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ANTECEDENT-CONTAINED DELETION: ITS STRUCTURE AND RESOLUTION*

1 INTRODUCTION

In this article I will investigate those linguistic lacunar phenomena which are traditionally termed an antecedent-contained deletion (henceforth ACD), and determine what syntactic structure ACDs have and how they are interpreted. A standard ACD sentence may be considered to be the following:

(1) Dulles suspected everyone Angleton did.

As many authors have pointed out, this type of construction, where the null VP is contained in its antecedent VP, seems to be neutrally problematic to the interpretive and deletive theories with no mechanism to get rid of antecedent-containment. First, let us consider what problem the process of interpreting an ACD site causes. If the phonologically empty VP is syntactically empty, then, no matter how many times it is applied, the operation of copying the antecedent VP into the position of the anaphoric VP will only generate that infinitely large VP still containing the null VP which is uninterpretable, as is indicated in (2):

(2) Dulles [$_{VP}$ suspected everyone Angleton did [$_{VP}$ suspect everyone
      Angleton did [$_{VP}$ suspect everyone Angleton did [...]]]]

This interpretive predicament is conventionally called the 'infinite regress' problem. Next, let us see how puzzling the deletion process for an ACD is. With the deletive theory adopted, the S-structure of (1) is roughly represented in the following way:[1]

(3) [$_{IP}$ Dulles [$_{VP}$ suspected everyone [$_{CP}$ Op$_i$ [$_{IP}$ Angleton [$_{VP}$ suspected t$_i$]]]]]

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[1] The perplexing S-structure of (1) may well be otherwise conceived: if we seek to get its appropriate pre-deletion representation at S-structure through innumerable repetitions of copying the antecedent VP into the position occupied by the anaphoric or elided VP, then we will bring upon ourselves the same representation containing an infinitely large, uninterpretable VP as (2). This attempt is just as much like squaring the circle as trying to get an unpronominalized representation for cases of crossing coreference, such as the following:

(i)   The man$_i$ who left them$_j$ said farewell to his$_i$ friends$_j$.   (Haïk 1984)
(ii) The man$_i$ who loved her$_j$ kissed the girl$_j$ who hated him$_i$.   (Bouton 1970)

Obviously, the antecedent VP and the VP to delete are not structurally parallel or identical, and so, as it stands, (3) is not capable of being subject to VP-deletion without infringing the kind of parallelism condition required by its application, entailing there being no grammatical sentences such as (1) derived through VP-deletion.[2]

In the next section I will examine and criticize some previous GB(-like) and minimalist approaches to ACDs, and in section 3 I will propose and verify an alternative QR-based minimalist[3] approach based on the full expansion hypothesis of ACD constructions[4] and the overt operator movement involved in them, speculating upon how the copying operation is to be performed for the ACD resolution, and then advance a model of the grammar compatible with that approach.

2   PREVIOUS APPROACHES TO ACDS

In the present section I will survey the theoretical implements of some previous approaches to ACDs and show the kind of data which they cannot seem to handle. A chronological guide to current work on ACDs is as follows:

	Operation to save ACD	Level of ACD resolution	Deletion or Copying?[5]
May (1985)	QR	LF	Copying
Baltin (1987)	Extraposition at S-structure	S-structure	Copying
Larson & May (1990)	QR	LF	Copying
Diesing (1992)	QR	LF	Copying
Lasnik (1993)	A-movement to SpecAgr$_O$P (& Extraposition at LF[6])	LF	Copying

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[2] Simplistically, I take it as a null hypothesis that any type of VP-deletion must satisfy the structural or syntactic identity condition, which would be infringed by applying VP-deletion to structures such as (3), where the antecedent VP contains the VP to be elided.

[3] This term should be understood as 'of classical minimalism' in this article: here I assume with Chomsky (1995: chapter 3) that a functional head like Agr exists in syntax.

[4] I believe that Wasow's (1972) "empty structures" hypothesis holds good as regards ACD sentences. That is to say, I assume that their missing VPs have all the syntactic structures that their antecedents have.

[5] Those accounts which consist in ACD resolution at S-structure generally can be accommodated to both the interpretive and deletive theories. Thus, Baltin's (1987) S-structural extraposition approach and Lappin's (1996) pseudo-gapping approach may be recast in deletion-theoretical terms without losing any empirical adequacy. Here I just indicate the operations the authors use for analyzing the data.

[6] Noting that there are ACD constructions displaying subjacency effects, Lasnik (1993) suggests that the structure of an ACD be fully expanded rather than monolithic; it follows that there exists no real ACD case. Hence, there should be no need to extrapose adjunct-contained relatives containing a lacunar VP, whose head DP cannot move to the SpecAgr$_O$, to remove antecedent-containment at LF. But, strangely enough, he regards the null VP as [$_{VP}$ e] to discuss the ACD data, with the result that he is forced to resort to such an LF movement to obviate the reconstructive regress.

Hornstein (1995)	A-movement to SpecAgr$_O$P	LF	Copying
Lappin (1996)	Pseudo-gapping	S-structure	Copying

Now before going on to find fault with them, let us place them in four categories: the QR approach to ACDs, into which those of May (1985), Larson and May (1990), and Diesing (1992) are classified; the S-structural extraposition approach to ACDs, which is adopted by Baltin (1987) by himself; the pseudo-gapping approach to ACDs, which is employed by Lappin (1996) alone; and the A-movement approach to ACDs, which is proposed independently by Lasnik (1993) and Hornstein (1995). Following this categorization, I will summarize the four types of strategy and then give some counterexamples provided to them.

2.1 The S-Structural Extraposition Approach to ACDs

In this section I will show the basics of how Baltin (1987) analyzes ACD sentences and some of the explanatory demerits which are pointed out by Larson and May (1990).[7]

Baltin (1987) suggests that we should first consider the following pragmatically complex but apparently acceptable sentence:

(4) John thought that Fred read six of the books that Bill thought that he had read.

The meaning of this sentence is that if Bill thought that Fred read n books, where $6 < n$, then John thought that Fred read six of those books. And the multiple *wh*-question corresponding to (4) would be the following sentence:

(5) Who thought that Fred read how many of the books that Bill thought that he had read?

Let us now turn to the following example, which involves an empty or phonologically null VP:[8]

(6) Who thought that Fred read how many of the books that Bill did?

The LF representation for (6) would be like the following:[9]

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[7] See Larson and May (1990) for detailed discussion.

[8] In this article I often use this adjective "empty" to mean "phonologically null". Thus, $[_{VP}[_V \text{ e }][_{DP} \text{ t }]]$, for example, is referred to as an empty VP, though it is not syntactically empty.

[9] In (7), the *in-situ wh*-phrase *how many books that Bill did* is adjoined to the *wh*-moved NP *who* at LF. This type of LF adjunction is validated by the fact that multiple *wh*-questions like *Which man admires which woman?* allow answers consisting of a single one-to-one pair or a set of such pairs.

(7)

```
                    _____CP_____
              Spec                  ____C'____
              NP_i                 C        __IP__
            NP_i   NP_j                  NP      __I'__
           who  __NP_j__   __CP__        t_i   I    __VP__
              how many   Spec  __C'__        PAST  V    __CP__
               books     Op_j C   __IP__           think Spec  __C'__
                        that NP   __I'__                  C   __IP__
                        Bill   I    VP                    NP    __I'__
                              did    e                   Fred  I   __VP__
                                                             PAST V   NP
                                                                 read   t_j
```
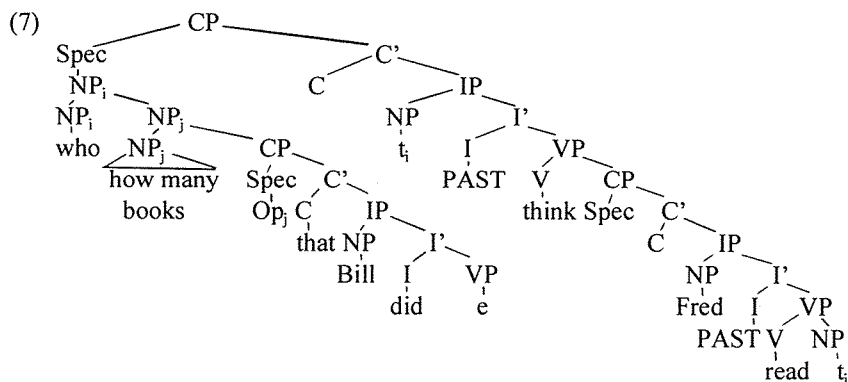
In (7) the empty VP is raised by LF movement out of both the VP headed by *read* and the VP headed by *think*, and so should be able to take both of them as an antecedent for VP ellipsis, following May's (1985) LF movement approach to ACD constructions. It would never lead to the infinite regress of reconstruction to copy either of the VPs into the site occupied by the empty VP at LF, so that sentences like (6) should be capable of being dually interpreted: one reading is the one where the antecedent VP to be copied is the higher VP, headed by *think* ; and the other is the one where the antecedent VP is the lower VP, headed by *read.*

But, as Baltin argues, it should be noted here that this is counterfactual or false, since the eligible antecedent for VP ellipsis is only the lower VP, and not the higher one: that is to say, (6) does not have a reading which corresponds to the meaning of (5); it unambiguously correlates to the sentence in which the antecedent for the null VP is the VP in the complement clause. Thus, the only non-elliptical paraphrase of (6) is as follows:

(8)   Who thought that Fred read how many of the books that Bill read?

Hence, Baltin argues that the fact that (6) fails to correspond interpretively to (5), receiving that monoguous reading, cannot be accounted for by the LF movement- or QR-based account of the linguistic phenomenon of "apparent" antecedent-contained deletion, this kind of monoguity being clearly problematic for LF movement-based analysis of ACDs.[10]

May (1985) and Sag (1980) propose abstract levels where the antecedent VP does not contain the empty VP so as to save an ACD configuration from the infinite reconstructive regress, whereas Baltin (1987) argues that S-structure plays a more important role than these authors have assumed and that antecedent-contained VP ellipsis is never possible even at the level of S-structure, which he assumes is banned by the *i*-within-*i* Condition.[11] Thus, he proposes this alternative analysis: in apparent

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[10] Larson and May (1990) observe that the unacceptability of the matrix reading with the ACD case (6) is due to the fact that mixed "person-number" questions are decidedly odd. So I assume with them that this ACD instance does not militate against their QR-based theory of ACDs.

[11] This is proposed by Williams (1980) as a general principle of anaphora and roughly defined as follows:

ACD constructions the null VP is actually without the antecedent VP, moved with a phrase that has been extraposed. In order to account for the monoguous interpretation of the sentence (6), he employs the bounding constraint on rightward movements dubbed *Generalized Subjacency*, which is proposed by Baltin (1981, 1983), like the following:

> (9) *Generalized Subjacency*
> In the configuration $[_{\alpha} \ldots [_{\beta} \ldots Y \ldots] \ldots] \ldots X$, no rule may move an element Y to position X if α and β are both maximal projections.

Generalized Subjacency is a generalization of Ross's (1967) Right Roof Constraint. It basically claims that all major categories act as bounding nodes. For example, with this constraint, we can explain the contrast between the following sentences involving VP preposing:

> (10) a. John said that he would call people up who were from Boston, and call people up who were from Boston he will.
> b. *John said that he would call people up who were from Boston, and call people up he will who were from Boston.

Since the relative clause in (10a) originates within the direct object, it can cross NP, only one maximal projection. It cannot move any higher, being unable to cross the VP; hence the unacceptability of (10b).

Now let us see how Baltin's extrapositional approach accounts for the unambiguousness of the sentence (6). Consider its D-structure, like the following:

(11)

```
        CP
       /  \
    Spec   C'
          /  \
         C    IP
             /  \
           NP    I'
           |    /  \
          who  I    VP
              |    /  \
            PAST V    CP
                 |   /  \
              think Spec  C'
                        /  \
                       C    IP
                       |   /  \
                     that NP   I'
                          |   /  \
                         Fred I    VP
                              |   /  \
                            PAST V   NP
                                 |  /  \
                               read NP  NP
                                   /   /  \
                             how many NP   CP
                                    /      |
                              the books  that Bill did [VP e ]
```
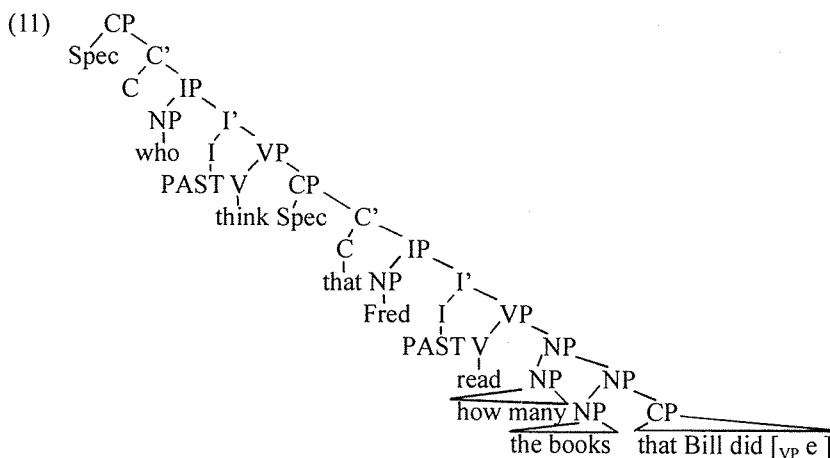
The bounding constraint on rightward movements could only allow the extraposed relative clause to adjoin to the complement VP with no trace left, as in the following

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(i) *[... α_i ...]$_i$

See also Haïk (1987) for critical remarks on this condition.

structure:[12]

(12)

```
        CP
       /  \
    Spec   C'
          /  \
         C    IP
             /  \
           NP    I'
           |    /  \
          who  I    VP⁰
               |   /  \
             PAST V    CP
                  |   /  \
               think Spec C'
                         /  \
                        C    IP
                        |   /  \
                      that NP   I'
                           |   /   \
                         Fred I      VP¹
                              |    /     \
                           PAST VP²       CP
                                /  \     /   \
                               V   NP  Spec   C'
                               |   |        /  \
                             read  NP      C    IP
                         _____      |   /  \
                         how many of the books  that NP   I'
                                                     |   /  \
                                                    Bill I    VP³
                                                         |    |
                                                       PAST   e
```
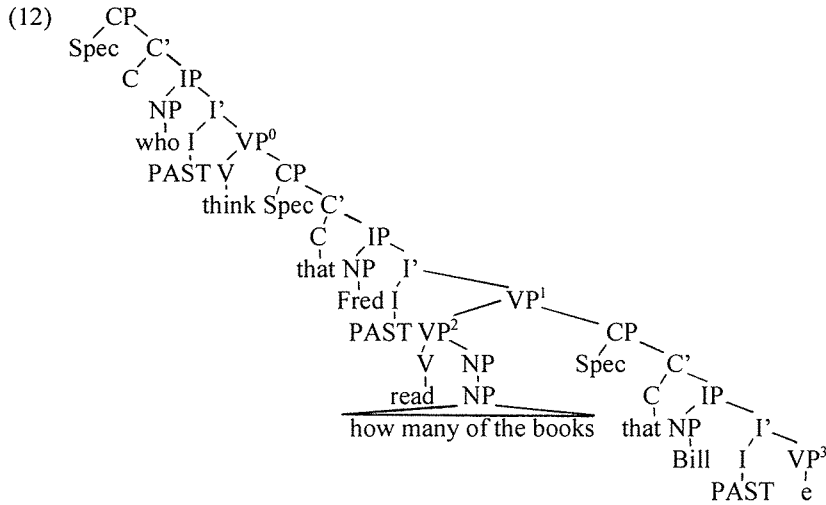
According to Baltin's (1987) claim that antecedent-contained deletion is impossible, the null VP in (12) (= VP³) cannot take VP⁰ as its antecedent, since the former is contained within the latter; but it can refer to VP², to which the extraposed relative clause is adjoined. The monoguity of sentences such as (6), Baltin (1987) argues, supports his approach based on extraposition and the S-structure bounding condition on rightward movement rules generally.

To recapitulate Baltin's (1987) solution to the unambiguous reading of sentences like (6), at S-structure the relative clause to be extraposed must move leaving no trace, respecting the Generalized Subjacency, since the empty VP which it contains has to escape from antecedent containment, that predicament where anaphora generally is impossible because of the vicious circle of reference;[13] the rule of extraposition cannot iterate; and, as a result, without VP² but within VP⁰, the anaphoric VP, VP³, can only take VP², headed by *read*, as its antecedent.

Let us now turn to the question of whether a trace is left by the movement of extraposition. As Robert May (personal communication with Baltin) has pointed out, if extraposed relative CPs are permitted to leave traces, the violation of the *i*-within-*i* Condition will still occur. To see this, consider the S-structure of (6), with an extrapositional trace in it, like the following:

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[12] It appears that some kind of transmogrification and amalgamation of nominal categories is involved in the mapping of (11) to (12), but Baltin (1987) makes no mention of the mechanism of this process. Here I simply follow this tacit syntactic assumption of Baltin's (1987), entailing the relative CP extraposition in (12) satisfying the condition of his Generalized Subjacency.

[13] It is graphically shown in the next paragraph that it is crucial for the S-structural extraposition approach to ACDs to assume that the operation of extraposition leaves no trace.

(13)

```
        CP
      /    \
   Spec    C'
         /    \
        C     IP
            /    \
          NP     I'
           |    /   \
         who I    VP⁰
           PAST V   CP
                |  /    \
             think Spec  C'
                       /    \
                      C     IP
                      |   /    \
                    that NP    I'
                         |   /    \
                       Fred I    VP¹
                          PAST VP²        CPᵢ
                             /    \      /    \
                            V     NP   Spec   C'
                            |    /    \      /   \
                          read  NP    CP    C    IP
                     how many of the books  tᵢ  that  NP   I'
                                                      |  /   \
                                                    Bill I   VP³
                                                        PAST  e
```
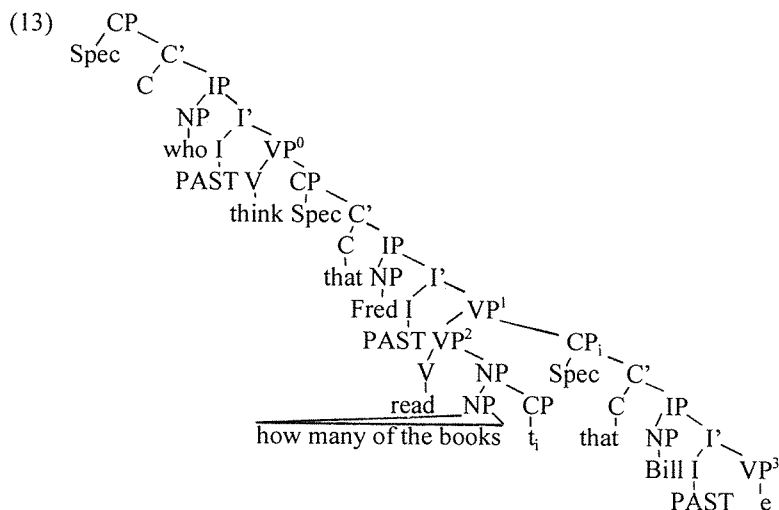
If VP² in (13) contains the trace of the extraposed relative clause, then the interpretive operation of copying will cause the interpreted VP to contain a trace which is contained within the phrase with which the trace is coindexed, as is indicated by the following structure:

(14)

```
        CP
      /    \
   Spec    C'
         /    \
        C     IP
            /    \
          NP     I'
           |    /   \
         who I    VP⁰
           PAST V   CP
                |  /    \
             think Spec  C'
                       /    \
                      C     IP
                      |   /    \
                    that NP    I'
                         |   /    \
                       Fred I    VP¹
                          PAST VP²       [CPᵢ]
                             /    \      /    \
                            V     NP   Spec   C'
                            |    /    \      /   \
                          read  NP    CP    C    IP
                     how many of the books  tᵢ  that  NP    I'
                                                      |   /    \
                                                    Bill I    VP³
                                                        PAST V   NP
                                                             read how many of the
                                                                  books tᵢ
```
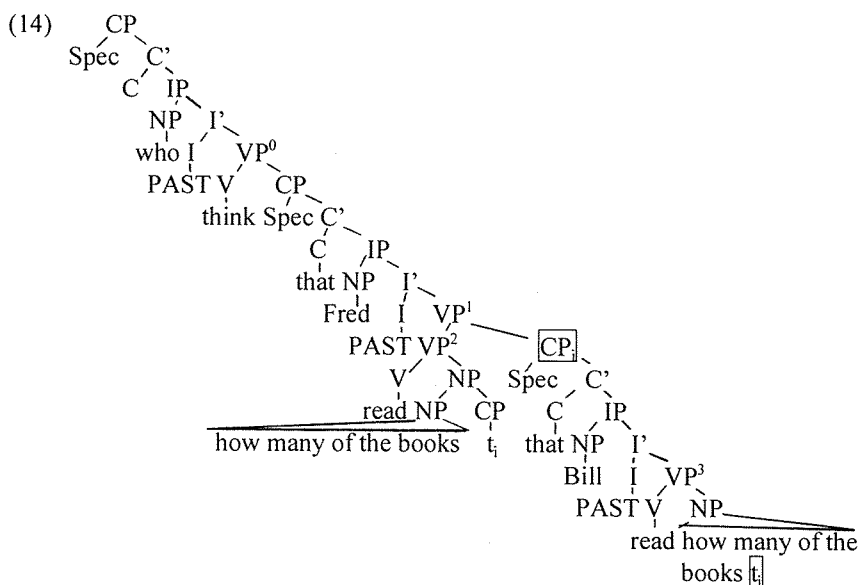
That is, as is evident, the *i*-within-*i* Condition is infringed in the above copied representation.

To deny the existence of this kind of trace, Baltin (1987) claims that the postulation of traces is optional unless they are just forced to obtain by some principle of the grammar, such as the Projection Principle, the prohibition against vacuous

quantification, and so forth: with this hypothesis adopted, the grammatical status may be explained of such sentences as involve the extraposition out of the antecedent VP.

With regard to the grammaticality of (6), Baltin (1987) notes that it would seem that no well-established principle of the grammar requires the existence of a trace of the extraposed relative CP: relative clauses are adjuncts, thus their traces having nothing to do with the Projection Principle; they are not operators, so the non-existence of their traces will not cause vacuous quantification; and so on.

Along the above lines of reasoning, Baltin (1987) argues that the extraposed relative clause need not leave a trace, and that apparent ACD examples like (6) do not violate the *i*-within-*i* Condition with their appropriate reading.

Now let us see some of the data that militate against the S-structural extraposition analysis which Larson and May (1990) show in the form of a reply to Baltin (1987). First, consider the form of the relative clause containing an ACD site. Baltin's string-vacuous movement analysis presupposes that relative clauses in ACD sentences should be extraposed at S-structure, whereas the QR-based account presupposes that they should be *in-situ* relative clauses. So we can test the validity of these two theories with respect to the form of relative pronouns. It has been widely observed that *in-situ* relative clauses allow a *wh*-form, a complementizer, or a phonologically null relative pronoun, while extraposed relative clauses disallow the last possibility,[14] as the following examples show:

(15) a.   The man who/that/ ϕ Mary asked about finally showed up.
     b.   I visited a man who/that/ ϕ John mentioned recently.
     c.   The man finally showed up who/that/?* ϕ Mary asked about.
     d.   I visited a man recently who/that/?* ϕ John mentioned.

And it is observed that the full range of relative forms can appear with ACD constructions, as is illustrated by the following:

(16) a.   I visited everyone who/that/ ϕ you did.
     b.   John would reject any suggestion which/that/ ϕ Mary would.

This use of an empty relative pronoun indicates that the relative CPs in (16) have never been extraposed in a string-vacuous way. Thus, we can take it that this kind of data supports the QR-based theory over the S-structural vacuous extraposition approach.

The next argument is concerned with the trace of extraposition. As we have seen, what Baltin (1987) crucially depends upon is the hypothesis that extraposition does not create a trace. This is in fact a vital one, which it will make evident to consider the interpretive process for standard ACD cases like the following:

(17)   John saw everyone that you did.

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[14] Lasnik (1993) assumes that the grammatical status of the degraded options in (15c,d) may be accounted for by their illegitimacy at PF rather than at LF, so that in the course of discussion based on the [$_{VP}$ e] analysis of ACD he can resort to the LF extraposition of null-complementizer relatives to remove antecedent-containment from adjunct-contained ACD cases.

If a CP-trace appears, then the S-structure of this sentence will be roughly represented like this:

(18)

```
        IP
       /  \
      NP    I'
      |    /  \
    John  I    VP
          |   /  \
        PAST VP    CP_i
            /  \  /
           V   NP  that you PAST [_VP e ]
           |  /  \
         see NP   CP
             |     |
         everyone  t_i
```
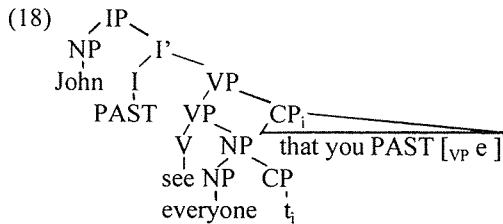
If QR moves the largest NP in (18), the resulting structure will be ill-formed, where the CP-trace fails to be properly bound, as shown in (19a); so suppose that QR extracts the smaller NP, in which case the result is roughly represented as in (19b):[15]

(19) a.

```
              IP
            /    \
          NP_i     IP
         /  \     /  \
       NP_i  CP  NP    I'
        |    |   |    /  \
    everyone t_i John I    VP
                     |    /  \
                   PAST  VP    CP_j
                        /  \   /
                       V   NP  that you PAST [_VP e ]
                       |   |
                     see  t_i
```

b.

```
            IP
          /    \
        NP_i     IP
         |      /  \
     everyone  NP   I'
               |   /  \
             John I    VP
                  |   /  \
                PAST VP    CP_i
                    /  \   /
                   V   NP_i that you PAST [_VP e ]
                   |  /  \
                 see NP_i  CP
                     |      |
                     t_i    t_i
```
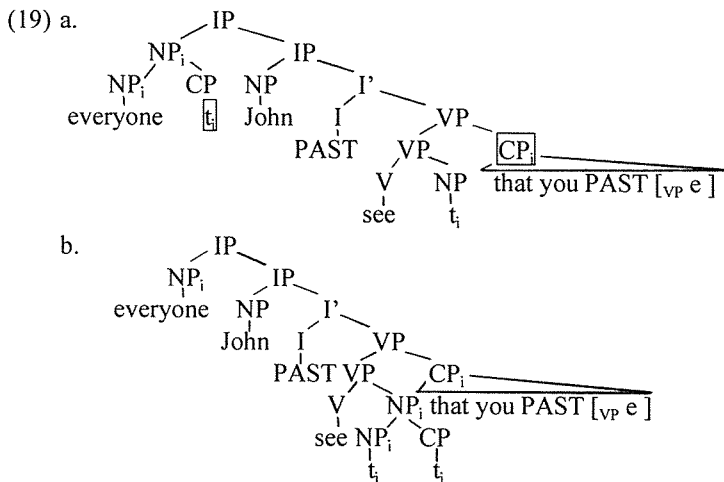
Copying of the smaller matrix VP into the empty VP yields the following structure, where antecedent containment still exists:

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[15] In this article I simply assume that the operation QR moves quantificational expressions to the IP- or Agr$_s$P-adjoined position or the VP-adjoined position, which facilitates the evidentiary analysis here presumably with the same theoretical consequences related to ACD constructions as in the case where other A'-positions are available for QR. For the exposition of its machineries, see May (1985) and Aoun and Li (1993a), among others.

```
(20)            IP
          NP_i      IP
        everyone  NP        I'
                 John   I       VP
                     PAST VP        CP_i
                          V   NP_i   that you PAST VP
                        see NP_i  CP            V    NP_i
                           t_i    t_i          see  NP_i  CP
                                                    t_i    t_i
```
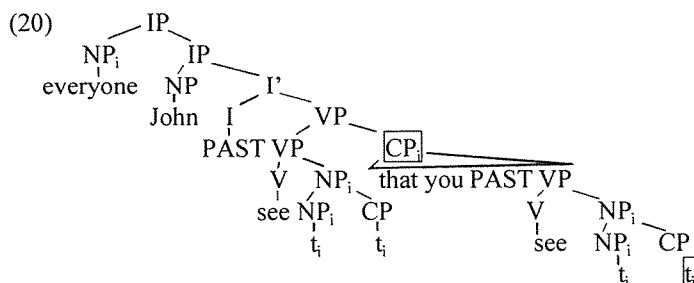
In (20) the CP-trace is contained in its own antecedent CP; hence, the structure is ill-formed, inducing that reconstructive regress.

With this in mind, Baltin (1987) is forced to assume that extraposition creates no trace. By way of justification, he states that no principle of grammar requires extraposition to leave a trace and that no direct evidence exists for its doing so. But it does not seem that this claim is correct. There is some evidence that the trace of an extraposed relative clause is not eliminable, just as that of an extraposed comparative(-like) clause is not.[16] Consider this example, which involves a relative clause modifying a heavy NP:

(21)   I saw a man in a pink hat who I'd never met before.

Vacuous extraposition followed by Heavy NP Shift in this sentence yields an ungrammatical sentence like the following:

(22) *I saw who I'd never met before a man in a pink hat.

If extraposed relative clauses leave traces, then the ungrammaticality of (22) is straightforwardly accounted for: its S-structure will involve a VP configuration in which the CP fails to c-command[17] its trace, hence no properly binding the latter, as shown in the following:

```
(23)                          VP
              VP                            NP_i
         VP        CP_i                NP_i        CP
       V    NP   who I'd never met   a man in      t_i
     see    t_i      before          a pink hat
```
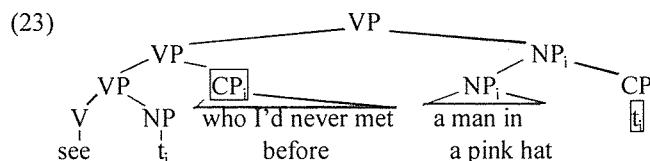
On the other hand, if extraposed relative CPs leave no trace, or if these traces can delete in the relevant level, then the ungrammaticality of (22) is obscure. Hence, it seems that extraposition *does* leave a trace even in the case of relative clauses.

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[16] Larson and May (1990) argue that for the classes of comparative constructions and comparative-like constructions involving *same* and *different* an extraposition trace is required under the Projection Principle of Chomsky (1981): in contrast to the case of a relative, the clausal complement of a comparative sentence is not an optional modifier but a selected complement of the degree morpheme.

[17] The notion intended in this case is strict c-command and not m-command.

Thus, Larson and May (1990) have shown that there are valid grounds for excluding the S-structural vacuous extraposition as a means to resolve antecedent containment: since it seems that extrapositions at S-structure generally leave traces, Baltin's (1987) theory of ACDs will always lead to the problem of the infinite reconstructive regress at the linguistic level where the empty VP is interpreted.

2.2 The Pseudo-Gapping Approach to ACDs

Here I will show how Lappin (1996) explains ACD constructions and how inadequate his pseudo-gapping-based account of ACD is by giving some of the kinds of data the grammatical status of which it cannot correctly predict.

Lappin (1996) makes the claim that ACD should be reduced to pseudo-gapping and that S-structure rather than LF is the level of representation where VP ellipsis resolution is achieved through syntactic reconstruction. With this view adopted, at S-structure the null VP of ACD constructions is not a syntactically unstructured empty category, namely [$_{VP}$ e], but a syntactically structured partially empty category in which the trace of the *wh*-phrase or relative null operator exists. Thus, the S-structure of (24a) is roughly represented as in (24b), and not in (24c):

(24) a. John read everything which Mary believes that he did.
     b. John PAST [$_{VP}$ read everything which$_i$ Mary believes that he PAST [$_{VP}$ [$_V$ e][$_{NP}$ t$_i$]]]
     c. John PAST [$_{VP}$ read everything which$_i$ Mary believes that he PAST [$_{VP}$ e]]

To achieve VP ellipsis resolution, the head of the antecedent VP, *read*, is identified as a reconstructive source and copied into the partially elided VP and the reconstructed or interpreted representation for (24a) is produced as the following:

(25) John PAST [$_{VP}$ read everything which$_i$ Mary believes that he PAST [$_{VP}$ [$_V$ read][$_{NP}$ t$_i$]]]

The copying process in this case is performed between the empty head of the null VP and the lexically satisfied head of the antecedent VP: therefore, there is no antecedent containment whatever in the first place, with the result that we might see no *raison d'être* for a syntactic operation such as QR to remove the internally anaphoric VP from the antecedent VP containing it.[18]

This S-structure-based account of ACD sentences categorizes them into the same linguistic lacunar phenomenon as pseudo-gapping constructions, whose reconstruction is attained by specifying a correspondence in argument/adjunct structure between the partially empty VP and the antecedent VP, as in the following:

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[18] I conclude in this article, however, that the operation QR *is* necessary to generate that kind of parallelism which enables copying for ACD resolution, namely A'-chain-associated vestigial correspondence, which I will introduce in section 3.1.

(26) a.   John sent flowers to Lucy before Max did chocolates.
    b.   John sent flowers to Lucy before Max did to Mary.
    c.   John sent flowers to Lucy before Max did chocolates to Mary.

As is pointed out by Fiengo and May (1994), pseudo-gapping is subject to a locality condition which requires that what verb is to be reconstructed be associated argument/adjunct-structurally with the remnant(s) in a pseudo-gapped structure. Thus, in (27) the elided material must be understood as *gave Lucy* in stead of *claimed that he gave Lucy*:

(27)   Max claimed that he gave Lucy flowers before John did chocolates.

With this in mind, consider the interpretation of (28):

(28)   John promised to read everything which Rosa did.

Here the material to reconstruct can be either of the embedded V *read* and the string containing the matrix V *promise to read*. But on the pseudo-gapping analysis of ACDs, entailing the locality constraint on their reading, the latter possibility would be counterfactually excluded, since the relevant trace contained in the ACD site is an argument of *read*. That is to say, this type of ACD analysis could not seem to correctly predict that ACD sentences like (28) are ambiguously interpreted regarding their missing material reconstruction.

To solve this problem, Lappin (1996) notes that the locality condition on pseudo-gapping is not so strict as Fiengo and May (1994) suggest and resorts to the notion of re-analysis as the mechanism for forming a complex verb. Thus, the ACD sites of (29a-d) can be dually understood as can that of (28):

(29) a.   John will agree to complete his paper before Bill will his book.
    b.   Mary hoped to win the race more fervently than John did the baseball game.
    c.   Lucy wants to gain admission to Harvard as much as Sue does to MIT.
    d.   Max insists on visiting London more adamantly than Bill does Paris.

Lappin suggests that in these cases the matrix verb and the verbal head of its complement can be re-analyzed as a complex verb, that such a uniting process would yield as a complex verb *agree to complete* in (29a), *hope to win* in (29b), *want to gain* in (29c), and *insist on visiting* in (29d), each associated with its argument, and that in general tense is a barrier to the formation of a complex verb from matrix and complement verbs, which accounts for the interpretive contrast between (27) and (29).

The pseudo-gapping analysis of ACD structures, together with the assumption that tense is generally a barrier to complex verb formation, correctly predicts that only the embedded verb can be taken as the antecedent for the empty verb in the ACD construction (30a) as well as in the orthodox pseudo-gapping case (30b):

(30) a.   John promised that he read everything which Rosa did.

b.   John agreed that he completed his paper before Bill did his book.

As Lappin (1996) observes, if this kind of approach to ACD, which attempts to assimilate it to pseudo-gapping, is on the right track, then it would follow as a general prediction that both lacunar phenomena should exhibit the same range of possibilities for the complex antecedent verb to reconstruct into the elided verb with respect to the tense-barrierhood condition.[19]

Now I will point out some failings of the pseudo-gapping account of ACD constructions. The first problem is that, this approach followed, it will remain uncertain how the following ACD sentences are ruled out with the specified reading for their ACD site, since their reconstructions are innocent of finite tense.

(31) a.   *John met a woman knowing every professor that Bill did ϕ.
              (ϕ = meet a woman knowing t) (p.c. with Michael T. Wescoat)
      b.   *Beck read most reports on every suspect Kollberg did ϕ.
                     (ϕ = read most reports on t) (Kennedy 1997)
      c.   *Melander requested every copy of most of the tapes Larsson did ϕ.
                            (ϕ = request every copy of t) (ibid.)
      d.   *Kollberg took no pictures of the same people Beck did ϕ.
                            (ϕ = take no pictures of t) (ibid.)

It is obvious that some other condition but that of the tense barrierhood will have yet to be proposed on the V-re-analysis for overt and covert pseudo-gapping constructions.[20]

The second problem follows from this: Lappin (1996) pays no attention to which category, the quantificational or non-quantificational, the complements of the antecedent and anaphoric verbs belong to. Therefore, his theory of pseudo-gapping cannot explain the grammatical status of the following ACD instances:[21]

(32) a.   *?I read many books that you did.   (Diesing 1992)
      b.   *I read few books that you did.   (ibid.)
      c.   *I read two books that you did.   (ibid.)
      d.   *I read books that you did.   (ibid.)
      e.   *Max put many/six things he could in his pockets.   (ibid.)

Furthermore, the fact remains to be mysterious that the overt pseudo-gapping case in (33b) is noticeably worse than that in (33a), according to Michael T. Wescoat

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[19] The point here is that to the same speaker-listener orthodox pseudo-gapping constructions and ACD constructions behave in the same way as regards the tense-barrierhood condition on complex verb formation. I will return to this matter discussing the contrast between (36) and (37) below.

[20] *Overt pseudo-gapping* and *covert pseudo-gapping* mean regular pseudo-gapping as in (26a-c) and ACD as in (24a), respectively.

[21] In this article I espouse Diesing's (1992) assumption that bare plurals and DPs headed by a weak determiner are not quantificational and thus incapable of being QRed; hence, I take the grammatical contrast between licit ACD sentences and those illicit in (32a-e) to be a piece of evidence for the necessity of QR.

(personal communication):[22]

> (33) a.   ?John reviewed the play, and Mary did the book.
>   b.   ??John loves every child, and Mary does Tom.

And Lappin (1996) seems to analyze ACD constructions involving a non-restrictive relative clause as perfectly grammatical, but it seems that they are less acceptable than the standard type of ACD sentences, that is, those with a restrictive relative clause. So, if this is assumed, the following ACD data will militate against the pseudo-gapping approach to ACD structures, since their degraded status is left unaccounted for, the grammatical judgements on (34c,d) being Michael T. Wescoat's (personal communication):

> (34) a.   ?Dulles suspected Philby, who Angleton did not.   (Lasnik 1993)
>   b.   ?Dulles suspected Philby, who Angleton did as well.   (*ibid.*)
>   c.   ?*Dulles suspected Philby, who/whom Angleton did not.
>   d.   *Dulles suspected Philby, who/whom Angleton did as well.

The last problem is concerned with the assumption itself that ACD is reduced to pseudo-gapping. Lappin (1996) notes that a minority can interpret the elided verb as dependent upon the matrix verb in the following sentences:

> (35) a.   John promised that he read everything which Rosa did.
>   b.   John agreed that he completed his paper before Bill did his book.

Presumably, as he suggests, for these speakers tense does not prevent the process of complex verb formation; hence no effect of the locality condition on pseudo-gapping. So if this pseudo-gapping analysis of ACD structures is correct, then whenever a speaker finds no effect of the interpretive locality constraint in ACD sentences, he should find none in overt pseudo-gapping sentences, either. But this does not seem to be the case. Larson and May (1990) claim that in (36) the ACD sites can be understood as *think that Bill visited* as well as *visit*:[23]

> (36) a.   Which student thinks that Bill visited which city that you do?
>   b.   Which student thinks that Bill visited which city that you did?

Obviously, to use the terminology of the pseudo-gapping theory, for them ACD constructions are immune to the tense barrierhood condition on complex verb

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[22] Now I cannot make a conclusive remark about the relation between surface coordinate pseudo-gapping as in (33a,b) and ACD, but I suppose that these data indicate that some kind of quantificational parallelism is involved in a derivational aptitude for the former as well.

[23] Larson and May (1990) note that in (36a) the anaphoric VP is most naturally construed with the matrix VP headed by *think* whereas in (36b) it is most saliently construed with the embedded VP headed by *visit* and that the relevant factor is the tense of the inflectional head preceding the ACD site, present tense inducing a broad reconstruction and past tense inducing a narrow reconstruction, and admit that it is not entirely clear what principles account for this tense constraint. It seems to me that a kind of parallelism in tense as well as some pragmatic factor is involved in these cases.

formation. Therefore, given these judgements, the pseudo-gapping analysis of ACD is to predict that for them overt pseudo-gapping cases are also immune to that locality condition; but this is false, as witness Fiengo and May's (1994) observation that (37a), in which the elided verb is understood as *write*, grammatically contrasts with (37b), in which the elided material would be *think that Jane writes*:

(37) a.   Mary thought that Jane writes more books than Barbara does articles.
     b. *Mary thought that Jane writes more books than Barbara did articles.

These data show that overt pseudo-gapping is subject to the tense-related locality condition on the authors' grammar. Thus, we can see that for the same person, namely Robert C. May, ACD structures are distinct from overt pseudo-gapping constructions regarding the tense barrierhood condition on complex verb formation, a fact that seems impossible to deal with straightforwardly for Lappin's (1996) VP ellipsis account, which treats pseudo-gapping and ACD as being the same.

2.3 The QR Approach to ACDs

In the present section I will show the syntactic mechanism to handle ACD constructions proposed by May (1985) and subsequently adopted by Larson and May (1990) and Diesing (1992), and then fault their approach to ACDs by taking some of its counterexamples.
    Let us first see how the QR approach to ACD constructions accounts for the grammaticality of those of the standard type. May (1985) notes that the following ACD sentence is saved out of the infinite regress of reconstruction by QR at LF:[24]

(38)   Dulles suspected everyone who Angleton did.

The LF representation of (38) will be consistent with the c-command constraint on VP-deletion, which requires that neither the missing verb nor its antecedent c-commands the other, with the result that the interpreter never falls into the vicious circle of reference, as is indicated in (39):

(39)
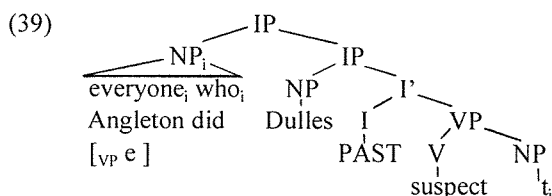
May (1985) assumes that VP deletion or ellipsis involves a reconstruction of the

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[24] Carlson (1977) analyzes relative clauses containing an ACD site as an amount relative and remarks that relative *wh*-forms are disallowed in them; but in this article I assume with May (1985) that generally this is not the case. I assume that ACD sentences like (38) are syntactically perfect, even if any stylistic deviance is felt in it by some speakers.

missing VP in the place of the VP pro-form and that it is the syntactic VP which is copied. The resulting structure from (39) will be as in the following structure:

(40)

```
                        _IP_
              _NP_i_        _IP_
         everyone_i who_i  NP      I'_
         Angleton did    Dulles  I      VP_
         [_VP suspect t_i ]      PAST  V    NP
                                      suspect  t_i
```
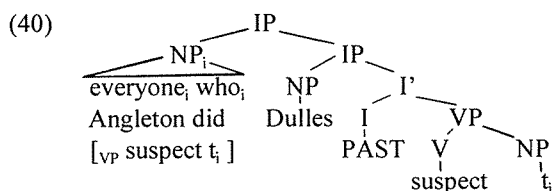
This is a well-formed LF structure and represents just the desired interpretation, namely that Angleton and Dulles suspected all the same people: in (40) *who* properly binds an empty category as a variable, since it is presumably coindexed by predication with the head of the relative. A comparable substitution of VP in the S-structure of (38), in contrast, would lead to a reconstructive regress, for substituting the VP *suspect everyone who Angleton did [_VP e]* would lead to a structure still containing a null VP, which itself would have yet to be reconstructed, and so on eternally. May (1985) remarks that that such a regress is a cause of ungrammaticality can be surmised from the deviance of (41), with an appositive relative clause:[25]

(41) *Dulles suspected Philby, who Angleton did.

Here, since the LF movement QR affects only quantified phrases, there is no possibility of deriving the structure that permits proper reconstruction. May's (1985) argument that the contrast between (38) and (41) provides strong evidence for the existence of a level of LF and a movement QR is reinforced by the account of examples like (42), understood with *suspect* as the head of the null VP:

(42) *Dulles suspected everyone who knew Philby, who Angleton did.

It might be thought that the substitution of the antecedent VP in the non-restrictive relative clause would be possible, since it will be moved by QR as part of another phrase, so as to avoid the reconstructive regress just described for (41). This is the case, but a well-formed LF representation still cannot be derived: applying QR gives (43a); subsequently substituting the antecedent VP, (43b):

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[25] According to Hornstein (1994), Robert May suggests that at LF appositive relative ACD cases are transformed into non-ACD constructions by virtue of the LF conjunct hypothesis concerning appositive relative clauses and that ACD examples such as (41), causing no reconstructive regress, are ruled out by what we might call the particle/negative requirement condition on cross-sentential VP ellipsis. I will discuss this matter in section 2.3.5.

(43) a.

```
                        ___ IP ___
        __ NP; __              __ IP __
    everyone; who;         NP        I' __
    knew Philby;, who;    Dulles  I     VP __
    Angleton did [VP e ]          PAST V   NP
                                      suspect  t;
```

b.

```
                        ___ IP ___
        __ NP; __              __ IP __
    everyone; who;         NP        I' __
    knew Philby;, [who;]   Dulles  I     VP __
    Angleton did [VP suspect [t;] ]  PAST V   NP
                                      suspect  t;
```
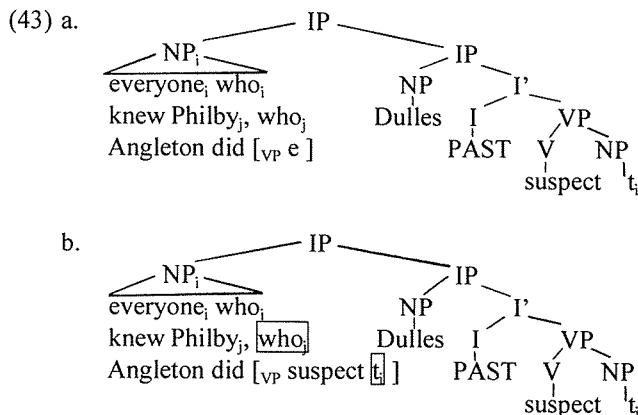
The problem with (43b) is that the embedded *wh*-phrase binds no empty category or variable: that is, the two *wh*-phrases will bear distinct indices, but the index of the empty category contained in the reconstructed VP must be that of the higher occurrence of *who*, since only this occurrence is coindexed with the phrase that undergoes the LF-movement. Thus, the ungrammaticality of (42) can be attributed to its LF representation (43b), containing an operator that binds no variable, namely to vacuous quantification. This analysis further correctly predicts that the following ACD case is grammatical, but only with an interpretation under which the empty VP is understood as the embedded VP, headed by *know*:

(44)   Dulles suspected everyone who knew some agent who Angleton did.

Applying QR to (44) gives (45a);[26] subsequently copying the two candidates for the antecedent VP, (45b,c):[27]

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[26] In (45) the *some* phrase is QRed to the VP-adjoined position in the higher relative clause, but in this case it does not make any difference which option is taken by the operation QR, IP-adjunction or VP-adjunction.

[27] Williams (1994) insists that an index by itself has no meaning or receives no semantic value and consequently plays no role in linguistic computations, except as an inseparable piece of the binding apparatus. Obviously, this idea is incompatible with the QR approach to ACDs. In this article, however, I will leave this matter open: the QR-based minimalist approach to ACDs advanced in section 3.1 is irrelevant to the process of copying an A'-trace or variable.

(45) a.

b.

c.
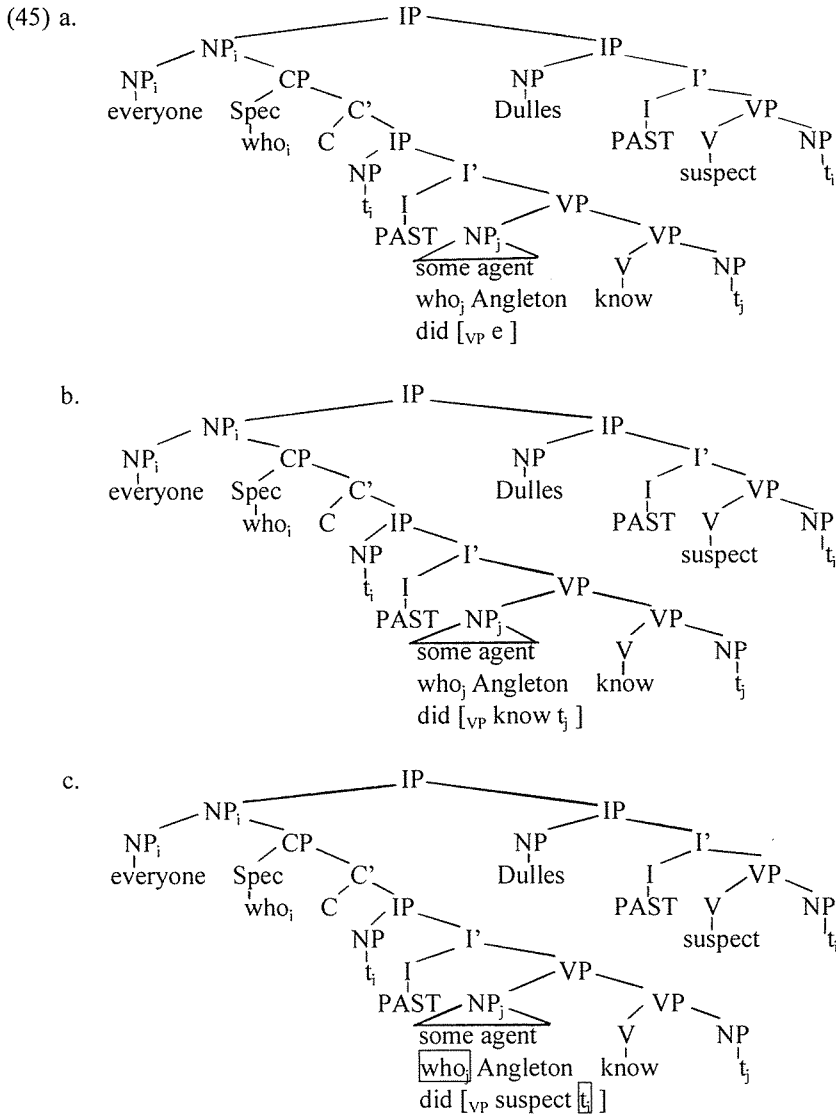
(45b) is a well-formed LF representation of (44), whereas (45c), like (42), involves vacuous quantification. Thus, (44) is unambiguous with the null VP reconstruction, having only the interpretation under which the anaphoric VP takes as its antecedent the embedded VP.

2.3.1 On island phenomena   Let us now turn to some of the demerits of the QR approach to ACD constructions. First, consider ungrammatical ACD sentences such as the following, the grammatical judgements on (46a,d-f) being Michael T.

Wescoat's (personal communication):[28]

(46) a. *John liked every woman that Bill wondered how he did ϕ.
    b. ?*Dulles suspected everyone Angleton wondered why Philby did.

                                              (Lasnik 1993)

    c. *John met everyone that Peter wondered when he could ϕ.

                                              (Haïk 1987)

    d. *John will buy every car that Bill can't explain the fact that he will ϕ.
    e. *John will admire every girl that he slandered a man who did ϕ.
    f. *John will eat everything that I think that he will ϕ is likely.

If the empty VPs in the above examples are analyzed as containing a trace resulting from the *wh*-movement of a relative null operator to the specifier position of a relative CP, then the ungrammaticality of these sentences can be accounted for straightforwardly. For the *wh*-movements involved in them violate island constraints: the examples in (46a,b,c) violate the *wh*-island condition; those in (46d,e) the complex NP constraint; and that in (46f) the sentential subject constraint.

    In contrast, May's (1985) QR theory of ACDs analyzes the structure of the null VP as [$_{VP}$ e]: that is, according to this type of analysis, there can be no movement at all involved in ACD constructions and so we cannot attribute the ill-formedness of the above ACD cases to the violation of the syntactical island conditions, with the result that we are forced to find what makes these ACD instances ungrammatical in the process of interpretation at the level of LF. Regarding this problem, May (1991) insists that the subjacency condition is a well-formedness constraint on the LF representation, and not on the movement. Furthermore, he makes these two assumptions: that the relative operator is to be base-generated in the specifier position of the relative CP and that intermediate traces, if required, are to be base-generated. The former is required so that the LF representation may be derived whose operator-variable construction is well-formed; without it, the relative clause with an ACD site in it would contain a free variable. And the latter is necessary to account for grammatical long-distance ACD cases like the following:

(47)   Dulles suspected everyone Angleton said Philby did.   (Lasnik 1993)

But for this assumption, (47) would have such an ill-formed copied LF representation as (48):[29]

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[28] Here, needless to say, an asterisk by itself indicates the violation of the subjacency condition and not the empty category principle: it is rational that all the reconstructed LF representations of (46a-f) respect the latter.

[29] That is, this LF representation of (47) would be parallel to those of (46a-f) with respect to the LF subjacency condition.

(48)

With May's (1991) proposed LF version of the subjacency condition adopted, in (48) the relative null operator is illicitly distant from its nearest trace, indicating that intermediate traces must be base-generated.

The process of this kind of base-generation, however, is theoretically dubious. For it means that traces are freely generated in all SpecCPs and freely assigned indices and ϕ features and that they are to be compared for a match at the LF representation, by whose aleatoric obtention only is satisfied the subjacency condition as well as the ECP, inasmuch as there seems to be no providing information on an operator to what empty categories are grammatically desired to be germane to it, namely those traces which are not in the same clause as it is.

Let us here consider such a grammatical contrast between argument and adjunct extractions as is illustrated by the following sentences:

(49) a. ??What$_i$ do you wonder [whether [John read t$_i$]]   (Lasnik 1993)
     b. *Why$_i$ do you wonder [whether [John read the book t$_i$]]   (*ibid.*)
     c. ??What do you wonder whether John said Mary read?   (*ibid.*)
     d. *Why do you wonder whether John said Mary read the book?   (*ibid.*)

To account for this kind of asymmetry, Lasnik and Saito (1992) stipulate that offending intermediate traces of arguments can be deleted at LF, whereas those of adjuncts cannot. Following this assumption, we can deal with the above contrast: in (49a,c) the subjacency condition alone is infringed; and in (49b,d) the ECP is violated as well. Since Lasnik and Saito's (1992) dichotomy of traces, together with the subjacency condition and the ECP, may well handle argument vs. adjunct asymmetries, I will adopt this stipulation in the present article.[30]

Now let us return to May's (1991) LF subjacency condition. As is indicated above, the intermediate trace(s) of an argument can be deleted at the LF representation. This means that his proposal is crucially undermined, since it vitally resorts to the

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[30] The full details of the theoretical framework proposed by Lasnik and Saito (1992) need not concern us here.

existence of those sort of traces at the level of LF, without which the QR approach to ACD constructions could not distinguish those ACD cases in which island effects are found as in (46) and those which are perfectly grammatical as in (47), with the result that the contrast between the two classes is left unaccounted for. Thus, we should reject May's (1991) hypothesis that the subjacency condition is a constraint on the LF representation rather than movement rules, in favor of the assumption that it is a constraint on the operation of Move α. Given this consequence, we should take the subjacency effects in ACD instances like (46) as evidence that a relative null operator moves out of the null VP, leaving its trace behind.

In (46) we have seen the ACD cases where a syntactic island is contained in the relative clause and not copied at LF; next consider the following perfectly grammatical ACD sentences with the specified reading for the null VP, where a syntactic island appears as the complement of the matrix verb, thus being copied at LF, the grammatical judgements here being Michael T. Wescoat's (personal communication):[31]

> (50) a.   John knows how to do everything Bill does ϕ.
>   (ϕ = know how to do)
>   b.   John knows when to visit every city Bill does ϕ.
>   (ϕ = know when to visit)

Under the QR approach to ACD constructions, which assumes that their null VP is analyzed as [$_{VP}$ e], the S-structure of (50b), for instance, is represented as in (51):

(51) Tree diagram:
IP → NP (John), I' → I (PRESENT), VP → V (know), CP → Spec (when$_j$), C' → C, IP → NP (PRO), I' → I, VP → to VP, AdvP (t$_j$); VP → V (visit), NP$_i$ → NP$_i$ (every city), CP → Spec (Op$_i$), C' → C, IP → NP (Bill), I' → I (PRESENT), VP (e)

At LF, this structure is mapped onto such a representation as (52) after the operation

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[31] Provided that the information about the LF representation is to be communicated to the PF component, the deletive theory can account for the ungrammaticality of (46a-f) but not the grammaticality of (50a,b). In this article, however, I will leave it open whether or no such impartation is realistically feasible, thus disregarding the deletion-based approach to ACDs.

of copying following QR is applied to it:

(52)

Since, as is evident from the above post-copying LF representation, the null operator is too far from the trace for it to bind, to account for the perfect acceptability of the ACD instances like (50a,b), May's QR account must adopt the hypothesis that the subjacency condition does not determine the status of syntactic linkings at the LF representation, the opposite of which, as is shown above, it has to adopt to explain the ungrammaticality of ACD cases like (46). Here this type of approach to ACDs has fallen into an ineluctable self-contradiction: whether or not the subjacency condition is a constraint on the LF representation, it cannot possibly seem to deal with the ACD sentences showing island effects as in (46) and those with no such effect as in (50) at the same time.

2.3.2 On believe *vs.* persuade *in the ACD reconstruction*   Here I will consider the following ACD sentences, which are cited from Larson and May (1990):

(53) a.   I persuaded everyone you did ϕ to be polite.
                         (ϕ = persuade *t*)
       b. ?I persuaded everyone you did ϕ to be polite.
                         (ϕ = persuade *t* to be polite)
       c. ?I believed everyone you did ϕ to be polite.
                         (ϕ = believe *t* to be polite)
       d. *I believed everyone you did ϕ to be polite.
                         (ϕ = believe *t*)

If we follow the QR approach, the S-structure of (53a,b) and that of (53c,d) are represented as in (54) and (55), respectively:[32]

_____

[32] I assume here with Larson and May (1990) that the verb *persuade* takes two complements: NP and CP, the latter required by the PRO theorem.

(54)
```
            IP
      NP          I'
      |        I        VP
      I     PAST   V        NP_i
            persuade   NP_i        CP
                     everyone   Spec      C'        PRO to be polite
                              Op_i   C   IP
                                        NP      I'
                                        |    I     VP
                                       you  PAST   e
```

(55)
```
            IP
      NP          I'
      |        I        VP
      I     PAST   V        IP
            believe   NP_i            I'
                    NP_i      CP    I     VP
                  everyone  Spec  C'  to  be polite
                          Op_i C   IP
                                 NP      I'
                                 |    I     VP
                                you  PAST   e
```

Applying QR to these structures, we will get those LF representations which are legitimate inputs to the interpretive rule of copying for the empty VP; after copying the antecedent VP in the position occupied by the null VP, we can derive the LF representations (56) and (57) from (54) and (55), respectively:

(56)
```
                        IP
          NP_i                      IP
      NP_i      CP          NP          I'
    everyone  Spec   C'     I      I        VP
            Op_i C   IP    PAST   V     NP      CP
                  NP    I'     persuade  t_i   PRO to be polite
                 you  I      VP
                     PAST V    NP    CP
                        persuade t_i  PRO to be polite
```

(57)

```
                      ┌─── IP ───┐
               ┌── NPᵢ ──┐     ┌── IP ──┐
            NPᵢ        CP     NP      I' ──┐
          everyone  Spec   C'   I    I      VP
                    Opᵢ  C   IP  PAST  V      IP
                          NP    I'   believe  NP    I'
                          you   I     VP      tᵢ   I    VP
                               PAST   V    IP       to  be polite
                              believe NP   I'
                                      tᵢ   I    VP
                                           to  be polite
```

It is evident that the LF representation in (56) corresponds to (53b), whose grammatical status of less acceptability can seem to be accounted for from the linguistic performance viewpoint, as Larson and May (1990) remark.[33] But if we depended upon their QR-based theory of ACDs, the perfectly grammatical and more salient ACD example (53a) would have no LF representation. That is to say, this theory should counterfactually judge (53a) to be ill-formed and cannot explain its perfect acceptability,[34] though, regarding the rest of the cases, the LF representation in (57) corresponds to (53c), and not to (53d), which means that the QR-based approach can account for the grammaticality of (53c) and the ungrammaticality of (53d).

2.3.3 On grammatical ACD constructions with an extraposed relative clause containing the empty VP As we have seen in the analysis of (22) in 2.1, Larson and May (1990) argue that the rule of extraposition leaves a trace as *wh-* and NP-movements do, so that they offer strong arguments against Baltin's (1987) vacuous extraposition approach to ACD constructions, which is based upon the assumption that the rule of extraposition applies at or before the level of S-structure. Within their framework of syntax, depending on the QR-based theory of ACDs, we cannot possibly account for the well-formedness of an ACD construction with a relative clause which contains the anaphoric VP overtly extraposed, in that case where we find such instances. And grammatical ACD sentences of this type *do* exist. Here are some examples:

(58) a.　John will see every woman today that Bill did yesterday.
　　　　　　　　　　　　(p.c. with Michael T. Wescoat)
　　　b.　John will find everyone easy to work with that Bill does.
　　　　　　　　　　　　(Baltin 1987:586)
　　　c.　John will make every student take an extra exam that Bill does.
　　　　　　　　　　　　(*ibid.*)

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[33] Larson and May (1990) argue that (53b,c) are fundamentally grammatical but that they are more difficult to interpretatively process since their VP reconstruction requires material in both the left and right syntactic contexts of the lacunar VP. Here I agree with them that the acceptable degradedness of these ACD sentences reflects our linguistic performance limitations.

[34] Larson and May (1990) admit that (53a) represents a challenge for the QR analysis of ACDs.

Before we see why Larson and May's (1990) QR-based theory is problematic and inadequate, we should consider the motivation of the hypothesis that the rule of extraposition applies at or before the level of S-structure.

Let us now turn to this presupposition about where extraposition applies. If we find that kind of sentence which indicates that a syntactic representation affected by extraposition should be the input to the LF component, we would have to presuppose that this type of movement applies at or before the level of S-structure. For, following the alternative proposal that extraposition is a stylistic rather than syntactic rule and that it applies after the level of S-structure, somewhere on the branch from S-structure to the PF component, we should take it for granted that the LF component cannot take as its input a structure which extraposition has applied to, and it should follow from this that it would make no logical or interpretive difference whether the movement of extraposition has applied or not. We have those examples which indicate that PP extraposition outputs *are* inputs for rules of logical form and thus serve as evidence for the assumption that extraposition is a syntactic rule, applying at or before S-structure. Consider the following example:

(59)   The owner will be fined of every car on the block.   (Guéron 1980:649)

This sentence is scopally unambiguous, with only *every car* taking wide scope; this reading is represented as follows:

(60)   For all x, x a car, the owner of x will be fined.   (*ibid.*)

But its unextraposed counterpart (61) is scopally ambiguous:

(61)   The owner of every car on the block will be fined.   (*ibid.*)

Here *the owner* can take scope over *every car*, and vice versa; these two readings are represented as in the following:

(62) a.   That individual x, such that x owns every car, x will be fined.
                                                        (*ibid.*)
     b.   For all x, x a car, the owner of x will be fined.   (*ibid.*)

From this observation, we can assume that PP extraposition is not a stylistic movement but a syntactic one. For, if PP extraposition is stylistic, then both of the readings in (62a,b) should be possible in (59). The fact that (59) is scopally monoguous with *every car* only taking wide scope seems to indicate that the narrow scope reading of PP complements is lost under PP extraposition in sentences like (59), and it follows from this that when a complex NP admits only the wide scope reading, PP extraposition will result in an unacceptable sentence. For a PP complement extraposed and a complex NP cannot take wide scope at the same time. This prediction is shown to be correct by the following contrastive examples:

(63) a.   The sum of these two numbers was requested.   (*ibid.*)

    b. *The sum was requested of these two numbers.   (*ibid.*)

This fact also will support the presupposition in question.

    The output of extraposition is input for the rules determining the logical scope of negation and polarity items. This is illustrated by the following examples:

(64) a. *The names of any of those composers weren't called out yet.
                                      (*ibid.*:650)
     b.   The names weren't called out yet of any of those composers.   (*ibid.*)
(65) a. *M. thinks that the extraposition transformation which has the slightest effect on LF hasn't been found yet.   (*ibid.*)
     b.   M. thinks that the extraposition transformation hasn't been found yet which has the slightest effect on LF.   (*ibid.*)

Such contrasts indicate that PP and CP extrapositions precede the rules that determine the scope of such logical operators as negation and polarity items. If these rules of scope are in the LF component, then it follows that extraposition outputs must be inputs for that component.

    Coreference possibility is changed by PP extraposition. This is illustrated by the following examples:[35]

(66) a.   A picture of *Mary* was sent to *her*.   (*ibid.*)
     b.   *A picture was sent to *her* of *Mary*.   (*ibid.*)

If coreference is determined on the basis of rules and configurations of LF,[36] then it follows that extraposition outputs must be considered inputs for the LF component.

    On the relevant assumption, it is possible to extract from the PP in a non-extraposed position, but the rule of extraposition turns the PP into a syntactic island. This is illustrated by the following examples:

(67) a.   Who did you show a picture of ___ to Martha?   (Baltin 1984:160)
     b.   *Who did you show a picture ___ to Martha of ___?   (*ibid.*)
(68) a.   Who did you see a picture of ___ yesterday?   (*ibid.*)
     b.   *Who did you see a picture ___ yesterday of ___?   (*ibid.*)

In (67a) the PP is properly governed by the head N (*picture*), being assigned a thematic role and governed by it. Thus, following the Condition on Extraction Domains (CED), which states that extraction is possible only out of phrases that are properly governed, we can extract from the PP; hence the grammaticality of (67a). In (67b) the PP is adjoined to VP and fails to be properly governed. Thus, we cannot extract from that extraposed PP without violating the CED; hence the ungrammaticality of (67b). The same explanation holds for the contrast in (68).

    In contrast, it might seem that the stylistic transformation hypothesis wrongly

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[35] In these examples italicization represents referential coindexation.

[36] This idea, of course, accords with the minimalist assumption that the binding conditions hold at the level of LF.
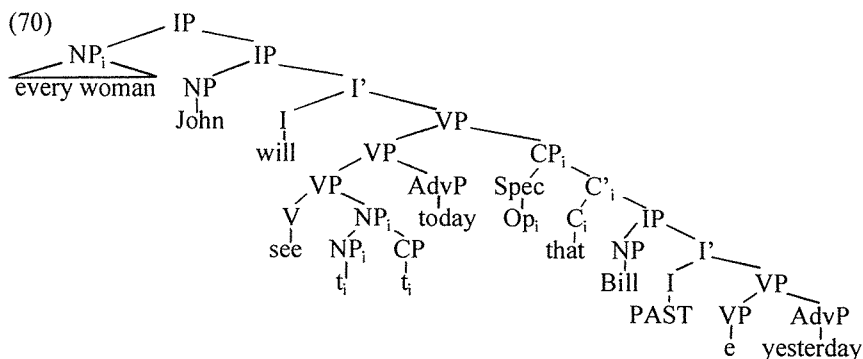
predicts equal grammaticality for (67a,b) as well as (68a,b), since PP extraposition would follow *wh*-movement, with the result that we cannot resort to the CED to account for the unacceptability of (67b) and (68b) and thus the contrast in question.[37]

Observing that these pieces of evidence support the hypothesis that extraposition is a syntactic rule, we should be led to adopt it. Now we are in a position to examine the QR approach to ACDs with respect to grammatical ACD cases as in (58), and show how problematic they are as a theory of ACD structures. On this hypothesis, together with the assumption that extraposition creates a trace, the S-structure of (58a) is represented as in (69):[38]

(69)

```
                IP
        NP           I'
       John     I          VP
               will    VP            CP_i
                    VP    AdvP   Spec      C'_i
                  V   NP_i  today  Op_i  C_i     IP
                 see  NP_i  CP          that  NP      I'
                every woman  t_i            Bill  I       VP
                                                PAST  VP    AdvP
                                                      e   yesterday
```
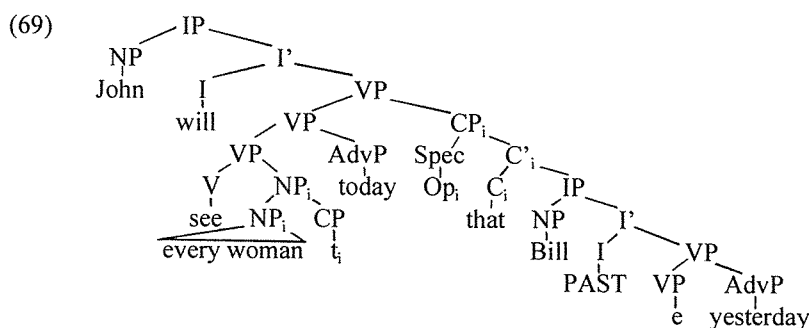
If we apply QR to this structure, with the smaller NP raised, respecting the binding relation between the antecedent CP and its trace, then we will have a pre-copying LF representation as in (70):
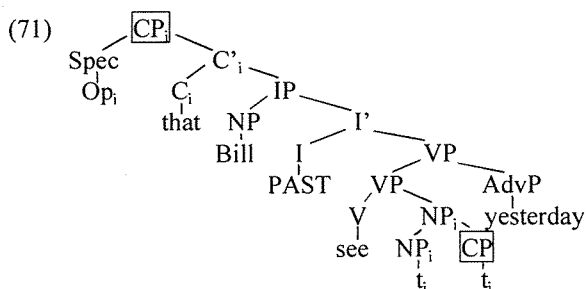
(70)

```
                    IP
        NP_i                  IP
     every woman    NP              IP
                   John       I           I'
                            will    VP            VP
                                  VP    AdvP   Spec      C'_i
                                V   NP_i  today  Op_i  C_i     IP
                               see  NP_i  CP          that  NP      I'
                                    t_i    t_i            Bill  I       VP
                                                            PAST  VP    AdvP
                                                                  e   yesterday
```

Thus, we find in the above representation that kind of configuration which leads to the infinite regress of reconstruction or that vicious circle of "entangled" reference: if we apply the interpretive process of copying to (70), then we will get a post-copying LF representation involving an uninterpretable relative clause, as in the following:

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[37] Guéron (1980:649) provides us with a relevant contrastive pair such as the following:
(i)   Who did you read a book by last summer?
(ii)   *Who did you read a book last summer by?

[38] Here I assume Spec-head agreement and indexical percolation. Hence, in the relative clause, all the projections of C have the same index as its specifier Op_i.

(71)

```
            ┌──┐
          ╱ │CP│ ╲
      Spec     ╲  C'ᵢ ╲
       │      ╱  │   ╲ IP
       Opᵢ   Cᵢ    ╲     ╲
            │    NP   ╱  I' ╲
           that  │   ╱    ╲  VP
                Bill  I  ╱    ╲
                     │  VP   AdvP
                    PAST ╱  ╲   │
                       V  NPᵢ  yesterday
                       │   │  ┌──┐
                      see  NPᵢ│CP│
                            │  └──┘
                           tᵢ    tᵢ
```

This means, inasmuch as it is evident that the same analysis holds of (58b,c), that extraposed ACD examples such as (58) should be uninterpretable and thus ill-formed. That is, such a QR-based approach to ACDs as is proposed by May (1985) is bound to wrongly predict that those kind of ACD constructions are ungrammatical.

2.3.4 On quantified NPs taking wide scope out of a tensed clause   Larson and May (1990) build an argument for their QR account of ACDs on the grammatical contrast between the following ACD cases:

(72) a.   John believed everyone you did to be a genius.
     b.   *John believed everyone you did was a genius.

The limiting factor, according to them, is the locality of QR, because of which a quantifier in an embedded tensed clause cannot be raised out,[39] whereas a quantifier in the subject position of an infinitival clause is not so constrained.

But even with quantifiers that clearly can escape tensed clauses, thus moving out of matrix VPs, the result is still unacceptable, which fact is illustrated by the following sentences:[40]

(73) a.   Someone or other believes that EACH of those men is incompetent.
                                                       (Williams 1994:33)
     b.   *Someone or other believes that EACH of those men that I do is
           incompetent.   (*ibid.*)

In (73a), it is possible to understand the quantifier *each* as having wider scope than the quantified NP *someone*, indicating according to May's theory of QR that the subject of the finite clause, *each*, can QR to a position high enough to have *someone* within its scope or to c-command it. But it seems to have little effect on the

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[39] May (1988) offers a contrary view: he remarks that generally a universal quantifier in the embedded subject position, as in (73a,b), can be understood as having broad scope and that there does not seem to be any grammatical principle limiting extraction from that position. With this view adopted, such a QR approach to ACDs as is advanced by Larson and May (1990) cannot explain the grammatical contrast between (72a,b). Irrespective of this QR-theoretical self-contradiction, however, my proposed QR-based minimalist approach to ACDs can account for the grammatical statuses of (72a,b) and (73a,b) in checking-theoretical terms, which will be shown in section 3.2.

[40] I take it that in these instances capitalization simply represents scopal broadness.

ungrammaticality of (73b) whether or not *each* takes wide scope in this ACD example. Thus, Larson and May (1990) cannot seem to explain why this ACD case, where *each* takes scope over *someone*, is unacceptable.

2.3.5 On ACD cases with their null VP contained in an appositive relative clause
May (1985) observes that Names are not subject to QR and claims that this accounts for the lack of ACD constructions with a non-restrictive or appositive relative clause, as in the following:

    (74) *Dulles suspected Philby, who Angleton did.   (May 1985:12)

But there are also many cases of ACDs with appositive relative clauses that are acceptable, though slightly degraded, which indicates that the infinite regress of reconstruction is irrelevant to them. Let us consider the following examples:

    (75) a.   Dulles suspects Philby, who Angleton doesn't.
                    (Clark 1992:17)
        b. *Dulles suspects Philby, who Angleton does.
                      (*ibid.*)
    (76) a.   Dulles suspects the man, who, by the way, Angleton doesn't.
                      (*ibid.*)
        b. *Dulles suspects the man, who, by the way, Angleton does.
                      (*ibid.*)
    (77)   Dulles suspected Angleton, who, incidentally, Philby did as well.
                      (Hornstein 1994:469)
    (78) a.   Dulles believes Philby, who Angleton does as well, to be a spy.
                      (Hornstein 1995:83)
        b. *Dulles believes Philby, who Angleton does as well, is a spy.
                      (*ibid.*)

    Under May's (1985) QR treatment of ACDs, all the examples above would lead to that infinity of reconstructive regress, when it comes to the interpretation of the empty VP by the reconstruction through one application after another of VP copying. According to Hornstein (1994), Robert May suggests that the acceptability of ACD cases with non-restrictive relative clauses need not tell against his QR theory, given that appositive relative clauses are interpreted as conjunctions and so evade the reconstructive regress problem by being saved out of the antecedent VP at LF. This presupposes that the appositive is not merely interpreted as a conjunct semantically but in fact is represented as a conjunct at LF.[41] This suggestion may be supported by the following examples:

    (79) a.   Everyone/no one$_i$ likes the man who just kissed his$_i$ mother.   (*ibid.*)
        b. *Everyone/no one$_i$ likes John, who, incidentally, just kissed his$_i$ mother.

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[41] It seems that this LF conjunct hypothesis may well be called a GB or minimalist version of the Main Clause Hypothesis for appositive relatives, proposed by Emonds (1979), which provides us with support for the former: I assent to its basic spirit in this article.

(80) a.   Every Christian$_i$ forgives a man who harms him$_i$.

     b.   *Every Christian$_i$ forgives John, who harms him$_i$.

This can be accounted for if the (b) examples are interpreted as a matrix conjunct: (79b) and (80b) are transformed into (81a,b), where the bound pronouns are outside the scope of their quantificational antecedent, respectively:

(81) a.   *Everyone/no one$_i$ likes John$_j$, and he$_j$, incidentally, just kissed his$_i$

        mother.   (Hornstein 1995:83)

     b.   *Every Christian$_i$ forgives John$_j$, and he$_j$ harms him$_i$.

Such an assimilation of appositives to conjuncts at LF as Robert May suggests may gain more support from the following data:

(82) a.   *Everyone/no one$_i$ expected John, who, incidentally, kicked his$_i$

        mother, to leave.   (Hornstein 1995:83)

     b.   *Everyone/no one$_i$ expected John, who, incidentally, kicked his$_i$

        mother, would leave.   (*ibid.*)

Both the sentences above are unacceptable with the indicated binding. This follows if in both cases the appositive relative is treated as a matrix conjunct, the LF paraphrases of (82a,b) thus being as in (83a,b), respectively:

(83) a.   *Everyone/no one$_i$ expected John$_j$ to leave and he$_j$, incidentally, kicked

        his$_i$ mother.   (*ibid.*)

     b.   *Everyone/no one$_i$ expected John$_j$ would leave and he$_j$, incidentally,

        kicked his$_i$ mother.   (*ibid.*)

If the matrix clause and its appositive relative clause together are mapped onto a matrix conjunct structure at LF, a hypothesis whose justification we have seen above, then (77) would be transformed into (84):

(84)   Dulles suspected Angleton, and, incidentally, Philby did as well.

                                                    (*ibid.*)

This is interpretable, involving no reconstructive regress for VP copying; hence, the grammaticality of (77) can be explained under May's (1985) QR theory together with his suggested LF hypothesis.

Now consider the following examples:

(85) a.   John left and Bill did *(too/as well).   (*ibid.*:82)

     b.   John is tall and Mary is *(too/as well).   (*ibid.*)

It appears that standard cross-sentential VP ellipsis requires such particles as *too* or *as*

well.[42] If this requirement holds for LF conjuncts like (83a,b), then the grammatical status of (74)-(78a) can be accounted for; but following this type of approach, we cannot explain the ungrammaticality of (78b).

With this kind of approach adopted, let us consider the ACD cases in (74)-(78). Regarding (74), it is transformed into an LF conjunct as in (86):

(86) *Dulles suspected Philby, and Angleton did.

This representation leads to no reconstructive regress. But it does not have any particle required by the cross-sentential VP ellipsis; hence its ungrammaticality.

Regarding (75), the (a) example is transformed into the following LF conjunct:

(87) Dulles suspects Philby, but Angleton doesn't.

This involves no antecedent containment and should be well-formed, as is indicated by the following grammatical sentence:

(88) John may be questioning our motives, but Peter hasn't.
(Araki and Yasui (eds.) 1992:1570)

Thus, the grammaticality of (75a) can be explained. The (b) example is mapped onto the following LF conjunct:

(89) *Dulles suspects Philby, and Angleton does.

This is no longer an ACD instance, but violates the particle requirement in question. Thus, the ungrammaticality of (75b) is accounted for.

Regarding (76), the (a) example is transformed at LF into the following:

(90) Dulles suspects the man, and, by the way, Angleton doesn't.

This involves no ACD, and should be well-formed concerning the particle requirement, as is (87); hence the grammaticality of (76a). The (b) case is mapped onto the following LF conjunct:

(91) *Dulles suspects the man, and, by the way, Angleton does.

This is not an ACD example, but has no particle to legitimatize standard cross-sentential VP ellipsis. Thus, (76b) is correctly predicted to be ungrammatical.

Regarding (77), this ACD example is transformed into an LF conjunct like (84), repeated as (92):

(92) Dulles suspected Angleton, and, incidentally, Philby did as well.

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[42] Henceforth I will refer to this discourse-oriented constraint as the particle/negative requirement condition.

This causes no regress of reconstruction, and satisfies the particle requirement with *as well* in it. Thus, the grammatical status of (77) is accounted for.

Regarding (78), the (a) example is mapped onto an LF conjunct such as the following:

(93) Dulles believes Philby to be a spy, and Angleton does as well.

This is no longer an ACD case, and respects the particle requirement. Thus, (78a) is correctly predicted to be grammatical. The (b) example is transformed into such an LF conjunct as the following:

(94) Dulles believes Philby is a spy, and Angleton does as well.

This is free from ACD, and the particle *as well* should legitimatize the cross-sentential VP ellipsis. Thus, for May's QR theory of ACDs it would remain a mystery why ACD constructions like (78b) are ungrammatical.

2.4 The A-Movement Approach to ACDs

Thus far, we have observed and examined ACD constructions within the GB system. In the present section I will examine the way that ACD constructions are dealt with in the minimalist framework and note some such ACD data as seem to be impossible for a minimalist approach to ACDs like Hornstein's (1994, 1995) or Lasnik's (1993) to handle.[43]

In a minimalist theory, structural Case marking is a spec-head relation. Accusative Case is taken to be assigned when the object NP moves out of VP into the SpecAgr$_O$P position. In English this operation takes place at LF. This movement is obligatory, given the postulated relation between Case marking and θ visibility. The structure of a transitive clause is as follows:

(95) $[_{CP}$ Spec $[_{C'}$ C $[_{AgrS''}$ Spec $[_{AgrS'}$ Agr$_S$ $[_{TP}$ T $[_{AgrO''}$ Spec $[_{AgrO'}$ Agr$_O$ $[_{VP}$ NP$_S$ V
NP$_O$ $]]]]]]]]]$ (Hornstein 1994:466)

At LF, NP$_O$ raises to SpecAgr$_O$", where it is Case-marked. This operation moves NP$_O$ out of the VP and thus enables the LF representation of an ACD construction to evade that reconstructive regress problem. Consider the following pair:

(96) a.   John bought everything that you did [e].   (*ibid.*)
     b.   John$_j$ [T $[_{AgrO''}$ [everything that you did [e]]$_i$[Agr$_O$ $[_{VP}$ t$_j$ $[_{VP1}$ buy
          t$_i$]]]]]   (*ibid.*)

If [e] is interpreted as the VP$_1$ in (96b), then the interpretable or well-formed LF

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[43] For the definition of the term *minimalist* here, see footnote 3 above.

representation results for (96a). By making the resolution of ACDs dependent upon A-movement, this minimalist approach to ACD structures enables us to account for the boundedness condition noted by Baltin (1987). In a multiply embedded structure, we cannot A-move successive cyclically to higher and higher $SpecAgr_OPs$ in the standard case. The reason is that A-movement is a last resort operation. An expression moves only if it must meet some feature-checking requirements; once these are met, no further movement is permitted. It follows from this that the interpretation of null VPs in ACD constructions is upwardly bounded.

But Larson and May (1990) provide examples suggesting that the boundedness restriction is a spurious generalization. The sentence (97a) (their (40a)), for example, is ambiguous regarding the empty VP interpretation, and one of its readings, (97c), violates the restriction in question:[44]

(97) a. Which student wants to visit which city that you do? (*ibid.*:461)
     b. Which student wants to visit which city that you visit? (*ibid.*)
     c. Which student wants to visit which city that you want to visit?

(*ibid.*)

In order to account for the ambiguity of (97a), Hornstein (1994, 1995) suggests that *want* is not a typical embedding verb but a restructuring verb. If this is the case, then the apparent violations of the boundedness restriction fall into place. The boundedness restriction effects disappear just in case restructuring applies. The distinctive feature of restructuring verbs is that they unify the domains of the embedded and restructuring verbs into one complex. This process licenses local A-movement across sentential boundaries. In restructuring contexts the object NP moves to the higher $SpecAgr_OP$ position, the one associated with the restructuring verb, as in (98):

(98) ... $[_{AgrO''}Spec$ ...$[_{VP}$ want $[_{IP}$ ...$[_{VP}$ ... NP_O ...]]]]   (*ibid.*:468)

That is, the embedded object NP_O moves out from under both the lowest VP and the higher one. This allows either VP to be copied into the empty VP contained in the relative clause without any regress of reconstruction. Thus, this long A-movement at LF accounts for the ambiguity of (97a).

But now consider the following ACD examples:

(99) a. John expected to visit every city that Bill did.
     b. John expected to visit every city that Bill visited.
     c. John expected to visit every city that Bill expected to visit.
(100) a. John condescended to speak to every man that Bill did.
      b. John condescended to speak to every man that Bill spoke to.
      c. John condescended to speak to every man that Bill condescended to
          speak to.

---

[44] Larson and May (1990) observe that (97c) is a more salient or unmarked reading for (97a); see footnote 22 for the relevant constraint.

The ACD instance (99a) is ambiguous with regard to the interpretation of the empty VP: the reading as in (99c) is as available as the one as in (99b). The same holds for (100).

The verbs *expect* and *condescend* are not restructuring verbs. Consequently, under Hornstein's (1994, 1995) minimalist approach to ACDs, the object NPs in the above examples can just A-move no higher than the lowest SpecAgr$_O$P. This means that we cannot interpret the anaphoric VP as the matrix VP, since the copying process in that case should lead to an infinitude of reconstructive regress. Thus, the minimalist theory of ACD constructions based on the hypothesis of restructuring wrongly predicts that (99a) and (100a) are unambiguous, having the (b) reading only.[45]

Let us now turn to another observation. In section 2.3.2, we have noted the disparity between *believe* and *persuade* and demonstrated how inadequately the QR approach to ACDs handles it. So let us see whether or not Hornstein's minimalist approach to ACDs can account for that disparity. The relevant data are repeated as (101a-d):

> (101) a.   I persuaded everyone you did ϕ to be polite.
>
>   (ϕ = persuade *t*)
>
>   b.   ?I persuaded everyone you did ϕ to be polite.
>
>   (ϕ = persuade *t* to be polite)
>
>   c.   ?I believed everyone you did ϕ to be polite.
>
>   (ϕ = believe *t* to be polite)
>
>   d.   *I believed everyone you did ϕ to be polite.
>
>   (ϕ = believe *t*)

Hornstein (1994, 1995) analyzes the structure of the empty VP in the ACD construction as [$_{VP}$ e], which has no syntactic hierarchy. Therefore, his minimalist theory of ACDs, like Larson and May's (1990) QR-based theory of ACDs, can handle the data in (101b-d), but not (101a). Thus, ACD cases like (101a) are as problematic to this minimalist approach as to that QR-based theory of ACD constructions.

Let us next consider again a grammatical ACD construction with an extraposed relative clause containing an empty VP, which we have discussed with respect to the QR approach to ACDs, such as the following:

> (102)   John will see every woman today that Bill did yesterday.

We have assumed that the rule of extraposition applies before the linguistic derivation branches off into the levels of PF and LF and that this rule leaves a trace. If this is the case in the framework of the minimalist program, which seems to be reasonable, then extraposed ACD examples like (102) are as problematic to Hornstein's (1994, 1995) minimalist approach to ACDs as to Larson and May's (1990) QR-based theory of ACDs: for their LF representations cannot evade that reconstructive regress problem

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[45] The same type of argument against the A-movement account of ACDs as this is presented also by Kennedy (1997), who provides for us those other kinds of ACD data involving non-restructuring contexts which militate against it.

which is caused by the vicious-circular antecedent-anaphor relationship between the extraposed relative and its trace.[46]

Let us turn to another argument against a minimalist approach to ACD structures such as Hornstein's (1994, 1995). Under the minimalist theory in question, it is not the rule of QR that undoes the regress of reconstruction, but the rule which moves objects to SpecAgr$_O$P positions, a movement required in a theory in which all Case assignment is to NPs in Spec positions. Now consider the following examples:

    (103) a.   John believed everyone you did to be a genius.
         b.   *John believed everyone you did was a genius.

The difference between (103a) and (103b) is then a difference in where the relevant Spec positions are located. For the ECM case, the relevant Spec is the Spec of Agr$_O$ of the matrix clause, but for the tensed clause, the relevant Spec is the Spec of Agr$_S$ of the embedded clause; thus, the examples above will differ precisely in that in (103a), the ACD site will be raised out of the antecedent VP, but not in (103b).

But that Hornstein's proposal is also wrong can be seen from the following:[47]

    (104) a.   John believed Bill to be antagonizing everyone that he does ϕ.
                        (ϕ = believe Bill to be antagonizing t)
         b.   *John believed Bill was antagonizing everyone that he does ϕ.
                        (ϕ = believe Bill was antagonizing t)

In these cases the NP containing a null VP is in the embedded object position and so presumably moves to the SpecAgr$_O$ position of the embedded clause. Consequently, A-movement fails to remove the ellipsis site from the antecedent VP in either case. And yet the same contrast between tensed and non-tensed complement clauses is found here as in (103),[48] indicating that the A-movement to SpecAgr$_O$ does not suffice to account for the grammatical status of ACD constructions.

As is pointed out by Kennedy (1997), (105) indicates that in the A-movement approach adjunct ACD is actually not ACD, since the null VP is not contained in its antecedent, namely the lower VP:

    (105)   Tim has [$_{VP}$[$_{VP}$ performed][$_{PP}$ in every club Bill has ϕ]].
                             (ϕ = performed in t)

Then, according to Hornstein (1994:471), anaphoric VPs in locative adjuncts as in

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[46] As regards the LF representation of the extraposed-relative-contained ACD case (102), I assume here that just the smaller quantified phrase moves to the SpecAgr$_O$ position, respecting the proper binding relation between the extraposed relative CP and its trace: hence, the reconstructive regress problem is to be induced in the extraposed clause.

[47] These ACD examples are my modified versions of Williams's (1994) (93a,b), which are the following:
  (i)   John believed Bill to be antagonizing [everyone that John does].
  (ii) John believed Bill is antagonizing [everyone that John does].

[48] That is, the A-movement analysis of ACD constructions, even together with the restructuring hypothesis, cannot account for the grammaticality of (104a): it is evident that there is no restructuring whatever in this instance.

(105) are interpreted simply by copying the lower VP into the position occupied by the empty VP, without any movement for removing antecedent containment. This kind of operation maps (105) onto (106):

(106)   Tim has [$_{VP}$[$_{VP}$ performed][$_{PP}$ in every club [$_{CP}$ Op$_i$ Bill has [$_{VP}$ performed]]]]

This structure is an ill-formed LF representation: its relative null operator does not bind a variable; hence vacuous quantification. Thus, to deal with this grammatical type of adjunct ACD constructions, the A-movement account of ACDs should require some additional machinery to introduce a syntactic position providing a variable for the relative null operator to bind.

Kennedy (1997) examines as the most promising solution to this problem the process of *sprouting*, whose function is to introduce into an LF representation a position that provides a variable for an operator to bind and which is a very versatile structure-building operation, subject only to the constraints of X-bar theory and the requirement that the creations be licensed by the appropriate properties of the elements involved in the LF. This process accounts for the well-formedness of sluicing cases such as (107):

(107)   Joan ate dinner, but I don't know with whom.

The operation of copying the antecedent IP into the position following the PP containing a *wh*-phrase maps (107) onto (108), which is an instance of vacuous quantification:

(108)   Joan ate dinner, but I don't know [$_{CP}$ with whom [$_{IP}$ Joan ate dinner]]

Since the verb *eat* is argument-structurally compatible with a comitative adjunct, a syntactic position for an appropriate type of variable can be sprouted, as in the following:

(109)   Joan ate dinner, but I don't know [$_{CP}$ with whom$_i$ [$_{IP}$ Joan [$_{VP}$[$_{VP}$ ate dinner][$_{PP}$ e$_i$]]]]

The important constraint on sprouting, which is the corollary of the general condition prohibiting LF operations from accessing the lexicon, is that, though it may create syntactic structures, it must not introduce lexical material. This condition explains the following data:

(110)   The governor was speaking with reporters, but I don't know [$_{PP}$ what about]/[$_{PP}$ about what]/*[$_{DP}$ what].

The ungrammatical option is correctly ruled out, seeing that a PP with a head satisfied by a lexical item, that is, [$_{PP}$ about e], cannot be sprouted.

Following Kennedy (1997), suppose that sprouting is available as an operation to

produce elliptical constructions generally, such as VP-deletion as well as sluicing. Then the LF operations, IP copying and PP sprouting, map (105) onto the following structure:

(111)   Tim has [$_{VP}$[$_{VP}$ performed][$_{PP}$ in every club [$_{CP}$ Op$_i$ Bill has [$_{VP}$[$_{VP}$ performed][$_{PP}$ e$_i$]]]]]

But this is anomalous, since a null operator cannot seem to bind an empty PP, as is illustrated by (112):

(112)   *Tim has performed in every club Bill has performed.

If (111) is ruled out for the same reason (112) is, which is a natural assumption, then the LF process of sprouting cannot generate the well-formed LF representation for (105) without introducing lexical material at LF: hence the conclusion that the A-movement approach to ACDs, even aided by sprouting, cannot explain the grammaticality of adjunct ACD cases such as (105).

Furthermore, aside from the serious problem shown above, the following adjunct ACD sentence is impossible for the A-movement account to handle:

(113)   Tim likes to perform in the same clubs that Bill does ϕ.
$$(\phi = \text{like to perform in } t)$$

This indicates that the matrix reading is possible in contexts where the anaphoric VP is contained in a quantificational adjunct.[49] Under Hornstein's A-movement analysis, the PP containing the ACD site is adjoined to the embedded VP headed by *perform* and so the null VP should be understood only as *perform in t*, incapable of receiving the matrix reading: hence its impossibility for the minimalist approach to ACD constructions to account for the ambiguity of ACD instances like (113) between the matrix and embedded readings for their anaphoric VPs.

Let us next turn to those sentences which involve what Kennedy (1997) refers to as NP-contained ACD. This type of ACD construction, where a null VP is contained in a prepositional complement of N, is illustrated by the following interpretively monoguous examples:

(114) a.   Beck read a report on every suspect Kollberg did ϕ.
$$(\phi = \text{read a report on})$$
      b.   Melander requested copies of most of the tapes Larsson did ϕ.
$$(\phi = \text{request copies of})$$
      c.   Kollberg took pictures of the same people Beck did ϕ.
$$(\phi = \text{take pictures of})$$

According to the A-movement analysis, the LF representation of (114a) is as in (115), where the complement of V, *a report on every suspect Kollberg did [$_{VP}$ e]*, has

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moved to the SpecAgr$_O$ position to check its Case feature:

(115)

[Tree diagram for (115): AgrsP with DP$_j$ (Beck) and Agr$_s$'; Agr$_s$, TP; T, Agr$_O$P; DP$_i$ (D: a, NP: N report, PP: P on, DP: D every, NP suspect, CP: Op, Agr$_s$P: Kollberg did [$_{VP}$ e]), Agr$_O$'; Agr$_O$, VP; t$_j$, V'; V read, t$_i$]

Reconstructing the antecedent VP into the position occupied by the empty VP produces the LF representation in (116), speciously corresponding to the interpretation in (117):

(116)

[Tree diagram for (116): AgrsP with DP$_j$ (Beck) and Agr$_s$'; Agr$_s$, TP; T, Agr$_O$P; DP$_i$ (D: a, NP: N report, PP: P on, DP: D every, NP suspect, CP: Op, Agr$_s$P: Kollberg did [$_{VP}$ t$_j$ read t$_i$]), Agr$_O$'; Agr$_O$, VP; t$_j$, V'; V read, t$_i$]

(117)   Beck read a report on every suspect Kollberg read.

This reading, however, is not the actual meaning of (114a), since a quantificational ill-formedness is involved in (116), that is, there is no binding relation between the null relative operator and the trace in the reconstructed VP,[50] and the same analysis holds true of (114b,c). That is to say, with the A-movement account of ACD constructions adopted, there is no generating those LF representations for NP- or argument-contained ACD sentences such as (114a-c) which correspond to their actual meanings, the interpretive monoguity and perfect grammaticality of this type of ACD cases thus remaining an enigma.

Let us next turn to Lasnik's (1993) suggested minimalist approach to ACD

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[50] Needless to say, this is because the relative null operator is coindexed with the DP whose complement NP is headed by *suspect* through predication whereas the trace to serve as a variable is coindexed with the DP whose complement NP is headed by *report*.

constructions.[51] Taking into account the ACD cases displaying subjacency effects discussed in section 2.3.1, Lasnik (1993) assumes that in ACD sentences a relative null operator moves overtly successive cyclically, and then that an ACD site, instead of being one monolithic empty category, has that full internal syntactic structure, subject to replicative lexical realization at LF, whose empty internal categories are syntactically active: hence, significantly, what appears to be an ACD construction is actually no such thing.[52] Under these assumptions, the pre-copying LF representation of an orthodox ACD construction is roughly represented as in the following:

(118)   Dulles $[_{DP}$ everyone Op_i Angleton PAST $[_{VP}[_V$ e $][_{DP}$ x_i $]]]_i$ Agr_O $[_{VP}[_V$ suspected $][_{DP}$ t_i $]]$

Lasnik (1993) seems to argue that the resolution of regular ACDs is attained only at LF, via the movement of a direct object to the $SpecAgr_O$ position and that, under the hypothesis that Vehicle Change[53] is basically limited to ϕ-featural distinctions and variable/A-trace distinctions, [54] the base-generated fully structured null VP in (118) is regarded as syntactically identical or parallel to the candidate for its antecedent VP,[55] with the consequence that the duplicative mapping of (118) onto (119) may be licensed:

(119)   Dulles $[_{DP}$ everyone Op_i Angleton PAST $[_{VP}[_V$ suspected $][_{DP}$ x_i $]]]_i$ Agr_O $[_{VP}[_V$ suspected $][_{DP}$ t_i $]]$

Obviously, this post-copying LF representation is well-formed and corresponds to the real meaning the orthodox ACD sentence having an elliptical LF representation like (118) is to receive.

Now I will show some of the difficulties for what we might call Lasnik's (1993) minimalist theory of ACD structures. He takes the following appositive relative ACD examples to be grammatical, admitting that they are somewhat degraded:

(120) a.   ?Dulles suspected Philby, who Angleton did not.
      b.   ?Dulles suspected Philby, who Angleton did as well.

These ACD sentences respect the particle/negative requirement as seen in section

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[51] Lasnik (1993) argues against the hypothesis that the structure of a null VP in the ACD construction is $[_{VP}$ e $]$, but it seems that he continues to adopt it to analyze ACD data syntactically presumably under the interpretive theory. For this matter, see footnote 6 above. So here I will try to examine what seems to be suggested as a minimalist account of ACDs based upon the full expansion hypothesis for ACDs by Lasnik (1993).

[52] That is, it follows that there is no antecedent containment involved in what is termed an ACD sentence *ab ovo*. In this article I will pursue this notion and argue that what is required for ACD resolution is not to devise a mechanism to eliminate that configuration which should induce the reconstructive regress but to indicate under what condition it is possible to execute the operation of copying to interpret an ACD site.

[53] Lasnik (1993) assumes that referential coindexation is prerequisite for vehicle change.

[54] My proposed QR-based minimalist approach to ACDs can dispense with vehicle change, which will be shown in section 3.1.

[55] In this case, that the anaphoric VP is syntactically identical or parallel to the antecedent VP connotes that the complement of the former is regarded as equivalent to that of the latter in virtue of vehicle change.

2.3.6, which reflects the discourse-related properties of VP deletions in general. And under Lasnik's approach to ACDs the pre-copying LF representation of (120b), for instance, is as in (121):[56]

(121)   Dulles [$_{DP}$ Philby who$_i$ Angleton PAST [$_{VP}$[$_{VP}$[$_V$ e][$_{DP}$ x$_i$]] as well]]$_i$ Agr$_O$ [$_{VP}$[$_V$ suspected][$_{DP}$ t$_i$]]

The Lasnik vehicle change between a variable and A-trace allows (121) to be mapped onto (122):

(122)   Dulles [$_{DP}$ Philby who$_i$ Angleton PAST [$_{VP}$[$_{VP}$[$_V$ suspected][$_{DP}$ x$_i$]] as well]]$_i$ Agr$_O$ [$_{VP}$[$_V$ suspected][$_{DP}$ t$_i$]]

It is evident that, regarding VP ellipsis resolution, appositive relative ACD cases, which are slightly deviant, are to be syntactically treated in just the same way as standard, restrictive relative ACD cases, which are perfectly grammatical, the grammatical contrast between those two types of ACD constructions thus being left yet to account for.[57]

The same potential problem is raised by the contrast between (123), acceptable though degraded, and (124), perfectly grammatical, both of which are identical in the categorial structure of VP to (118) and (120), given the process of compound transitive verb reanalysis is available in (123) and (124), which is indicated by the well-formed pseudo-passivization in (125), though if Case were licensed by the preposition *to*, the DP containing the lacunar VP would not be raised out of the antecedent VP to the SpecAgr$_O$ position, yielding no parallelism between them, and hence no ACD resolution.

(123) a.   ?Dulles spoke to Philby, who Angleton did not.
      b.   ?Dulles spoke to Philby, who Angleton did as well.
(124) a.   Dulles spoke to everyone Angleton did.
      b.   Dulles talked about everyone Angleton did.
(125)   Philby was spoken to.

Let us next consider the following ungrammatical ACD examples and pseudo-passivized sentence:

(126) a.   *Mary stood near Susan, who Emily did not.
      b.   *Mary stood near Susan, who Emily did as well.
      c.   *Susan was stood near (by Mary).

As is evidenced by (126c), *stand near* cannot reanalyze, with the result that the Case of *Susan* is licensed within the VP: not in the SpecAgr$_O$ position, but internal to the PP or in the functional Spec position just above the PP. With the former possibility

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[56] The structure of (120a) involves a NegP: but it is evident that it is analyzed in the same way as (120b), seeing that what is relevant here is the comparison between the antecedent and lacunar VPs.
[57] It seems that some explanation for this contrast must be offered in terms of the PF component.

adopted, then, the pre-copying LF representation of (126b) would be like the following:[58]

(127) Mary Agr$_O$ [$_{VP}$[$_V$ stood][$_{PP}$[$_P$ near][$_{DP}$ Susan who$_i$ Emily PAST [$_{VP}$[$_V$
e][$_{PP}$[$_P$ e][$_{DP}$ x$_i$]]]]]]

It is obvious that in (127) the antecedent VP is not structurally parallel to the elided VP, seeing that the former contains the relativized full DP, there being no copying for ACD resolution; thus, the ungrammaticality is explained by Lasnik's (1993) ACD theory.

Next consider the following ACD sentence:

(128) ?Mary stood near everyone Emily did.

In this case too, the A-movement of the object of *near* to the SpecAgr$_O$ position is not available, but it is acceptable. It seems that what I take to be Lasnik's (1993) suggested minimalist ACD theory is forced to propose that the vehicle change between a quantificational phrase and variable is allowed particularly in this case.[59] With this proposal followed, the pre-copying LF representation of (128), (129), is mapped onto the post-copying LF representation in (130):

(129) Mary Agr$_O$ [$_{VP}$[$_V$ stood][$_{PP}$[$_P$ near][$_{DP}$ everyone Op$_i$ Emily PAST [$_{VP}$[$_V$
e][$_{PP}$[$_P$ e][$_{DP}$ x$_i$]]]]]]
(130) Mary Agr$_O$ [$_{VP}$[$_V$ stood][$_{PP}$[$_P$ near][$_{DP}$ everyone Op$_i$ Emily PAST [$_{VP}$[$_V$
stood][$_{PP}$[$_P$ near][$_{DP}$ x$_i$]]]]]]

In the representation (129), the antecedent VP contains the full QP, fortunately subject to the above *ad hoc* version of vehicle change, whence comes the success of reconstruction for interpreting the ellipsis site in (128), with the consequence that it is correctly predicted to be grammatical. But this type of ACD account overgenerates ACD instances such as the following:

(131) a. *John believed (that) everyone you did ϕ was a genius.
(ϕ = believe (that) *t* was a genius)
b. *I expect (that) everyone you do ϕ will visit Mary.
(ϕ = expect (that) *t* will visit Mary)
c. *I predicted (that) no one you did ϕ has been a liar.
(ϕ = predict (that) *t* has been a liar)

From the observation above, where I examine what might be called Lasnik's

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[58] With the latter possibility adopted, the definition of structural parallelism needs sophisticating: an A-trace and variable are regarded as equivalent by dint of the Lasnik vehicle change. In contrast, the QR-based minimalist account of ACDs to be proposed in this article is not concerned with such a trouble: it does not resort to the notion of vehicle change. This will be shown in section 3.3.

[59] Actually, Lasnik (1993) argues that the LF extraposition of a relative CP accounts for the acceptability of ACD cases such as (128). See footnote 6 above on the related matter.

(1993) approach to ACDs, I would like to conclude that it also is theoretically inadequate: partly incapable of predicting his own subtle grammatical judgements and partly doomed to resort to some *ad hoc* strategies, only to fail.

3   THE QR-BASED MINIMALIST APPROACH TO ACDs

In this section I will first propose an alternative account of ACD constructions which employs both the A-movement to $SpecAgr_O$ and categorial QR and prove its explanatory value by showing how the ACD cases discussed above as tough to manage for the previous approaches are readily dealt with by that QR-based minimalist ACD theory, and then suggest a model of the grammar which is compatible with my proposed mechanism for ACD resolution and its empirical necessity.

3.1 The basic implements of the QR-based minimalist approach to ACDs

Here I will show how the QR-based minimalist theory of ACD constructions accounts for their VP ellipsis resolution by analyzing a regular ACD sentence. Let us consider the ACD instance in (1), repeated here as (132):

(132)   Dulles suspected everyone Angleton did.

Suppose that the 'S-structure' involved in deriving (132) is like the following:[60]

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[60] The non-minimalist term *S-structure* here is intended to mean a linguistic representation at Spell-Out. I will use it in this sense in the rest of this article.

(133)
```
        AgrsP
       /     \
    DPj      Agrs'
  Dulles   /    \
        Agrs    TP
              /    \
             T    AgroP
           PAST Spec Agro'
                  /    \
               Agro    VP
                     /    \
                    DP    V'
                    |    /  \
                    tj  V   DPi
               suspected DP   CP
                         |   /   \
                    everyone Spec  C'
                            /     /  \
                          Opi   C   AgrsP
                               /    \
                             DPk    Agrs'
                          Angleton  Agrs   TP
                                        /    \
                                       T    AgroP
                                     PAST Spec  Agro'
                                          /    \
                                       [Agro]   VP
                                          e    /  \
                                              DP   V'
                                              |   /  \
                                             tk [V]  DP
                                                 e   ti
```
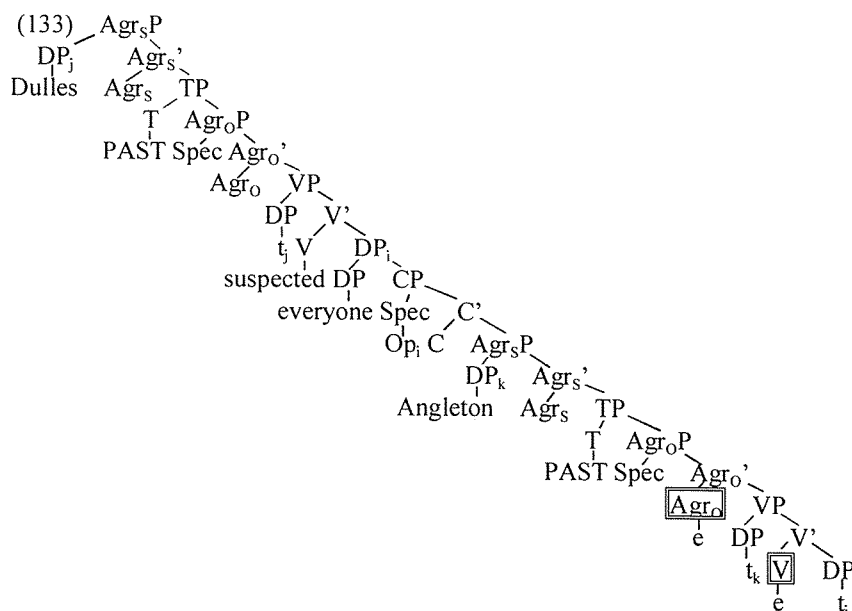
The assumptions to note in (133) are that phonologically null lexical items such as [$_V$ e] and [$_{AgrO}$ e] may be drawn from the lexicon, and that those empty items have their own c-selection or selectional restriction specified in it, with the consequence that in (133) the null operator is base-generated as the complement of the embedded empty V, moving up to the SpecCP of the relative clause. We find that in the LF representation derived from (133) a particular piece of the syntactic information of the lower VP is reflected by the structure of the matrix VP, fortuitously or fortunately to achieve that kind of parallelism which makes possible the ACD resolution at LF. That is, at LF, the matrix and relative Agrs's of (133) are mapped into (134a,b) respectively, following V-raising, A-movement to SpecAgr$_O$ and QR of the matrix object:

(134) a.
```
              Agrs'
            /       \
         Agrs        TP
        /    \      /    \
       T   Agrs    T    AgroP
      / \         tT Spec  Agro'
   Agro  T          /    \
   / \   PAST      xi    Agro
  V  Agro              /    \
  |               tAgrO    VP
suspected                /    \
                        DP    V'
                        |    /  \
                        tj  V   DP
                            |    |
                           tV    ti
```

b.
```
                        ___ Agrs'___
                    Agrs          ___TP___
                  T  Agrs      T      AgroP___
               Agro   T       tT  Spéc   Agro'___
              V Agro PAST        xi  Agro     VP___
              e   e                 tAgrO   DP   V'___
                                       tk    V    DP
                                          tV      ti
```
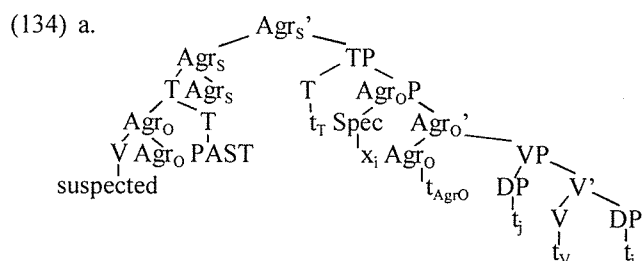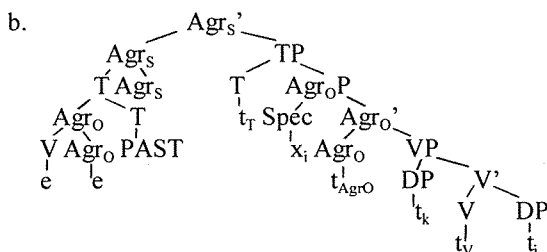
Here I take it as a working hypothesis that the most possible morphological featural checkings for LF convergence must be executed in the matrix clause prior to the operation of copying in order for the reconstructed relative clause not to have the pair of a checker and its checkee duplicated from the matrix clause yet to featurally audit. Thus, every featural checker in the matrix clause is compelled to discharge a relevant feature before copying except those involved in the feature checking of the relative null operator following copying. This hypothesis, economically well-grounded as respects the number of feature checkings called for for convergence at LF, entails V-movement in the matrix clause ahead of the operation of copying: hence, given the assumption that a syntactic parallelism is prerequisite for ACD resolution, the same in the embedded clause. Furthermore, it is compatible with the presupposition underlying the evidentiary analysis in this article that syntactic movements precede copying.[61]

Now let us compare the Agr$_S$' contained in the relative CP (134b), which is the smallest constituent dominating all the anaphoric elements, with that contained in the matrix clause (134a). Obviously, these two functional intermediate projections are syntactically identical (in this case all the environmental configuration for the anaphoric Agr$_O$ and V is strictly the same as that for their antecedents except the indices of the traces left by the moved VP-internal subjects); and, significantly, in both representations the SpecAgr$_O$ position is occupied by a variable with the same index and the complement of V is an A-trace with that index. So I take this kind of likeness to satisfy the parallelism condition on 'ACD' resolution, with the result that in (134) it becomes possible to copy the antecedent V and Agr$_O$ into the positions occupied by the null V and Agr$_O$, respectively, which produces the following post-copying LF representation for the relative Agr$_S$':

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[61] Here I simply assume that V-movement, A-movement, *wh*-movement, and QR precede the operation of copying. Now I must admit that this is a mere working hypothesis, but it seems to me that syntactic operations antecede semantic operations, with the consequence that QR succeeds V-movement, A-movement, and *wh*-movement but precedes copying, provided that QR is syntactic and logico-semantic at the same time.

(135)
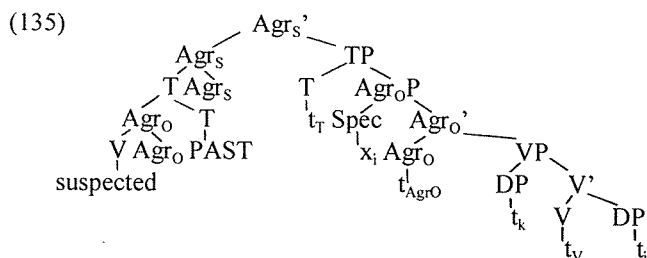
I assume that the NP-feature of Agr is weak in English, seeing that it does not exhibit overt object shift, and that in the pre-copying LF representation (134) the antecedent Agr_O has not yet checked or discharged its NP-feature, with the consequence that its checking function for a DP is to be copied: hence the success of the null operator in ϕ-feature checking. Furthermore, the variable bound by the null operator is Case-checked after its A-movement to the $SpecAgr_O$ following V-raising, and the reconstructed *suspected* gives the appropriate θ-role to the A-trace.[62] Thus, the standard ACD sentence (132) has a well-formed LF representation corresponding to its actual meaning.

3.2 Explaining the data given as counterexemplifying the pseudo-gapping approach to ACDs

As I have shown how a regular type of ACD construction can be dealt with by the QR-based minimalist theory of ACDs, I will account for the grammatical status of the counterexamples of the previous approaches to ACDs by it. In this section, let us consider the data given as impossible to handle for Lappin's (1996) pseudo-gapping analysis of ACDs in section 2.2, (31), (32), and (34), repeated here as (136), (137), and (138), respectively: [63]

(136) a. *John met a woman knowing every professor that Bill did ϕ.
                    (ϕ = meet a woman knowing t)
        b. *Beck read most reports on every suspect Kollberg did ϕ.
                    (ϕ = read most reports on t) (Kennedy 1997)
        c. *Melander requested every copy of most of the tapes Larsson did ϕ.
                    (ϕ = request every copy of t) (*ibid.*)
        d. *Kollberg took no pictures of the same people Beck did ϕ.
                    (ϕ = take no pictures of t) (*ibid.*)
(137) a. *?I read many books that you did.   (Diesing 1992)

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[62] In this article, I will avail myself of the notions of 'catenative' Case and feature checking and θ-role assignment as in this case to analyze the grammatical status of various ACD constructions.

[63] Of course, I have not omitted accounting for the datum given in section 2.1 as counterexemplifying Baltin's (1987) S-structural extraposition approach to ACDs: that is a standard type of ACD sentence, shown manageable to the QR-based minimalist theory of ACDs in section 3.1. Henceforth I will take up all the counterexamples pointed out in section 2 in order of their first appearance in this article without redundancy.

     b. *I read few books that you did.   (*ibid.*)
     c. *I read two books that you did.   (*ibid.*)
     d. *I read books that you did.   (*ibid.*)
     e. *Max put many/six things he could in his pockets.   (*ibid.*)
(138) a. ?Dulles suspected Philby, who Angleton did not.   (Lasnik 1993)
     b. ?Dulles suspected Philby, who Angleton did as well.   (*ibid.*)
     c. ?*Dulles suspected Philby, who/whom Angleton did not.
     d. *Dulles suspected Philby, who/whom Angleton did as well.

Regarding (136a), the quantified DP containing an ACD site *every professor that Bill did φ* cannot be raised out of the matrix VP, headed by *meet*, which is indicated by the fact that in the following sentence *every* cannot take wide scope over *some*:

(139)   Some student met a woman knowing every professor.

Thus, in the pre-copying QRed LF representation of (136a), the matrix Agr_S' may be regarded as structurally parallel to the relative Agr_S': the former contains the quantified DP adjoined to the participial phrase as well as its variable, but the assumption can be made that adjunction effects no configurational change. However, they do not respect the quantificational/relative vestigial correspondence condition on ACD resolution. Hence its impossibility to reconstruct the ACD site in this ACD case.

Regarding ACD instances like (136b-d), where there are two quantificational expressions overtly associated with the verb and preposition, suppose that the 'S-structure' of (136b), for instance, consists of the matrix Agr_S (140a) and the relative CP (140b):

(140) a.

b.
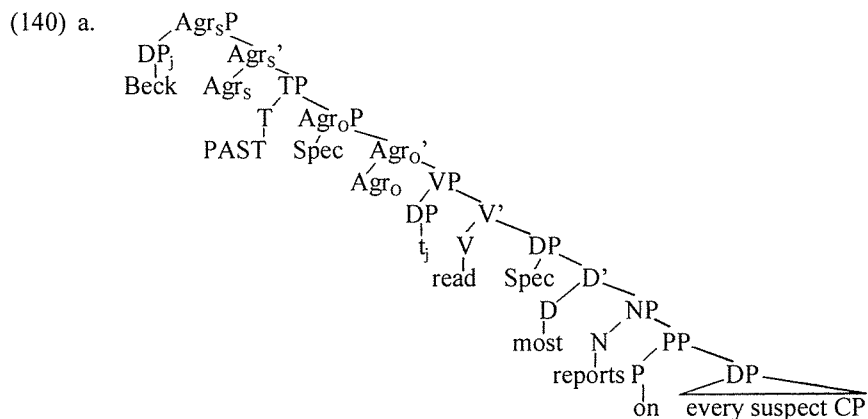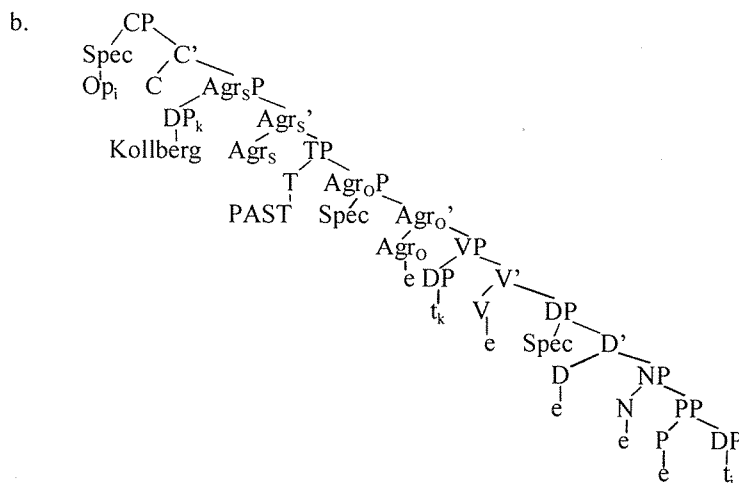
At LF, following V-movement, A-movement to SpecAgr_O and QR, the Agr_S' of the LF syntactic structure derived from (140a) is not parallel to that of the structure derived from (140b): in the former the DP headed by *most* is subject to QR, adjoined to the matrix clause, no less than is the DP headed by *every*, whereas in the latter the DP corresponding to that *most* phrase, headed by a base-generated empty category, remains in situ.[64] Therefore, the A'-vestigial parallelism condition on ACD resolution is not satisfied, with the result that there is no replicating to attain an interpretatively well-formed LF representation for ACD cases such as (136b-d).

Regarding (137a-d), where the non-null verbal object is headed by a weak determiner, the 'S-structure' of (137a) is as follows:

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[64] Here I assume that there is no quantificational head which is phonologically null in the lexicon.

```
(141)    AgrsP
     DPj      Agrs'
      I    Agrs    TP
               T      AgroP
             PAST   Spec    Agro'
                        Agro    VP
                          DP      V'
                          tj   V     DP
                             read   DP      CP
                           many books  Spec     C'
                                    Opi    C    AgrsP
                                        that  DPk    Agrs'
                                            you   Agrs    TP
                                                    T      AgroP
                                                  PAST  Spec  Agro'
                                                           Agro    VP
                                                            e   DP     V'
                                                               tk   V     DP
                                                                   e     ti
```
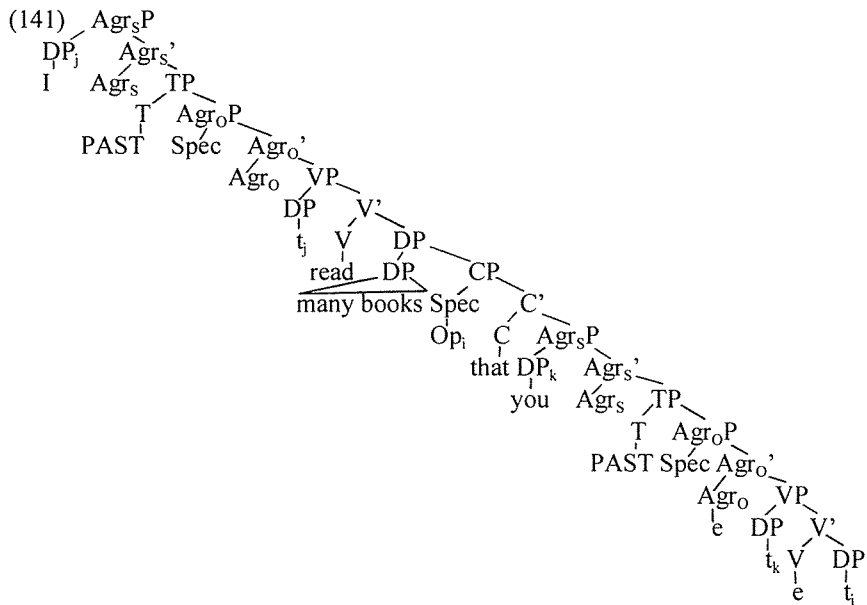
At LF, after V-movement and A-movement to SpecAgr$_O$, the complement of V in the relative clause, an A'-trace bound by the null operator, moves to the embedded SpecAgr$_O$ for that operator to be Case-checked, with the consequence that the chain is formed whose members are Op$_i$, x$_i$, and t$_i$. On the other hand, headed by a weak determiner, the matrix object, *many books*, is not quantificational, thus immune to QR following A-movement to SpecAgr$_O$: hence no A'-chain formed containing a variable and an A-trace. Therefore, there is no copying for ACD resolution in such elliptical sentences as (137a-d).

Regarding (138a-d), the same analysis holds for them. It should be noted that here I follow the judgements by Michael T. Wescoat, thus taking the ACD examples in (137) and those in (138) to have much the same grammatical status. Furthermore, I embrace the essence of the Main Clause Hypothesis for appositive relatives, proposed by Emonds (1979): that is, I assume that at LF the appositive relative CP adjoins to the matrix Agr$_S$P, with the result that the matrix and relative Agr$_S$Ps stand in significantly the same hierarchical relation as will they in the case where a Boolean functional head is introduced to represent a coordinate structure.[65] Then, as is the case

---

[65] Thus, I take the LF structure of an appositive-relative-contained ACD sentence as in (138) to be like the following:

```
( i )      CP
       Spec    C'
            C    AgrsP
          AgrsP    CP
                Spec    C'
            whoi/whomi   C    AgrsP
                              xi
```
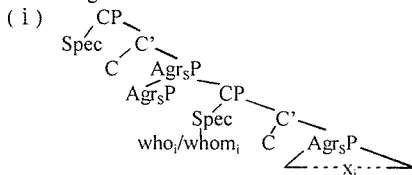
On the other hand, with May's suggested LF conjunct hypothesis adopted and a 'coordinate' functional head introduced, the LF structure in question is represented as follows:

with (137a-d), the matrix Agr_S' and the embedded Agr_S' of the unreconstructed QRed LF representation of (138b) are parallel in categorial structure, but they do not respect that A'-chain-related vestigial correspondence condition on ACD resolution. Thus, there is no copying to understand the ACD site in (138b), no well-formed, fully interpreted LF representation for it being generated: hence the ungrammaticality of appositive relative ACD constructions such as (138b).

3.2 Explaining the data given as counterexemplifying the QR approach to ACDs

Here I will show how the QR-based minimalist approach to ACDs can account for the grammatical status of the ACD data discussed in section 2.3.1, (46), (47) and (50), which are repeated below as (142), (143) and (144), respectively:

(142) a. *John liked every woman that Bill wondered how he did ϕ.

b. ?*Dulles suspected everyone Angleton wondered why Philby did.

(Lasnik 1993)

c. *John met everyone that Peter wondered when he could ϕ.

(Haïk 1987)

d. *John will buy every car that Bill can't explain the fact that he will ϕ.

e. *John will admire every girl that he slandered a man who did ϕ.

f. *John will eat everything that I think that he will ϕ is likely.

(143) Dulles suspected everyone Angleton said Philby did.

(Lasnik 1993)

(144) a. John knows how to do everything Bill does ϕ.

(ϕ = know how to do)

b. John knows when to visit every city Bill does ϕ.

(ϕ = know when to visit)

Regarding (142a-f), the relative null operator moves out of the syntactic island, the subjacency condition thus transgressed: hence the ungrammaticality of them. In contrast, the ACD instance in (143) involves no insular configuration, and the matrix Agr_S' and the most embedded Agr_S' of its pre-copying post-QR LF representation are like (145a,b), respectively:

(ii)   CP
       Spec   C'
            C   FP
          Agr_SP   F'
                  F Agr_SP
                  |
                 and

(145) a.

```
                    Agr_s'
            Agr_s              TP
         T    Agr_s       T        Agr_oP
      Agr_o    T        t_T  Spec     Agr_o'
     V  Agr_o PAST          x_i  Agr_o      VP
     suspected                 t'_AgrO   DP      V'
                                        t_j    V     DP
                                             t_V    t_i
```

b.

```
                    Agr_s'
            Agr_s              TP
         T    Agr_s       T        Agr_oP
      Agr_o    T        t_T  Spec     Agr_o'
     V  Agr_o PAST          x_i  Agr_o      VP
     e    e                    t'_AgrO   DP      V'
                                        t_k    V     DP
                                             t_V    t_i
```
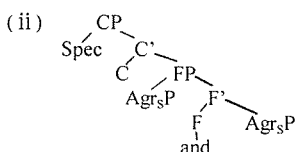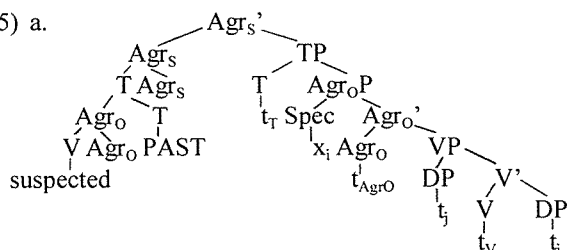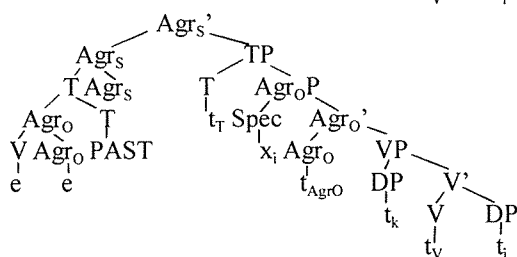
Obviously, (145a,b) are syntactically equivalent; and an A-trace with the same index occupies the verbal complement position and a variable with that index the SpecAgr$_o$ position both in the former and in the latter, the vestigial correspondence thus descried: hence the duplicative operation enabled, copying the antecedent V and Agr$_o$ into the positions occupied by the anaphoric V and Agr$_o$ respectively and as a result yielding a well-formed reconstructed LF representation for (143).

Regarding (144a,b), the S-structure of the relative CP in (144a), for example, where the null operator moves successive cyclically from its base-generated position, namely the complement position of the null V contained in the empty CP c-selected by the higher lacunar verb, up to the Spec position of the relative clause, is like the following:

(146) CP
Spec   C'
Op$_i$ C   Agr$_s$P
        DP$_k$ Agr$_s$'
        Bill   Agr$_s$ TP
                T   Agr$_o$P
                PRESENT   Spec   Agr$_o$'
                        e   Agr$_o$ VP
                              e   DP   V'
                                  t$_k$ V   CP
                                        e   Spec   C'
                                            t$_i$ C   Agr$_s$P
                                                e   DP   Agr$_s$'
                                                    e   Agr$_s$ TP
                                                          e   T   Agr$_o$P
                                                                e   Spec   Agr$_o$'
                                                                      e   Agr$_o$ VP
                                                                            e   VP   AdvP
                                                                                DP   V'   e
                                                                                e   V   DP
                                                                                    e   t$_i$

At LF, following V-movement, A-movement to SpecAgr$_o$ and the deletion of an intermediate trace left by the argument movement, [66] (146) is mapped onto such a pre-copying LF representation as (147):

---

[66] For the discussion of the deletion of an intermediate trace left by the moved argument, see section 2.3.1.

(147) CP
Spec   C'
Op_i   C   Agr_sP
        DP_k   Agr_s'
        Bill   Agr_s   TP
                T Agr_s T   Agr_oP
                Agr_o T   t_T Spec   Agr_o'
                V Agr_o PRESENT e Agr_o   VP
                e   e   t_AgrO DP   V'
                                        t_k   V   CP
                                              t_V Spec   C'
                                                  e   C Agr_sP
                                                      e DP   Agr_s'
                                                          e   Agr_s   TP
                                                              T   Agr_s T   Agr_oP
                                                          Agr_o T   e   t_T Spec   Agr_o'
                                                          V Agr_o e   x_i   Agr_o   VP
                                                          e   e   t_AgrO   VP   AdvP
                                                                                              DP   V'   e
                                                                                              e   V   DP
                                                                                                  t_V   t_i
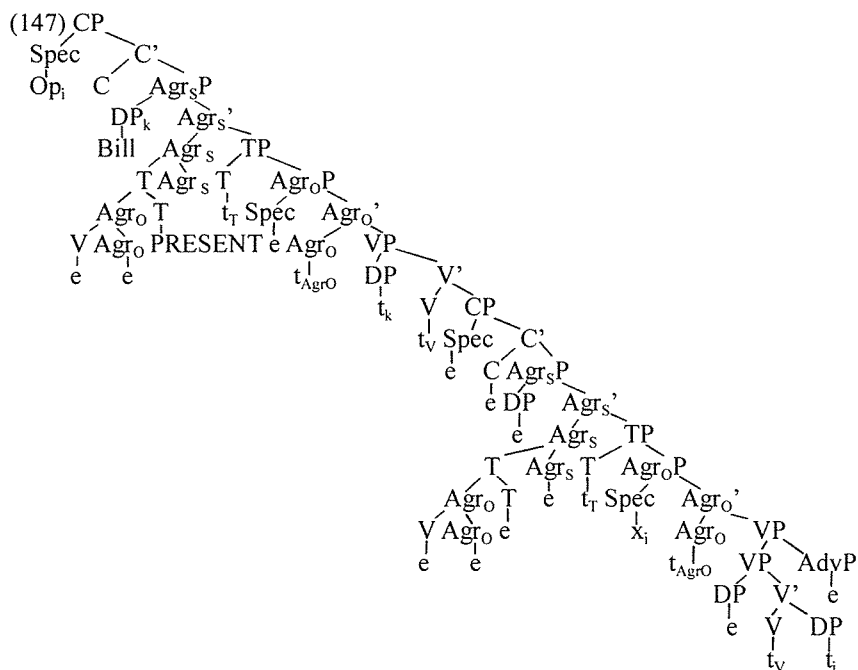
And following V-movement, A-movement to SpecAgr_o and QR, the LF structure of the matrix Agr_s' is like the following:

(148)   Agr_s'
        Agr_s   TP
        T Agr_s T   Agr_oP
    Agr_o T   t_T Spec   Agr_o'
V Agr_o PRESENT   Agr_o   VP
know   t_AgrO DP   V'
                        t_j   V   CP
                              t_V   Spec   C'
                                    how_l C   Agr_sP
                                        DP_m   Agr_s'
                                        PRO Agr_s   TP
                                            T   Agr_s T   Agr_oP
                                        Agr_o T   t_T Spec   Agr_o'
                                        V Agr_o to   x_i   Agr_o   VP
                                        do   t_AgrO   VP   AdvP
                                                                      DP   V'   x_l
                                                                      t_m   V   DP
                                                                          t_V   t_i
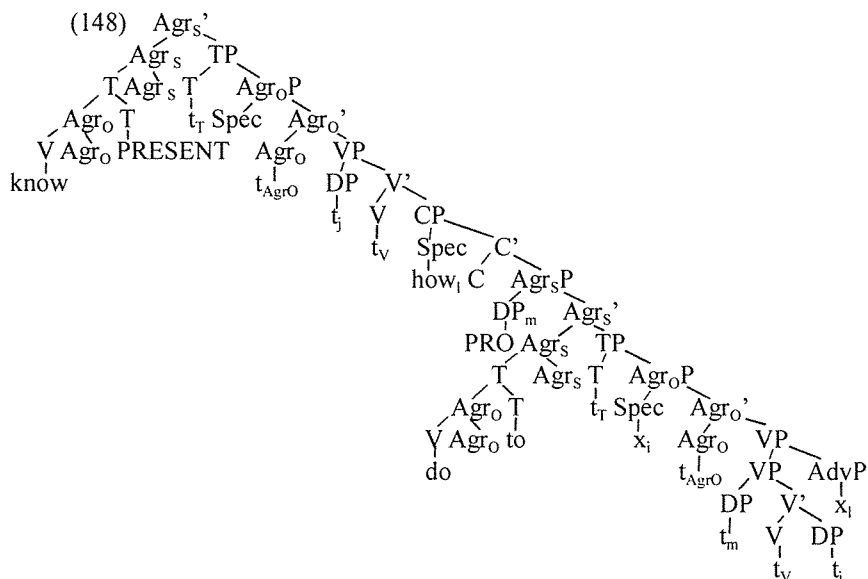
If we compare this Agr_s' with the higher Agr_s' in (147), we find that they are identical in structure and equivalent with respect to the positions occupied by the vestigial

members of the chain formed by the quantificational or relative operator, a fact permitting the operation of copying for ACD resolution. Therefore, we can reconstruct a well-formed interpreted LF representation for such an ACD case as (144).

Let us next turn to the ACD data discussed in section 2.3.2, (53a-d), repeated here as (149a-d), which display an intriguing contrast between *persuade* and *believe* in ACD reconstruction.

(149) a.　I persuaded everyone you did ϕ to be polite.
(ϕ = persuade t)
　　 b.　?I persuaded everyone you did ϕ to be polite.
(ϕ = persuade t to be polite)
　　 c.　?I believed everyone you did ϕ to be polite.
(ϕ = believe t to be polite)
　　 d.　*I believed everyone you did ϕ to be polite.
(ϕ = believe t)

Regarding (149a), the matrix Agr_S' and the relative Agr_S' of its pre-copying QRed LF representation are like (150a,b), respectively:[67]

(150) a.
```
        Agr_S'
       /     \
     Agr_S    TP
    /   \     /  \
   T    Agr_S T   Agr_OP
  /  \        |   /    \
Agr_O T      t_T Spec  Agr_O'
/  \   |          x_i  /   \
V  Agr_O PAST        Agr_O  VP
|                         /    \
persuaded            t'_AgrO DP    V'
                          |    /    \
                          t_j V    DP   Agr_SP
                              |    |   /    \
                             t_V  t_i DP_h  Agr_S'
                                       PRO Agr_S  TP
                                          /   \   /   \
                                         T  Agr_S T   Agr_OP
                                        /  \      |   /   \
                                     Agr_O  T    t_T Spec Agr_O'
                                     /  \   |              /   \
                                    V  Agr_O to         Agr_O   VP
                                    |                   |      /   \
                                    be                t'_AgrO DP   V'
                                                           |   /   \
                                                          t_h  V   AP
                                                               |    |
                                                              t_V  polite
```

---
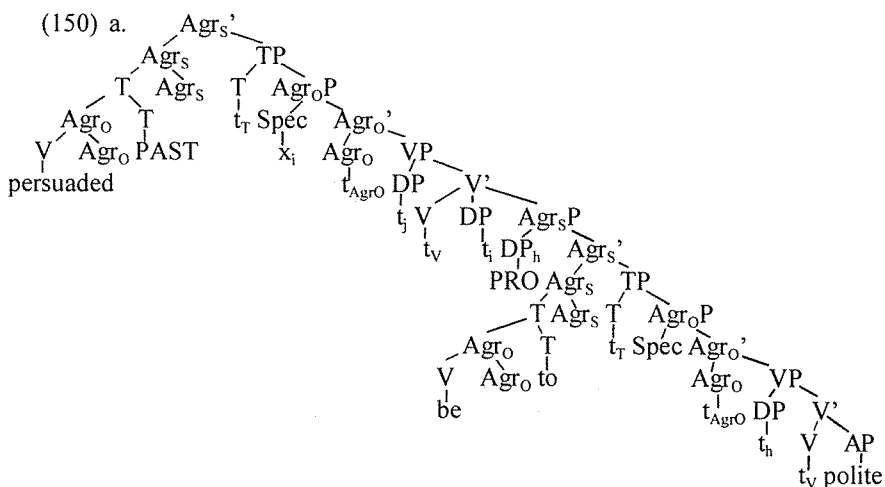
[67] Here I espouse with Bošković (1997) the Minimal Structure Principle and the null Case checking account of the distribution of PRO, whence I assume that the category of the clausal complement of *persuade* is not CP but Agr_SP, and assume with Larson and May (1990) that *persuade* can take two complements, with a Larsonian shell not involved.

b.
```
            Agrs'
          /      \
       Agrs       TP
      /   \      /   \
    T    Agrs  T     AgroP
   / \        tT  Spec  Agro'
 Agro  T          xi   /    \
 /  \              Agro    VP
V   Agro PAST      tAgrO  /   \
|    |              DP   V'
e    e             |   /   \
                   tk  V    DP
                      |     |
                      tv    ti
```
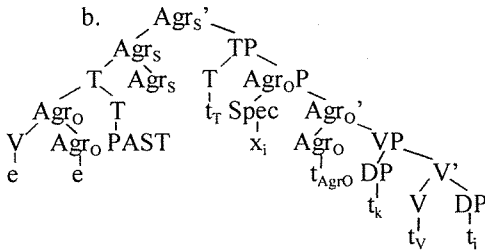
At first sight, the structures in (150a,b) seem to be syntactically different. Taking into account how the verb *persuade* is defined in syntactical terms, however, we find it rational that they are regarded as isomorphic. The verb *persuade* requires a DP complement, with an Agr$_S$P optionally following it. This selectional condition can be represented as follows:

(151)   *persuade*: V, [_____ DP (Agr$_S$P)]

That is, the structure of the VP in (150a), headed by *persuade*, is defined by the same subcategorization frame as the structure of the VP in (150b), which I assume guarantees their syntactical equivalence. So (150a,b) are structurally the same; and it is evident that the vestigial correspondence associated with the quantificational/relative operator movement obtains between them: hence its being permitted to replicate the antecedent V and Agr$_O$ into the positions occupied by the empty V and Agr$_O$, respectively, so as to generate a well-formed, fully interpreted LF representation for (149a).

Regarding (149b), the matrix Agr$_S$' and the embedded Agr$_S$' of its pre-copying post-QR LF representation are like (152a,b), respectively:

(152) a.
```
            Agrs'
          /      \
       Agrs       TP
      /   \      /   \
    T    Agrs  T     AgroP
   / \        tT  Spec  Agro'
 Agro  T          xi   /    \
 /  \              Agro    VP
V   Agro PAST      tAgrO  /   \
|                   DP   V'
persuaded          |   /   \
                   tj  V    DP    AgrsP
                      |    /  \
                      tv  ti  DPh    Agrs'
                             PRO Agrs    TP
                                /   \    /  \
                               T  Agrs T   AgroP
                              / \      tT Spec Agro'
                            Agro  T            /    \
                            /  \            Agro    VP
                           V   Agro to      tAgrO  /   \
                           |                 DP   V'
                           be                |   /  \
                                             th  V   AP
                                                |
                                                tv  polite
```
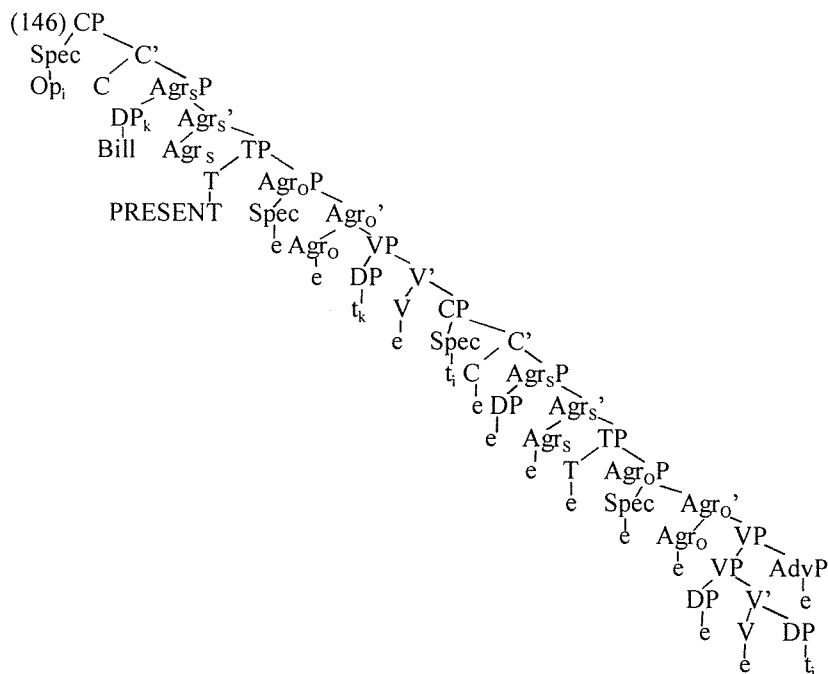
b.

```
                Agrs'
             Agrs
          T    Agrs       TP
       Agro  T         T    AgroP
     V   Agro PAST    tT Spec   Agro'
     |     |           xi   Agro    VP
     e     e              tAgrO DP    V'
                            tk  V  DP    AgrsP
                               tv   ti DP   Agrs'
                                     e    Agrs    TP
                                       T Agrs T   AgroP
                                    Agro  T e  tT Spec Agro'
                                   V   Agro  e       e  Agro   VP
                                   |    |                tAgrO DP   V'
                                   e    e                   e   V   AP
                                                              tv   e
```

These structures are structurally identical, and that A'-chain-related vestigial accord is obvious. Thus, copying is allowed to complete anaphoric relations for ACD resolution, producing an interpretively well-formed LF representation for the ACD example (149b).

Regarding (149c), the matrix Agr$_S$' and the relative Agr$_S$' of its pre-copying post-QR LF representation are like (153a,b), respectively:

(153) a.

```
                Agrs'
             Agrs       TP
          T    Agrs    T    AgroP
       Agro  T        tT Spec   Agro'
     V   Agro PAST      xi   Agro    VP
   believed                 tAgrO DP    V'
                              tj  V    AgrsP
                                 tv   DP    Agrs'
                                     ti   Agrs    TP
                                        T Agrs T   AgroP
                                     Agro  T  tT  Spec Agro'
                                    V   Agro to        Agro   VP
                                    be                  tAgrO DP   V'
                                                          ti  V   AP
                                                            tv  polite
```

b.
```
        Agrs'
       /    \
    Agrs      TP
   /   \     /  \
  T    Agrs T   AgroP
 / \       tT  /    \
Agro  T      Spec   Agro'
/   \          xi   /   \
V   Agro PAST     Agro    VP
|    |            tAgrO  /  \
e    e                  DP   V'
                        tk  / \
                           V   AgrsP
                           tv  /   \
                              DP   Agrs'
                              ti   /   \
                                 Agrs   TP
                                /  \   /  \
                               T Agrs T  AgroP
                              / \     tT /   \
                           Agro  T e   Spec  Agro'
                           /  \         e   /   \
                          V  Agro e       Agro   VP
                          |   |            tAgrO /  \
                          e   e                 DP   V'
                                               ti  / \
                                                  V   AP
                                                  tv  e
```

Evidently, (153a,b) are configurationally equivalent and the vestigial correspondence is detected relevant to the movement of a quantificational/relative operator: hence the success of copying in ACD resolution.[68]

Regarding (149d), the matrix Agrs' and the embedded Agrs' of its unreconstructed QRed LF representation are such as (154a,b), respectively:
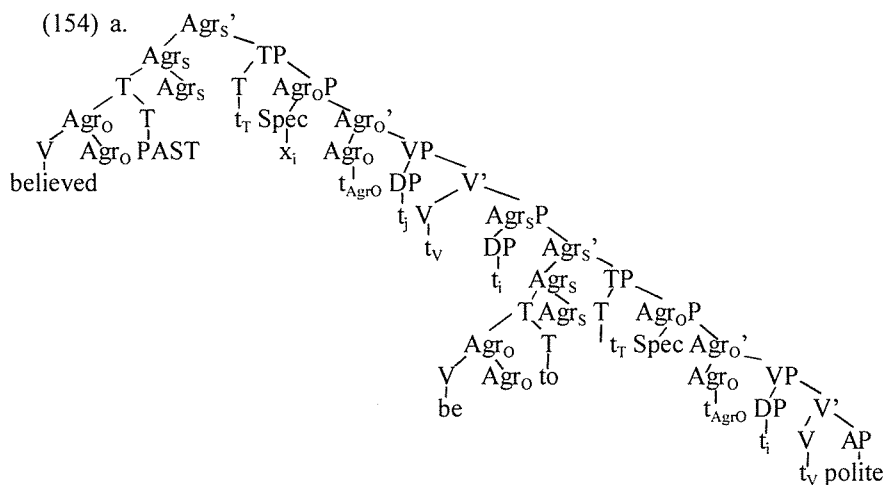
(154) a.
```
          Agrs'
         /    \
      Agrs      TP
     /   \     /  \
    T    Agrs T   AgroP
   / \        tT  /   \
  Agro  T        Spec  Agro'
  /   \           xi   /  \
 V   Agro PAST       Agro   VP
 |                   tAgrO  /  \
believed                   DP   V'
                           tj  / \
                              V   AgrsP
                              tv /   \
                                DP   Agrs'
                                ti   /   \
                                   Agrs   TP
                                  /  \   /  \
                                 T Agrs T  AgroP
                                / \      tT /   \
                             Agro  T       Spec Agro'
                             /  \           /   \
                            V  Agro to    Agro   VP
                            |             tAgrO  /  \
                            be                  DP   V'
                                               ti  / \
                                                  V   AP
                                                  tv polite
```

---

b.
```
              Agr_S'
            /      \
         Agr_S      TP
        /    \     /   \
       T     Agr_S T    Agr_O P
      / \         t_T  Spec   Agr_O'
   Agr_O  T            x_i   /     \
   / \    |                Agr_O    VP
  V  Agr_O PAST           t_AgrO  DP    V'
  |   |                          t_k V   DP
  e   e                             t_V   t_i
```
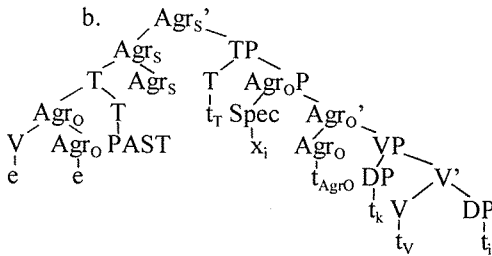
Unlike the case with (150a,b), (154a,b) are not isomorphic: in the former the verb *believe* subcategorizes for an Agr_SP, whereas in the latter the null verb selects a DP, entailing that it requires two distinct subcategorization frames to define the structures of VP in question. Furthermore, these Agr_Ss transgress the A'-chain-related vestigial correspondence condition on ACD resolution. Therefore, there is no copying, with the result that the lacunar elements are illegitimately left uninterpreted: hence the ungrammaticality of the ACD sentence (149d).

Now let us consider the ACD instances discussed in section 2.3.3, (58a-c), repeated here as (155a-c), which are grammatical ACD constructions with an extraposed relative clause containing the vacant VP:

(155) a.   John will see every woman today that Bill did yesterday.
      b.   John will find everyone easy to work with that Bill does.
                                        (Baltin 1987:586)
      c.   John will make every student take an extra exam that Bill does.
                                        (*ibid.*)

Regarding (155a), the matrix Agr_S' and the relative Agr_S' of its pre-copying QRed LF representation are such as (156a,b), respectively:

(156) a.
```
              Agr_S'
            /      \
         Agr_S      TP
        /    \     /    \
       T     Agr_S T     Agr_O P
      / \          t_T  Spec   Agr_O'
   Agr_O  T             x_i   /    \
   / \    |                 Agr_O   VP
  V  Agr_O will            t_AgrO  VP        CP_i
  |                               /  \      / 
  see                          VP    AdvP  that Bill did yesterday
                              /  \   today
                            DP   V'
                            |   /  \
                           t_j V   DP_i
                              |    /  \
                             t_V  DP_i CP
                                  |    |
                                  t_i  t_i
```

b.
```
            Agr_s'
          /       \
       Agr_s        TP
      /    \      /    \
     T     Agr_s  T    AgrₒP
    /  \          t_T  /    \
  Agrₒ  T            Spec   Agrₒ'
  /  \  |             x_i   /    \
 V  Agrₒ PAST             A'grₒ    VP
 |   |                   /    \   /   \
 e   e             t_AgrO   VP      AdvP
                          /   \      |
                        DP    V'   yesterday
                        |    /  \
                        t_k  V   DP
                             |   |
                            t_V  t_i
```

At first sight, (156a,b) appear to be structurally distinct, but, on the assumption that adjunction does not count as yielding configurational disparity, they are to be syntactically equivalent to each other. At the same time, we find the A'-chain-related vestigial correspondence condition on ACD resolution respected between them. Thus, the verbal and functional antecedents in (156a) can be copied into their respective corresponding positions in (156b), producing a well-formed, fully reconstructed LF representation for the extraposed ACD case (155a): hence its grammaticality. And the same analysis holds of (155b,c).

Let us here turn to the ACD case discussed in section 2.3.4, (73b), repeated below as (157b), where a quantified DP may take wide scope out of a tensed clause:

(157) a.   Someone or other believes that EACH of those men is incompetent.
                                                              (Williams 1994:33)
       b.   *Someone or other believes that EACH of those men that I do is
            incompetent.   (*ibid.*)

Following May's (1985) assumption that quantificational scope is encoded in syntactic terms, the matrix Agr_s' and the relative Agr_s' of the pre-copying post-QR LF representation of (157b) are like (158a,b), respectively:[69]

_____

[69] Here the internal structure of the complement of a copula *be* is simplified, which is irrelevant to the consequence of the evidentiary analysis at issue.

(158) a.

```
        Agr_S'
       /    \
    Agr_S     TP
    /   \    /   \
   T   Agr_S  T   Agr_OP
  / \         t_T Spec Agr_O'
Agr_O  T          Agr_O   VP
 |   Agr_O PRESENT       /   \
 V                   t_AgrO DP    V'
believes                 |      /   \
                         t_j   V     CP
                             t_V  Spec   C'
                                     /    \
                                    C     Agr_SP
                                  that DP    Agr_S'
                                      x_i    /   \
                                          Agr_S    TP
                                         /    \   /   \
                                        T   Agr_S T   Agr_OP
                                       / \        t_T Spec Agr_O'
                                    Agr_O T            Agr_O  VP
                                     |  Agr_O PRESENT      /   \
                                     V                 t_AgrO DP   V'
                                    is                      |    /  \
                                                           t_i  V   AP
                                                               t_V incompetent
```

b.

```
        Agr_S'
       /    \
    Agr_S     TP
    /   \    /   \
   T   Agr_S  T   Agr_OP
  / \         t_T Spec Agr_O'
Agr_O  T          e Agr_O   VP
 |   Agr_O PRESENT        /   \
 V                   t_AgrO DP    V'
 e    e                  |      /   \
                         t_k   V     CP
                             t_V  Spec   C'
                                    e    /    \
                                        e C    Agr_SP
                                         e DP    Agr_S'
                                          x_i    /   \
                                             Agr_S    TP
                                            /    \   /   \
                                           T   Agr_S T   Agr_OP
                                          / \      e  t_T Spec Agr_O'
                                       Agr_O T            e Agr_O  VP
                                        |  Agr_O e            /   \
                                        V                 t_AgrO DP   V'
                                        e    e                 |    /  \
                                                              t_i  V   AP
                                                                  t_V  e
```

If we compare (158a,b), we find that they are structurally identical, and that the quantificational/relative vestigial accord obtains between them. Thus, duplicating for ACD resolution is allowed to apply, yielding the following reconstruction:

(159)   Agr_s'
          Agr_s   TP
        T   Agr_s   T   Agr_oP
     Agr_o T   t_T Spec Agr_o'
    V   Agr_o PRESENT   Agr_o   VP
believes   t_AgrO DP   V'
                               t_k   V   CP
                                   t_V Spec   C'
                                      C   Agr_sP
                                   that [DP]   Agr_s'
                                        x_i   Agr_s   TP
                                            T Agr_s T Agr_oP
                                          Agr_o T   t_T Spec Agr_o'
                                        V Agr_o PRESENT   Agr_o VP
                                        is   t_AgrO DP V'
                                                              t_i V   AP
                                                                 t_V incompetent

I take it that the ungrammaticality of (157b) is due to the Case filter violation. That is, in (159), the specifier position of the Agr_sP is not a Case-checking position, with the consequence that the chain formed by the movement of a relative null operator is assigned no nominative Case: for, when the LF operation of copying applies, the Tense to copy from the complement clause of *believe* has no capacity to Case-check, since it must discharge its strong NP-feature, an ill-formed PF object, before the operation Spell-Out applies.[70] No such problem arises in the case where those items are copied whose features are weak, seeing that they may survive into LF after the Spell-Out applies, where they can be subject to the operation of copying. That is, if those relative null operators which are base-generated in the ACD site need checking by strong NP-features, then ungrammaticality is to be engendered in checking-theoretical terms. Thus, English ACD constructions should be stigmatized as unacceptable where such relative null operators function as the subject of a tensed clause.

With this checking-theoretical approach adopted, the fact may be simply accounted for that Japanese permits no ACD construction. Now let us consider why such a Japanese ACD sentence as (160) is unacceptable:
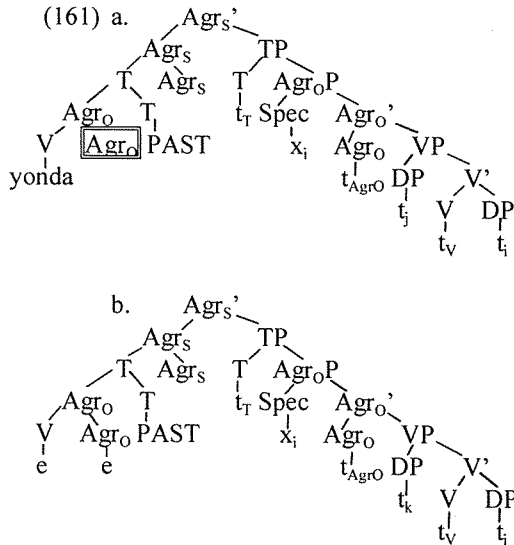
(160) *Masashi-ga   Naoe-ga   [_VP e]   shita   dono   hon-mo   yonda.
        Masashi-Nom   Naoe-Nom   PAST   every book   read
        'Masashi read every book Naoe did.

I will assume that the NP-feature of Agr is strong in Japanese,[71] it consequently exhibiting overt object shift: for PF derivational convergence the matrix Agr_o in (160)
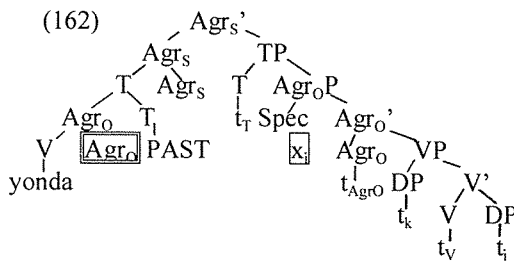
---

[70] I assume with Lasnik (1993) that the strong NP feature of finite Tense is responsible for nominative Case checking, in that finite Tense raises to Agr_s and the amalgamation of them licenses nominative Case in the SpecAgr_s position.

[71] In this article, I simplistically assume that only functional heads have strong features.

needs to discharge its strong NP-feature before the Spell-Out applies, with the result that that functional head is lacking in the capacity for checking a nominal phrase. So the matrix Agr_S' and the embedded Agr_S' of the unreconstructed QRed LF representation of (160) are like (161a,b), respectively:

(161) a.

```
              Agrs'
            /      \
         Agrs       TP
        /    \      /  \
       T    Agrs   T   AgroP
      /  \         |   /    \
    Agro  T1      tT Spec   Agro'
    /   [Agro] PAST    xi   /    \
   V                      A'gro   VP
   |                      |      /   \
  yonda                tAgrO   DP    V'
                               |    /  \
                               tj  V    DP
                                   |    |
                                   tV   ti
```

b.

```
              Agrs'
            /      \
         Agrs       TP
        /    \      /  \
       T    Agrs   T   AgroP
      /  \         |   /    \
    Agro  T       tT Spec   Agro'
    /   Agro PAST    xi   /    \
   V                    A'gro   VP
   |    |               |      /   \
   e    e            tAgrO   DP    V'
                             |    /  \
                             tk  V    DP
                                 |    |
                                 tV   ti
```

The structural equivalence and A'-chain-related vestigial correspondence conditions being respected on ACD resolution, copying is allowed to reconstruct the following relative Agr_S':

(162)

```
              Agrs'
            /      \
         Agrs       TP
        /    \      /  \
       T    Agrs   T   AgroP
      /  \         |   /    \
    Agro  T1      tT Spec   Agro'
    /   [Agro] PAST   |xj|  /    \
   V                       A'gro   VP
   |                       |      /   \
  yonda                  tAgrO   DP    V'
                                 |    /  \
                                 tk  V    DP
                                     |    |
                                     tV   ti
```

In (162), the chain whose head is a relative null operator fails to be checked on its agreement features, since the Agr_O replicated from the matrix clause can no more feature-check the expression standing in the Spec-head relation to its trace than can the original Agr_O.[72] Hence, there is no generating a well-formed LF representation for Japanese ACD constructions such as (160), which explains their unacceptability.[73]

The same analysis that accounts for the ungrammaticality of (157b) holds for the

---

[72] Of course, I assume catenative feature checking here: see footnote 61.

[73] The deletive theory accounts for the fact that in English and Japanese gapping is permitted: but now I will leave the question open whether both derivations based upon the deletive and interpretive theories are available to any linguistic constructions.

ACD example discussed in section 2.3.5, (78b), repeated here as (163), where its null VP is contained in an appositive relative clause:

(163) *Dulles believes Philby, who Angleton does as well, is a spy.

(Hornstein 1995:83)

To espouse the spirit of the Main Clause Hypothesis for appositive relatives, proposed by Emonds (1979), the matrix Agr_S' and the relative Agr_S' of the pre-copying QRed LF representation of (163) are like (164a,b), respectively:

(164) a.

b.

Truly, there are some speakers who comparing (164a,b) find that, though isomorphic, they merely weakly violate the quantificational/relative vestigial correspondence condition on ACD resolution, in such a way that copying is allowed to operate to achieve a fully interpreted LF representation: for ACD resolution, they may assume, the variation between a co-indexed R-expression and A'-trace, certainly effecting some grammatical deviance, is not so significant as to yield stark ungrammaticality, entailing the acceptably degraded status of regular non-restrictive relative ACD sentences.[74] But, unfortunately, just as is the case with (157b), the chain headed by the relative null operator cannot be Case-checked by the replica of the original Tense destitute of the capacity for Nominative Case-checking. Thus, the copied LF representation of (163) infringes the Case filter condition: hence its universal ungrammaticality.

3.3 Explaining the data given as counterexemplifying the A-movement approach to ACDs

In this section, I will consider the data given in section 2.4 as impossible to handle for the A-movement analysis of ACDs. Let us first turn to the ACD cases (99a) and (100a), repeated below as (165a,b) respectively, where the matrix verb is not a restructuring verb:
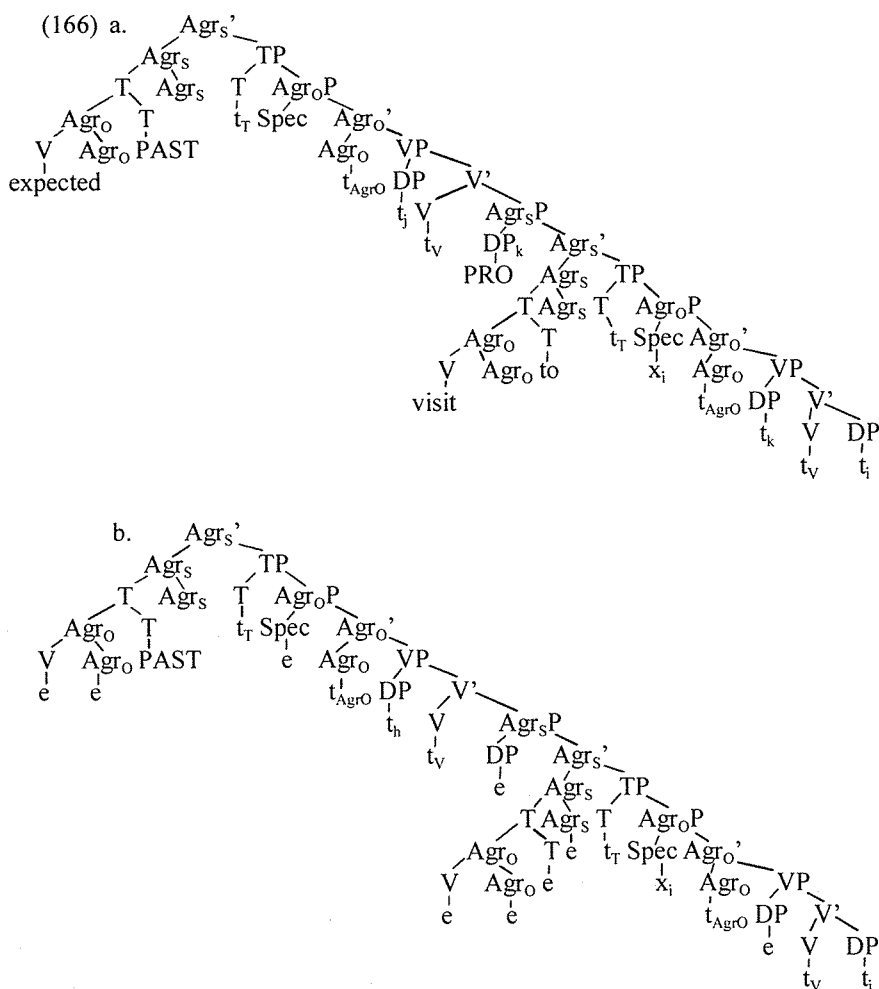
(165) a. John expected to visit every city that Bill did.
      b. John condescended to speak to every man that Bill did.

As we have seen in section 2.4, these sentences are ambiguous as respects the interpretation of their null VPs: they can receive the matrix reading as well as the embedded one. Here I will show how to explain the possibility of the former, which cannot be dealt with by the A-movement account of ACDs.[75] The matrix Agr_S' and the relative Agr_S' of the pre-copying post-QR LF representation of (165a), for instance, are like (166a,b), respectively:

---

[74] That the binding theory finds the parallelism between an R-expression and a *wh*-trace might have something to do with this surmise.

[75] The QR-based minimalist approach to ACDs can account for the possibility of the embedded reading of ACD examples such as (165a,b); I regard it as so evident that it may be omissible to show it.
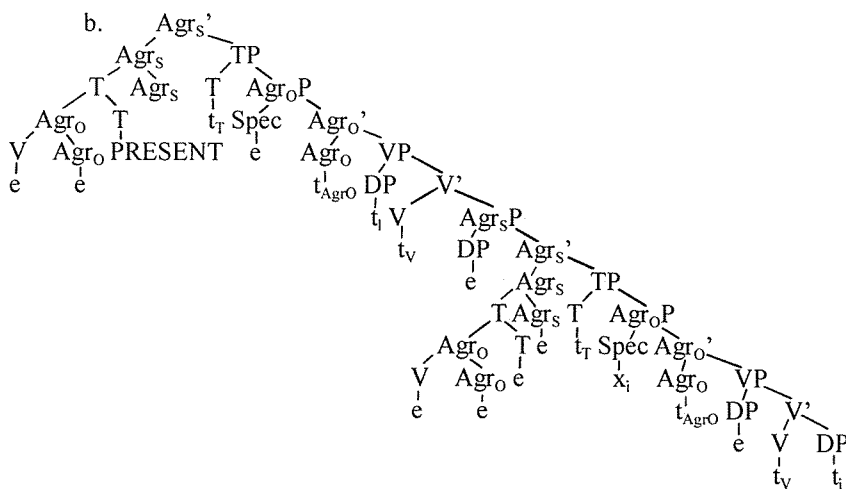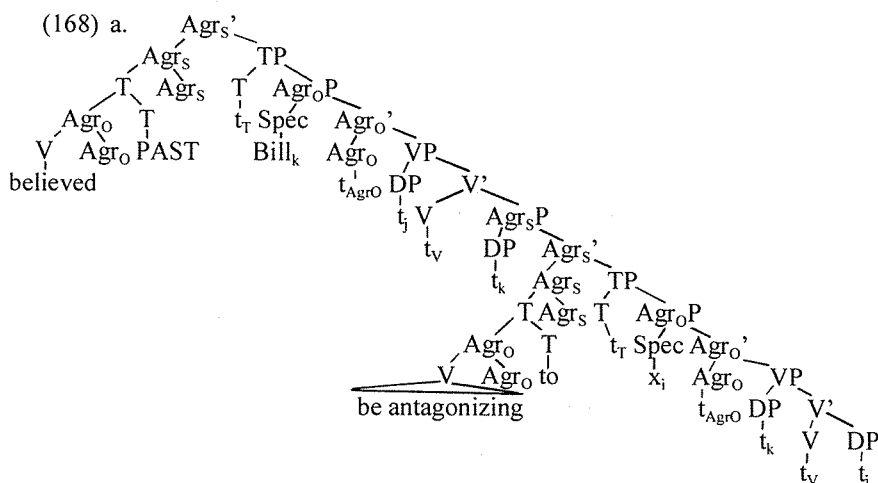
(166) a.

```
            Agrs'
          Agrs      TP
        T   Agrs  T   AgroP
     Agro  T    tT  Spec  Agro'
    V  Agro PAST      Agro    VP
  expected           t'AgrO  DP    V'
                            tj  V   AgrsP
                               tV  DPk   Agrs'
                                  PRO   Agrs    TP
                                      T Agrs T   AgroP
                                   Agro   T   tT Spec Agro'
                                  V  Agro to      xi  Agro    VP
                                   visit             t'AgrO DP   V'
                                                          tk  V   DP
                                                            tV   ti
```

b.

```
            Agrs'
          Agrs      TP
        T   Agrs  T   AgroP
     Agro  T    tT  Spec  Agro'
    V  Agro PAST    e   Agro   VP
    e   e              t'AgrO  DP   V'
                            th  V   AgrsP
                              tV  DP   Agrs'
                                  e   Agrs    TP
                                      T Agrs T   AgroP
                                   Agro  T e  tT Spec Agro'
                                  V  Agro e      xi  Agro    VP
                                  e    e            t'AgrO DP   V'
                                                         e   V   DP
                                                           tV   ti
```

If we compare (166a,b), then we find that they are structurally equivalent and respect the A'-chain-related vestigial correspondence condition on ACD resolution. Therefore, copying is permitted to operate to produce a well-formed fully interpreted LF representation for (165a): hence its grammaticality. The matrix reading of the empty VP in (165b) is accounted for in the same way.

Next, let us consider the ACD case (104a), repeated here as (167), which involves an ECM construction and displays the same interpretive behavior as (165a,b) do and whose matrix reading, specified below, cannot be explained by the A-movement account of ACDs:

(167)　　John believed Bill to be antagonizing everyone that he does ϕ .

　　　　　　　　　　　　　　　　(ϕ = believe Bill to be antagonizing t)

The matrix Agrs' and the relative Agrs' in the unreconstructed QRed LF

representation of (167) are as in (168a,b), respectively:[76]

(168) a.

```
            Agrs'
          /      \
        Agrs       TP
       /    \     /   \
      T     Agrs T    AgroP
    /   \        |   /    \
  Agro   T      tT Spec   Agro'
 /   \   |          |    /    \
V    Agro PAST     Billk Agro  VP
|                        |    /   \
believed               tAgrO DP    V'
                            |    /   \
                           tj   V    AgrsP
                                |   /     \
                               tv  DP     Agrs'
                                   |     /    \
                                   tk   Agrs   TP
                                       /   \   /  \
                                      T Agrs T  AgroP
                                    /   \       /   \
                                  Agro   T    tT Spec Agro'
                                 /   \   |        |  /    \
                                V    Agro to      xi Agro  VP
                                  be antagonizing    |   /   \
                                                  tAgrO DP    V'
                                                       |    /  \
                                                      tk   V   DP
                                                           |    |
                                                          tv   ti
```
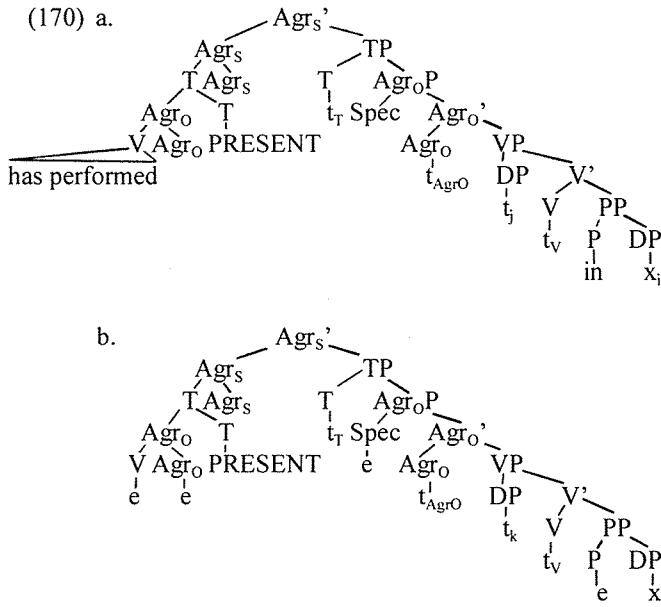
b.

```
          Agrs'
        /      \
      Agrs      TP
     /    \    /   \
    T    Agrs T    AgroP
  /   \       |   /    \
Agro   T     tT Spec   Agro'
/   \  |         |    /    \
V  Agro PRESENT  e   Agro   VP
|   |                |    /   \
e   e              tAgrO DP    V'
                        |    /   \
                       ti   V    AgrsP
                            |   /     \
                           tv  DP     Agrs'
                               |     /    \
                               e    Agrs   TP
                                   /   \   /  \
                                  T Agrs T  AgroP
                                 /  \   |  /    \
                               Agro  T e tT Spec Agro'
                              /   \  |       |  /    \
                             V   Agro e      xi Agro  VP
                             |    |             |   /   \
                             e    e           tAgrO DP   V'
                                                   |   /  \
                                                   e  V   DP
                                                      |    |
                                                     tv   ti
```

Comparing (168a,b), we find that they are structurally identical, and that the quantificational/relative vestigial accord obtains between them. Thus, duplicating for ACD resolution is allowed to apply, yielding a well-formed full reconstruction for the specified reading of (167): hence its possibility.

Let us next consider the ACD example (105), repeated here as (169), where an adjunct contains an ACD site:

(169) Tim has [VP[VP performed][PP in every club Bill has ϕ]].

(ϕ = performed in t)

---

[76] Here I ignore the syntactic auxiliary system for the progressive aspect, which is irrelevant to the present discussion.

The matrix Agr_S' and the embedded Agr_S' in the pre-copying QRed LF representation of (169) are such as (170a,b), respectively:[77]

(170) a.

```
                        Agrs'
                 Agrs            TP
              T  Agrs        T      AgroP
          Agro   T          tT Spec   Agro'
      V Agro PRESENT              Agro    VP
   _____                           tAgrO  DP    V'
   has performed                                 tj   V    PP
                                                      tv   P    DP
                                                           in   xi
```

b.

```
                        Agrs'
                 Agrs            TP
              T  Agrs        T      AgroP
          Agro   T          tT Spec   Agro'
      V Agro PRESENT          e    Agro    VP
      e   e                              tAgrO  DP    V'
                                                 tk   V    PP
                                                      tv   P    DP
                                                           e    xi
```

These representations are structurally equivalent, and satisfy the A'-chain-related vestigial correspondence condition on ACD resolution. Thus, adjunct-contained ACD instances like (169), interpretatively integral, are judged to be perfectly well-formed as an elliptical construction. As regards ACD resolution, the ACD sentence (113), repeated below as (171), where a PP-contained ACD is embedded in the clausal complement of a control verb, is analyzed in the same way as is (169), seeing that they are analogous in the relevant respects:

(171)   Tim likes to perform in the same clubs that Bill does ϕ.

$(\phi =$ like to perform in $t)$

Hence, it also is judged to be grammatically perfect.

Let us next turn to the ACD data in (114), repeated here as (172), where an argument DP contains a verbal lacuna:

(172) a.   Beck read a report on every suspect Kollberg did ϕ.

$(\phi =$ read a report on$)$

b.   Melander requested copies of most of the tapes Larsson did ϕ.

---

[77] In (170a,b), I disregard the syntactic auxiliary system for the perfect aspect, which is irrelative to the present discussion, and assume the simple PP-internal Case checking, involving no movement. Needless to say, even with the option of the PP-external Case checking adopted, no explanatory value is lost of the QR-based minimalist approach to ACDs.

$$(\phi = \text{request copies of})$$

c. Kollberg took pictures of the same people Beck did ϕ.

$$(\phi = \text{take pictures of})$$

The matrix Agr_S' and the relative Agr_S' in the uncopied QRed LF representation of (172a), for example, are like (173a,b), respectively:

(173) a.

```
              Agrs'
          Agrs         TP
       T  Agrs      T      AgroP
     Agro  T       tT Spec      Agro'
    V Agro PAST    DPk    Agro       VP
      |            D  NP  t'AgrO   DP    V'
     read          a  N  PP        tj  V    DP
                   report P  DP        tv   tk
                          on  xi
```

b.

```
              Agrs'
          Agrs         TP
       T  Agrs      T      AgroP
     Agro  T       tT Spec      Agro'
    V Agro PAST    DPh    Agro       VP
      |  |         D  NP  tAgrO    DP    V'
      e  e          e  N  PP        tl  V    DP
                    e  P  DP           tv   th
                       e  xi
```
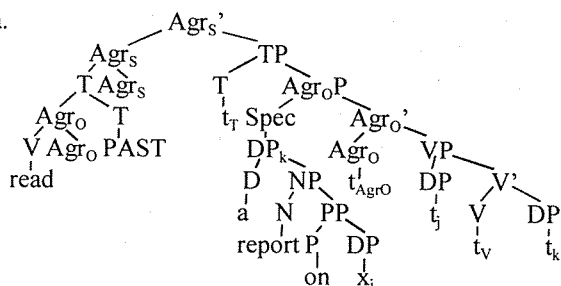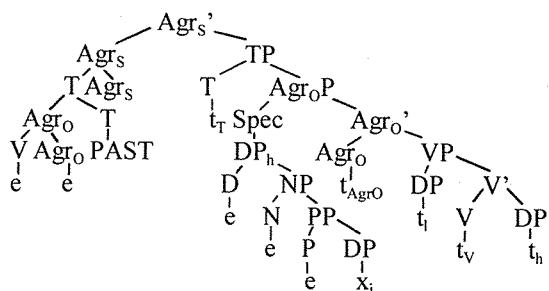
The representations above are structural twins, and meet the A'-chain-related vestigial congruity condition on ACD resolution. Thus, argument-contained ACD cases such as (172a) have a complete well-formed LF representation, and are judged to be perfectly grammatical as an elliptical sentence.

As we have seen in section 2.4, Lasnik's (1993) suggested minimalist approach to ACD constructions cannot seem to consistently account for his own grammatical judgements on different types of ACD sentences. The relevant data of Lasnik's (1993) discussed there are repeated below:

(174) Dulles suspected everyone Angleton did.
(175) a. ?Dulles suspected Philby, who Angleton did not.
      b. ?Dulles suspected Philby, who Angleton did as well.
(176) Dulles spoke to everyone Angleton did.
(177) a. ?Dulles spoke to Philby, who Angleton did not.
      b. ?Dulles spoke to Philby, who Angleton did as well.
(178) ?Mary stood near everyone Emily did.
(179) a. *Mary stood near Susan, who Emily did not.
      b. *Mary stood near Susan, who Emily did as well.

According to Michael T. Wescoat (personal communication), however, these ACD examples are grammatically appraised as follows:

(180)   Dulles suspected everyone Angleton did.
(181) a. ?*Dulles suspected Philby, who Angleton did not.
       b. *Dulles suspected Philby, who Angleton did as well.
(182)   Dulles spoke to everyone Angleton did.
(183) a. *Dulles spoke to Philby, who Angleton did not.
       b. *Dulles spoke to Philby, who Angleton did as well.
(184)   Mary stood near everyone Emily did.
(185) a. *Mary stood near Susan, who Emily did not.
       b. *Mary stood near Susan, who Emily did as well.

Here, taking (180)-(185) rather than (174)-(179) to be authentic data, I will show that the QR-based minimalist account of ACDs uniformly explains their grammatical status.

Concerning the orthodox ACD case (180), as we have observed in section 3.1, the matrix Agr_S' and the relative Agr_S' in its uncopied post-QR LF representation are syntactically congruent, and respect the A'-chain-associated vestigial accord condition on ACD resolution, with no violation in checking-theoretical terms: hence a complete well-formed LF representation for this ACD sentence and its grammaticality.

Regarding an appositive relative ACD case such as (181a,b), as we have noted in section 3.2, the matrix Agr_S' and the non-restrictive relative Agr_S' in the unreconstructed QRed LF representation of (181b), for example, are like (186a,b), respectively:
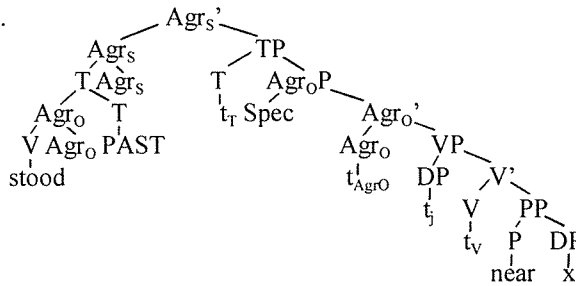
(186) a.

b.
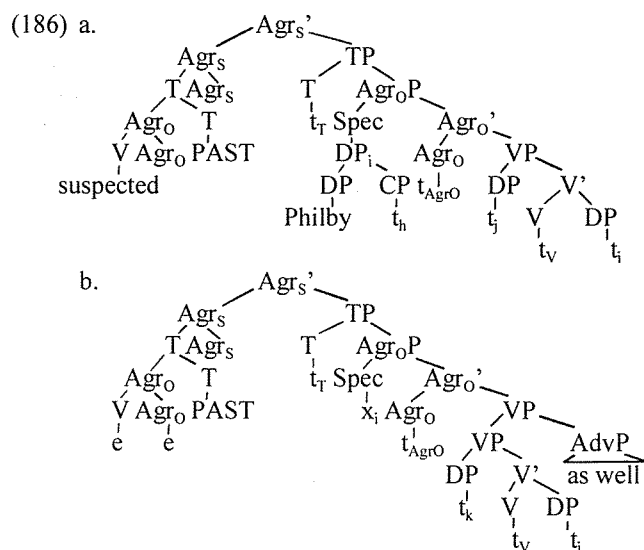
Comparing (186a,b), we find that they are configurationally congruent, but fail to meet the quantificational/relative vestigial congruence condition on ACD resolution.

Thus, there is no replicating to yield an interpretatively integral, well-formed LF representation for (181b), entailing its ungrammaticality.

Pertaining to the grammatical contrast between (182) and (183a,b), it is accounted for in the same way as is that between (180) and (181a,b), seeing that the verb-preposition complex *speak to* may reanalyze as a verb, as is evidenced by the licit pseudo-passivization of it. The matrix Agr_S' and the relative Agr_S' in the pre-copying post-QR LF representation of (182) are like (187a,b), respectively:

(187) a.
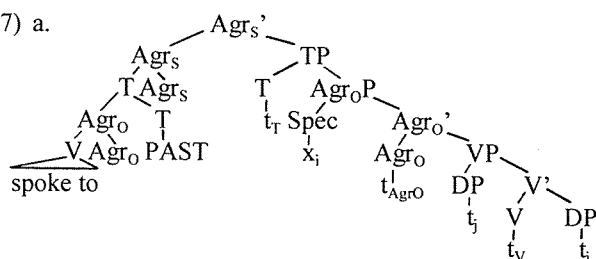
b.
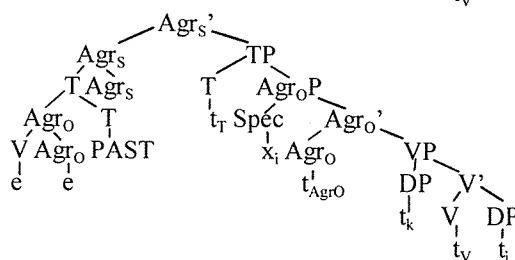
Obviously, (187a,b) are syntactical twins and satisfy the A'-chain-related vestigial correspondence condition on ACD resolution: hence a complete, well-formed LF representation for (182) and its grammaticality. And, turning to (183a,b), the matrix Agr_S' and the non-restrictive relative Agr_S' in the pre-copying QRed LF representation of (183b), for instance, are like (188a,b), respectively:
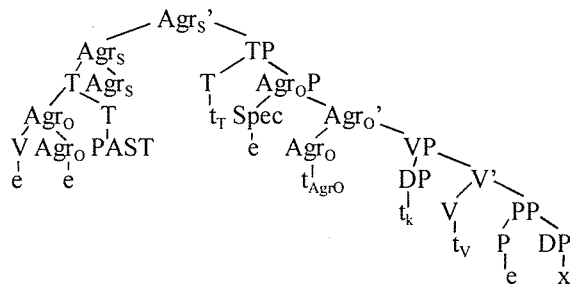
(188) a.

b.
```
                        Agrs'
              Agrs            TP
           T  Agrs      T    AgroP
        Agro  T        tT Spec   Agro'
      V Agro PAST        xi Agro    VP
      e    e              t'AgrO  VP    AdvP
                               DP  V'   as well
                               tk  V  DP
                                   tV  ti
```
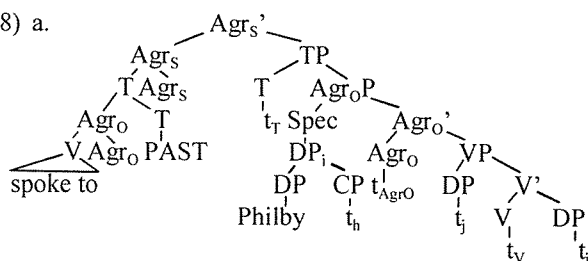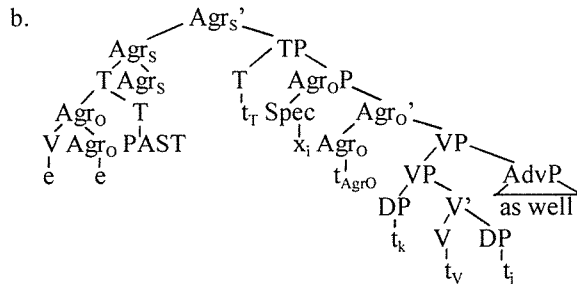
(188a,b) are structurally equivalent but do not respect the A'-chain-related vestigial correspondence condition on ACD resolution: hence no interpretatively full well-formed LF representation for (183b) and its ungrammaticality.

As respects (184), in which involved is such a verb-preposition string as cannot reanalyze as V, namely *stand near*, the matrix Agr_S' and the relative Agr_S' in its uncopied post-QR LF representation are like (189a,b), respectively:[78]

(189) a.
```
                        Agrs'
              Agrs            TP
           T  Agrs      T    AgroP
        Agro  T        tT Spec   Agro'
      V Agro PAST           Agro   VP
      stood                t'AgrO DP   V'
                               tj  V  PP
                                   tV  P  DP
                                      near  xi
```

b.
```
                        Agrs'
              Agrs            TP
           T  Agrs      T    AgroP
        Agro  T        tT Spec   Agro'
      V Agro PAST        e  Agro   VP
      e    e               t'AgrO DP   V'
                               tk  V  PP
                                   tV  P  DP
                                      e  xi
```

It is evident that these structures are syntactically congruous and meet the quantificational/relative vestigial accord condition: hence a complete well-formed LF representation for (184) and its grammaticality.

As regards (185a,b), also involving no possibility of V-reanalysis, the matrix Agr_S' and the appositive relative Agr_S' in the unreplicated QRed LF representation of (185b) are such as (190a,b), respectively:

---

[78] See footnote 75 above on the internal structure of PP in (189a,b).

(190) a.

```
                    Agrs'
            Agrs          TP
          T  Agrs      T     AgroP
        Agro  T       tT  Spec    Agro'
      V  Agro  PAST         Agro      VP
      |                   tAgrO   DP     V'
    stood                        tj   V     PP
                                      tv   P     DPi
                                         near  DP   CP
                                             Susan   ti
```

b.

```
                    Agrs'
            Agrs          TP
          T  Agrs      T     AgroP
        Agro  T       tT  Spec    Agro'
      V  Agro  PAST       e   Agro      VP
      |    |               tAgrO   VP        AdvP
      e    e                     DP    V'    as well
                                  tk   V     PP
                                      tv   P    DP
                                          |     |
                                          e     xi
```
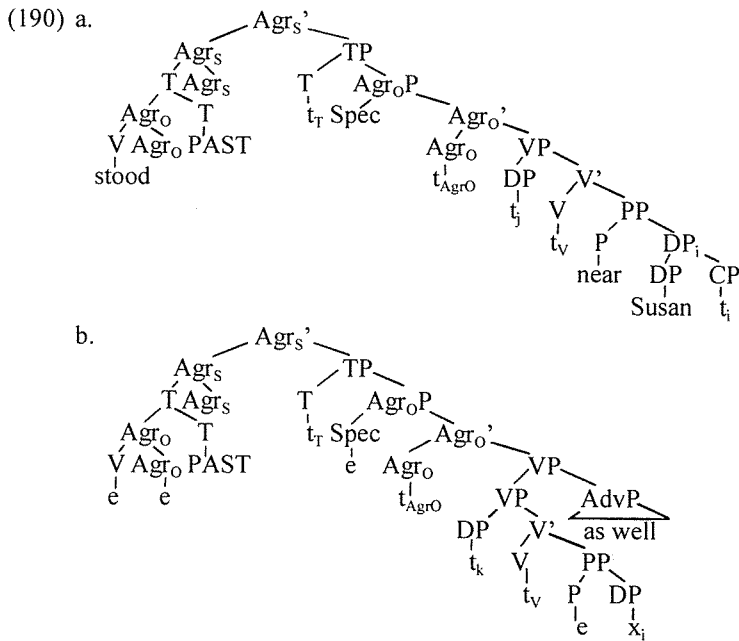
Comparing (190a,b), we notice that they are syntactically congruent, but that they fail to meet the A'-chain-related vestigial correspondence condition. Therefore, we can derive no interpretatively intact well-formed LF representation for (185b): hence its ungrammaticality.

3.4 Proposing a model of the grammar generating multiple logical forms

Presupposing that the operation QR exists at LF, I have indicated how expedient the QR-based minimalist approach to ACDs is for handling the kind of data whose grammatical status seems impossible for the previous approaches to ACDs to account for, whence I believe that I have given some empirical evidence for that working hypothesis. So in this section I will tentatively advance a model of the grammar whereby a consecutive set of multiple LF representations, composed at least of unQRed, QRed and formal-semantics-oriented logical forms, is derived as a syntactically or semantically operative linguistic representation.

First consider the following data:

(191) a. *He_i liked every book that $John_i$ read.   (Lasnik 1993)
    b. *He_i introduces you to everyone $John_i$ wanted to.   (Fox 1995)
    c. *He_i introduced you to everyone $John_i$ wanted me to.   (*ibid.*)
    d. *Who thought that he_i liked which book that $John_i$ read?

On the minimalist assumption that binding conditions apply only at LF, (191) indicates that QR or *wh*-raising moves nothing but a quantificational or interrogative

head or its relevant features or, more radically, that that sort of operation never exists in the first place.

In contrast, such data as (192a,b) might be taken to demonstrate that a categorial QR does exist at LF and moves the whole quantificational phrase before binding conditions hold:

(192) a.   Polly introduced him$_i$ to everyone Erik$_i$ wanted her to.

(Kennedy 1997)

　　　b.   Polly introduced him$_i$ to everyone Erik$_i$ wanted to meet.   (*ibid.*)

　　　c.   You bought him$_i$ every picture that John$_i$ thought you would.

(Fox 1995)

　　　d.   You sent him$_i$ the letter that John$_i$ expected you would.   (*ibid.*)

Here I assume, however, that the pronominal object *him$_i$* as X^0 is incorporated in the verb *introduce, buy* or *send* to be Case-checked,[79] and that the binding condition C is respected even before such a QR applies,[80] with the consequence that the operational ordering of them is uniformly determined in (191) and (192).

Now I am in a position to indicate sketchily what the grammatical organism is to look like:

(193)   Lexicon
                             ↓
          PF   ←   Spell-Out
                             ↓
                   LF   ←   no categorial QR but binding conditions
                             ↓
                   LF'   ←   categorial QR and then copying
                             ↓
          Linear Logical Form (LLF)

At LF, where no categorial QR applies, the binding conditions hold; at LF', after such a QR moves the whole categories of a quantified expression and *wh*-phrase in situ, the operation of copying applies to interpret lacunar lexical items; and at LLF, derived from LF' by dint of the λ conversion and so forth, the rules of formal semantics apply.

That is, such a grammatical model as (193) has two merits due to postulating a categorial QR: it makes possible my proposed QR-based minimalist approach to ACD constructions, which has been shown to be more empirically advantageous than the previous approaches to ACDs taken up in the present article in that it can manage the ACD data which they cannot, and bridges a gap between syntax and formal semantics,

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[79] Here I agree with Bošković (1997: chapter 3) that elements such as *there, it,* and *him* share properties of XPs and X^0s in that they can occur in both X^0 and XP positions, with the result that they can undergo categorial as well as head movement, whence they need not undergo movement to SpecAgr$_O$ in order to be Case-licensed, that is, they can pass the Case Filter by undergoing incorporation into the higher verbs and prepositions.

[80] I also assume here that the referential index of the pronoun incorporated in the verb is invisible to the binding theory and that all the binding conditions apply previous to categorial QR.

explicitly concatenating the representations of the former and the latter, namely LF' and LLF.

4   CONCLUDING REMARKS

In this article I have examined four types of previous analyses of ACDs, specifically the S-structural extraposition approach to ACDs advanced by Baltin (1987), the pseudo-gapping approach to ACDs set forth by Lappin (1996), the QR approach to ACDs put forward by May (1985) and adopted by Larson and May (1990) and Diesing (1992), and the A-movement approach to ACDs offered by Hornstein (1994, 1995) and Lasnik (1993), and pointed out some of those ACD data which can be used in evidence against their respective explicative machineries. Then I have proposed a QR-based minimalist approach to ACDs and indicated how well it accounts for the grammatical status of the ACD cases at issue and how a structure of the grammar should be organized to permit it. Thus, I believe that this inspection, though evidentially biased in favor of the QR-based minimalist account of ACDs,[81] gives some empirical justification for the operation of categorial QR no less than A-movement to $SpecAgr_{S/O}$. Hence, I will conclude this article by manifesting those theory-internal requirements which motivate categorial QR.[82] I assume with Kennedy (1997) that a linguistic derivation converges at LF only if its logical representation respects two essential interpretability conditions on a quantificational structure in syntactic terms: on the standard assumption that vacuous quantification is disallowed by Full Interpretation, a quantifier must bind a variable, which forces a quantificational head to move to an appropriate operator position to bind the variable associated with its maximal projection;[83] and, given the fact that nominal quantification in natural language is restricted, a quantifier must configurationally combine with an open sentence which restricts the possible assignments of values to the variable bound by it, just as in formulations in logic, so that the logical relation between a quantifier and its restriction can be reflected at LF as the syntactic relation between a head and its complement. Consequently, it may be rational to maintain that in order to satisfy these syntactic requirements for LF convergence QR moves an entire quantificational category and its head to their respective relevant adjoined positions.

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[81] I should have shown that the QR-based minimalist account of ACDs can handle all the data that the previous approaches to ACDs criticized in this article can, but I have omitted to do so in order to economize on space. I believe, however, that that is the case.

[82] Assuming that a quantified phrase cannot receive any θ-role legitimately in that it is not a referential expression, May (1985) asserts the necessity of QR: that is, he maintains that it is not until a variable is created by QR that the θ-criterion is satisfied. On this assumption, it may be that this kind of θ-theoretical defect of a QP is ascribable to the complexity of the quantificational structure inherent in it, which consists of a quantifier, a restriction on the range of the variable, a variable, and a scope.

[83] At present I cannot make any crucial remark about at which logical level a quantificational head moves to its relevant operator position. For the related discussion, see Aoun and Li (1993a: chapter 3), where the quantificational head movement is instantiated by the operation of Q-adjunction.

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