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A generalized rightward movement analysis of Antecedent Contained Deletion[1]

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In this paper, we will argue that the LF Object Shift analysis of the infinite regress resolution of Antecedent Contained Deletion is untenable conceptually and empirically. Generalizing Baltin's (1987) CP Extraposition analysis, we will instead propose that any type of rightward movement, including NP and PP Rightward Shift, is available for the infinite regress resolution. Furthermore, we will show that our generalized rightward movement analysis explains a wider range of data than the LF Object Shift analysis. Finally, we will address a question as to why rightward movement, which is non-feature checking movement, is triggered/involved in Antecedent Contained Deletion. We will suggest a way to derive this property under the assumptions of Chomsky's (1993, 1995) Minimalist Program.

1. Introduction

Various proposals have been made as to what kind of movement is involved in infinite regress resolution for Antecedent Contained Deletion (henceforth, ACD) illustrated in (1)

(1) Dulles [$_{VP}$ suspected everyone Angleton did [$_{VP}$ e]].

Here, the null VP needs to be supplied with its content by the matrix antecedent VP, but if the latter VP is copied onto the former, this will result in an infinite regress, since the copy contains the null VP, as illustrated in (2).

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

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To solve this infinite regress problem of ACD, May (1985) argues that the regress is avoided by applying Quantifier Raising (henceforth, QR) to the direct object *everyone Angleton did* in (1) before copying takes place, as shown in (3).

(3) [everyone [OP Angleton did [$_{VP_2}$ e]]]$_i$ [Dulles [$_{VP_1}$ suspected t$_i$]].

Here the VP_1 [*suspected* t] is correctly copied onto the VP_2.

Recently, assuming the Minimalist Program, proposed by Chomsky (1993), Lasnik (1993) and Hornstein (1994) have argued that QR is not relevant for ACD infinite regress resolution, but that LF Object Shift resolves an infinite regress in ACD. Under the Minimalist Program, movement bears last resort nature and it occurs only when it is necessary for feature checking. It is widely believed that QR is not the kind of movement that involves feature checking and hence that it is desirable to dispense with it. With this background, the move that Lasnik and Hornstein take is rather natural in that they claim that the infinite regress in ACD is resolved by independently motivated feature checking movement such as LF Object Shift.

In this paper, we argue, contrary to the above move, that non-feature-checking movement is involved in the resolution of the infinite regress in ACD. In particular, extending Baltin's (1987) CP Extraposition analysis, we propose that any type of rightward movement, including NP and PP Rightward Shift, is available for the infinite regress resolution. In section 2, we summarize Lasnik's (1993) and Hornstein's (1994) arguments for the LF Object Shift analysis of the infinite regress resolution. We also outline Lasnik's (1993) arguments for the need for Baltin's (1987) CP Extraposition analysis on top of the LF Object Shift analysis. In section 3, we present some conceptual and empirical problems for Hornstein and Lasnik's proposals. We will then show that our generalized rightward movement analysis of ACD has empirical advantages over other analyses. In section 4, we will present desirable consequences derived from our generalized rightward movement analysis of ACD. After having shown those advantages, we will address some questions as to the nature of the rightward movement involved in the infinite regress resolution. How is it possible under the Minimalist Program for non-feature-checking movement to be involved for the resolution of the infinite regress in ACD? Why is the relevant movement rightward? These are the questions that we will address in section 5. We will argue, following Fox (1995), that non-feature-checking movement is permitted for the purpose of satisfying Full Interpretation (henceforth, FI). We will also argue that the fact that rightward movement is involved in the resolution of the infinite regress in ACD follows from Saito's (1985) constraints on the direction of adjunction and Chomsky's (1993) economy condition 'shortest move'. Finally, in section 6 we will argue that the option of CP Extraposition must be chosen for the infinite regress resolution of

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ACD whenever it is available and that this follows from the base-generation approach to extraposed relatives plus Chomsky's (1993) economy condition 'fewest steps'. In the appendix, we point out some implications of our analysis of ACD for an Overt Object Shift analysis.

2. LF Object Shift analysis: Lasnik (1993) and Hornstein (1994)

Lasnik (1993) and Hornstein (1994) argue that QR should not be relevant for ACD infinite regress resolution in the Minimalist Program, proposed by Chomsky (1993). One of the main claims of this program is that syntactic representations only consist of two 'interface' levels, i.e., PF and LF. It crucially requires reconsidering the arguments to the effect that conditions such as Binding Conditions apply at S-structure. Chomsky (1981), among others, argues that Condition C must apply at S-structure, by noting that QR does not rescue a Condition C violation, as shown below:

(4) (a) Every book that $John_i$ read, he_i liked.
(b) *He_i liked every book that $John_i$ read.

In (4b), the object undergoes QR at LF and this sentence has much the same LF representation as (4a). Hence, if Condition C applies at LF, the coreference of *John* with *he* should be possible even in (4b). Chomsky, then, claims that the ungrammaticality of this sentence indicates that Condition C applies at S-structure. This claim cannot be maintained under the Minimalist Program, however, since the level of S-structure simply does not exist. Assuming that Binding Conditions apply at LF, Chomsky (1993) suggests that it must be the case either that there is no QR or that QR raises only quantifier heads rather than the whole quantifier phrases. Based on this argument, Lasnik (1993) and Hornstein (1994) claim that the QR resolution of the infinite regress in ACD is untenable within the Minimalist Program.

They propose instead that LF Object Shift serves to resolve an infinite regress in ACD. Thus, (1) has the following LF structure before copying takes place:

(5) $[_{AGRsP}$ $Dulles_i$ $[_{TP}$ $[_{AGRoP}$ [everyone [OP Angleton did $[_{VP_2}$ e]]]$_j$ $[_{VP_1}$ t_i suspected t_j]]]].

They show that the resolution by LF Object Shift explains a wider range of data for ACD than the resolution by QR. Let us first consider the following contrast, noted by Larson & May (1990):

(6) (a) ?John believed everyone you did $[_{VP}$ e] to be a genius.
(b) *John believed (that) everyone you did $[_{VP}$ e] was a genius.

Larson & May (1990) attribute this contrast to the clause-boundedness of QR, but now Lasnik and Hornstein claim that it can be used as supporting

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evidence for the LF Object Shift account. Under the Minimalist Program, the object of an Exceptional Case Marking (henceforth, ECM) construction raises to the AGR_o-SPEC of the higher clause for Case checking. Thus (6a) has the following LF structure:

(7) $[_{AGRsP}$ John$_i$ $[_{TP}$ $[_{AGRoP}$ [everyone [OP you did $[_{VP_2}$ e]]]$_j$ $[_{VP_1}$ t_i believed t_j to be a genius]]]].

Here, VP_1 [t_i *believed* t_j *to be a genius*] is correctly copied onto VP_2. In (6b), in contrast, the embedded subject, which contains the null VP, does not move out of the embedded clause for Case checking, and hence is unable to resolve an infinite regress when the matrix VP is copied onto the embedded VP.

Lasnik (1993) further argues that the purely Case based approach to ACD explains the contrast between (8a) and (8b).

(8) (a) ?Dulles spoke to Philby, who Angleton did not/as well $[_{VP}$ e].
(b) *Mary stood near Susan, who Emily did not/as well $[_{VP}$ e].

It is questionable to assume that QR applies to an NP headed by a proper noun to resolve an infinite regress in ACD in cases such as (8a). Even if we admit such a possibility,[2] the QR approach faces the problem of how the contrast in (8) is accounted for. Lasnik argues that this contrast is straightforwardly accounted for by LF Object Shift plus 'reanalysis'. The contrast in (9) with respect to passivizability suggests that whereas *speak to* undergoes reanalysis, *stand near* does not.

(9) (a) Philby was spoken to (by Mary).
(b) *Susan was stood near (by Mary).

Under the assumption that the reanalysis of V and P treats *speak to* as a single V, it is natural to assume that the object of this complex V undergoes LF Object Shift. Thus, in (8a), the direct object of the reanalyzed verb complex *spoke to* raises to the AGR_o-SPEC, yielding the following LF structure:

(10) $[_{AGRsP}$ Dulles$_i$ $[_{TP}$ $[_{AGRoP}$ [Philby, who Angleton did not/as well $[_{VP_2}$ e]]$_j$ $[_{VP_1}$ t_i spoke to t_j]]]].

In this structure, VP_1 is successfully copied onto VP_2. In (8b), by contrast, *stood near* is not reanalysed as a complex verb and hence, the object of *near* does not undergo LF Object Shift as in (10). This results in a structure where an infinite regress does arise when the matrix VP is copied onto the null VP.

We have shown advantages of the LF Object Shift account over the QR account for the resolution of the infinite regress in ACD. Lasnik (1993) argues, however, that LF Object Shift cannot be the sole option for the resolution of the infinite regress in ACD but that the option of CP

[2] See Clark (1992) for an account of ACD under the hypothesis that QR applies to an NP headed by a proper noun.

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Extraposition, originally proposed by Baltin (1987), is necessary as well. The relevant examples are given below:

(11) (a) *Mary stood near Susan, who Emily did not/as well [$_{VP}$ e]. (= 8b)
(b) ?Mary stood near everyone Emily did [$_{VP}$ e].

Notice that the correlation between the availability of reanalysis and the possibility of ACD, which motivates the Case checking based analysis of ACD, breaks down. Even though reanalysis is not available for *stood near*, which thereby leads to the ungrammaticality of ACD in (11a), the sentence improves much when the appositive relative is replaced by a restrictive relative as in (11b). This contrast strongly suggests that some movement operation independent of LF raising to AGR$_0$-SPEC is available for grammatical examples such as (11b).[3] Lasnik claims that the difference between (11a) and (11b) is attributed to the availability of CP Extraposition. As is shown in (12a–b), restrictive relatives in English can extrapose under appropriate circumstances while appositives never can.

(12) (a) A man arrived who was wearing a red hat.
(b) *John arrived who was wearing a red hat.

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[3] Bouton (1970) and Lappin (1992) argue that ACD is an instance of Pseudo-gapping, such as (i).

(i) ?John saw Mary and Bill did [$_V$ e] Susan.

Under this proposal, an instance of ACD such as (iia) has the structure shown in (iib).

(ii) (a) John saw everyone you did.
(b) John saw everyone OP$_i$ you did [$_V$ e] t$_i$.

In this structure, the elliptic site is V and there is a trace left behind by the movement of OP. We can supply the content of the matrix verb *see*/*saw* for the empty V by copying. Hence, the infinite regress problem does not arise.

This analysis nicely captures correlations between ACD and Pseudo-gapping. For instance, Lasnik (1995c) shows a correlation like the one below:

(iii) (a) ?Dulles spoke to Philby and Angleton did John.
(b) ?Dulles spoke to Philby, who Angleton did not/as well.
(iv) (a) *Mary stood near Susan and Emily did John.
(b) *Mary stood near Susan, who Emily did not/as well.

The data above show that both ACD and Pseudo-gapping are allowed with reanalysed verbs such as *spoke to*, while they are not allowed with unreanalysed verbs such as *stood near*.

However, Lasnik also notes that this kind of correlation only holds in cases of ACD involving appositive relative clauses. Thus, this analysis leaves unexplained the grammaticality of sentence (11b). (Lasnik (1995a, b, c) in fact abandons a unified analysis of ACD, leaving aside the problem of why restrictive and non-restrictive clauses behave differently in ACD.) For this reason, we do not adopt a pseudo-gapping analysis of ACD, but will propose a unified analysis that accommodates both ACD with restrictive relative clauses and ACD with appositive relative clauses.

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Thus the CP Extraposition option is available in (11b), but not in (11a), yielding the following structure:

(13) Mary [$_{VP}$ [$_{VP_1}$ stood near everyone] [$_{CP}$ OP [Emily did [$_{VP_2}$ e]]]].

The following example shows that the overt counterpart of CP Extraposition is available, lending support to the availability of structure (13).[4]

(14) ?Mary stood near a woman yesterday who was distributing leaflets.

If we assume QR without pied-piping of the whole quantifier phrases, one of the options available in the Minimalist Program, then we have the final LF representation given in (15).[5]

(15) [$_{IP}$ [$_{NP}$ everyone]$_i$ [$_{IP}$ Mary [$_{VP}$ [$_{VP_1}$ stood near t_i] [$_{CP}$ OP$_i$ [Emily did [$_{VP_2}$ stood near t_i]]]]]].

3. A GENERALIZED RIGHTWARD MOVEMENT ANALYSIS

Lasnik's analysis of ACD successfully explains a wide range of data, but even his analysis seems to have some problems. In this section, we will first point out that his LF Object Shift plus CP Extraposition analysis is not sufficient

[4] While Baltin (1987) argues that an infinite regress of ACD must be resolved in the overt component, Lasnik (1993) assumes that it can be resolved in the LF component as well and that CP Extraposition at LF serves for this purpose. One of the reasons he admits that CP Extraposition occurs at LF rather than in the overt component is to solve a problem raised by Larson & May (1990) against Baltin's analysis of ACD. This is concerned with complementizer deletion. Observing the following contrast,

(i) (a) I visited a man who/that/ϕ John mentioned recently.
(b) I visited a man recently who/that/?ϕ John mentioned.

Larson & May point out that if ACD involved overt CP Extraposition, it should show the effects of complementizer deletion similar to those observed above. Thus, in order to accommodate the fact that such effects are not observed in ACD, Lasnik assumes that the condition relevant for the complementizer deletion applies at a level other than LF, presumably at PF, and that CP Extraposition relevant for the infinite regress resolution of ACD can take place at LF.

Diesing (1992) argues against Baltin's CP Extraposition analysis of ACD based on the observation that ACD and overt CP Extraposition show the following contradictory properties; (i) the NP that contains ACD always has a strong or specific reading, and (ii) overt extraposition is not permitted from relative clauses headed by strong or specific quantifiers. Though we do not have any account for property (i), Diesing's argument against Baltin's analysis may not hold for the LF CP Extraposition analysis in its strong form, since there is a possibility that property (ii) is attributed only to overt CP Extraposition. Furthermore, there is a factual question of how strong native speakers' judgments of property (ii) are.

[5] Or if we assume the copy theory, proposed by Chomsky (1993), then we may be able to dispense with QR entirely, as suggested by Lasnik (1993). After the matrix VP is copied onto the null VP in (13), we have the following LF representation:

(i) [$_{IP}$ Mary [$_{VP}$ [$_{VP}$ stood near everyone$_i$] [$_{CP}$ OP$_i$ [Emily did [$_{VP}$ ⟨stood near everyone$_i$⟩]]]]].

What is copied is represented with angled brackets for ease of exposition. The copy theory may enable us to interpret the two occurrences of *everyone* as forming a chain and hence to take the second occurrence of *everyone* as a variable of the first occurrence. But see note 15 for a problem with this approach.

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to account for the properties of ACD. Then, we will show that rightward movement operations other than CP Extraposition are also involved in the infinite regress resolution of ACD. Furthermore, we will demonstrate some cases which show that LF Object Shift cannot be an option for the infinite regress resolution of ACD. This leads us to the conclusion that the ACD data previously dealt with by the LF Object Shift analysis have to be accounted for by the proposed generalized rightward movement analysis.

Given Lasnik's analysis, a question arises as to why only LF Object Shift and CP extraposition are available for the infinite regress resolution of ACD. In fact, there seems to be some instances of ACD which suggest the necessity of some other movement operations to resolve an infinite regress in ACD.

Consider the following example:

(16) Mary stood near Susan, where/near whom Emily did not/as well [$_{VP}$ e].

Reanalysis is not possible for *stood near* and hence, the LF Object Shift of *Susan* is not available for the infinite regress resolution for this example. Furthermore, since this ACD example involves the non-restrictive relative clause [*Susan*, *where/near whom Emily did not/as well*], CP Extraposition is not available, either. The grammaticality of this ACD example thus strongly indicates that movement operations other than LF Object Shift and CP Extraposition can be used for the infinite regress resolution of ACD.

Consider also example (17).

(17) John wanted to criticize Susan, who Emily did not [$_{VP}$ e].

This example is ambiguous in that the elided VP can be identified either with the matrix VP as in (18a) or with the embedded VP as in (18b).

(18) (a) John wanted to criticize Susan, who Emily did not [$_{VP}$ want to criticize].
(b) John wanted to criticize Susan, who Emily did not [$_{VP}$ criticize].

Since (17) contains an appositive relative clause, the CP Extraposition option is unavailable. Hence, on Lasnik's analysis, LF Object Shift must be used to resolve the infinite regress and example (17) should be assigned either structure (19a) or structure (19b).

(19) (a) John wanted to [$_{AGRoP}$ [Susan, who Emily did not [$_{VP_3}$ e]]$_j$ [$_{VP_2}$ criticize t_j]].
(b) John [$_{AGRoP}$ [Susan, who Emily did not [$_{VP_3}$ e]]$_j$ [$_{VP_1}$ wanted to criticize t_j]].

In structure (19a), the direct object [*Susan*, *who Emily did not*] moves into the lower AGR_o-SPEC for Case feature checking. After VP_2 is copied onto VP_3, we obtain the embedded reading for the elided VP. On the other hand, in order to obtain the matrix VP reading for the elided VP, the direct object

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must be moved into the higher AGR_0-SPEC to check its Case features. In order to allow such movement, Hornstein (1994) appeals to reanalysis so that the object of *criticize* is treated as that of the whole complex predicate *wanted to criticize*. However, there does not seem to be any independent evidence to support such V+V reanalysis in English. For example, *want to criticize* in (20) does not behave as a single verb regarding passivization as shown below (cf. (9) above):

(20) (a) Mary wanted to criticize John.
(b) *John was wanted to criticize by Mary.

Hence, it seems that we need another kind of operation to get the matrix VP reading of the elided VP in (17).

Even if such reanalysis existed in English, there are some data which cannot be dealt with by the LF Object Shift analysis. Note that the following examples are ambiguous in their interpretations exactly in the same way as (17).[6]

(21) (a) John $[_{VP_1}$ insisted on $[_{VP_2}$ criticizing Susan, who Emily did not $[_{VP}$ e]]].
(b) John $[_{VP_1}$ hoped to $[_{VP_2}$ criticize Susan, who Emily did not $[_{VP}$ e]]].
(c) John was $[_{AP}$ unable to $[_{VP_2}$ criticize Susan, who Emily
|was easily $[_{AP}$ e]]].
|did not $[_{VP_3}$ e]]].
(d) John was $[_{AP}$ certain to $[_{VP_2}$ criticize Susan, who Emily
|was not $[_{AP}$ e]]].
|did not $[_{VP_3}$ e]]].
(e) John was $[_{AP}$ likely to $[_{VP_2}$ criticize Susan, who Emily
|was not $[_{AP}$ e]]].
|did not $[_{VP_3}$ e]]]
(f) John $[_{VP_1}$ seemed to $[_{VP_2}$ criticize Susan, who Emily did not $[_{VP_3}$ e]]]].

The elided VP/AP in (21a–f) can be identified with the matrix VP/AP or the embedded VP. For example, the elided VP in (21a) can be construed as identical to the matrix VP as in (22a) or to the embedded VP as in (22b).

(22) (a) John insisted on criticizing Susan, who Emily did not $[_{VP_1}$ insist on criticizing].
(b) John insisted on criticizing Susan, who Emily did not $[_{VP_2}$ criticize].

Notice that the verbs/adjectives in the matrix clauses in the examples in (21) have no Accusative Case features to check unlike *wanted* in (17). Thus, these examples clearly show that the object NP cannot be raised into the SPEC of AGR_0P in the matrix clause for Case feature checking.

[6] We are grateful to Ruth Kempson and Shalom Lappin for bringing our attention to examples such as (21d–f). Similar data are independently observed by Kennedy (1997).

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Since these examples contain an appositive relative clause, CP Extraposition is not an available option for the infinite regress resolution. The availability of the matrix VP interpretation for the elided VP in (21) thus also demonstrates that there must be some movement operations other than LF Object Shift and CP Extraposition involved in ACD.[7]

To account for the above problematic ACD data, we propose that Baltin's and Lasnik's CP Extraposition analysis be generalized in such a way that any type of rightward movement operation can be involved in the infinite regress resolution in ACD. We show below that this generalized rightward movement analysis of ACD can accommodate these data. Let us first consider (16), repeated below.

(23) Mary stood near Susan, where/near whom Emily did not/as well $[_{VP}$ e].

Our analysis allows the rightward movement of the prepositional phrase [*near Susan*, *where/near whom Emily did not/as well*], whose legitimacy is clearly shown by the availability of the overt counterpart of such movement:

(24) Mary stood t_i yesterday $[_{PP}$ near the man that I recently met$]_i$.

Hence, (23) is assigned the structure given below:

(25) Mary $[_{VP_1}$ stood $t_i][_{PP}$ near Susan, where/near whom Emily did not/as well $[_{VP_2}$ e$]]_i$.

Given this structure, after the rightward movement of PP [*near Susan*, *where/near whom Emily did not/as well*], VP_1 is successfully copied onto the elided VP, VP_2.

Let us next consider (17), repeated here as (26).

(26) John wanted to criticize Susan, who Emily did not $[_{VP}$ e].

Recall that the LF Object Shift analysis faces the problem of deriving the matrix VP reading due to the apparent impossibility of reanalyzing *wanted to criticize* as a complex predicate. Under our analysis, in contrast, the embedded object [*Susan*, *who Emily did not*] can be moved out of VP_1, as shown in (27).

(27) John $[_{VP_1}$ wanted PRO to $[_{VP_2}$ criticize $t_i]]$ $[_{NP}$ Susan, who Emily did not $[_{VP_3}$ e$]]_i$.

This is because that such movement operations are available in overt component, as shown below:

(28) John $[_{VP_1}$ wanted PRO to $[_{VP_2}$ criticize $t_i]$ until yesterday] $[_{NP}$ the man who Mary used to love$]_i$.

[7] See Kennedy (1997) for more arguments against Hornstein's analysis of ACD which appeals to reanalysis.

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Hence, in (27), VP_i can be copied onto the elided VP, VP_3 and thus, the elided VP in (26) can have the matrix VP interpretation.

Furthermore, the LF Object Shift analysis faced the problem of why the matrix VP/AP reading is available for the elided VP/AP in examples (21a–f). (21a–b) are repeated here as (29a–b).

(29) (a) John $[_{VP_1}$ insisted on $[_{VP_2}$ criticizing Susan, who Emily did not $[_{VP}$ e]]].
(b) John $[_{VP_1}$ hoped to $[_{VP_2}$ criticize Susan, who Emily did not $[_{VP}$ e]]].

Under our generalized rightward movement analysis, the availability of the matrix VP interpretation for the elided VP in the examples in (29) is also accounted for straightforwardly. These examples involve non-restrictive relative clauses. Thus, CP Extraposition cannot be used for the infinite regress resolution. However, to resolve the infinite regress, the whole object NP can move rightward out of the embedded clause in these cases. The availability of such rightward movement in LF is indicated by the fact that the overt counterpart of such movement, i.e. Heavy NP Shift, is possible, as illustrated in examples (30a–b).

(30) (a) John insisted on [criticizing t_i] until yesterday $[_{NP}$ the man that I had been telling you about].
(a) John hoped [to criticize t_i] until yesterday $[_{NP}$ the man that I had been telling you about]$_i$.

Thus, examples (29a) and (29b) are assigned structures (31a) and (31b), respectively, on our analysis.

(31) (a) John $[_{VP_1}$ insisted on criticizing t_i] $[_{NP}$ Susan, who Emily did not $[_{VP_2}$ e]]$_i$.
(b) John $[_{VP_1}$ hoped to criticize t_i] $[_{NP}$ Susan, who Emily did not $[_{VP_2}$ e]]$_i$.

In these structures, the matrix VP, VP_i, can be coped onto the elided VP, VP_2. Thus, the elided VP in examples such as (29a–b) can be construed as the matrix VP.[8]

[8] One of the *JL* referees questions whether Heavy NP Shift actually licenses ACD. The referee refers to the well-known example (i), noted by Chomsky (1982), which shows that Heavy NP Shift licenses parasitic gaps.

(i) John offended t by not recognizing e immediately [his favorite uncle from Cleveland].

The referee, then, points out that in such an ACD construction as in (ii), it is quite hard to get the reading in which the elided VP is identified with the matrix VP, so that the elided VP is identified only as *recognized immediately*.

(ii) John offended t by not recognizing e immediately [his favorite uncle that you did].

Based upon the absence of the matrix VP reading in (ii), the referee suggests that Heavy NP Shift may not license ACD.

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We have shown above that our generalized rightward movement analysis of ACD can accommodate the data which pose problems for Lasnik's LF Object Shift plus CP Extraposition analysis. We now argue that LF Object Shift cannot be included as an option for the infinite regress resolution of ACD. Note first that as Lasnik (1995a–c) argues, the LF Object Shift analysis of ACD cannot be maintained under the Minimalist Program. On Chomsky's (1995) latest version of the theory, because there is no necessity for a whole phrase to move for feature checking in the LF component, not the whole phrase but only features move at LF. As a direct consequence, LF movement operations involved in ACD do not help an infinite regress to be resolved under this theory, since they are feature movement operations.[9]

Furthermore, there are some data that we cannot account for, if we include the option of LF Object Shift as an option for the infinite regress resolution of ACD. Consider the contrast between (32a) and (32b).

(32) (a) Jill bought [$_{NP}$ a picture of the same orgy Authur did [$_{VP}$ e]].
(b) *Jill bought [$_{NP}$ Melvin's picture of the same orgy Arthur did [$_{VP}$ e]].

Showing this contrast, Sag (1976) points out that if there is a possessive NP in the NP Spec position of the object NP, ACD examples are ill-formed. The same contrast is found in (33a–b) as well.[10]

However, Williams (1990), Postal (1993) and Kayne (1994) argue that (i) is an instance of Right Node Raising. If this is the case, the above fact does not raise a problem for our analysis of ACD. Wexler & Culicover (1980), Kimura (1986) and Bošković (1997) argue that Right Node Raising does not involve movement and 'right node-raised' elements are located in the second conjunct. Thus, sentence (iiia) has structure (iiib), according to Wexler & Culicover.

(iii) (a) John likes and Peter hates your best friends.
(b) [John likes [**your best friend**]] and [Peter hates [your best friend]]
↓
ø

If this analysis is right, the fact that the elided VP in (ii) is identified only as *recognized immediately* lends support to the claim that (i) is an instance of Right Node Raising.

[9] Based on this consideration, Lasnik (1995) proposes that English involves Object Shift not in LF but in overt syntax, and that due to overt Object Shift, an infinite regress is resolved in ACD. We will discuss the implications of this overt Object Shift analysis of ACD later in the appendix.

[10] Lasnik (1993) also notes similar examples to the same effect, as shown below:

(i) (a) I showed Mary a book that you did.
(b) ??I showed Mary John's book that you did.

He takes this contrast as evidence for the LF Object Shift + CP Extraposition analysis. He claims that the fact that the direct object of a double object construction does not undergo Passivization, as shown in (ii), indicates that it does not undergo LF Object Shift.
(ii) *John was shown the teacher t.
Hence, in order to resolve the infinite regresses of ACD in (i), we need to apply CP Extraposition to the restrictive relatives. The contrast in grammaticality between (ia) and (ib) is now attributed to the availability of CP Extraposition from NPs with and without possessive NPs, as illustrated below:

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(33) (a) I saw a book that you did [$_{VP}$ e].
(b) ??I saw John's book that you did [$_{VP}$ e].

Under the LF Object Shift analysis of ACD, examples (33a–b) should be assigned structures (34a–b), respectively.

(34) (a) [$_{AGRsP}$ I_i [$_{AGRoP}$ [a book that you did [$_{VP_2}$ e]]$_j$ [$_{VP_1}$ t_i saw t_j]]].
(b) [$_{AGRsP}$ I_i [$_{AGRoP}$ [John's book that you did [$_{VP_2}$ e]]$_j$ [$_{VP_1}$ t_i saw t_j]]].

In (34a), the object of *saw* undergoes LF Object Shift to the Spec of AGR_o and then, VP_1 is successfully copied onto VP_2. Exactly in the same way, in (34b), the object [*John's book that you did*] raises to the Spec of AGR_o for Case feature checking. Because VP_1 should also be able to be copied onto VP_2 in (34b), the Object Shift analysis incorrectly predicts that (33b) is as grammatical as (33a). It thus follows from the ungrammaticality of (33b) that LF Object Shift cannot be an option for the infinite regress resolution in ACD.

Consider next Lasnik's (1993) contrast given in (35a–b). Examples (35a–b) both involve a non-restrictive relative clause and thus, the CP Extraposition option is not available to resolve an infinite regress.

(35) (a) ?John showed Susan, who you did not [$_{VP}$ e], the teacher.
(b) *John showed the teacher Susan, who Mary did [$_{VP}$ e] too.

The contrast here is straightforwardly accounted for under the LF Object Shift analysis of ACD. The structure which Lasnik assigns to example (35a) is given below:

(36) [$_{AGRsP}$ $John_i$ [$_{AGRoP}$ [$_{NP}$ $Susan_j$, who you did not [$_{VP_2}$ e]]$_j$ [$_{VP_1}$ t_i showed t_j the teacher]]].

Because the indirect object has Accusative Case features to be checked, not the direct object but the indirect object, [*Susan*, *who you did not*], undergoes LF Object Shift for Case feature checking as in (36). Thanks to this movement of the indirect object, VP_1 is successfully copied onto VP_2, and the infinite regress is resolved in the case of (35a). On the other hand, since this type of movement is unavailable for the direct object in (35b), the infinite regress is not resolved and the example results in ungrammaticality. This analysis is motivated by the following contrast regarding the availability of passivization:

(37) (a) The $teacher_i$ was shown t_i John.
(b) *$John_i$ was shown the teacher t_i.

(iii) (a) I showed Mary a book yesterday that the reviewers liked.
(b) ??I showed Mary John's book yesterday that the reviewers liked.

However, as is shown in (33), the effects of possessive NPs are observed not only in the direct objects of double object constructions but also in those of simple transitive verbs. Lasnik's (1993) account misses this generalization and thus, cannot accommodate the contrast in (33a–b).

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The indirect object *the teacher* has Accusative Case feature so that it undergoes NP movement by Passivization as shown in (37a). Since the direct object *John* does not have Accusative Case feature, Passivization is impossible as shown in (37b).

Although Lasnik's analysis naturally accounts for the contrast in (35a–b), we are skeptical about the grammaticality judgements. There are many speakers who informed us of the opposite grammatical judgements for the same example, as shown in (38).

(38) (a) *John showed Susan, who you did not [$_{VP}$ e], the teacher.
(b) ?John showed the teacher Susan, who Mary did [$_{VP}$ e] too.

Notice that these examples show that not the indirect object but the direct object hosts ACD in the double object construction. Thus, if grammaticality judgements given in (38) are correct, we cannot maintain the LF Object Shift analysis, and have to rely on some movement operations other than LF Object Shift which move the direct object but do not move the indirect object out of VP for the infinite regress resolution in ACD.

To summarize, we have shown above that Baltin's CP Extraposition analysis should be generalized in such a way that all kinds of rightward movement are involved in the infinite regress resolution of ACD. Furthermore, we have shown that LF Object Shift cannot resolve an infinite regress in ACD. It is now necessary to see whether and if so, how our generalized rightward movement analysis can explain the ACD examples in which the option of LF Object Shift was used for the resolution of the infinite regress in ACD.

Our account straightforwardly explains the grammaticality of ACD example (39), which involves a restrictive relative clause.

(39) Mary suspected everyone who Emily did [$_{VP}$ e].

On our analysis, (39) can be assigned (40a) or structure (40b).

(40) (a) Mary$_i$ [$_{VP_1}$ t$_i$ suspected t$_j$] [$_{NP}$ everyone who [Emily did [$_{VP_2}$ e]]]$_j$.
(b) [$_{IP}$ [$_{NP}$ everyone]$_j$ [$_{IP}$ Mary$_i$ [$_{VP_1}$ t$_i$ suspected t$_j$] [$_{CP}$ who [Emily did [$_{VP_2}$ e]]]]].

In (40a), the direct object of *suspected* moves rightward. After this rightward movement takes place, VP_1 with its traces is successfully copied onto the elided VP. On the other hand, (40b) involves CP Extraposition to resolve the infinite regress. Notice that after the CP extraposition and QR of the quantificational head *everyone* have applied, VP_1 is successfully copied onto the elided VP. In this way, the grammaticality of example (39) is accounted for by appealing to rightward movement of either the object NP or the restrictive relative clause included in the object NP. Just for ease of exposition, we will show below only the structure which involves CP Extraposition, if an infinite regress in ACD can be resolved by either CP Extraposition or the rightward movement of the whole object NP.

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The generalized rightward movement analysis accounts for the grammaticality of example (41) in the following way:

(41) Dulles suspected Philby, who Angleton did not [$_{VP}$ e].

This example, unlike (39), involves a non-restrictive relative clause and thus, the CP Extraposition option is not available. Hence, under the generalized rightward movement analysis, (41) can be assigned only structure (42), which involves rightward movement of the direct object [*Philby*, *who Angleton did not*].

(42) Mary [$_{VP_1}$ suspected t_i] [$_{NP}$ Philby, who [Angleton did not [$_{VP_2}$ e]]]$_i$.

In this structure, VP_1 is copied onto VP_2, and the infinite regress is resolved, as desired.

Recall that the LF Object Shift analysis captures the locality effects of ACD observed in (6), repeated here as (43), by relying on the local nature of Object Shift.

(43) (a) ?John believed everyone you did [$_{VP}$ e] to be a genius.
(b) *John believed (that) everyone you did [$_{VP}$ e] was a genius.

On our proposal, such effects are accounted for by Ross's (1967) Right Roof Constraint, which states that an element moves rightward out of a non-tensed clause, whereas it cannot move rightward out of a tensed clause. That an element can undergo rightward movement out of a non-tensed clause is shown in (44a–b).

(44) (a) John believed [t_i to be important] until yesterday [$_{NP}$ the man that I had been telling you about]$_i$.
(b) John believed [the man to be important] until yesterday [$_{CP}$ that I had been telling you about].

The Right Roof Constraint prohibits an element from moving rightward out of a tensed clause, as indicated by the ungrammatical examples (45a–b).

(45) (a) *John believed [that Mary would see t_i] until yesterday [$_{NP}$ the man that I had been telling you about].
(b) *John believed [that Mary would see the man] until yesterday [$_{CP}$ that I had been telling you about].

Thus, on our generalized rightward movement approach, to resolve the infinite regress in ACD example (43a), the restrictive relative modifying the object NP can undergo CP Extraposition out of the embedded clause as shown in (46a). As illustrated in (46b), this type of CP Extraposition is not available for ungrammatical ACD example (43b), because the relative clause moves rightward out of a tensed clause, which is in violation of the Right Roof Constraint.

(46) (a) John [$_{VP_1}$ believed everyone to be a genius] [$_{CP}$ you did [$_{VP_2}$ e]].
(b) *John [$_{VP_1}$ believed (that) everyone was a genius] [$_{CP}$ you did [$_{VP_2}$ e]].

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After *everyone* undergoes QR, VP_1 is successfully copied onto VP_2 in (46a). The grammaticality of (43a) and the ungrammaticality of (43b) are thus explained.

The proposed generalized rightward movement analysis can also provide a straightforward account for the data in (38), repeated here as (47), which the LF Object Shift analysis cannot account for.

(47) (a) *John showed Susan, who you did not [$_{VP}$ e], the teacher.
(b) ?John showed the teacher Susan, who Mary did [$_{VP}$ e] too.

This is because as illustrated in (48a–b), Heavy NP Shift cannot apply to the indirect object but to the direct object.

(48) (a) *John gave t_i a lot of money [the fund for the preservation of VOS languages]$_i$.
(b) John gave Bill t_i yesterday [more money than he had ever seen]$_i$.

Thus, for the infinite regress resolution, we cannot move the indirect object rightward as in (48a), and can move the direct object as shown in (48b).

(49) (a) *John [$_{VP_1}$ showed t_i the teacher] [Susan, who you did not [$_{VP_2}$ e]]$_i$.
(b) ?John [$_{VP_1}$ showed the teacher t_i] [Susan, who Mary did [$_{VP_2}$ e] too]$_i$.

The contrast in grammaticality between (47a) and (47b) is thus accounted for.[11,12]

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[11] One of the *JL* referees points out that the correlation between Heavy NP Shift and its covert counterpart is not exact. The referee observes that Heavy NP Shift cannot apply to [*Fred*, *who you like*] in (i) and (ii) as shown below:

(i) (a) I told Fred, who you like, about Bill.
(b) ?*I told t_i about Bill [Fred, who you like]$_i$.
(ii) (a) I asked Fred, who you like, for porridge.
(b) ?*I asked t_i for porridge [Fred, who you like]$_i$.

However, the ACD counterparts which involve the LF rightward movement of [*Fred*, *who you didn't*] under our proposal seem to be fine.

(iii) (a) I told Fred, who you didn't, about Bill.
(b) I asked Fred, who you didn't, for porridge.

It seems to be the case that when a verb has two internal arguments that are Goal and Theme, the Goal argument cannot undergo Heavy NP Shift, crossing the Theme argument. Thus, in (i) and (ii), [*Fred*, *who you like*] functions as the Goal argument of *told* and *asked* and hence cannot undergo Heavy NP Shift. Also, in (48a), the Goal argument [*the fund for the preservation of VOS languages*] cannot undergo Heavy NP Shift. The question is why this restriction applies to (47a) but not to the examples in (iii). We do not have any decisive answer to this question, but we speculate that this may be related to the fact that while Heavy NP Shift involves focus, LF rightward movement used for the infinite regress resolution of ACD does not. It might be the case that lack of the focus effects in the ACD cases contributes to the fact that the effects of the restriction in question are not constantly observed.

[12] We pointed out one more case that is problematic for the LF Object Shift analysis, namely a case such as (33a–b) where a relative clause involving ACD is attached to a possessive NP. We will postpone the discussion of such cases until section 6.

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4. Further evidence

Our generalized rightward movement analysis yields several nice consequences. Postal (1974) notes that the embedded lexical subject blocks rightward movement as shown in (50) and (51).

(50) John wanted PRO to buy t_i until yesterday $[_{NP}$ a new Cadillac$]_i$.
(51) ?*John wanted Mary to buy t_i until yesterday $[_{NP}$ a new Cadillac$]_i$.

The rightward movement operation involved in (51) is ill-formed, because unlike (50), (51) involves rightward movement which crosses the embedded lexical subject *Mary*.

Given this restriction on rightward movement, we can account for the contrast between (52) and (53).

(52) John $[_{VP_1}$ wanted PRO to $[_{VP_2}$ criticize $[_{NP}$ Susan, who Emily did not $[_{VP_3}$ e]]]].
(53) John $[_{VP_1}$ wanted Mary to $[_{VP_2}$ criticize $[_{NP}$ Susan, who Emily did not $[_{VP_3}$ e]]]].

In example (52), the elided VP can be identified with either VP_1 or VP_2, whereas in (53), the elided VP can be identified with only VP_2.

On our analysis, Heavy NP Shift can move [*Susan*, *who Emily did not*] out of either VP_2 or VP_1 to resolve the infinite regress in (52). This is illustrated in (54).

(54) (a) John $[_{VP_1}$ wanted PRO to $[_{VP_2}$ criticize $t_i]$ $[_{NP}$ Susan, who Emily did not $[_{VP_3}$ e$]]_i]$.
(b) John $[_{VP_1}$ wanted PRO to $[_{VP_2}$ criticize $t_i]]$ $[_{NP}$ Susan, who Emily did not $[_{VP_3}$ e$]]_i$.

The representations in (54a–b) are well-formed, since they do not violate Ross's Right Roof Constraint and further, the rightward movement operations involved here do not cross the lexical embedded subject as in (50). Hence, in (54a–b), either VP_1 or VP_2 can be copied onto the elided VP, VP_3 and thus, (52) can have two different interpretations mentioned above.

On the other hand, (53) is assigned the following structure under our generalized rightward movement analysis.

(55) (a) John $[_{VP_1}$ wanted Mary to $[_{VP_2}$ criticize $t_i]$ $[_{NP}$ Susan, who Emily did not $[_{VP_3}$ e$]]_i]$.
(b) *John $[_{VP_1}$ wanted Mary to $[_{VP_2}$ criticize $t_i]]$ $[_{NP}$ Susan, who Emily did not $[_{VP_3}$ e$]]_i$.

To resolve the infinite regress, [*Susan*, *who Emily did not*] moves rightward out of VP_2, as in (55a). However, the rightward movement involved in (55b) which moves elements out of VP_1 is not allowed, because it crosses the embedded lexical subject *Mary* in violation of Postal's constraint. Hence, on

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our proposal, in example (53), only VP_2 can be copied onto the elided VP, VP_3, and thus, the elided VP in (53) must be interpreted as identical to the embedded VP, VP_2, as desired.

Negative polarity items such as *anyone* do not block rightward movement unlike *Mary* in (51), even if it is in the subject position of the embedded clause. This is shown below.

(56) I did not expect anyone to buy t_i until yesterday [a new Cadillac]$_i$.

Given this generalization, the proposed rightward movement analysis of ACD predicts that unlike (53), the elided VP in ACD examples such as (57) can have the matrix VP reading as well as the embedded VP reading. This prediction is indeed borne out.

(57) I did not [$_{VP_1}$ expect anyone to [$_{VP_2}$ suspect [$_{NP}$ Philby, who Angleton did not [$_{VP_3}$ e]]]].

The reason why the matrix VP reading is available for the elided VP in (57) is that *anyone* in subject position does not block rightward movement of [*Philby*, *who Angleton did not*] so that structure (58) is well-formed.

(58) I did not [$_{VP_1}$ expect anyone to [$_{VP_2}$ suspect t_i]] [$_{NP}$ Philby, who Angleton did not [$_{VP_3}$ e]]$_i$.

Given this structure, VP_1 can be successfully copied onto VP_3, and we can account for the fact that example (57) is ambiguous.

The same kind of correlation is observed in the examples in (59).

(59) (a) John [$_{VP_1}$ made his brother [$_{VP_2}$ play t_i] yesterday [the luxurious Italian piano]$_i$].
(b) John [$_{VP_1}$ made his brother [$_{VP_2}$ criticize Susan, who Bill did not [$_{VP_3}$ e]]].

(59a) shows that the object of the embedded clause can move out of the embedded clause in causatives as in (56). In the same vein, the matrix VP interpretation as well as the embedded VP reading is available for the elided VP in (59b). This fact is derived from applying rightward movement to [*Susan*, *who Bill did not*] in (59b) and moving it out of the embedded clause. This operation is illustrated below.

(60) John [$_{VP_1}$ made his brother [$_{VP_2}$ criticize t_i]] [$_{NP}$ Susan, who Bill did not [$_{VP_3}$ e]]$_i$.

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Here, the matrix VP is copied onto the elided VP, yielding the matrix VP reading.[13]

It should be noted that by appealing to reanalysis, Hornstein (1994) could account for the contrast between (52) and (53) regarding the availability of the matrix VP reading for the elided VP. However, this analysis cannot accommodate the data in (57) and (59b), because the lexical elements *anyone* and *his brother* intervene between the matrix verb and the embedded verb, thereby blocking reanalysis (Riemsdijk 1978, Rizzi 1978, Burzio 1986, Rosen 1989, among others).[14] Hence, under Hornstein's analysis, the matrix VP interpretation for the elided VP is not expected in (57) and (59b), contrary to fact.

Let us next consider the contrast between (8a) and (8b). They are repeated here as (61a) and (61b), respectively.

(61) (a) ?Dulles spoke to Philby, who Angleton did not/as well [$_{VP}$ e].
(b) *Mary stood near Susan, who Emily did not/as well [$_{VP}$ e].

Recall that under Lasnik's LF Object Shift analysis, not *stood near* but *spoke to* can be reanalyzed as a single lexical verb and thus, the object NP in (61a) [*Philby*, *who Angleton did not/as well*] moves into the SPEC of AGR_oP for feature checking as illustrated in (62).

(62) [$_{AGRsP}$ Dulles$_i$ [$_{TP}$ [$_{AGRoP}$ [Philby, who Angleton did not/as well [$_{VP_2}$ e]]$_j$ [$_{VP_1}$ t$_i$ spoke to t$_j$]]]].

On the other hand, since reanalysis is not available for *stood near*, the NP in (61b) [*Susan*, *who Emily did not/as well*] does not undergo LF Object Shift.

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[13] Jayaseelan (1990) proposes a rightward movement analysis of Pseudo-gapping based upon the observation that Pseudo-gapping is also constrained by Postal's constraint. Jayaseelan also reports the observation, attributed to Richard Kayne, that Postal's constraint does not apply in the Pseudo-gapping counterparts of (57) and (59).

There seem to be two possible accounts of the grammaticality of (59a–b). First, the causative predicate *make* is a three-place predicate (Rizzi 1986, Mohanan 1988, Alsina 1993) and thus, *his brother* in (59) is the integral argument of *make*, but not the subject of the embedded clause. Thus, the rightward movement operations involved in the examples are immune from Postal's constraint. Secondly, Postal's constraint is modified in such a way that it does not apply if the embedded clause is tenseless. Thus, even if *make* is a two-place predicate and *his brother* is in the embedded subject position, the rightward movement operations represented in (59a–b) are permitted.

A *JL* referee points out that object control structures block the matrix VP reading in such an ACD example as (i).

(i) John [$_{VP_1}$ persuaded my friends PRO to [$_{VP_2}$ eat everything that I did [$_{VP_3}$ e]]].

This indicates that a lexical object also blocks an element from moving rightward crossing that object. This implies that the first account cannot accommodate this fact and that tense is crucial for the embedded object to be able to cross *his brother* in (59a) and (60).

[14] There is an issue as to the string adjacency requirement for reanalysis. For example, Rizzi (1978) observes that certain kinds of adverbs can break into a 'verbal complex' formed by a verb which triggers reanalysis and the embedded verb. However, there is no case in which a lexical argument intrudes into such a verbal complex.

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Thus, the infinite regress is not resolved in the example. Consequently, the contrast between (61a) and (61b) is accounted for.

Let us now see how our analysis can account for the contrast in (61a–b). Let us first consider (61b). As shown in (63), Heavy NP Shift cannot leave behind prepositions such as *near*.

(63) *Mary stood near t_i yesterday [the man I recently met]$_i$.

Thus, to resolve the infinite regress in (61b), we cannot move the NP [*Susan, who Emily did not/as well*] rightward, leaving the preposition *near* behind, as illustrated in (64).

(64) *Mary [$_{VP_1}$ stood near t_i] [$_{NP}$ Susan, who Emily did not/as well [$_{VP_2}$ e]]$_i$.

For the infinite regress resolution in (61b), we cannot appeal to CP Extraposition, either, because the example involves a non-restrictive relative clause. Even if we move the prepositional phrase [*near Susan, who Emily did not/as well*] rightward as illustrated in (65), we cannot resolve the infinite regress.

(65) *Mary [$_{VP_1}$ stood [$_{PP}$ t_i]] [$_{PP}$ near Susan, [$_{NP}$ who]$_i$ Emily did not/as well [$_{VP_2}$ e]]$_i$.

The rightward movement operation involved in (65) should be allowed as in (24), repeated here as (66).

(66) Mary stood t_i yesterday [$_{PP}$ near the man that I recently met]$_i$.

However, given structure (65), there arises a problem: after we copy VP_1 onto the elided VP, VP_2, there arises a category mismatch between the operator *who*$_i$ and the copied trace, t_i. The category of the operator is an NP, while the category of the trace is a PP because the trace is created by the rightward movement of PP.[15] Therefore, the structure is ruled out, and the

[15] In fn. 5, we pointed out the possibility, originally noted by Lasnik (1993), that if we adopt the copy theory, proposed by Chomsky (1993), we can dispense with QR entirely, and such an ACD construction as (i) has the final LF representation given in (ii).

(i) Mary stood near everyone Emily did [$_{VP}$ e].
(ii) [$_{IP}$ Mary [$_{VP}$ [$_{VP}$ stood near everyone$_i$] [$_{CP}$ OP$_i$ [Emily did [$_{VP}$ ⟨stood near everyone$_i$⟩]]]]].

In (ii), the matrix VP [*stood near everyone*] is copied onto the elided VP, as indicated with angled brackets. Under the copy theory, we may interpret the two occurrences of *everyone* as forming a chain and hence take the second occurrence of *everyone* as a variable of the first occurrence.

If we take this approach, a problem arises with respect to example (61a), which can have the following representation under the copy theory.

(iii) *Mary [$_{VP_1}$ stood [$_{PP}$ ⟨near Susan⟩]] [$_{PP}$ near Susan, who$_i$ Emily did not/as well [$_{VP_2}$ ⟨stood [$_{PP}$ near Susan]⟩]].

In (iii), the first occurrence of ⟨*near Susan*⟩ is a copy of the moved PP phrase. Note first that we need to stipulate that in order to resolve the infinite regress, the moved PP only leaves *near Susan* as its copy; otherwise, the copy also includes the elided VP, which leads

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ungrammatical example (61b) can never be assigned a well-formed LF representation under our analysis.

Let us consider (61a), repeated here as (67).

(67) ?Dulles spoke to Philby, who Angleton did not/as well [$_{VP}$ e].

On our analysis, there are two possible ways to resolve the infinite regress of this ACD example as shown below.

(68) (a) (*)Dulles [$_{VP_1}$ spoke to t_i] [$_{NP}$ Philby, who Angleton did not/as well [$_{VP_2}$ e]]$_i$.
(b) *Mary [$_{VP_1}$ spoke [$_{PP}$ t_i]] [$_{PP}$ to Philby, who$_i$ Angleton did not/as well [$_{VP_2}$ e].

(68b) is excluded exactly in the same way as (65): after we copy VP_1 onto the elided VP, VP_2, there arises a category mismatch between the operator *who* and the copied trace. The category of the operator is an NP, while the category of the trace is a PP because the trace is created by the rightward movement of PP.

As for (68a), most speakers do not accept this type of Heavy NP Shift leaving a preposition behind, as shown in (69a–b).

(69) (a) *Mary stood near t_i yesterday [$_{NP}$ the man who John used to love]$_i$.
(b) (*)I spoke to t_i yesterday [$_{NP}$ the man who John used to love]$_i$.
((c) Philby was spoken to (by Dulles).)

Hence, it appears that our analysis incorrectly predicts that the structure in (68a) is ill-formed, because rightward movement does not tolerate P-Stranding and that both (61a) and (61b) are ungrammatical.

We would like to note here that there are some speakers who accept such rightward movement in overt syntax in (69b), which involves reanalyzable V plus P, but do not accept such a movement operation in overt syntax in (69a). The same difference in grammaticality judgements is observed in (70a) and (70b).

(70) (a) ?Dulles talked about Philby, who Angleton did not/as well [$_{VP}$ e].
(b) (*)I talked about t_i yesterday [the man I recently met]$_i$.
((c) Philby was talked about (by Dulles)).

This suggests that rightward movement is sensitive to the availability of reanalysis with respect to P-Stranding. Given this, we would like to suggest that P-Stranding is allowed for rightward movement universally in LF if

to an infinite regress. Furthermore, in (iii), it is not at all clear whether a category mismatch arises between the operator *who* and what is copied from the matrix VP, since the operator could correctly pick up the final occurrence of *Susan* as its variable under the copy theory. For these reasons, we have adopted the no-pied-piping QR option rather than the copy theory.

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reanalysis is possible and that P-Stranding is disallowed for rightward movement in overt syntax, probably due to some constraint related to PF. Structure (68a) is thus legitimate, whereas (69b) and (70b) are illegitimate. We would also like to suggest that some speakers allow P-Stranding in such a situation even in the overt component for some reason. Hence, (69b) and (70b) are judged acceptable for those speakers.

The situation in which P-Stranding is prohibited in overt syntax but is allowed in LF is not so peculiar. Such a situation can be found in languages such as Japanese. As is shown in (71), scrambling in Japanese does not tolerate P-Stranding.

(71) *John$_i$, Susan-ga t_i-nituite hanasita.
-NOM -about talked
'John$_i$, Susan talked about t_i.'

Consider next the Japanese Gapping example (72a). (72a) is assigned structure (72b) under Abe & Hoshi's (1997) analysis of Gapping.

(72) (a) *John-ga Mary*, *sosite Taro*-ga *Hanako*-nituite hanasita.
-NOM and -NOM -about talked
'*John talked about Mary and Taro Hanako.'
(b) [$_{IP}$ *John-ga* [$_{i'}$ *Mary* [$_{i'}$ e]]], sosite.
[$_{IP}$ *Taro-ga* [$_{i'}$ *Hanako*$_i$ [$_{i'}$ t_i-nituite hanasita]]].

In (72b), the second contrasted element in the second conjunct *Hanako* undergoes leftward movement leaving behind the P, *-nituite* 'about', and adjoins to I′ to create a structure for copying. After this movement of *Hanako*, the I′ in the second conjunct is copied onto the null I′ in the first conjunct, and the example is given an adequate interpretation. It follows from this analysis of Japanese Gapping that P-Stranding is allowed at LF even in a language like Japanese which does not allow P-Stranding in overt syntax.[16]

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[16] One might expect that this type of Japanese Gapping would not allow P-Stranding if reanalysis is unavailable. This expectation is not borne out, however.

(i) (a) John -ga kono riyuu, sosite Mary -ga ano riyuu -de
-NOM this reason and -NOM that reason -for
kubi-ni natta.
was fired
'*John was fired for this reason, and Mary that reason.'
(b) [$_{IP}$ **John-ga** [$_{I'}$ **kono riyuu** [$_{I'}$ e]]], sosite
[$_{IP}$ **Mary-ga** [$_{I'}$ **ano riyuu**$_I$ [$_{I'}$ t_i-de kubi-ni natta]]].

Under Abe & Hoshi's analysis, to create a copying site, *ano riyuu* in the second conjunct undergoes movement, leaving behind the P *de* 'for'. Notice that *for* is not the kind of P which undergoes reanalysis with a verb as shown in (ii).

(ii) *The reason was not fired for.

Note that leftward movement is involved in structure (ib). This indicates that not leftward movement but rightward movement is sensitive to the availability of reanalysis with respect

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5. The nature of rightward movement

So far, we have shown that the generalized rightward movement analysis of ACD can naturally explain a wide range of data. However, some theoretical questions arise as to the analysis. The first question is why non-checking movement operations can be involved in ACD. Second, why are they rightward? We will address these questions in what follows.

5.1 *Why non-checking movement?*

In the Minimalist Program, movement operations are allowed only when necessary for derivations to 'converge'. Chomsky (1995) defines 'convergence' as follows:

(73) A derivation converges at one of the interface levels if it yields a representation satisfying FI at this level.

Assuming this, Fox (1995) hypothesizes that empty VPs will not satisfy the Principle of FI unless they are supplied with semantic content. Thus, in order to make a derivation involving ACD converge, we need to apply a movement operation for the infinite regress resolution, thereby being able to supply the empty VP with semantic content.

Fox argues that the above hypothesis with respect to the necessity of movement in ACD straightforwardly explains the (un)grammaticality of the examples in (74) and (75), which are originally noted by Fiengo & May (1994).[17]

(74) (a) ??/*You sent him$_i$ the letter that John$_i$ expected you would write.
(b) ??/*You introduced him$_i$ to everyone John$_i$ wanted you to meet.

---

to P-Stranding. See Huang (1982) and Aoun (1985), among others, for the claim that P-Stranding is universally allowed for leftward movement at LF, no matter whether it is allowed in overt syntax in a given language.

[17] A *JL* referee raises a question about the grammaticality judgements of the examples in (74), based on the following data:

(i) (a) I gave him$_i$ everything John$_i$ asked for, and yet he still wasn't happy.
(b) *I gave him$_i$ John$_i$'s hat.

According to the referee, most informants with whom s/he has consulted accept (ia), but not (ib). Observing the same type of contrast, Reinhart (1976) notes that Condition C violations can be exempted when R-expressions are 'deeply' embedded in clauses such as relative clauses. She provides the following examples:

(ii) (a) After days of search, they finally found him$_i$ in a sleazy hotel room that Dr. Levin$_i$ had rented under a false name.
(b) *After days of search, they finally found him$_i$ in Dr. Levin$_i$'s hotel room.

However, since there seems to be still a significant contrast in acceptability between (74a–b), (ia) and (iia) on the one hand and (75a–b) on the other, we assume Fiengo & May's grammaticality judgements in the text to be real.

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(75) (a) You sent him_i [$_{NP}$ the letter [$_{CP}$ that $John_i$ expected you would [$_{VP}$ e]]].
(b) You introduced him_i to [$_{NP}$ everyone [$_{CP}$ $John_i$ wanted you to [$_{VP}$ e]]].

Notice that the examples in (74a–b) do not involve ACD, whereas those in (75a–b) do involve ACD. (74a–b) induce Condition C violations, since *him* c-commands *John*; hence the ungrammaticality of these sentences. On the other hand, Fox claims that QR is relevant for resolving the infinite regress in (75a) and (75b). Thus, in these sentences, QR applies to the objects [*the letter that* $John_i$ *expected you would*] and [*everyone* $John_i$ *wanted you to*] so that these objects are outside of the c-command domain of *him*, escaping a Condition C violation. Note that in order to maintain the above explanation, QR should not apply to the objects that contain *John* in (74). Fox derives this from the last resort principle of movement; that is, QR applies only when it contributes to changing scope interpretation or, crucially in this context, it is necessary for FI.

However, we have assumed, following Lasnik (1993), that QR cannot resolve an infinite regress in ACD under the Minimalist Program, since if it exists at all, it is allowed to apply only to the head of a quantificational phrase rather than the whole phrase. Rather, we have argued above that it is rightward movement that is relevant for the infinite regress resolution of ACD. Thus, rightward movement is applied to either the object NP or the relative clause, and (75a–b) are assigned the following LF structures if we take the latter option:

(76) (a) You [$_{VP}$ sent him_i [$_{NP}$ the letter]] [$_{CP}$ that $John_i$ expected you would [$_{VP}$ e]].
(b) You [$_{VP}$ introduced him_i to [$_{NP}$ everyone]] [$_{CP}$ $John_i$ wanted you to [$_{VP}$ e]].

In these structures, the relative clauses are moved out of the c-command domain of *him*, thereby *John* not being c-commanded by *him*. Hence, (76a–b) do not induce Condition C violations. The grammaticality of the examples in (75) thus strongly indicates that ACD involves movement, while the ungrammaticality of the examples in (74) suggests that such a movement operation does not apply optionally, but rather does so only when necessary for convergence.

Note that the above analysis crucially assumes, with Fox (1995), that what triggers rightward movement in ACD is the need to supply empty VPs with semantic content so as to satisfy FI. Hence, to the extent that this analysis is correct, it lends support to the LF copying analysis of ACD. Abe (1996) argues that there are two types of Ellipsis; one is called VPD(eletion)-type, involving LF copying and the other is called Gapping-type, involving PF

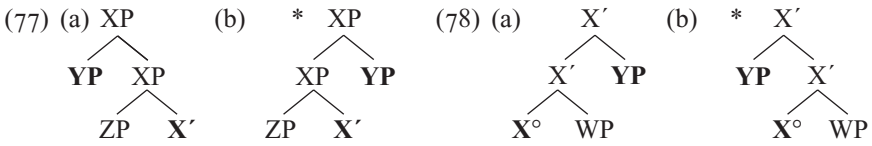
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deletion. From this point of view, the present analysis gives support to the LF copying analysis of the VPD-type ellipsis.[18]

5.2 *Why rightward movement*?

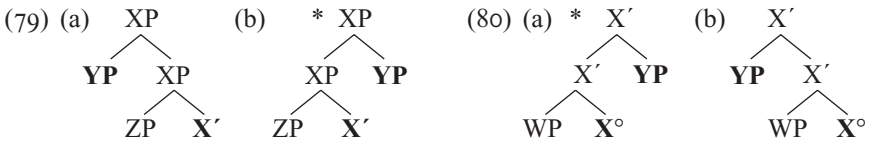
The next question is why rightward movement among other movement operations is involved in ACD. We will argue that this is derived from Saito's (1985) condition on the direction of adjunction and one of the Chomsky's (1993) economy conditions, i.e., 'shortest move'.

Saito (1985) proposes that an element must be adjoined to a category on the side opposite to that of its head, because the head-initial or head-final requirement imposed by X′ Theory must be preserved even after adjunction operations take place. He defines X and X′ to be the head of X′ and XP, respectively. Thus, in Spec-initial, head-initial languages such as English, if we take YP in (77) and (78) as an adjoining phrase,



it can adjoin to XP as in (77a) where YP is on the opposite side to X′, and it cannot adjoin to XP as in (77b). YP can also adjoin to X′ as shown in (78a) because in this configuration, it is on the opposite side to X, whereas it cannot adjoin to X′ as in (78b).

In Spec-initial, head-final languages such as Japanese, on the other hand, the heads, i.e., X′ and X^0, appear on the right-hand side of XP and X′, respectively. Thus, YP can adjoin to both XP and X′ on the left-hand side, as illustrated in (79a) and (80b). However, YP cannot adjoin to XP or X′ on the right-hand side, as shown in (79b) and (80a).



[18] As one of the *JL* referees points out, our claim is contrary to Chomsky's (1995) view on Ellipsis and to Lasnik's (1995a, b, c) series of interesting work on ACD and Pseudo-gapping. We must leave the examination of the latter work for future research.
The *JL* referee also raises the question of how to generate structures with null lexical material such as null VPs under the view of bare phrase structure. As far as we understand it, to posit null lexical material is not inconsistent with the bare phrase structure thesis, as witnessed by the fact that such items as PRO and pro are assumed to exist without causing any problem under this thesis. We may assume, following Abe (1996), that unlike PRO and pro, null VPs are those that lack such syntactic features as phi-features.

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This constraint allows the leftward movement of *John* in (81a) and the rightward movement of [*the man she met in the park*] in (81b).[19]

(81) (a) [John]$_1$, kissed t_1.
(b) Mary kissed t_1 yesterday [the man she met in the park]$_1$.

This is because *John* can adjoin to IP as in (82a) and [*the man she met in the park*] can adjoin to I′ or V′ if *yesterday* is also within V′, as in (82b).

(82) (a) [$_{IP}$ John$_1$ [$_{IP}$ Mary kissed t_1]].
(b) [$_{IP}$ Mary [$_{I'}$ [$_{I'}$ kissed t_1 yesterday] [the man she met in the park]$_1$]].
or
[$_{IP}$ Mary [$_{I'}$ [$_{VP}$ [$_{V'}$ [$_{V'}$ kissed t_1 yesterday] [the man she met in the park]$_1$]]]].

This constraint, when applied to Japanese, allows leftward adjunction as in (79a/80b), and disallows rightward adjunction as in (79b/80a). This is illustrated below:

(83) (a) John -ni$_1$ Mary -ga t_1 kisusita.
-to -NOM kissed
'John, Mary kissed.'
(b) *Mary-ga kinoo t_1 kisusita [kooen-de atta otoko-ni]$_1$.
-NOM yesterday kissed park -in met man-to]
'Mary kissed yesterday the man she met in the park.'

In (83a), *John-ni* adjoins to IP as in (79a), whereas [*kooen-de atta otoko-ni*] in (83b) can right-adjoin neither to IP as in (79b) nor to I′ or V′ as in (80a).

---

[19] Here we are assuming that Topicalization and Heavy NP Shift are both instances of adjunction. This may well be controversial, especially for Topicalization. It may be the case that all instances of overt leftward movement, at least in English, are instances of movement into specifier positions for feature checking. The claim that Heavy NP Shift involves adjunction but Topicalization involves movement into a specifier position is consonant with Fukui's (1993) proposal that the direction of adjunction correlates with the head-parameter, that is, that when an element is adjoined to a category, it must preserve the head-parameter in its linear relation to the head of the category it adjoins to. Hence, according to this proposal, English allows only rightward adjunction because it is a head-initial language. Japanese, in contrast, allows only leftward adjunction because it is a head-final language. Contrary to Fukui's proposal, we claimed in Abe & Hoshi (1997, 1999) that certain types of English elliptic constructions involve leftward adjunction. (Some of the elliptical constructions of this type will be discussed in (86).) For this reason, we have adopted Saito's (1985) condition rather than Fukui's in the text.

One *JL* referee raises a question of what triggers such adjunction operations in the Minimalist Program. Abe & Hoshi (1999) argue that such adjunction operations as in (81) are triggered by the feature [Topic]/[Focus] that does not involve a Spec/head configuration for checking but rather is checked by moving an element bearing that feature into a 'clause-peripheral' position. Thus, in (81), [*John*] and [*the man she met in the park*] bear the feature [Topic]/[Focus] and satisfy this feature by moving to a left/right peripheral position (see the structures in (82) for exactly what categories they are adjoined to).

As for CP Extraposition, in section 6, we give an argument for a base-generation approach to 'extraposed' CPs.

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We have shown above that Saito's (1985) constraint on adjunction sites allows both leftward adjunction and rightward adjunction for English, as illustrated in (82). We have also argued in section 4 that rightward movement such as that shown in (82b) is involved in ACD. One may then wonder if leftward adjunction is also used for the infinite regress resolution of ACD. The relevant data suggest that this is not the case.

Baltin (1987) observes that while the *wh*-in-situ in (84) takes the matrix scope together with *who*, the elided VP can have only the embedded VP interpretation.

(84) Who [$_{VP_1}$ thought [$_{CP}$ that Fred [$_{VP_2}$ read how many of the books that Bill did [$_{VP}$ e]]]]?

Baltin claims that if the *wh*-in-situ is raised to the matrix CP-SPEC at LF, this should make the matrix VP interpretation available for the elided VP. This problem is immediately solved under the Minimalist Program, where Chomsky (1993) suggests that *wh*s-in-situ do not have to raise to CP-SPECs where they take scope, but rather they can be interpreted in situ along with appropriate *wh*-phrases in CP-SPEC by way of absorption in the sense of Higginbotham & May (1981).

Under our generalized rightward movement analysis, we can just follow Baltin's account for why the elided VP has to be interpreted with the embedded VP reading in example (84) by appealing to Ross's Right Roof Constraint. Because the example involves a restrictive relative clause, it can use CP Extraposition to resolve the infinite regress, as illustrated in (85).

(85) (a) Who thought that [$_{IP}$ Fred [$_{VP_2}$ read how many of the books] [that Bill did [$_{VP_3}$ e]]].
(b) *Who [$_{VP_1}$ thought that Fred [$_{VP_2}$ read how many of the books]] [that Bill did [$_{VP_3}$ e]].

CP Extraposition moves the restrictive relative clause [*that Bill did*] out of the embedded VP, VP_2, as in (85a). However, CP Extraposition cannot move the relative clause out of the embedded IP as in (85b), because it involves extraction out of a tensed-clause which violates Ross's Right Roof Constraint. Thus, VP_2 can be successfully copied onto VP_3 in (85a), while VP_1 cannot be copied onto VP_3. As a result, the elided VP must be identified with VP_2 in (84).

Under our present assumptions, however, we have to consider the option of LF leftward adjunction for the infinite regress resolution. Note that leftward movement in general does not show clause-boundedness effects. In Abe & Hoshi (1997), we argued that Stripping constructions involve LF leftward adjunction and that they do not show clause-bound effects, as illustrated below:

(86) Lucie will admit that she stole **the diamonds** if you press her, but not **the car**.

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Under our analysis, this sentence is assigned the following structure:

(87) [$_{IP}$ **the diamonds**$_1$ [$_{IP}$ Lucie will admit [$_{CP}$ that she stole t_1] if you press her]]
but not
[$_{IP}$ the **car** [$_{IP}$ e]].

In this structure, *the diamonds* is moved out of the embedded tensed clause and is adjoined to the matrix IP. After the lower IP of the first conjunct is copied onto that of the second conjunct, we have the right interpretation of this sentence. If the same option were available for the infinite regress resolution of such ACDs as (84), then this sentence could have the following structure:

(88) Who$_1$ [$_{IP}$ [how many of the books that Bill did [$_{VP}$ e]]$_2$ [$_{IP}$ t_1 [$_{VP_1}$ thought that Fred read t_2]]].

Thus, we would incorrectly predict that the matrix VP interpretation is available for the elided VP. This indicates that LF leftward adjunction is not an option for the infinite regress resolution of ACD.

The same sort of argument can be given by using such data as (52)–(53), repeated below, which exhibit a correlation between the availability of rightward movement and the availability of possible readings of ACDs.

(89) (a) John wanted PRO to criticize Susan, who Emily did not [$_{VP}$ e].
(b) John wanted Mary to criticize Susan, who Emily did not [$_{VP}$ e].

In (89a), the elided VP can have either the matrix VP or the embedded VP interpretations, whereas the elided VP in (89b) can have only the embedded VP reading. It is generally the case that unlike rightward movement, leftward movement is not sensitive to the presence of intervening overt subjects, as shown below:

(90) (a) Which woman$_1$ did John want PRO/Mary to criticize t_1?
(b) Susan$_1$, John wanted PRO/Mary to criticize t_1.

Thus, if LF leftward movement is available, (89b) should allow the matrix VP reading just as (89a) does, since these sentences can have the following structures:

(91) (a) [$_{IP}$ [Susan, who Emily did not [$_{VP_3}$ e]]$_1$ [$_{IP}$ John [$_{VP_1}$ wanted PRO to [$_{VP_2}$ criticize t_1]]].
(b) [$_{IP}$ [Susan, who Emily did not [$_{VP_3}$ e]]$_1$ [$_{IP}$ John [$_{VP_1}$ wanted Mary to [$_{VP_2}$ criticize t_1]]]].

Given these structures, VP_1 can be copied onto the elided VP, VP_3. Thus, the contrast shown in (89a–b) with respect to the availability of the matrix VP interpretation for the elided VPs also indicates that LF leftward movement is not available for the infinite regress resolution of ACD.

Further, recall that we showed in section 5.1 that ACD can circumvent Condition C violations, as illustrated in (74) and (75), repeated below:

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(92) (a) ??/*You sent him$_i$ the letter that John$_i$ expected you would write.
(b) ??/*You introduced him$_i$ to everyone John$_i$ wanted you to meet.

(93) (a) You sent him$_i$ [$_{NP}$ the letter [$_{CP}$ that John$_i$ expected you would [$_{VP}$ e]]].
(b) You introduced him$_i$ to [$_{NP}$ everyone [$_{CP}$ John$_i$ wanted you to [$_{VP}$ e]]].

Interestingly, these effects of ACD do not obtain when the pronoun occupies subject position rather than object position, as noted by Fox (1995):

(94) (a) *He$_i$ bought you every picture [that John$_i$ wanted to [$_{VP}$ e]].
(b) *He$_i$ introduces you to everyone [that John$_i$ wanted to [$_{VP}$ e]].

This is expected under our claim that rightward movement is involved in the infinite regress resolution of ACD, since as shown in (82b), right adjunction is either to I′ or V′ according to Saito's (1985) constraint, and hence, even after the relative clauses in (94) undergo rightward movement, *John* is still in the c-command domain of *he*, which occupies the IP-SPEC position. Thus, the sentences in (94) are in violation of Condition C.

Suppose that leftward movement is also involved in the infinite regress resolution of ACD. Then, it is not at all clear how the sentences in (94) are ruled out. This is because, when an element undergoes leftward movement, crossing a subject, it occupies a position higher than the subject and hence, the latter does not c-command any element inside the moved element any more. This is best exemplified by the following instances of Scrambling, taken from Saito (1985), which are widely assumed to be adjunction operations:

(95) (a) *Kare$_1$ -ga [Mary-ga John$_1$-ni okutta tegami]-o mada
he -NOM -NOM -to sent letter -ACC yet
yonde inai.
read have-not
'*He$_1$ has not read the letter that Mary sent to John$_1$.'
(b) [Mary-ga John$_1$-ni okutta tegami]-o kare$_1$-ga mada
-NOM -to sent letter -ACC he -NOM yet
yonde inai.
read have-not
'The letter that Mary sent to John$_1$, he$_1$ has not read.'

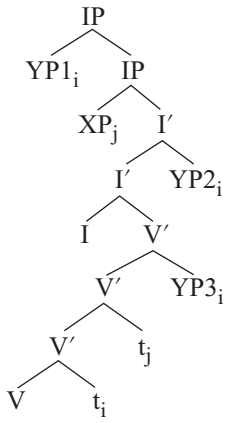
(95a) is in violation of Condition C since *John* is c-commanded by *kare* 'he'. The grammaticality of (95b) shows that the object scrambled to the sentence-initial position that contains *John* is not c-commanded by the subject *kare*. Therefore, if we admit that leftward adjunction is possible for the infinite regress resolution of ACD, then we will incorrectly predict that the sentences in (94) are both grammatical, just like (95b).

Why is rightward adjunction available for the infinite regress resolution of ACD, but not leftward adjunction? We suggest that this is derived from the

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economy condition 'shortest move', proposed by Chomsky (1993). We basically claim that rightward adjunction is shorter than leftward adjunction for the purpose of resolving the infinite regress of ACD. Let us suppose, following Fukui & Speas (1986), that unlike functional categories, lexical categories do not project up to X″ but rather iterate X′ projections. Then, given an IP structure such as (96) below,

(96)



YP, which originates in the object position of V, can adjoin to three structural positions, IP, I′, or V′, following Saito's constraint. Since lexical categories just iterate their X′ projections according to Fukui & Speas's theory, YP can adjoin to V′ only on the right-hand side. In this structure, if any of these three possibilities for adjunction can serve to resolve the infinite regress of an ACD, then Chomsky's economy condition 'shortest move' requires that the rightward adjunction of YP to V′ be adopted, since this movement is the shortest.[20, 21]

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[20] Even though we adopt Fukui & Speas's 'VP' structure here, our account in the text may go through with other types of VP structure such as Chomsky's (1995). If we assume Chomsky's *v*P structure, (ia), for instance, is assigned the structure given in (ib).

(i) (a) You introduced John to everyone he wanted you to [$_{VP}$ e].
(b) You$_i$ [$_{vP}$ t$_i$ *v*+introduced$_j$ [$_{VP}$ John t$_j$ to everyone he wanted you to [$_{VP}$ e]]].

Here, the question is which part of the matrix 'VP' should be copied onto the elided 'VP'. Suppose that not only *introduced* but also *v* should be copied onto the elided VP. This is probably because *v* also contributes to licensing an external argument. Then, the smallest part to be copied is *v*′ and hence, 'shortest move' requires that CP [*he wanted you to*] adjoins to *v*′ on the right-hand side, as illustrated below:

(ii) You$_i$ [$_{vP}$ t$_i$ [$_{v'}$ [$_{v'}$ *v*+introduced$_j$ [$_{VP}$ John t$_j$ to everyone]] [he wanted you to [$_{VP}$ e]]]].

In this structure, [$_{v'}$ *v*+*introduced*$_j$ [$_{VP}$ *John* t$_j$ *to everyone*]] is successfully copied onto the elided VP.

[21] One may wonder how 'shortest move' allows leftward adjunction to apply to cases of Stripping, illustrated in (86), unlike the ACD cases. In Abe & Hoshi (1999), we claimed that

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To illustrate, we claimed that (23), repeated below, involves PP rightward movement.

(97) Mary stood near Susan, where/near whom Emily did not/as well [$_{V'}$ e].

The PP [*near Susan*, *where/near whom Emily did not/as well*] cannot undergo leftward movement and adjoin to IP for the infinite regress resolution, since 'shortest move' blocks this movement from applying and requires instead that the shorter adjunction to V′ on the right-hand side be taken, as shown below:

(98) Mary [$_{V'_1}$ [$_{V'_1}$ stood t_i] [near Susan, where/near whom Emily did not/as well [$_{V'_2}$ e]]$_i$].

One may wonder how the elided VPs of ACDs can have more than one interpretation, depending on which VPs they take as their antecedents, because it appears that 'shortest move' might prohibit the elided VPs from taking higher VPs as their antecedents. The question is how it is possible to derive the matrix interpretation for elided VPs in such ACDs as in (89a), repeated below:

(99) John wanted PRO to criticize Susan, who Emily did not [$_{V'}$ e].

In order to derive the matrix interpretation for the elided VP, the embedded object must adjoin to the matrix V′, as shown below:

(100) John [$_{V'_1}$ [$_{V'_1}$ wanted to [$_{V'_2}$ criticize t_i]] [Susan, who Emily did not [$_{V'_3}$ e]]$_i$].

Here, the rightward adjunction of the embedded object appears to violate 'shortest move', since it could be adjunction to the embedded V′, as illustrated below.

(101) John [$_{V'_1}$ wanted to [$_{V'_2}$ [$_{V'_2}$ criticize t_i] [Susan, who Emily did not [$_{V'_3}$ e]]$_i$]].

There is a natural way to circumvent this undesirable consequence. That is to assume that those derivations compared for an economy condition such as 'shortest move', which are called a reference set, are limited to those which

rightward adjunction to either V′ or I′ is too short to create an appropriate copying site in Stripping and hence the derivation does not converge. Thus, leftward movement is chosen as a last resort option to make the derivation converge. See Abe & Hoshi (1999) for more details.

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have the same terminal symbols in their LF output structures.[22] Then, (100) is not blocked by 'shortest move' because of the presence of the alternative derivation (101), because (100) and (101) have different terminal symbols in their LF output structures after copying takes place, as shown below:

(102) (a) John [$_{V'}$ [$_{V'}$ wanted to [$_{V'}$ criticize t_i] [Susan, who Emily did not [$_{V'}$ want to criticize t_i]]]].
(b) John [$_{V'}$ wanted to [$_{V'}$ [$_{V'}$ criticize t_i] [Susan, who Emily did not [$_{V'}$ criticize t_i]]]].

Thus, both representations in (102) are legitimate structures for (99).

6. Rightward movement and 'fewest steps'

In section 3, we pointed out a problem for the LF Object Shift analysis of ACD which is concerned with such ACDs as in (33a–b). Those examples are repeated below.

(103) (a) I saw a book that you did [$_{V'}$ e].
(b) ??I saw John's book that you did [$_{V'}$ e].

Under the LF Object Shift analysis, these sentences have the following LF representation:

(104) I_i [$_{AGRoP}$ [a/John's book that you did [$_{V'_2}$ e]]$_j$ [$_{V'_1}$ t_i saw t_j]].

In this representation, the matrix VP is successfully copied onto the null VP and hence this approach incorrectly predicts that both sentences in (103) are equally grammatical.

Under our rightward movement analysis, by contrast, there is a natural way to explain the contrast given in (103). Our analysis allows the sentences in (103) to have either (105a) or (105b) for their LF representations.

(105) (a) I [$_{V'_1}$ [$_{V'_1}$ saw t_i] [a/John's book that you did [$_{V'_2}$ e]]$_i$].
(b) I [$_{V'_1}$ [$_{V'_1}$ saw a/John's book] [that you did [$_{V'_2}$ e]]].

In (105a), the whole object is moved rightward for the infinite regress resolution, while the relative clause is moved rightward in (105b). Note that CP Extraposition causes a weak violation when it applies to a relative clause that modifies an NP with a possessive NP, as shown below:

(106) (a) I saw a book yesterday that the reviewers liked.
(b) ??I saw John's book yesterday that the reviewers liked.

[22] Or if we assume the deletion analysis for ACD, we can directly adopt Chomsky's (1995) way of determining a reference set in terms of numeration. The numeration of a derivation D is the set of terminal symbols with which D proceeds to make a structure. A reference set is a set of derivations with the same numeration. The definition of a reference set taken in the text is a slightly modified version of Chomsky's (1995) original definition.

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If we have a way of excluding the option of moving the whole object when the option of moving only the relative clause attached to the object is available, we can attribute the contrast observed in (103) to the availability of CP Extraposition shown in (106).

Suppose that extraposed relatives involve base-generation rather than rightward movement and that they are related to the nominals they modify by way of predication. Notice that this assumption is almost forced under the approach that uses CP Extraposition for the infinite regress resolution of ACD, since it must be assumed that CP Extraposition does not leave a trace behind, as we have tacitly assumed above; if CP Extraposition leaves a trace, it will not resolve the infinite regress. Furthermore, there is an empirical reason for this claim. Let us consider the following example:

(107) A man arrived [who was wearing a red hat].

Suppose that the relative clause moves out of the subject NP, leaving a trace. Then, according to Saito's (1985) condition on adjunction sites, it must be adjoined to the I′ or V′ and hence it does not bind its trace, violating the Proper Binding Condition. Thus, the base-generation approach is preferred in this respect.[23]

If this approach is correct, then we can say that the economy condition 'fewest steps', proposed by Chomsky (1993), chooses extraposed restrictive relatives for the infinite regress resolution whenever they are available, since they do not involve any steps of movement. Now let us go back to the examples in (103), whose LF representations are given in (105), repeated below:

(108) (a) I $[_{V'_1}$ $[_{V'1}$ saw $t_i]$ [a/John's book that you did $[_{V'_2}$ e]]$_i$].
(b) I $[_{V'_1}$ $[_{V'_1}$ saw a/John's book] [that you did $[_{V'_2}$ e]]].

In (108a), movement operation is involved to resolve the infinite regress, whereas in (108b), no such operation is involved. Thus, 'fewest steps' dictates that the derivation given in (108b) is chosen over that in (108a). This enables us to account correctly for the contrast shown in (103) by a condition that prohibits extraposed relatives from modifying NPs with possessors.

Notice that we have claimed above that in those ACDs involving non-restrictive relatives, the whole object NPs move rightward for the infinite regress resolution, as shown below:

(109) (a) Dulles suspected Philby, who Angleton did not $[_{V'}$ e].
(b) Dulles $[_{V'}$ $[_{V'}$ suspected $t_i]$ $[_{NP}$ Philby who [Angleton did not $[_{V'}$ e]]]$_i$].

[23] See Lasnik & Saito (1992), who also reach the same conclusion. See Taraldsen (1981) for empirical arguments for the claim that elements which undergo rightward movement c-command the object position, but do not c-command the subject position.

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This is because non-restrictive relatives do not undergo Extraposition, as illustrated in (12), repeated below:

(110) (a) A man arrived who was wearing a red hat.
(b) *John arrived who was wearing a red hat.

In order for this argument to go through, we will need to say that extraposed non-restrictive relatives such as that in (110b) do not satisfy FI and hence such derivations do not converge. Otherwise, the economy condition 'fewest steps' will choose extraposed nonrestrictive relatives as the most economical way of resolving the infinite regress in such cases as in (109a), an undesirable consequence. We suggest that predication does not hold between extraposed non-restrictive relatives and the NPs they modify in such cases as in (110b), and those relatives result in being unlicensed and hence uninterpretable at LF, violating FI. Since these options lead to non-convergent derivations, the other option of moving the whole object NPs can be taken without violating 'fewest steps', since it is the most economical among the convergent derivations.

To sum up, infinite regress resolution by a restrictive relative base-generated in an extraposed position is required by 'fewest steps' whenever it is available. Since this option is unavailable in those ACDs involving non-restrictive relatives, the whole phrases including the non-restrictive relatives are allowed to undergo rightward movement in such cases.

7. Conclusion

We have argued in this paper that the LF Object Shift analysis of the infinite regress solution of ACD is untenable both empirically and conceptually within the Minimalist Program. We have argued that Baltin's (1987) CP Extraposition analysis should be generalized in such a way that all other kinds of rightward movement, such as NP and PP Rightward Shift, are included as ways to resolve the infinite regress of ACD. We have shown that this approach explains a wider range of data concerning ACD than the LF Object Shift analysis. One of the most important theoretical points of this approach is that rightward movement operations involved in the infinite regress resolution of ACD are not the kinds of movement that are triggered by feature checking. We have claimed, following Fox (1995), that these operations are triggered in order to provide the null VPs of ACDs with semantic content in order to satisfy FI, thereby making the derivations converge. Further, we have addressed the question of why rightward movement rather than leftward movement is involved in the infinite regress resolution of ACD. We have claimed that the economy condition 'shortest move', proposed by Chomsky (1993), together with Saito's (1985) condition on adjunction sites, dictates that rightward movement is the shortest for the infinite regress resolution. Finally, we have shown that when the infinite

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regress of an ACD can be resolved either by CP Extraposition of a restrictive relative clause or by rightward shift of the whole NP including the relative, the CP Extraposition option must be chosen. We have suggested that this follows from the base-generation approach to extraposed restrictive relatives plus the economy condition 'fewest steps', proposed by Chomsky (1993).

APPENDIX: OVERT OBJECT SHIFT

We claimed in section 3 that the LF Object Shift Analysis of ACD cannot be maintained under Chomsky's (1995) latest theory of the Minimalist Program, according to which only features are moved for checking in the LF component. Although the claim that Accusative Case checking takes place at LF in English may be standard in the literature, there is an alternative claim, made by Johnson (1991) and Koizumi (1993, 1995), that the relevant movement is overt. Adopting the latter approach, Lasnik (1995a, b, c) argues that the infinite regress of ACD is resolved by Overt Object Shift. In this appendix, we want to point out some implications of our analysis of ACD for the Overt Object Shift analysis.

Note first of all that the Overt Object Shift analysis faces the same problem as the LF Object Shift analysis in that this analysis cannot account for the contrast in grammaticality of such ACD examples as (103a) and (103b), repeated here.

(i) (a) I saw a book that you did [$_{V'}$ e].
(b) ??I saw John's book that you did [$_{V'}$ e].

In (ia), the object of *saw* undergoes Object Shift overtly to the SPEC of AGR_o and then the remaining matrix VP is successfully copied onto the elided VP. Exactly in the same way, the object in (ib) *John's book that you did* raises overtly to the SPEC of AGR_o. Because the remaining VP is also able to be copied onto the elided VP in (ib), the Object Shift analysis incorrectly predicts that (ib) is as good as (ia). Hence, the ungrammaticality of (ib) indicates that Overt Object Shift cannot be an option for the infinite regress resolution of ACD.

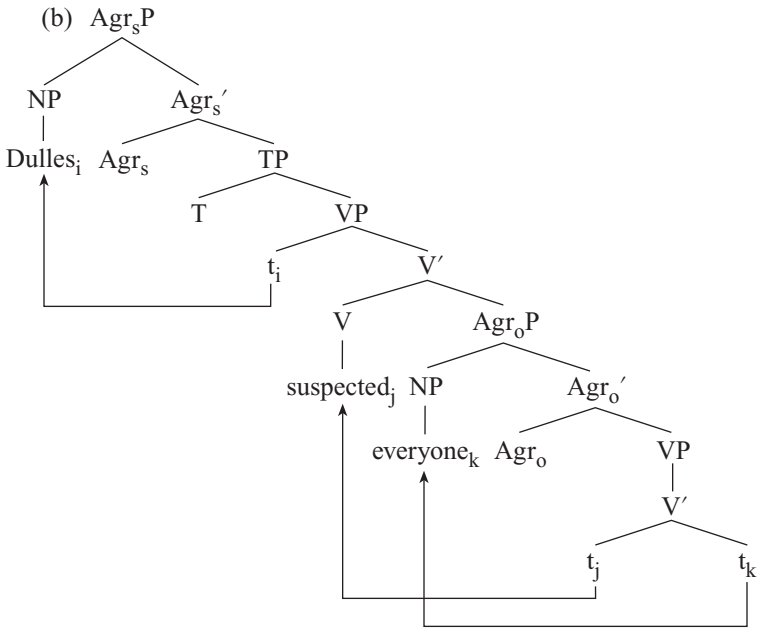
This may, in turn, suggest that Object Shift does not take place overtly in such a language as English, but rather that it occurs covertly in the form of feature movement, as proposed by Chomsky (1995), so that it does not serve to resolve an infinite regress of ACD. Alternatively, it may be the case that although Object Shift does occur overtly, it is not high enough to resolve an infinite regress of ACD. Notice that if an object NP raises in the overt component, V must also raise overtly to a position higher than the position the object raises into, to get the right word order of English. Arguing for this, Koizumi (1993, 1995), for instance, proposes what he calls the split VP hypothesis, according to which AGR_o projection intervenes in two independent V projections and V raises from the lower V projection to the

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upper V projection. Thus, a sentence such as (iia) has the structure given in (iib).

(ii) (a) Dulles suspected everyone.

(b)



In this structure, *everyone* undergoes Overt Object Shift, raising to the AGR_oP-SPEC position, and also *suspected*, the head of the lower VP, raises to the head of the upper VP.

Let us now consider a case of ACD such as the following:

(iii) Dulles suspected everyone Angleton did.

Under the Overt Object Shift analysis, the whole object raises overtly to the AGR_oP-SPEC position, just as in (iib). The question here is, which part of the structure is copied onto the elided VP. It cannot be the upper VP, simply because the elided VP is included in it, and thus it would induce an infinite regress. Nor can it be the lower VP, since if this was copied, it would not contain the verb *suspected*, and hence the elided VP would not be properly interpreted.[24] Therefore, we may safely conclude that even if object NP raises overtly, it does not raise to a position high enough for the infinite regress resolution of ACD.[25]

[24] One might claim that if we assume the copy theory proposed by Chomsky (1993), the verb *suspected* can be successfully copied onto the elided VP. See note 15 for an argument against the copy theory.

[25] Lasnik (1995c) suggests one possible way to resolve the above problem under the Overt Object Shift analysis of ACD. We must leave detailed examination of his analysis for future research, but if Abe (1996) is right in claiming that what he calls VPD(eletion)-type

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constructions, including those of ACD, involve copying rather than deletion, whereas what he calls Gapping-type constructions involve deletion, then Lasnik's analysis cannot be maintained, since it crucially relies on a deletion approach to ACD.

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