

## MORE ON THE RAISING ANALYSIS OF RELATIVE CLAUSES

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### 0. Introduction

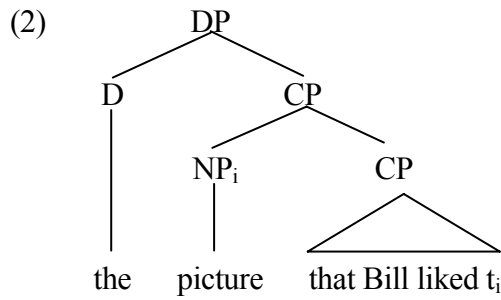
In the course of arguing for the antisymmetry hypothesis, Kayne (1994) proposes a raising analysis of relative clauses, in which the ‘head’ originates inside the relative clause. In Borsley (1997) I develop a critique of this analysis, highlighting problems in four areas: non-*wh*-relatives, *wh*-relatives, extraposed relatives, and non-restrictives. Bianchi (2000) offers a defence of the raising analysis, seeking to show that there are satisfactory solutions to the various problems that I identified (except perhaps in the case of non-restrictives, for which she suggests that a raising analysis might not be appropriate). In this paper, I will argue, focusing on the first two areas, that Bianchi’s defence of the raising analysis is not very successful and that it still faces a variety of problems. At the very least these problems suggest that the raising analysis needs more work. It is just possible, however, that there is evidence here that it is an untenable analysis.

The paper is organized as follows. In section 1, I summarize Bianchi’s proposals. In section 3, I look at problems involving case, a matter which Bianchi discusses but not I think very satisfactorily. In section 4, I consider the implications of possessive relative pronouns for Bianchi’s analysis. In section 5, I consider the possible implications of prenominal AP’s for the analysis. In section 6, I look at some further questions. Finally, in section 7, I discuss some general issues that arise in this area.

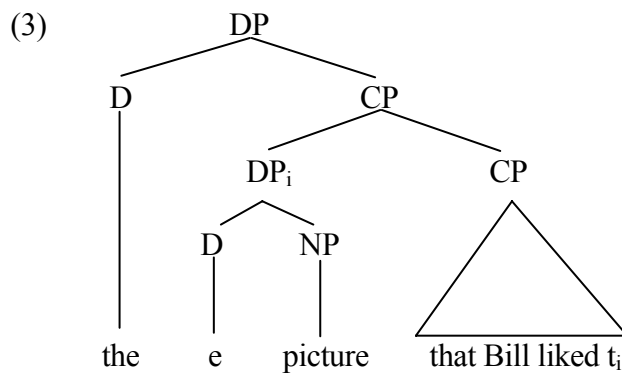
### 1. Bianchi’s proposals

Kayne (1994) proposes that non-*wh*-relatives involve movement of an NP to Spec CP. Thus, for Kayne, (1) has the superficial structure in (2).

(1) the picture that Bill liked

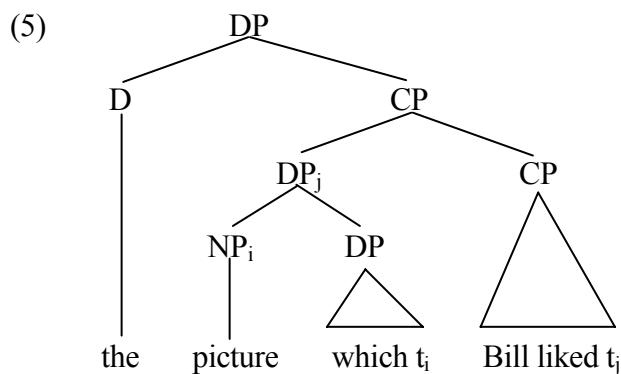


In Borsley (1994), I provide a variety of evidence that non-*wh*-relatives must involve the movement not of a NP but of a DP. Bianchi accepts this evidence. Hence, for her, (1) has the structure in (3).

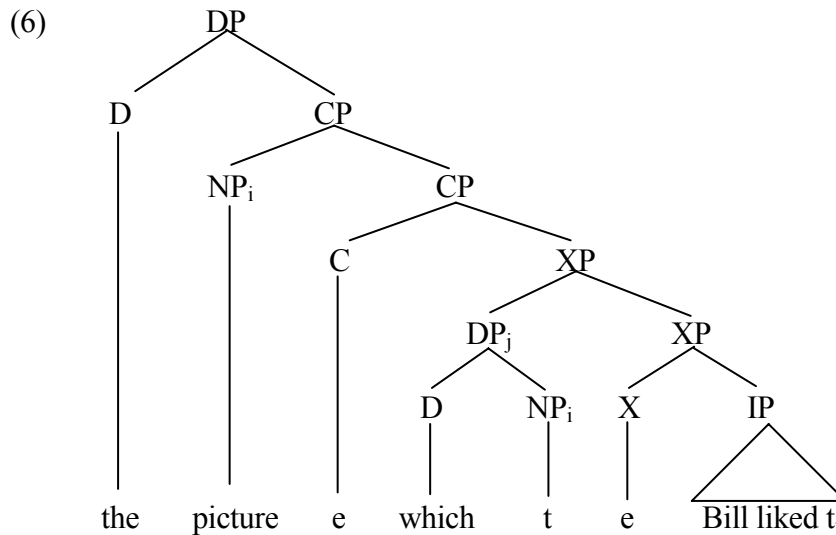


Kayne (1994) proposes that *wh*-relatives involve movement of a *wh*-phrase to Spec CP followed by movement of an NP within that phrase. On his analysis, (4) has the structure in (5).

(4) the picture which Bill liked



Bianchi proposes that *wh*-relatives in fact involve movement of a *wh*-phrase to the specifier position of a head between C and I followed by movement of a constituent of the *wh*-phrase to Spec CP. Thus, for her, (4) has the structure in (6).



In this analysis, unlike in Kayne's, the material following the head is a constituent in a *wh*-relative as in a non-*wh*-relative. Hence, it has no problem with examples like the following highlighted in Borsley (1997) as a problem for Kayne's analysis.

(7) the picture which Bill liked and which Mary hated

Thus, this analysis seems preferable to Kayne's.

A variety of questions arise about Bianchi's analyses, some of which she discusses. For example, how is an empty determiner possible with a singular count noun within the head of a relative clause, but not elsewhere, e.g. in the following examples?

(8)a. \* [<sub>DP</sub> e picture] impressed Bill.

b. \* Bill liked [<sub>DP</sub> e picture]

Bianchi proposes that the empty determiner undergoes abstract incorporation to the external determiner and that it can then be deleted provided the two determiners do not have different values for any features. In cases where an empty determiner is not possible with a singular count noun this is because there is no possibility of incorporation to a higher determiner and hence no possibility of deletion.

Another question that arises here is: why does movement occur within relative clauses? Bianchi proposes that the external  $D^0$  has a selectional N-feature which must be checked within its minimal domain. The minimal domain of a head X includes all categories that are immediately dominated by, and do not immediately dominate, a projection of X. Given that immediate dominance is defined for categories and not segments, the minimal domain of the external  $D^0$  in a relative clause construction includes the specifier of the CP. Bianchi assumes that the minimal domain also

includes the NP in a non-*wh*-relative after incorporation applies. Thus, Bianchi suggests that movement to Spec CP (together with incorporation in the case of non-*wh*-relatives) checks the N-feature of the external D<sup>0</sup>. Although Bianchi refers to a selectional N-feature, the external D<sup>0</sup> selects a CP in the sense that it takes a CP as its complement. Moreover, it must be a CP. An IP with an NP as its specifier is not acceptable here, as (9) illustrates.

(9) \* the [<sub>IP</sub> [<sub>NP</sub> man<sub>i</sub>] [<sub>IP</sub> is here]]

Thus, the analysis involves a kind of dual selection. The D<sup>0</sup> selects a CP, but it also requires a nominal category in Spec CP.<sup>1</sup>

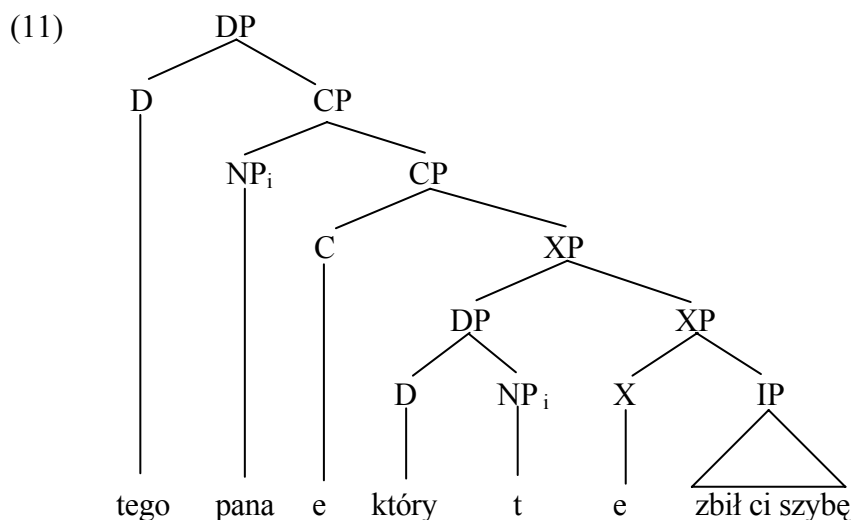
### 3. Case

In Borsley (1997) I argue that Case poses a problem for the raising analysis of relatives. Bianchi discusses Case quite briefly, focussing mainly on *wh*-relatives. She appears to think that there are no real problems here. I will argue that she is mistaken.

The following Polish example discussed in Borsley (1997) contains a relevant *wh*-relative:

(10) Widziałem tego pana, który zbił ci szybę.  
 saw-1SG the-ACC man-ACC who-NOM broke your-SG glass-ACC  
 ‘I saw the man who broke your glass.’

The important fact about this example is that the head NP *pana* has accusative case like the preceding D<sup>0</sup> *tego* and unlike the following *wh*-determiner *który*, which is nominative. Within Bianchi’s version of the raising analysis, (10) will have the following structure:

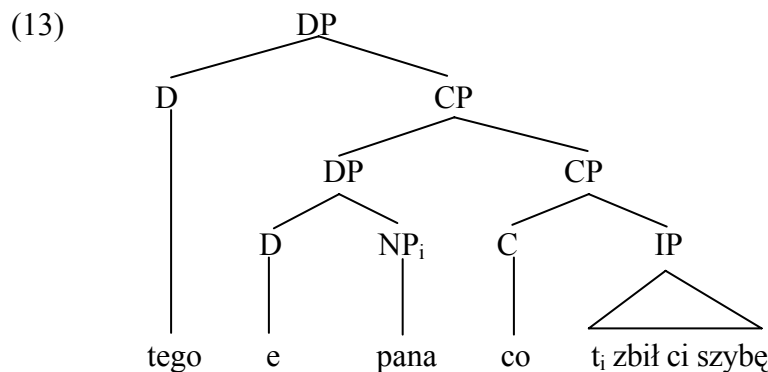


As the structure makes clear, the NP *pana* has originated as the complement of the *wh*-determiner *który*. Hence, it is not clear why it does not have the same nominative Case. Bianchi (2000: 129) proposes that ‘being case-marked is a property of the D<sup>0</sup> position’ and that ‘N<sup>0</sup> morphologically agrees with the D<sup>0</sup> by which it is governed (or in whose minimal domain it is included)’. In (12), *pana* is governed by *tego*. Hence it can agree with it. This explains how *pana* can have accusative Case, but it is not clear why it does not have nominative Case as well.

The situation is similar with the non-*wh*-relative in the following Polish example, also from Borsley (1997):

- (12) Widziałem tego pana, co zbił ci szybę.  
 saw-1SG the-ACC man-ACC what broke your-SG glass-ACC  
 ‘I saw the man who broke your glass.’

Again the head NP *pana* is accusative like the preceding D<sup>0</sup> *tego*. Within Bianchi’s analysis, (12) will have the following structure:



As this structure makes clear, the head DP has originated in subject position. Hence, one would expect both it and the D<sup>0</sup> and NP that it contains to be nominative. Once incorporation applies *pana* is governed by *tego*. Hence it can have accusative Case, but it is not clear why it does not also have nominative Case. Notice that it is also essential that the empty D<sup>0</sup> should not have nominative Case since if it did incorporation would be impossible.

Bianchi touches on these problems in footnote 12, where she remarks in connection with non-*wh*-relatives that ‘[i]t can be assumed that the structural Case feature of the relative D<sup>0</sup> has already been checked and erased by the time it reaches [Spec CP]’. This is a problematic idea. It is not clear how Case could be erased before movement to Spec CP given that it determines the form that a determiner in Spec CP

takes. If case were erased before movement to Spec CP, it is not clear what would ensure that *który* has the appropriate nominative form in the following *wh*-question:

- (14) *Który pan zbił ci szybę?*  
Which-NOM man-NOM broke your-SG glass-ACC  
'Which man broke your glass?'

There might be no problem if the form of determiners was somehow determined before movement to Spec CP. However, Bianchi assumes that 'functional morphemes are the spell-out of abstract sets of features' (2000: 134). It seems, then, that Case features cannot be erased before movement to Spec CP. Notice also that it is the Case features of the NP that are the main problem here. These features arise through agreement and are presumably not checked in any way. Hence, even if checked features were erased, there would still be a problem with the NP's.

It seems, then, that Bianchi does not have a satisfactory account of Case in relative clauses. Notice that what she needs are mechanisms which will ensure that the head has the case it would have if it originated in its superficial position. Obviously no special mechanisms are necessary if it actually does originate in this position, as it does in a traditional head-adjunct analysis of relative clauses.

A further question arises here about Polish examples like the following from Borsley (1997):

- (15) *To, kogo Maria widziała jest tajemnicą.*  
that-NOM who-ACC Maria saw is secret  
'Who Maria saw is a secret.'

As pointed out in Borsley (1997), Polish has fairly clear examples of D + CP structures, including examples where the CP is *wh*-clause in which *wh*-movement has applied. The important point about such examples is that the *wh*-phrase is governed by the preceding  $D^0$ . Hence, it is not clear why it should not agree in case with the  $D^0$ . Bianchi proposes that the  $D^0$  in such examples does not have a selectional N-feature. Presumably, then, case agreement should only apply when such a feature is present. It is not clear to me how this could be ensured. There is no problem here if one assumes a head-adjunct analysis of relative clauses since one can then say that only an NP which is a complement of a  $D^0$  agrees with it.

## 5. Possessive relative pronouns

An important fact about the English relative pronoun is that it has a possessive form, illustrated by the following:

(16) the man whose book I read

It is not at all clear how such examples can be accommodated within Bianchi's approach. Perhaps the obvious structure to suggest for (16) is the following:

(17) the [<sub>CP</sub> [<sub>NP</sub> man<sub>j</sub>] [<sub>XP</sub> [<sub>DP</sub> whose book t<sub>j</sub>]<sub>i</sub> [<sub>IP</sub> I read t<sub>i</sub>]]]

Where exactly is *whose book* here? On the face of it, it must be in the specifier position of a head whose complement position *man* has moved from. But what exactly is this specifier position? It cannot be the specifier position in which possessives appear given the absence of possessive marking. It looks, then, as if it must be some other specifier position, which is not normally occupied. This is not a very attractive analysis.

A consideration of related *wh*-questions suggests an alternative analysis for (18). Here, we have examples like the following:

(18) Which man's book did you read?

Here *which man's book* has undergone *wh*-movement. One might suggest that a similar phrase has undergone movement in (16). This would give the following structure:

(19) the [<sub>CP</sub> [<sub>NP</sub> man<sub>j</sub>] [<sub>XP</sub> [<sub>DP</sub> [<sub>DP</sub> whose t<sub>j</sub>] book]<sub>i</sub> [<sub>IP</sub> I read t<sub>i</sub>]]]

Here *man* has been extracted from a possessive specifier. One might propose that the *wh*-element has assumed a genitive form as a result of this extraction. This might seem a better analysis than (17). However, it is not generally possible to extract a constituent from a possessive specifier, as (20) shows:

(20) \* Which country did you meet the president of's wife?

Thus, this too is not a very plausible analysis.

It looks, then, as if possessive relative pronouns pose a major problem for Bianchi's analysis.

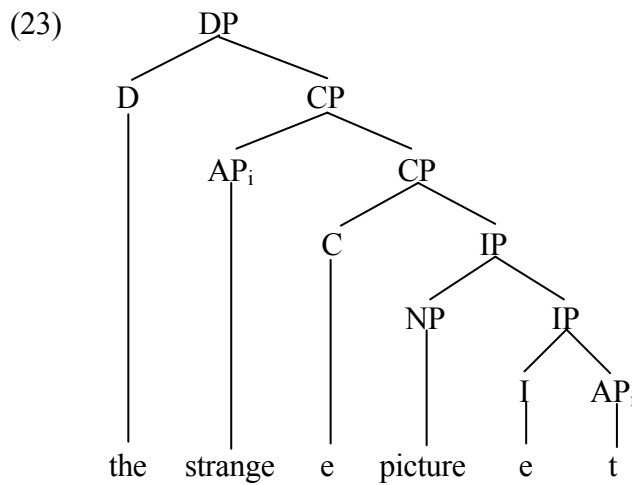
## 6. Prenominal APs

I want now to look at a matter which may pose further problems for Bianchi's analysis: examples in which a DP containing a relative clause also contains a prenominal AP, examples like (21)

(21) the strange picture that Bill painted

Following Kayne (1994), Bianchi assumes that a prenominal AP is in Spec CP and the following NP in Spec IP. Thus, (22) has the structure in (23).

(22) the strange picture

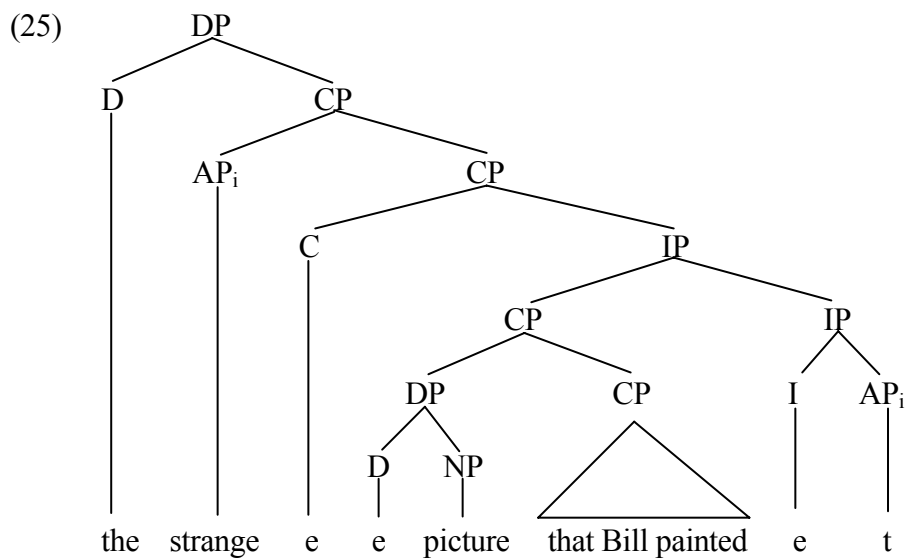


Bianchi (2000: fn.10) notes that the ‘head’ in such examples is ‘too distant from the external  $D^0$  for incorporation to take place’. She concludes that they involve ‘a nominal projection lower than DP’. She does not explain how this is possible. (23) apparently contains some kind of small clause, but small clause subjects must normally be a DP, as (24) shows:

(24) I consider \*(the) picture strange.

Thus, there is at least a gap in the analysis here.

We can return now to (21). One might think that this has the following structure:





However, as we have already noted, the empty  $D^0$  is too far from the overt *the* here. Thus, it looks as if there is a problem here for Bianchi's account of the distribution of the empty determiner.

Prenominal AP's also seem to pose a problem for Bianchi's account of why movement occurs within relative clauses. As we have noted, she proposes that this movement is a consequence of the fact that the external  $D^0$  has an N-feature which must be checked within its minimal domain. Bianchi (2000: 129) proposes that the N-feature of  $D^0$  is checked by the prenominal AP in examples like (22). Given this, it is not clear why movement should take place within the relative clause when there is a prenominal AP. It is not clear, that is, why we should not have (26) instead of (21).

(26) \* the strange that Bill painted (the) picture

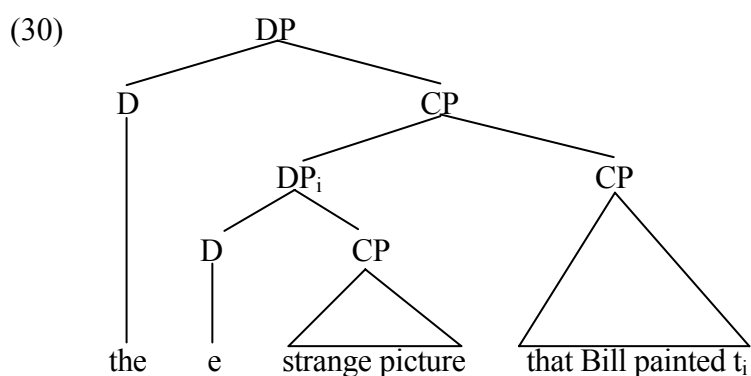
In much the same way it is not clear why we should not have (28) or (29) instead of (27).

(27) the strange picture which Bill painted

(28) \* the strange which picture Bill painted

(29) \* the strange Bill painted which picture

It looks, then, as if there are two serious problems here for Bianchi's analysis. There is, however, an alternative analysis that one might propose for examples like (21). One might propose that the prenominal AP is part of the constituent which undergoes movement. This would give the following structure for (21).



There are, however, certain examples for which this kind of analysis seems dubious. Consider first the following;

(31) the best picture that Bill painted

This means the best of the set of pictures that Bill painted. Thus, *best* has scope over *picture which Bill painted*. However, given a structure like (30), it will only c-command *picture* and not *that Bill painted*. A similar example is the following:

(32) the only picture that Bill painted

This means the only thing that was both a picture and painted by Bill. Here, then, *only* has scope over *picture which Bill painted*, but given a structure like (30), it will only c-command *picture* and not *that Bill painted*. Examples like these do not show that an analysis like that in (30) is untenable but they do cast some doubt on it. If this analysis is untenable, prenominal AP's will provide an important objection to Bianchi's analysis.

## 7. Further questions

A number of other questions arise about Bianchi's analysis of *wh*-relatives. For example, why does *that* not occur in *wh*-relatives? Why do we not have examples like the following?

(33) \* the  $[_{CP} [_{NP} \text{book}]_i [_{CP} \text{that} [_{XP} [_{DP} \text{which } t_i] ] [_{IP} \text{Bill read the } t_j]]]$

On the face of it, it is necessary to stipulate that *that* only allows a DP as its specifier.<sup>2</sup> There is no obvious difficulty here, but this is an extra mechanism.

Another question is: what ensures that the correct NP, one in Spec XP, moves to Spec CP? One might suggest that this is the nearest NP and that given standard assumptions about movement no other NP could be moved. On the face of it, however, there might be no NP in Spec XP because the *wh*-determiner is intransitive. It is not clear, then, why we could not have the following structure:

(34) \* the  $[_{CP} [_{NP} \text{book}]_i [_{CP} C^0 [_{XP} [_{DP} \text{who}]_j [_{IP} t_j \text{ read the } t_i]]]]]$

The obvious approach is to stipulate that non-*wh*-determiners may not be stranded. This stipulation would also prevent movement of an NP to Spec CP in non-*wh*-relatives. In other words, it would rule out an example like the following:<sup>3</sup>

(35) \* the  $[_{CP} [_{NP} \text{man}]_i [_{CP} \text{that} [_{IP} [_{DP} \text{the } t_i] \text{ read the book}]]]$

Thus, it is not difficult to rule out examples like (43) and (44). Notice, however, that if one did not assume a raising analysis of *wh*-relatives, one could stipulate that no determiner can be stranded and there would be no need to assume that some can and some cannot.

A final question about *wh*-relatives is: how is extraction possible from Spec XP? Extraction is not possible from Spec IP or Spec CP, as the following illustrate:<sup>4</sup>

(36) \*  $[_{CP} [_{NP} \text{The men}]_i \text{I think } [[\text{some of } t_i] \text{ met Lee}]]]$

(37) \*  $[_{CP} [_{NP} \text{The men}]_i \text{I wonder } [[\text{which of } t_i] \text{ Lee met}]]]$

Given this, it is somewhat surprising that extraction is possible from Spec XP. One might think that it would be subject to the same constraint as Spec IP and Spec CP.

There is also a further question about Bianchi's analysis of non-*wh*-relatives: why must a DP head of a relative clause contain an empty determiner? why are examples like the following ungrammatical?

(38) \* the the picture that Bill liked

This question was raised in Borsley (1997). Bianchi provides no answer. Here, then, we seem to have an important gap in the analysis. Notice that what Bianchi needs is a mechanism to ensure that a DP looks like an NP. Obviously, no such mechanism is necessary if the head actually is an NP, as it is in a head-adjunct analysis.

## 8. General issues

At the very least I have shown here that there are variety of gaps in Bianchi's version of the raising analysis of relative clauses. Perhaps, however, the various problems that I have highlighted cast some real doubt on the analysis. In the introduction to her paper, Bianchi remarks that Borsley (1997) 'does not point out any decisive counterexample to the raising proposal' (2000: 123). This is a curious remark. Theoretical proposals are almost never abandoned because of some decisive counterexample. Rather, they are abandoned because they seem less satisfactory than some alternative – in particular because they face problems where some alternative has no problems – or because they are incompatible with some well-established general principle.

It is particularly unlikely that any decisive counterexample could ever be found to the raising analysis of relative clauses given the general approach within which it is embedded. This is an approach which makes available a variety of devices for patching up analyses which face problems. If an analysis doesn't work, one can always propose additional structure or additional movement processes to get round the problem. This is essentially what Bianchi does. I don't doubt, then, that the raising analysis can be made to work.

Once the raising analysis has been made to work reasonably well, it will be possible to compare it with a well worked out version of the traditional head-adjunct analysis, for example that of Sag (1997), and to ask how well it compares. Given the difficulty that the raising analysis has with accommodating rather basic facts, it seems unlikely that it will come out of such a comparison very well.

As noted earlier, an analysis might also be abandoned not because of empirical problems but because it is incompatible with some well-established principle. It is not

obvious that antisymmetry is a well-established principle.<sup>5</sup> However, it is fairly clear that a head-adjunct analysis is incompatible with antisymmetry. Therefore, anyone who feels that antisymmetry is plausible must reject a head-adjunct analysis. It does not follow, however, that such a person must adopt a raising analysis. There is in fact an obvious alternative analysis, which is fully compatible with the antisymmetry hypothesis. This is one in which relative clauses are generated in the specifier of some functional head above NP and NP moves to the specifier of some higher functional head in languages like English and French in which a relative clause follows its head. If we call the two heads  $F^1$  and  $F^2$ , we would have structures the following:

(39) the  $[_{NP} \text{book}]_i F^1 [_{CP} \text{that I read}] F^2 t_i$

In languages like Japanese in which a relative clause precedes its head, NP would remain in-situ. Thus, while the antisymmetry hypothesis is incompatible with a traditional head-adjunct analysis, it does not necessitate the adoption of the raising analysis.

## NOTES

1. Another question is: what ensures that a *wh*-phrase moves to Spec XP in a *wh*-relative? Presumably the empty C that appears in a *wh*-relative takes as its complement an XP whose head has a *wh*-feature, which must be checked by a *wh*-phrase in its specifier position.
2. Alternatively one could stipulate that *that* does not allow a complement whose head has a *wh*-feature.
3. (35) would also be ruled out by a stipulation that *that* requires a DP in its specifier position.
4. Chomsky (1986), citing data from Torrego, points out that extraction possible from Spec CP is possible in Spanish. However, it does not seem to be possible in English.
5. See Kural (1997) for an important objection and Chomsky (2001) for a notable expression of scepticism.

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