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## **Antecedent Contained Deletion meets the Copy Theory\***

Cristina Schmitt

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In order to eliminate the need for reconstruction, Chomsky's (1993) minimalist program reintroduces the copy theory of movement in which the trace of movement is a copy of the moved element, deleted by a principle of the PF component. The PF deletion part of the operation is to be subsumed under other cases of ellipsis that require a parallelism of some kind (PARR) between the 'antecedent' and the deleted material. At LF, the copy remains, providing the material for 'reconstruction', a reflex of the formation of operator-variable constructions. In light of these principles I argue for an account of Antecedent Contained Deletion (ACD) focused on ensuring recoverability of a deleted VP, instead of providing an antecedent for a base generated empty VP as in May (1985) and Hornstein (1994, 1995). The paper is divided as follows: in the first section I review the basic reasons to prefer a solution to the infinite regress problem in ACDs that relies on A-movement to AgrO as opposed to a QR solution which relies on A'-movement, and the basic arguments for copies being necessary even in A-movement operations. In the second section, I make a proposal to account for ACD constructions in terms of a parallelism requirement between the AgrO in the relative clause and the AgrO in the matrix clause. In the third section I will support this proposal, based on facts that have been left unaccounted for in previous theories: pied-piping, coordinated objects, certain quantifiers restrictions, bare plurals, certain idioms and type expressions.

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### 1. On the Necessity of Copies

Antecedent Contained Deletion (ACD) has long been an argument for LF raising of quantified expressions (May 1985). The basic idea is that, although the VP gap in (1a) is identical to *kissed John's mother*, in (1b) one cannot copy the VP as it appears at S-structure because the result would be *kissed everyone that Sally did [kiss everyone that Sally did e]*, yielding an infinite regress. Since QR moves a quantified NP at LF and adjoins it to IP, the VP is free to be copied after QR because it only contains the verb and the trace of the raised NP, and no infinite regress arises, as shown in (2).

- (1) a. John kissed John's mother and Sally did [VP e ] too.  
 b. John kissed everyone that Sally did
- (2) a. [IP [everyone [that [Sally did [vP e]]]]]<sub>i</sub> Bill kissed t<sub>i</sub>]  
 b. [IP everyone [that [Sally did [vP kissed t<sub>i</sub>]]]]<sub>i</sub> [IP Bill kissed t<sub>i</sub>]]

May's solution crucially relied on traces not being copies. Under the minimalist framework of Chomsky (1993), however, if QR is subject to the Preference Principle 'Minimize Operator,' which forces the relative clause to be interpreted in its base position, then the infinite regress problem arises again, as exemplified in (3b). No such problem arises if the Preference Principle does not need to apply. However, there are other problems with the QR approach.

- (3) John ate everything that Bill did  
 a. John [everything that Bill did] John ate t  
 b. John [everything that Bill did] John ate [everything that Bill did]<sub>TR</sub>

Recent work by Hornstein (1994; 1995) and Lasnik (1993) under minimalist assumptions argues that ACD is better analyzed as the result of object raising to AgrOP, an instance of A-movement as opposed to an instance of A'-movement. Thus for Hornstein movement to AgrO, obligatory for case reasons, will create the necessary empty VP, just as QR did. Thus May's intuition is kept pretty much intact, as illustrated in (4):

- (4) a. John bought everything that you did [e]  
 b. John<sub>j</sub> [T [AgrO" [everything that you did [e]]]<sub>i</sub> [AgrO [VP t<sub>j</sub> buy t<sub>i</sub>]]]

The AgrO solution has a few advantages over the QR solution. First it solves the Boundedness Restriction on QR pointed out by Baltin (1987) and illustrated in (5) below. In (5) the reading in which the VP is *think that Fred read* is impossible. The only possible reading is the one in which the head of the VP is *read*. Under a QR solution, it is unclear why the whole QP had to stay in the downstairs clause. Under an AgrO movement account for ACDs, this fact follows naturally from the assumption that the movement of the DP happens obligatorily for case reasons. Once the DP has case, it has no reasons to move any further, and therefore does not move.

- (5) Who thought that Fred read how many of the books that Bill did  
 (Ok with *read* but not with *think*)

The AgrO solution for ACDs also explains why subjects of tensed clauses cannot provide a site for ACD (6a), but subjects of ECM clauses can (6b). In tensed clauses, the subject has case and therefore doesn't need to move. The subject of uninflected complements, however, raises to AgrO of the upper verb to check case. In such cases, a site for ACD is provided.

- (6) a. \*John believed that everyone you did was a genius  
 b. John believed everyone you did to be a genius

Second, if QR is to be maintained in the minimalist framework, the movement must be forced by some morphological feature that needs to be checked in some higher position. In other words, if QR is to be maintained, we need an extra landing site and extra features for the QP. Movement to AgrO seems to be a good alternative to the QR solution for the infinite regress problem in ACDs. Being an instance of a required A-movement it does not leave copies according to Chomsky (1993) and therefore no infinite regress problem arises. The idea that A-movement does not leave copies is adopted in Hornstein's (1994) paper. However it can be shown that there are empirical reasons to believe that A-movement leaves copies as has been pointed out by Hornstein (1995) and Lebeaux (1987; 1994). Lebeaux's (1994) argument is based on the ambiguity in (7):

- (7) Two women seem t to be expected to t to dance with every senator  
 (ambiguous) wide scope of every senator possible

(7) can mean that there are two women who dance with every senator and it can also mean that for every senator there are two women who dance with him. Given the ambiguity in (7), it must be the case that the quantifiers are in the same clause by the time they are interpreted. Rather than moving *every senator* to sentence initial position, Lebeaux argues that in (7) *two women* must reconstruct into the scope of *every senator*. The evidence comes from the interaction between reflexives and quantifier interpretation. When a reflexive traps *two women* in the upstairs clause, the inverse scope reading is unavailable. The unambiguousness of (8) shows that the wide scope reading in (7) must be due to reconstruction rather than scoping the universal quantifier to the matrix clause.

- (8) Two women seem to each other t to be expected t to dance with every senator  
 wide scope of *every senator* impossible

(9) shows that it is not upward movement of *every senator* that is crucial in the preceding example, but rather the possibility of reconstruction of *two women* down. In (9) only one reading is allowed, namely, the reading where *two women* take scope over *every senator*.

- (9) Mary<sub>i</sub> seems to two women t<sub>i</sub> to be expected t<sub>i</sub> to dance with every senator.

Given Lebeaux's (1994) argument, it becomes obvious that either A'-movement or A-movement solutions for ACD must be compatible with copies and yet they must circumvent the infinite regress problem. The problem is how we can avoid the infinite regress and yet adopt the principle that there are copies. Hornstein's (1995) proposal assumes both the need for copies in A-movement operations and movement to AgrO as the means to avoid the infinite regress. The basic idea is that A-movement leaves copies but is not subject to the preference principle motivated by A'-chains. Rather, any member of an A-chain can be deleted, and all but one must be. In addition to this requirement, Hornstein makes two more assumptions: first, he assumes Diesing's (1992) mapping hypothesis, according to which strong determiners have to be interpreted outside VP. Second, he also assumes that subjects in ACD constructions must always have wide scope, since in order for ACD to obtain the subject cannot be interpreted inside the VP shell. The VP shell must be empty of its subject, which will always force a wide scope reading of it with respect to the object.

Both May's and Hornstein's solutions are based on the assumption that ACD must provide an antecedent for an empty VP. In keeping with minimalist assumptions I will depart from the assumption that the problem in ACDs is not providing an antecedent for an

empty VP in as much as ensuring recoverability of a deleted VP. The advantages of this proposal over Hornstein's (1995) will become evident in the third section.

## 2. The Proposal

In this section, I depart from Munn's (1993) treatment of relative clauses under the copy theory and, based on that, I formulate a proposal for how to deal with PF deletion and LF recoverability in ACD constructions.

Munn (1993) argues that traces of relative clauses must contain a copy of the operator that moves, in order to account for reconstruction effects in relative clauses. Evidence for this comes from (10a). Principle A reconstruction is obligatory in (10a) since LF cliticization of the reflexive applies from the trace site. For cases like (10b), however, if we follow the principle of minimize operator, it is necessary to delete everything but the operator and keep a copy of *picture of Bill* in the trace site, which should induce a Principle C violation. To account for the acceptability of (10b) Munn (1993) proposes that, unlike *wh*-moved elements, however, both the operator and the trace site copy can be deleted since they can be recovered by the head of the relative clause and thus no Principle C effect arises.<sup>1</sup>

- (10) a. the picture of himself that Bill likes  
 b. the picture of Bill<sub>i</sub> that he<sub>i</sub> likes  
 c. [ [the picture of Bill]<sub>H</sub> [<sub>CP</sub> [ which picture of Bill]<sub>OP</sub> that he likes [which picture of Bill ]<sub>TR</sub> ]

In (11), a genitive clause, however, the operator is different from the head of the relative clause. In this case, the operator cannot delete and a Principle C violation will arise:

- (11) a. \*The man whose<sub>i</sub> father he<sub>i</sub> saw  
 b. [The man] [whose father]<sub>OP</sub> he saw [whose father]<sub>TR</sub>

For relative clauses, recoverability is the criterion for deletion of an operator and its copy in the trace site. Chomsky and Lasnik (1991) assume that ellipsis involves PF deletion of elements of a phrase marker under identity. If we assume that in simple cases of ACD, the structure is (12b), the question is what allows the deletion of 'VP' and its recoverability at LF. In other words, what element is identical so that deletion is allowed?

- (12) a. John read everything Bill did  
 b. John read [[everything]<sub>H</sub> [everything]<sub>OP</sub> [that Bill did read [everything]]<sub>TR</sub>]<sub>DP</sub>

If ACD deletion requires identity between the VPs, something has to be done because in the matrix clause we have *everything that Bill read everything* as the complement of *read* and in the relative clause we have *everything* as the complement of *read*. In order to get the right result, i.e., in order for the deleted site to be identical to its antecedent in the matrix, it must be the case that the relative clause is not part of what needs to be identical in order for the deletion to proceed. To ensure that deletion can only happen under identity, I propose that only the head of the relative clause raises to spec AgrO to check for case and not the relative clause. Once we assume that the head of the relative clause is the element that raises to AgrO, we can assume that deletion of AgrOP can occur in the relative clause just in case both the head of AgrOP and the head of the DP in the specifier of AgrOP in the relative clause are identical to the head of the AgrOP and the head of the DP in the specifier

<sup>1</sup> For ease of discussion, I will maintain his examples and his use of H to refer to the head of the relative; OP to refer to the Operator position, and TR to refer to the trace site.

of AgrOP in the matrix clause. The proposal is thus very simple: we need identical AgrOs at LF in order to be able to delete AgrOP in the lower clause. By identical AgrOs I mean that the head of the extended projection of the specifier of AgrO has to be identical to the head of the specifier of the downstairs AgrO and the Vs have to be identical:

(13) *LF configuration for PF deletion of AgrOP*

PF deletion of an AgrOP is possible if there is an AgrOP which instantiates the same spec-head relation as the AgrOP to be deleted.

Conceptually, deletion, as opposed to insertion, seems more compatible with the bare syntax proposal of Chomsky (1994). The idea of filling a VP later seems to be at odds with the idea that one does not insert complements in the course of the derivation, if this mechanism of interpreting elided material is to be syntactic at all.

It might be argued, however, that what I am using as an antecedent for the AgrO constituent deleted at PF is not itself a constituent. However, at LF the head of the VP is part of the complex chain V+Agr and the internal argument has checked its case at AgrO. Thus the head of AgrO and the specifier of AgrO form a coherent semantic unit that corresponds to the verb phrase. Since I am assuming that ellipsis involves PF deletion of structure rather than copying some constituent, it is not crucial that the antecedent for the deletion be a constituent at LF.

If ACD requires identity between the AgrOs of the relative clause and the main clause, the prediction is clear: ACD should not be possible if the head of the relative clause that raises to AgrOP in the matrix clause is not identical to the DP in the AgrOP inside the relative clause. In the next section I will show cases in which this prediction is fulfilled and which cannot be accounted for by QR or movement to AgrO of the whole complement, without special stipulations.

### 3. Empirical Support

In this section I discuss five cases that cannot be accounted for using the analysis in either May (1985) or Hornstein (1995). Restrictions on *wh*-operators and pied-piped relative clauses and constraints on ACDs with coordinated objects will be discussed first, since they do not require any further discussion on what the internal structure of relative clauses is. The last three cases will require some assumptions about the internal structure of relative clauses. The analysis should be taken as tentative in its mechanics, but will serve to provide support for the main hypothesis of this paper, namely that ACD requires identity of AgrOs.

#### 3.1 Pied-piping

Carlson (1977) has noted the following contrast:

- (14) a. Dulles suspected everyone that / Op Angleton did  
 b. \*Dulles suspected everyone who Angleton did  
 c. Dulles suspected everyone who Angleton suspected

(14b) contrasts minimally with (14c). Fiengo and May (1994) suggest that the difference arises because *wh*-phrases must bind traces that are overtly identifiable as *wh*-traces, unlike lexically empty operators, which are not so restricted. A way of interpreting their suggestion is to assume that *wh*-operators cannot be base generated in the operator position but empty operators can. This line of reasoning would have to be used also for Hornstein, given that there is no way of explaining the contrast just by movement to AgrO.

If we assume that null operators contain copies of the head of the relative clause, as Munn (1993) argues, then the difference between (14a) and (14b) follows naturally. In (14b) the operator *who* is different from the head of the relative clause, a non *wh*-element. Consequently the AgrOs will not be identical and ACD is not allowed.

The same explanation will hold for cases of pied piped relative clauses as in (15a). Following Munn (1993), the head of the relative clause contains only *the theory* while the operator inside the relative clause contains *in which theory*. Again here the head of the relative clause is not string identical to the operator chain, as illustrated in (15b).

- (15) a. John believes the theory in which Bill believes  
 b. John believes [[ the theory]<sub>H</sub> [in which theory ]<sub>OP</sub> [Bill believes [in which theory]<sub>TR</sub>]<sub>DP</sub>

Our analysis correctly predicts that ACD should be impossible in these cases: (16a) contrasts minimally with (16b) where the head and the trace in the elided VP are identical.

- (16) a. \*John believes the theory in which Bill does  
 b. John believes in the theory that Bill does

A similar example is found in (17). In (17), the head of the relative clause contains only *the book*, while the trace inside the relative clause contains *three chapters of which book* and ACD is impossible.

- (17) \*John read the book three chapters of which Bill did  
 John ... [<sub>AgrO</sub> the book [<sub>Agr'</sub> read+Agr [<sub>VP</sub> ... [<sub>CP</sub> three chapters of the book ... Bill ... [<sub>AgrO</sub> three chapters of which [<sub>Agr'</sub> read +Agr [<sub>VP</sub>...

### 3.2 Coordination

Consider first the contrast between (18a) and (18b).

- (18) a. \*John watched [the videos by Truffaud and [the excellent movies [that Fred did]<sub>DP</sub>]  
 b. John watched the movies by Truffaud and the videos that Fred watched  
 c. John watched [[the videos and movies] [that Bill did]]<sub>DP</sub>

If the relative clause containing the ACD site is embedded and modifies only the second conjunct as in (18a), ACD is impossible, although relativization of only the second conjunct is perfectly possible as shown in (18b). If the relative clause modifies both conjuncts, ACD is allowed as shown in (18c). It is not clear how either an AgrO analysis or a QR analysis of ACDs would account for the contrast in (18), since in both cases the whole coordinated DP will be moved in order to avoid the infinite regress. The unacceptability of (18a) cannot be subsumed to the locality effects observed in ACD constructions such as (19a). In (19a) the problem is that the operator is too far from its trace, where ACD occurs or not, as the unacceptability of (19b) shows.

- (19) a. \*Dulles suspected everyone that Angleton made the claim that Philby did  
 b. \*Dulles suspected everyone that Angleton made the claim that Philby suspected

Under our proposal no extra assumptions need to be made to account for the contrast in (18). In (18a) the head of the relative clause contains only the second conjunct, while the object of the matrix verb is the whole coordinate structure. AgrOs not being identical, ACD is impossible. In (18b), the head of the relative clause is the conjoined

phrase which raises to AgrOP and is identical to the trace in the ACD site. Thus ACD is possible.

### 3.3 Quantifier restrictions

The contrast in (20) is not predicted by May (1985) or Hornstein (1994; 1995):

- (20) a. John read at least three books that Bill did  
b. \*John read fewer than three books that Bill did

For May it would be necessary to say that *at least three books* undergoes quantifier raising but *fewer than three* does not. The problem with this approach is that, as has been noted by Beghelli (1993), both *at least three* and *fewer than three* cannot enter scope interactions as exemplified in (21). Following Beghelli (1993), Schmitt (1993) and references there, I take the lack of scope interactions to be evidence that the quantifiers in question do not undergo QR, contra May (1985). Given that they do license ACD, QR must not be the determinant for ACD unless a special proviso for distinguishing quantifier scope and ACD is made.

- (21) a. Two students read all the papers  
\*‘for all the papers, each of them was read by two students’  
b. Two students read at least three papers  
\*‘there are at least three papers and each of them was read by two students’
- (22) a. Mary read all the papers that Bill did  
b. Mary read at least three papers that Bill did

In Hornstein’s (1995) proposal, copies of A-movement can be deleted freely as long as they obey a version of Diesing’s (1992) mapping hypothesis which says that strong determiners have to be interpreted outside VP. In ACD constructions, however, in order for a VP to be copied in the elided site, it is crucial that the VP is emptied of its subject, as the example in (23b) shows (the empty subject position marked  $t_j$ ). However, if the subject is not deleted from the VP, the copy will contain the subject. This subject, however, is different from the VP external subject. This is illustrated in (23c), where the external subject of the relative clause is *you* but the VP to be copied still has *John* as its subject. The result cannot be interpreted.

- (23) a. John bought everything that you did [e]  
b.  $\text{John}_j$  [T [AgrO" [everything that you did [e]]<sub>i</sub> [AgrO [VP  $t_j$  buy  $t_i$ ]]]  
c. [T [AgrO" [everything that you did [e]]<sub>i</sub> [AgrO [VP John buy  $t_i$ ]]]

Under Hornstein’s (1995) proposal, a way to distinguish (20a) from (20b) is then to assume that *fewer than three* is not a strong quantifier and therefore must be interpreted inside VP, and thus the incompatibility with ACDs. This assumption, however, makes the prediction that *fewer than three* should not be able to appear in subject position in ACD constructions either, since, according to Hornstein, in ACD constructions the VP must be empty of its subject so that it can be copied in the elided VP. Unfortunately this prediction is not borne out as the examples below show:

- (24) a. *Fewer than three students* read every book that Bill did  
b. John read every book than *fewer than three students* did

Given that the subject *fewer than three students* must be interpreted in AgrS, i.e., outside VP, then the question is why the same DP cannot be interpreted that way in AgrO. In other words, something special will have to be said about *fewer than three books* in



object position. Both a QR analysis and an AgrO analysis seem unable to account for the quantifier restrictions in a principled way.

The core idea of my proposal is for ACD to obtain, we need identity of AgrOs. Assuming the verbs are the same, let's assume that identity here means that the head of both the XP operator and the XP head of the relative clause have the same content. A way to explain the contrast in (20) would be to say that, in order to interpret (20a), it is necessary that Bill reads (at least) three books. Thus in (20a) both the head and the operator of the relative clause are identical: in both cases we have *three books*. Identity of AgrOs will obtain and ACD will be possible. Now consider the *fewer than three* case in (20b). Here ACD is not possible. If the head of the relative clause has *fewer than three books*, and the operator has *fewer than three books*, we meet the identity condition but we derive the interpretation that John read fewer than three books and Bill read fewer than three books, which is not what we need. In order to give (20b) an interpretation it would be necessary that John reads fewer than three books of (the) books Bill read. However to derive this interpretation the operator chain must contain books and not something like *fewer than three books*. But then identity will not hold between the AgrOs and ACD is predictably unacceptable.

Although a reasoning of this type might work for the two cases above, it is not clear that it would work for other quantifiers. Why should *John read every book Bill did* be an acceptable ACD, if the reading we obtain is that Bill read a number of books and John read every one of them? In fact the same problem arises with simple definites in ACD constructions. In *John read the books Bill did*, the interpretation we seem to obtain here is that Bill read *some books* and John read *them*. If we take the paraphrases to show something about what is the head and what is the operator of the relative clause, then it seems that we do not have identical AgrOs, and therefore, contrary to the facts, ACD should not be possible with *every* and *the*. In order to show that in fact AgrOs are identical in the case of *the*, *every*, *all at least* but not in the case of *fewer than three* and the indefinite *a*, which also produces unacceptable ACDs, at this point, I need to make clear some details about relative clauses. Before I make them clear, however, it should be noted that there are reasons to consider the definite determiners and quantifiers with universal force as a class with respect to their behavior in relative clauses.

- (25) a. The books there were on the table  
 b. Every book there was on the table  
 c. \*A book there was on the table  
 d. \*Fewer than three books there were on the table
- (26) a. \*There were the books on the table  
 b. \*There was every book on the table  
 c. There was a book on the table  
 d. There were fewer than three books on the table

The contrast between (25a,b) and (25c,d), first noted by Carlson (1977), shows that although definites and universal quantifiers cannot appear in simple *there* constructions, they can, unlike indefinites, easily appear before the head of a relative clause of a *there* construction. In other words, it seems that the definite determiner or the universal quantifier can be part of the head of the relative clause but not part of the operator.

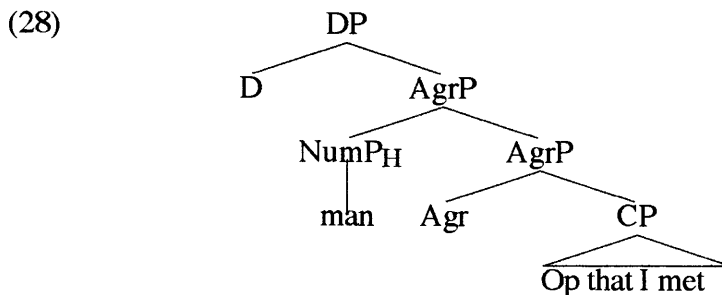
The data above illustrate two properties of relative clauses that are apparently contradictory: first, every structural description of a definite restrictive relative clause involves, at a certain level, an indefinite version of it. In other words, *the man I met* includes a form *a man that I met*. The second property is that it is the very nature of a relative clause that a definitization operation takes place. Consequently, in a relative clause

of the type *a man I met* there must be a definite operator (DEF) somewhere so that relativization can take place. Simplistically there seem to be two possibilities for restrictive relatives:

- (27) a. [+ def]<sub>H</sub> [- def]<sub>OP</sub>  
 b. [- def]<sub>H</sub> [+ def]<sub>OP</sub>

Note that for the purposes of recovering the operator, which is a condition for the deletion of the operator and its copy in the trace site, a distinction in terms of definiteness is irrelevant, since the definiteness of the operator is always recoverable from the principle that says that there must be a definite operator in the relative clause if the head is indefinite and there must be an indefinite if the head is definite. If we adopt (27a) and (27b) as the basic possibilities for restrictive relatives, we should get to the conclusion that restrictive relatives are unacceptable in ACD, if the assumption is that ACD requires identity between the head and the operator of the relative clause. However, there is a way to implement the intuition that relative clauses involve coreference between a definite and an indefinite or vice-versa (which I take is the main characteristic of restrictive relative clauses), that will allow us to maintain the proposal that ACD requires identity between AgrOs and account for the quantifier restrictions discussed above.

The analysis I will sketch below is an attempt to implement the intuition, which is very much in the spirit of Kuroda (1977) and Vergnaud (1985). The first assumption I will make is that it is a property of a restrictive relative clause that it does not modify a DP or a QP. It can modify anything below QP or DP in a noun phrase structure that has roughly the form [DP [QP [NumP [NP]]]]. Here I will assume that the restrictive relatives modify NumPs (see Bernstein 1993 and references there). Moreover I will assume that relative clauses are CPs dominated by an Agreement Projection, where the relative clause head is generated.<sup>2</sup>

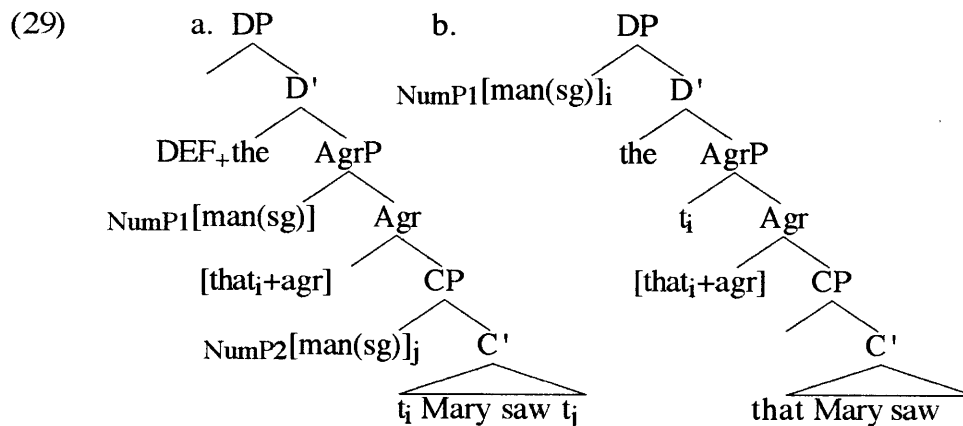


The second assumption is that in restrictive relative clauses there must be a definite operator DEF. DEF can be generated in one of two positions: it is either generated in the D as a strong determiner that takes the relative clause AgrP projection, in which case the operator of the relative clause has to be a non-definite, i.e., a NumP, or as the D head of the DP operator in a relative clause. Let's first consider the case in which the operator of the relative clause is an indefinite NumP. I will call this case of restrictive relatives, N-relatives and they are exemplified in (29). The operator [a man]<sub>NumP2</sub> moves to the specifier of CP, where it enters a specifier head relation with the C head. C raises to Agr to check its features and enter a spec-head relation with [a man]<sub>NumP1</sub>, head of the relative clause. To form a restrictive relative clause, however, it is necessary to have a DEF operator either in the head of the relative clause or in the operator position. Neither the operator of the relative clause, nor the NumP<sub>1</sub> in the specifier of AgrP have a D. The DEF operator then has to be

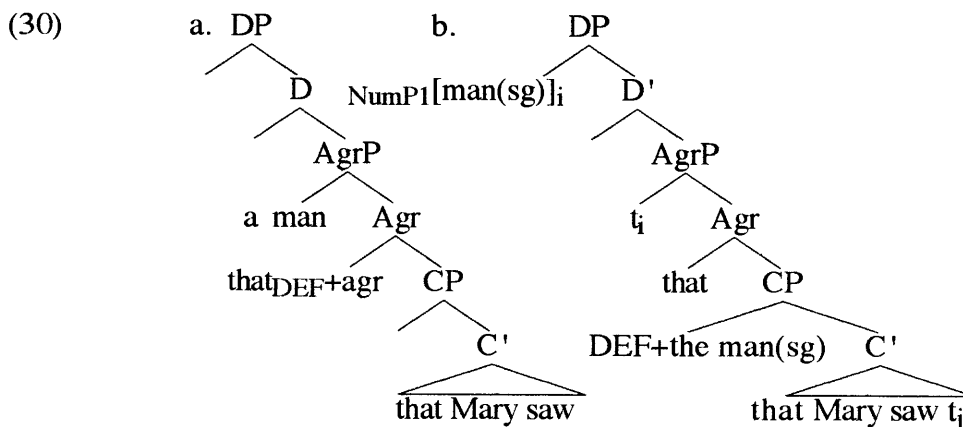
<sup>2</sup> For the purposes of this discussion I will ignore here the possibility that NumPH is in fact generated adjoined to CP and then moves to the specifier of AgrP.

supplied by a strong definite determiner in the D that selects for the relative clause. This is illustrated in (29a).

The head of the relative clause, NumP<sub>1</sub> checks agreement features with the strong D and moves from there to check case at some Agreement Projection where this is possible. My assumption is that the movement of NumP<sub>1</sub> through the specifier of DP and from there to AgrO is only possible if the NumP<sub>1</sub> is not the complement of D but the specifier of AgrP. If NumP<sub>1</sub> were the complement of D, this movement would be impossible on the assumption that we cannot move a complement to the specifier of its own head.<sup>3</sup> (29b) illustrates this movement and the deletion of the operator and its copy, due to recoverability. The result at overt syntax is *the man that Mary saw*.



Now consider the case in which DEF is generated in the D head of the relative clause operator *the man*. Let's call those D-relatives. Via specifier head agreement the complementizer *that* will move to Agr, to check for agreement features. The result will be *a man that Mary saw*. The overt syntax form is illustrated in (30a). At LF, the head of the relative clause NumP<sub>1</sub>, generated in the specifier of AgrP will raise to the specifier of DP and from there it will move to check case, as in the previous case. This is illustrated in (30b).



The derivation proposed will guarantee an LF in which both AgrOs are identical for N-relatives but not for D-relatives. In N-relatives, both the head of the relative clause and the operator are *man(sg)* (i.e., NumPs) and a strong determiner (*every, any, all the, the,*

<sup>3</sup> In the cases in which movement of noun phrase to the specifier of its own D seems to be possible, as in Rumanian, for example, it can be shown that the XP is moving to an AgrProjection above DP and this correlates with the ability of licensing null noun complements.

for example) is generated in the D head that selects for the AgrP. The same analysis carries over to *many*, *at least* and *few*, when they are interpreted as strong determiners, i.e., when they are generated outside the head of the NumP. In all those cases ACD is possible.

- (31) AgrO[man(sg)]<sub>i</sub> [Agr[saw+agr]] [VP saw [DP the AgrP[t<sub>i</sub> ... [AgrO[man(sg)]  
[Agr[saw+agr]] ...

The contrast in the interpretation of (32) and (33) becomes also explained in as much as their acceptability. The interpretation in (32), (for the speakers that find *many* acceptable in ACDs), is roughly that Mary read a certain amount of books and John read many of them. In this case, *many* is generated in Q and raises to D, where it has roughly the interpretation of 'many-of-the'. In (33) the interpretation is that Bill read many books and John read all of them. Here the definite determiner *the* is generated in D. The NumP head of the relative clause has *many books* and the operator of the relative clause also has *many books* and ACD is possible.

- (32) a. John read many books that Mary did  
b. AgrO[book(sg)]<sub>i</sub> [Agr read+agr] [VP saw [DP many... AgrP[t<sub>i</sub> ... [CP...  
[AgrO[book(sg)] [Agr read+agr]]
- (33) a. John read the many books that Bill did  
b. AgrO[[many books]]<sub>i</sub> [Agr read+agr] [VP saw... AgrP[t<sub>i</sub> ... [CP...  
[AgrO[many book(sg)] [Agr read+agr]]

In D-relatives the operator is a DP and that is what moves to AgrO to check case and from there to the specifier of CP. In the matrix clause what raises to AgrO is NumP<sub>1</sub>. For ACD, however, the requirement is identity of the heads, and identity is not met as shown in (34). I am assuming that the indefinite *a* is just the spell-out of singular and cannot ever be generated as a D, the unacceptability of (34) is also explained. With respect to *fewer than three*, illustrated in (35), again the requirement of identity of heads cannot be met, since *fewer than* in this case is a modifier of the number *three*, which is generated in NumP<sub>1</sub> and *three* when modified by *fewer than* cannot be generated in Q. Given that there is no strong determiner in D, the DEF must be generated internally. Consequently the head and the operator of the relative clauses are not identical and ACD cannot obtain.

- (34) a. \*John read a book Mary did  
b. AgrO[book(sg)] [Agr read+agr] ... CP[ ... [AgrO[ the book(sg)] [Agr read+agr]]
- (35) a. \*John read fewer than three books that Bill did  
b. AgrO[fewer than three book(sg)] [Agr read+agr] ... CP[ ... [AgrO[ the (three)  
book(sg)] [Agr read+agr]]

### 3.4 Bare Plurals

It is a well known fact that bare plurals are unacceptable in ACDs (36a), although they are acceptable in general in relative clauses (36b). For May the explanation is straightforward, bare plurals are not quantificational and therefore do not QR. For Hornstein (1995), the problem brought by *fewer than three books* arises again. If bare plurals have to be interpreted inside VP, how come they can appear as subjects of ACDs, given that ACD forces subjects to be interpreted outside VP. If they can be interpreted outside VP, why should the object bare plurals behave differently?

- (36) a. \*John read books that Bill did  
 b. John read books that Bill read  
 c. First graders read the book graduate students did
- (37) a. \*John read books that Bill did  
 b. John read [DP [AgrPbooks [Agr that +DEF+Agr [CPthe books that [TPBill read DEFthe books

Assuming the analysis sketched above for relative clauses, the lack of ACD with bare plurals can be explained straightforwardly in the same way as *fewer than three*. As we have seen, for it to be possible to have a relative clause whose dominating DP is not a strong determiner, it must be that the DEF operator is generated as a DP operator in the relative clause. However, then identity between the AgrOs is not met, since we have a DP in one case and a NumP in the other case. If the DEF operator is generated in Agr, then it must be the case that DEF has to move overtly to check features against a strong D, which is not there.

### 3.5 Idioms

Consider the paradigm in (38) which has been noted by Schachter (1973) and Carlson (1977), and has been extensively studied by Vergnaud (1985). The basic fact is that *headway* is an idiom that cannot be preceded by a strong determiner (38b) unless it is modified by a relative clause as in (38c). *Headway* alone or preceded by an indefinite cannot be modified by a relative clause, as shown in (38d) and (38e). Assuming that what is generated inside the relative clause is a measure phrase *amount of headway*, given that that is the reading we obtain, the present analysis prediction is that it can only appear with a relative clause, if DEF is generated as the Determiner that takes AgrP as its complement.<sup>4</sup> If *headway* is generated with a strong determiner in the object position of the relative clause, the idiom will not be interpreted under the assumption that idiomatic interpretations arise inside VP. Moreover, the prediction is that ACD should be possible since we have in the head of the relative clause an indefinite and in the operator position we also have an indefinite. The prediction is borne out as shown in (38f). The same explanation accounts for the behavior of other measure phrases illustrated in (39).<sup>5</sup>

- (38) a. John made headway  
 b. \*John made the headway  
 c. The headway John made was amazing  
 d. Headway John made was amazing  
 e. \*Some/little headway John made was amazing  
 f. John made the headway Bill did
- (39) a. John weighs thirty kilos  
 b. \*John weighs thirty kilos Bill does  
 c. John weighs the thirty kilos Bill does

<sup>4</sup> The fact that *every headway Bill made* is unacceptable confirms my proposal that there must be agreement between the NumP head of the relative clause and the D that selects the AgrCP. *Every* only takes count nouns. *Headway*, being a mass noun, will be unacceptable.

<sup>5</sup> Alan Munn (p.c.) pointed out that measure phrases are almost as idiomatic as *make headway* is, since *weigh* selects for a measure in lb/kg/g etc. rather than gallons or litres, thus the unacceptability of *\*John weighs 30 gallons*. Note that the non-measure interpretation places no such restriction: *John weighed 30 gallons of water*.

### 3.6 Type readings

The last case I want to consider is related to the following contrast:

- (40) a. #John bought that paint that Bill did (TYPE)  
 b. John bought that painting that Bill did (TOKEN)

(40a) is unacceptable with the reading in which John and Bill bought the same *type* of paint and it is pragmatically odd with the reading that they bought the same actual paint. In (40b), again the type reading is unavailable and the only way the sentence is acceptable is with a reading in which John and Bill ended up buying the very same painting. The question is why type readings, i.e., category readings in the sense of Jackendoff (1985) (see also Vergnaud and Zubizarreta 1991) are unacceptable in ACD constructions. May (1985) would say that type readings are non-quantificational and therefore should not QR. Hornstein (1995) would have to treat them as indefinites and consequently incompatible with an interpretation at AgrO. A problem for treating type readings with demonstratives as indefinites is that they do not seem to pattern with other indefinites. Type readings with demonstratives are not acceptable in *there* constructions (41), but contrary to prediction are perfectly acceptable in individual level predicates (42), a context that according to Diesing, forces an “outside” VP interpretation of the subject.

- (41) *there* constructions  
 There is/are \_\_\_ on sale  
 \*the book(s)  
 \*that/those book(s)(we looked for)  
 some books  
 a book
- (42) a. This apricot is for tarts  
 b. #An apricot is for tarts (non-specific)

Another problem with excluding type readings in ACD in purely semantic grounds is that we would have to distinguish the type readings in (40a) from type readings with overt *type-of* expressions which are perfectly acceptable in ACD constructions as (43) indicates:

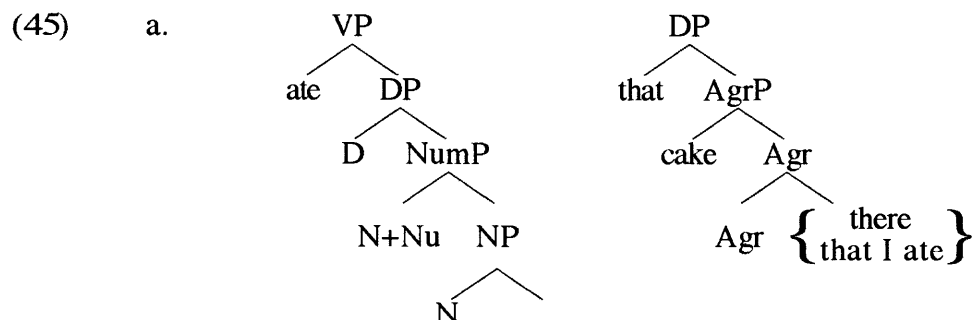
- (43) a. John ate the type of apples Mary cultivates  
 b. John ate the/that type of apples Bill did

Once we give up on purely semantic explanations, let us first consider first type readings without overt *type-of* expressions. In other work (Schmitt, 1994 and forthcoming), I have argued for a syntactic distinction between type and token readings based on their aspectual properties. Type readings with demonstratives are the result of  $X^0$  movement of the head noun into the verb and produce durative readings of the VP, since the cardinality of the head noun is left unspecified. Token readings, on the other hand, are the result of XP movement of the object into a case checking position and produce a terminative VP, provided the verb is eventive, since the cardinality of the object can be made specific.

If type readings require incorporation of the head noun into the verb, this can only happen if no head intervenes between the verb and the head noun. Thus in (44a) a type reading is impossible given that the D head intervenes, as illustrated in (45a). In (44b), however, a type reading is possible because the demonstratives are not heads that take NumP as their complements, but instead, they have the structure given in (45b). Demonstratives take an Agr small clause projection whose complement has to be filled by either a locative element or a relative clause. This locative element can be overt or filled by a

null locative element to be bound in the discourse. (For a motivation for this analysis see Bennett (1978) and Schmitt (1994).)

- (44) a. John ate the cake in five minutes/ #for three years  
b. John ate that cake in five minutes/ for three years (until he got sick of it)



Now consider (46):

- (46) a. Mary ate the pie that Bill ate for years  
b. #Mary ate the pie that Bill did for years (TYPE)

In (46a) two interpretations are possible: not only a single event reading that is stretched to cover the duration described by the adverb is possible, but we also can get a multiple event reading. In this reading, Mary ate the type of pie that Bill ate for years. How can this be possible if D heads block type readings in (43)? This follows from our analysis of relative clauses in which the NumP *pie* will raise to the specifier of D, since D is not taking NumP as its complement but rather the AgrP of the relative clause. From there the head noun can raise to the verb without any intervening head in between. Assuming this analysis for type readings, the prediction is that if type readings are the result of noun incorporation, ACD should be disallowed given that the AgrOs will not be identical, since it is not possible to be at the same time an operator in the relative clause and an incorporated head noun. The ACD version of (46a). (46b) shows that a type reading of the object is in fact impossible.

Now we can consider (47). The analysis we proposed will account for the acceptability of type readings with overt *type-of* expressions in ACD. In the operator of the relative clause we have the NumP *type of apples* and in the head of the relative clause and in AgrO we have a NumP *type of apples* as well.

- (47) a. John ate the type of apples Mary did  
b. John <sub>AgrO</sub>[type of apples<sub>i</sub> ate] [<sub>VP</sub> ate [<sub>DP</sub> the [<sub>Agr</sub> type of apples<sub>i</sub> [<sub>CP</sub> type of apples that ... [<sub>AgrO</sub> type of apples ate....

#### 4. Conclusion

The analysis presented here departed from the idea that in ACD the problem is to ensure the recoverability of a deleted VP, instead of providing an antecedent for a base generated empty VP as in May (1985) and Hornstein (1994,1995). I proposed that PF deletion of an AgrOP is possible if there is an AgrOP at LF which instantiates the same spec-head relation as the AgrOP to be deleted. This proposal completely dissociates ACD constructions from quantifier scope and has the advantage of in conjunction with a preliminary analysis of relative clauses to an account for various restrictions on ACDs that were left unaccounted for in previous theories.

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