ill-formed if it terminates in a surface structure which contains two occurrences of NPs marked with *o* both of which are immediately dominated by the same VP nodes.

Then, he goes on to show that this constraint has a weak effect when one of the accusative NPs is an adverbial, but has a much stronger effect when the two accusative NPs are both arguments. The contrast between (49b) and (50b) illustrates the difference.

- (49) a. John-ga sono miti-o aruku  
J.-NOM that road-ACC walk  
'John walks on that road.'
- b. ??Mary-ga John-o sono miti-o arukaseta  
M.-NOM J.-ACC that road-ACC walk-made  
'Mary made John walk on that road.'
- (50) a. John-ga sono hon-o yomu  
J.-NOM that book-ACC read  
'John reads that book.'
- b. \*Mary-ga John-o sono hon-o yomaseta.  
M.-NOM J.-ACC that book-ACC read-made  
'Mary made John read that book.'

The accusative NP in (49a) is an adverbial. Thus, the sentence becomes marginal when it is embedded in a causative structure as in (49b), where the causee argument is marked with accusative Case. On the other hand, since the accusative NP in (50a) is an argument, the sentence becomes totally ungrammatical when it is embedded in a causative structure as in (50b). Since (47) is only marginal, and *soitu* is clearly an argument, the *tokoro*-phrase in this example must be an adverbial.

This argument for the adjuncthood of the *tokoro*-phrase is directly applicable to what have been called head-internal relatives. Let us consider the example (51).

- (51) Mary-wa [[syasin-ga teeburu-ni oiteatta] no]-o  
 M.-TOP picture-NOM table-on was put *no* -ACC  
 sutetesimatta  
 have thrown away  
 'Mary has thrown away the picture when it was on the table.'

Our hypothesis is that this example has the structure in (52).

- (52) Mary-wa [[syasin<sub>i</sub>-ga teeburu-ni oiteatta] no]-o *pro*<sub>i</sub>  
 M.-TOP picture-NOM table-on was put *no* -ACC  
 sutetesimatta  
 have thrown away

Here, the sentence becomes marginal, but only marginal, when the matrix object is expressed overtly, as shown in (53).

- (53) ??Mary-wa [[syasin<sub>i</sub>-ga teeburu-ni oiteatta] no]-o sore<sub>i</sub>-o  
 M.-TOP picture-NOM table-on was put *no* -ACC it-ACC  
 sutetesimatta  
 have thrown away  
 'Mary has thrown away the picture when it was on the table.'

This is exactly what we expect if the embedded clause in (53) is an adverbial. The same argument can be constructed on the basis of (37). This example also becomes only marginal, as shown in (54), when the matrix object is overtly expressed.

- (54) ??Keikan-wa [[doroboo<sub>i</sub>-ga ginkoo-kara detekita] no]-o  
 policeman-TOP robber-NOM bank-from came out *no*-ACC  
 soitu<sub>i</sub>-o tukamaeta  
 the guy-ACC arrested  
 'The policeman arrested the robber as he came out from the bank.'

Note that if the embedded clauses in (53) and (54) are indeed head-internal relatives and hence matrix objects, as is widely assumed, then these examples should be completely out. They should show a strong violation of the double-*o* constraint like (50b). In addition, they should have two object NPs receiving the same thematic role. Hence, they should be as bad as the completely ungrammatical examples in (55).

- (55) a. \*Mary-wa [[teeburu-ni oiteatta] syasin]<sub>i</sub>-o sore<sub>i</sub>-o  
 M.-TOP table-on was put picture-ACC it-ACC  
 sutetesimatta  
 have thrown away  
 'Mary has thrown away the picture that was on the table.'  
 b. \*Keikan-wa [[ginkoo-kara detekita] doroboo]<sub>i</sub>-o  
 policeman-TOP bank-from came out robber-ACC  
 soitu<sub>i</sub>-o tukamaeta  
 the guy-ACC arrested  
 'The policeman arrested the robber that came out from the bank.'

In (55), we have head-external relatives, which are clearly interpreted as the matrix objects. The marginality of (53) and (54), thus, provides strong evidence for the adverbial status of what have been called head-internal relatives.

Another piece of evidence Harada presents for the adverbial status of the *tokoro*-phrase is that it cannot be passivized. Thus, the passive counterpart of (45a), shown in (56), is totally ungrammatical.

- (56) \*[[Doroboo-ga ginkoo-kara detekita] tokoro]-ga (keikan-ni yotte)  
 robber-NOM bank-from came place-NOM policeman-by  
 tukamaerareta  
 was-arrested  
 'The robber was arrested by the policeman as he came out from the bank.'

Since *o*-marked adverbials, as opposed to *o*-marked objects, resist passivization, as shown in (57), this fact shows that the *tokoro*-phrase is an adverbial.

- (57) \*Sono miti-ga (John-ni yotte) arukareta (cf. (46))  
 that road-NOM J.-by was-walked  
 'John walked on that road.'

The same argument establishes the adverbial status of 'head-internal relatives' as well. The examples in (58) illustrate a straightforward case of passive with a head-external relative, and those in (59) show that what have been called head-internal relatives cannot be passivized.

- (58) a. Keikan-wa [[ginkoo-kara detekita] doroboo]-o tukamaeta  
 policeman-TOP bank-from came out robber-ACC arrested  
 'The policeman arrested the robber that came out from the bank.' [(28)]

- b. [[Ginkoo-kara detekita] doroboo]-ga (keikan-ni yotte)  
bank-from came out robber-NOM policeman-by  
tukamaerareta  
was-arrested  
'The robber that came out from the bank was arrested by the  
policeman.'
- (59) a. Keikan-wa [[doroboo-ga ginkoo-kara detekita] no]-o  
policeman-TOP robber-NOM bank-from came out *no* -ACC  
tukamaeta  
arrested  
'The policeman arrested the robber as he came out from the  
bank.' [(27, 37)]
- b. ?\*[[Doroboo-ga ginkoo-kara detekita] no]-ga  
robber-NOM bank-from came out *no*-NOM  
(keikan-ni yotte) tukamaerareta  
policeman-by was-arrested  
'The robber was arrested by the policeman as he came out from  
the bank.'

It was shown above that Harada's arguments for the adverbial status of *tokoro*-phrases apply directly to what have been called head-internal relatives. The parallelism between the two goes further. For example, the *tokoro*-phrases resist relativization for some reason, as shown in (60).

- (60) a. Keikan-wa [[doroboo-ga ginkoo-kara detekita] tokoro]-o  
policeman-TOP robber-NOM bank-from came out place-ACC  
tukamaeta  
arrested  
'The policeman arrested the robber as he came out from the  
bank.' [(45a)]
- b. \*[[keikan-ga tukamaeta] [doroboo-ga ginkoo-kara  
policeman-NOM arrested robber-NOM bank-from  
detekita tokoro]]  
came out place  
'the scene of the robber coming out from the bank which the  
policeman arrested'

It seems then that this type of adjuncts, say, circumstantial adjuncts, cannot be relativized.

As shown in (61), the so called head-internal relatives behave exactly as the *tokoro*-phrases in this respect.

- (61) a. Keikan-wa [[doroboo-ga ginkoo-kara detekita] no]-o  
policeman-TOP robber-NOM bank-from came out *no*-ACC  
tukamaeta  
arrested  
'The policeman arrested the robber that came out from the  
bank.' [(59a)]
- b. \*[[keikan-ga tukamaeta] [[doroboo-ga ginkoo-kara  
policeman-NOM arrested robber-NOM bank-from  
detekita] no]]  
came out *no*  
'the scene of the robber coming out from the bank which the  
policeman arrested'

In contrast, the regular externally headed relatives relativize without any problem, as shown in (62).

- (62) [[keikan-ga tukamaeta] [[ginkoo-kara detekita] doroboo]]  
policeman-NOM arrested bank-from came out robber  
'the robber that came out from the bank who the policeman arrested'

(62) is the relativized version of (58a).

The discussion so far indicates that the so-called head-internal relatives in Japanese are adverbial clauses, exactly like the *tokoro*-phrases. This implies that they are not relative clauses at all. There is one piece of direct evidence for the latter conclusion, i.e., that they are not relative clauses. It is noted in Kuroda (1976), Ishii (1988), and also Hoshi (1994) that what they assume to be a head-internal relative cannot appear as the complement of P. The examples in (63) illustrate this generalization.

- (63) a. \*Keisatu-wa [[doroboo-ga mise-kara detekita] no]-kara  
police-TOP robber-NOM shop-from coming out *no*-from  
[nusunda hooseki]-o toriageta  
robbed jewelry-ACC took  
'The police took the robbed jewelry away from the robber that  
came out from the shop.'

- b. \*Keisatu-wa [[doroboo-ga mise-kara detekita] no]-ni  
 police-TOP robber-NOM shop-from coming out *no*-to  
 taihozyoo-o miseta  
 arrest warrant-ACC showed  
 'The police showed the arrest warrant to the robber that came  
 out from the shop.'

If what they call head-internal relative clauses are in fact interpreted as regular relative clauses, it is not at all clear why the examples in (63) are out. These examples are fine with regular externally headed relatives, as shown in (64).

- (64) a. Keisatu-wa [[mise-kara detekita] doroboo]-kara [nusunda  
 police-TOP shop-from coming out robber-from robbed  
 hooseki]-o toriageta  
 jewelry-ACC took  
 'The police took the robbed jewelry from the robber that came  
 out from the shop.'
- b. Keisatu-wa [[mise-kara detekita] doroboo]-ni  
 police-TOP shop-from coming out robber-to  
 taihozyoo-o miseta  
 arrest warrant-ACC showed  
 'The police showed the arrest warrant to the robber that came  
 out from the shop.'

On the other hand, if what they call head-internal relatives are not relative clauses, but circumstantial adverbials, the ungrammaticality of the examples in (63) is straightforwardly predicted. It is simply impossible to take away stolen jewelries from, or show an arrest warrant to, the scene of an event.<sup>10</sup>

I have presented several pieces of evidence that what has been called the head-internal relative in Japanese is not a relative at all, but a circumstantial adverbial phrase. This implies that Japanese does not have head-internal relatives. As noted above, Kayne's analysis of head-internal relatives, together with the generalization that Japanese relatives cannot involve movement, predicts that Japanese does not have head-internal relatives. What was shown above is that this prediction is indeed borne out.

## 5. Does Japanese have relative clauses?

To summarize the discussion so far, I first discussed the basic properties of Japanese relative clauses. The most prominent one is that they do not involve

movement. I then discussed the hypothesis in Murasugi (1991) that Japanese relative clauses are IPs, and not CPs. This was motivated by the non-movement property and also the acquisition data I briefly discussed. In the third section, I started to examine how Kayne's antisymmetry analysis of N-final relatives fares with Japanese relatives. In this section, I suggested a possible way to derive the non-movement property in his theory. And in Section 4, I considered Kayne's suggestion on the derivation of head-internal relatives. I pointed out that this suggestion, together with the non-movement property, predicts that Japanese does not have head-internal relatives. I argued that this prediction is indeed borne out.

The final problem that remains is the acquisition data in (13), repeated in (65).

- (65) a. buta san-ga tataiteru no taiko  
 piggy-NOM is-hitting *no* drum [M: 2;11]  
 'the drum that the piggy is playing'
- b. ohana motteru no wanwa  
 flower is-holding *no* doggie [T: 2;6]  
 'a doggie that is holding a flower'

As noted above, children around the age 2 to 4 produce ungrammatical relatives, with *no* between the relative clause and the relative head. I proposed in Murasugi (1991) that this *no* is a complementizer, and showed how children can retreat from this overgeneration of *no* on the basis of positive evidence.

Within Kayne's antisymmetry analysis, it seems difficult to maintain that the overgenerated *no* is of the category C. This is so, since if it were a C, it should follow the relative head. It is possible to pursue the hypothesis that it is a D, but it is not clear to me at this point that this approach is promising. It has been proposed in the literature (for example, in Zushi (1996)) that the Japanese genitive Case marker *no* is generated under D. But if the *no* in (65) is the genitive Case marker, it is not clear why it appears only in child Japanese, and is not allowed in adult Japanese. That is, it is not clear how children can retreat from the overgeneration of *no*.

In this section, instead of pursuing a radical alternative analysis for the acquisition data, I would like to speculate on how the analysis of Murasugi (1991) can be accommodated under the antisymmetry theory.

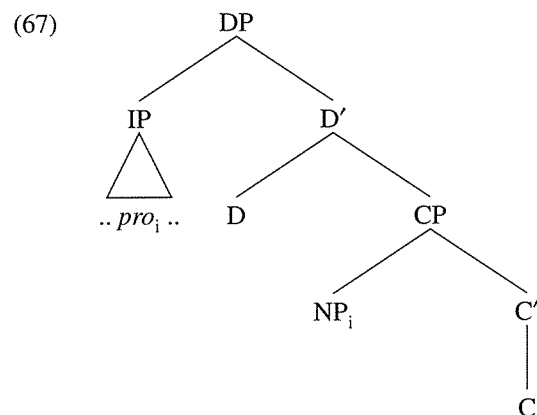
Let us consider again the antisymmetry analysis of Japanese relatives we entertained in Section 3. As in (21), repeated in (66), the relative head  $NP_i$  is base-generated in SpecCP, and the gap is base-generated as *pro*.

- (66) [<sub>DP</sub> [<sub>IP</sub> ... *pro*<sub>i</sub> ...]<sub>j</sub> [<sub>D'</sub> D [<sub>CP</sub>  $NP_i$  [<sub>C</sub> C *t*<sub>j</sub>]]]

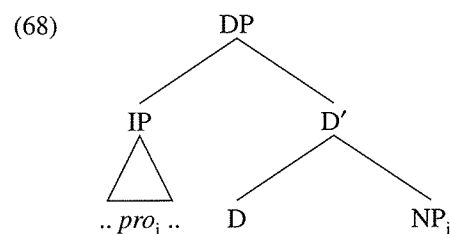
This analysis follows Kayne's basic assumption that relative clauses universally

have the D-CP structure. But let us put aside this assumption for a moment, and consider the structure in (66) on its own right. The structure, it seems, has much redundancy.

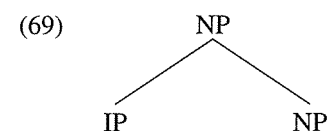
In (66), the IP originates as the complement of C and is preposed to the SpecDP position. This is necessary if the relative head moves out of the IP to SpecCP. If the IP is base-generated in SpecDP, then the relative head  $NP_i$  cannot move to the SpecCP position. But in (66), the relative head is base-generated in SpecCP. Hence, nothing seems to go wrong even if the IP is base-generated in SpecDP, as in (67).



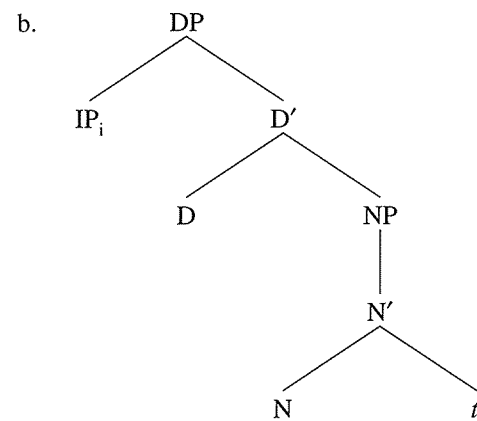
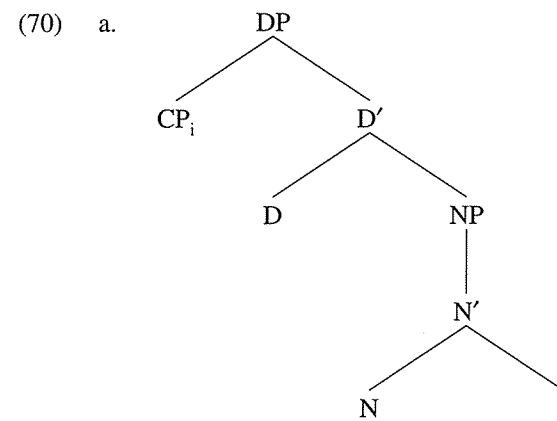
In (67), the C projection plays no role and is completely redundant. If we eliminate this, we obtain (68).



(68) is very close to (69), the structure of Japanese relative clauses argued for in Murasugi (1991).



And more interestingly, it is similar to the structure of a pure complex NP. Suppose, as seems reasonable, that the structure of N-final pure complex NPs is as in (70a).



If we adopt the conclusion in Murasugi (1991) that prenominal sentential modifiers in Japanese are of the category IP, we have (70b) instead of (70a). The



only difference between (68) and (70b) is whether the IP is base-generated in SpecDP, or is moved there from within the NP.

This similarity between (68) and (70b) suggests an interesting possibility. Since there is no clear reason not to suppose that the IP in (68) is preposed from within the NP, it seems possible that Japanese relative clauses have the structure of pure complex NPs, or more straightforwardly, are pure complex NPs. This implies that Japanese does not have relative clauses.

Within the context of the discussion in the preceding sections, this conclusion can be interpreted as follows. As Kayne hypothesizes, relative clauses universally have the D-CP structure, and involve movement of the relative head to SpecCP. But as suggested in Section 3, this results in an illicit unbound trace in Japanese. Therefore, Japanese cannot have relative clauses. The only way in which the language can express the meaning of a relative clause is by employing a pure complex NP.

The idea that Japanese relatives are pure complex NPs seems plausible on independent grounds. As noted at the outset of this paper, Japanese allows relative clauses without gaps. Kuno's example in (1) is repeated in (71).

- (71)  $[_{NP}[_{IP}$  syuusyoku-ga muzukasii]  $[_{NP}$  buturigaku]  
       getting job-NOM hard physics  
       'physics, which is hard to get a job in.'

And there are many other kinds of Japanese relatives that do not have counterparts in English. Let us consider the examples in (72) and (73).

- (72) a.  $[_{NP}[_{IP}$  zyagaimo-o yudeta] mono]  
       potato-ACC boiled thing  
       'the thing that resulted from boiling potatoes = boiled potatoes'  
       b.  $[_{NP}[_{IP}$  John-ga hako-o nutta] omotyabako]  
       J.-NOM box-ACC painted toy box  
       'the toy box that John created by painting a box'
- (73) a.  $[_{NP}[_{IP}$  Zyagaimo-o yudeta] hanbun]-o nabe-ni ireru  
       potato-ACC boiled half-ACC pan-in put  
       'One puts half of the boiled potatoes into the pan.'  
       b.  $[_{NP}[_{IP}$  zyagaimo-o yudeta] bai] -no tamanegi  
       potato-ACC boiled double -GEN onion  
       'twice as much onion as one boiled potatoes'

Examples like (72a) and (72b) are discussed in Kuroda (1976). In these examples, the head noun refers to a result of the action or event denoted by the relative clause. In (73a), the head noun is 'half', and the whole complex NP

means "half of the thing obtained by boiling potatoes." As noted by Ishii (1991), this kind of complex NPs can refer to an amount instead of a thing. Thus, the complex NP headed by *bai* in (73b) means "the amount twice as much as that of the thing that resulted from boiling potatoes." In general, the modification relation between the relative clause and the relative head is very loose in Japanese.

A similar observation can be made with pure complex NPs in Japanese. Thus, examples like (11), repeated in (74), are possible.

- (74) a.  $[_{NP}[_{IP}$  sakana-ga yakeru] nioi]  
       fish-NOM burn smell  
       'the smell that a fish burns' (Lit.)  
       b.  $[_{NP}[_{IP}$  doa-ga simaru] oto]  
       door-NOM shut sound  
       'the sound that a door shuts' (Lit.)

These examples are similar to (72) and (73) in their interpretation. The nominal head refers to a result of the action or event denoted by the sentential modifier.

It has been assumed in the literature that (74a) and (74b) are pure complex NPs, in part because (74a), for example, can be paraphrased as 'the smell of a fish burning'. As the examples (71), (72), and (73) cannot be paraphrased in a similar way, they have been assumed to be relatives. But when we consider the similarity in interpretation, it is natural to treat (72) and (73) exactly like (74). And given that the modification relation is in general quite free in Japanese pure complex NPs, it seems quite possible that examples like (71), or even those like (75), are pure complex NPs.

- (75)  $[_{NP}[_{IP}$  John-ga *pro*<sub>i</sub> yonda] hon<sub>i</sub>]  
       J.-NOM read book  
       'the book that John read'

If Japanese relatives are pure complex NPs, the analysis of the acquisition data in (65) proposed in Murasugi (1991) can be maintained as such. The unmarked structure for pure complex NPs is N-CP, and Japanese speaking children initially assume the structure in (70a). Thus, they generate *no* in the Comp position. But they receive as positive evidence examples of pure complex NPs without an overt complementizer. As an empty complementizer is excluded by the ECP, they conclude that the sentential modifiers do not contain a C projection, and are of the category IP. Thus, they obtain the adult grammar and cease to overgenerate *no*.

## 6. Conclusion

In this paper, I discussed a possible analysis of Japanese relatives within the antisymmetry theory, and suggested as a consequence that Japanese relative clauses are pure complex NPs. It is not clear that all aspects of Japanese nominal structure can be accommodated in a principled way under this theory, and I am not yet committed to such an analysis. But in this discussion, two major conclusions emerged. First, as far as Japanese relative clauses are concerned, the antisymmetry theory makes it possible to explain their major properties in a plausible way. And secondly, the antisymmetry analysis of Japanese relative clauses may not be as radically different from the traditional analysis as one might think. If Japanese relative clauses are pure complex NPs, as I suggested above, then their structures are arguably as in (70b). It is a radical departure from the traditional analysis that the sentential modifier IP originates in an N-initial structure and is preposed to the prenominal position. But aside from this, the structure is very similar to (69), for example. It appears that most of the proposals based on the traditional analysis can be maintained quite straightforwardly even with an antisymmetry analysis.

## Notes

1. The account for the absence of adjunct relativization in Murasugi (1991) is actually more complicated than the analysis suggested above. I assumed at that time that Japanese relativization can involve IP-adjunction, and proposed an ECP analysis for why IP-adjunction is impossible in the case of adjunct relativization. In retrospect, the assumption was not well-founded, and the complicated ECP analysis was unnecessary.
2. According to Kayne, Spec is an adjoined position. But since this particular proposal is not relevant to the discussion here, I will ignore it in this paper.
3. See also Saito (1989: fn. 14) for relevant discussion. Saito (1989) and Lasnik & Saito (1992) adopt a different generalization.
4. Honda, et al. (1996), on independent grounds, propose a structure virtually identical to (21) for Japanese relative clauses. Their proposal is based on a detailed examination of the parallelism between relativization and topicalization in Japanese, which was initially noted and discussed in Kuno (1973).
5. These Japanese examples are discussed in detail in Tada (1990) and Saito (1992). The "translations" of scrambling examples are mere illustrations of their structures, and not meant to be the real translations.
6. (26) clearly does not hold with movement to SpecIP or operator movement. Movement to SpecIP out of a finite clause is simply impossible. And operator movement is necessarily an A'-movement.
7. See also Tsubomoto (1991) and Hoshi (1994) for relevant discussion on this point.

8. It should be noted here that (32) does not constitute a direct counter-example for Cole's analysis. As I will be arguing below that Japanese does not have head-internal relatives, it is technically possible to say that those languages with head-internal relatives have (31), whereas Condition C is formulated only in terms of command in Japanese. But this would be unattractive on conceptual grounds, since, as noted in the text, it is only natural to suppose that coreference is constrained in the same way across languages.
9. See Kuroda (1976), Ito (1986), and Murasugi (1993) for more detailed discussion on the syntactic properties of this *no*.
10. There are limited cases where a 'head-internal relative' is accompanied by the dative marker *no*. The following example is adopted from Ito (1986):

- (i) Watasi-wa [[sensei-ga tyoodo deteirasita] no]-ni oaisuru koto-ga  
 I-TOP teacher-NOM just came out (Hon.) *no*-DAT meet (Hon.) -NOM  
 dekita  
 could  
 'I could meet the teacher as he just came out.'

Examples like this seem problematic since the dative *ni* apparently marks the complement of the verb *oaisuru* 'meet (Hon.)', and intuitively, the semantic object of this verb is *sensei* 'teacher'. In addition, the sentence becomes totally ungrammatical when this semantic object is overtly expressed.

- (ii) \*Watasi-wa [[sensei-ga tyoodo deteirasita] no]-ni kare-ni oaisuru koto-ga  
 I-TOP teacher-NOM just came out (Hon.) *no*-DAT he-DAT meet (Hon.) -NOM  
 dekita  
 could

This fact indicates more clearly that the embedded clause in (i) is not a circumstantial adverbial, but the dative object.

Although I do not have an account for examples like (i), it is not clear that they are indeed problematic for the hypothesis argued for in the text that the typical cases of what have been called head-internal relatives are circumstantial adjuncts. As was discussed in detail in the text, a *tokoro*-phrase refers to the scene of an event. And interestingly, it also can appear in examples like (i), as shown in (iii).

- (iii) Watasi-wa [[sensei-ga tyoodo deteirasita] tokoro]-ni oaisuru  
 I-TOP teacher-NOM just came out (Hon.) place -DAT meet (Hon.)  
 koto-ga dekita  
 -NOM could  
 'I could meet the teacher as he just came out.'

Further, (iii), like (i), becomes ungrammatical when the semantic object of *oaisuru* is made overt.

- (iv) \*Watasi-wa [[sensei-ga tyoodo deteirasita] tokoro]-ni kare-ni oaisuru  
 I-TOP teacher-NOM just came out (Hon.) place-DAT he-DAT meet (Hon.)  
 koto -ga dekita  
 -NOM could

It thus appears that *oaisuru* allows scenes, as opposed to persons, as its dative object.

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