Approaches to Antecedent-Contained Deletion[1]

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1. Introduction

Linguists generally consider syntax and semantics autonomous systems, a fact demonstrated by Chomsky's (1957) famous nonsensical, but grammatical sentence: "Colorless green ideas sleep furiously." This does not, however, mean that there exists no interaction between the two. In certain cases, such as constructions involving quantifiers, one can observe that the workings of a syntax-semantics interface are needed to fully interpret meaning. In my thesis I am going to show the importance of this interface through the problem of antecedent-contained deletion (ACD). First, I will present the syntactic and semantic puzzle posed by ACD viewed as an ordinary case of verb phrase deletion. Second, I will delineate the notion of Logical Form (LF) and the function of Quantifier Raising (QR) according to the works of Robert May and the solution to ACD found within. Third, I will present some Minimalist accounts other than QR. Fourth, I will review a possible LF-driven explanation that bends the Minimalist Program's (MP) framework. Last, I will look at the advantages and disadvantages to these solutions in relation to their semantic and psychological relevance.

2. The Problem with Antecedent-Contained Deletion Constructions

ACD can be considered a subclass of verb phrase deletion involving quantified elements. In general, verb phrase deletion is the ellipsis of a VP, such as the following (1a, b).

(1a) Peter read the book, and Mary did [t], too.

(t = read the book)

(1b) Peter read the book on Saturday, and Mary did [t], too.

(t = read the book on Saturday)

In these sentences the deleted phrase can be reconstructed as identical to its antecedent in the first clause (strict morphological identity is not always necessary). This poses a problem for quantified expressions like (2):

(2) Peter read every book Mary did [t].

For any ellipsis phenomenon there are two possible approaches to account for the structure omitted: deletion and reconstruction. If we consider this purely a deletion of an identical structure, it raises the question of the extent of this identity, as well as the level of grammar where the deletion takes place. Reconstruction assumes that the reconstructed VP has to be identical to the antecedent, in (2) the reconstruction would be [t] = read every book Mary did [t]. The deleted phrase contains a trace of itself, thus its reconstruction is a recursive process producing infinite regress that would surely lead to an uninterpretable form. However, the sentence cannot be considered ungrammatical, and its meaning is clear as well. The problem is the following: how can the grammaticality of this phenomenon be explained?

3. Logical Form and Quantifier Raising

The mediation between sound and meaning is one of the main concerns of modern linguistic research. As formal semantic analysis deals with logic formulae, there is a need to map the structures of natural languages to conform to the grammar of second-, or higher-order logic. However, the Phonetic Form (PF) of certain constructions – such as quantified sentences – does not overtly reflect their Logical Form (LF). Therefore, it will be the task of the natural language's grammar to create the link between the two forms. In the Minimalist Program (MP) the derivation of sentences is determined by the following process:
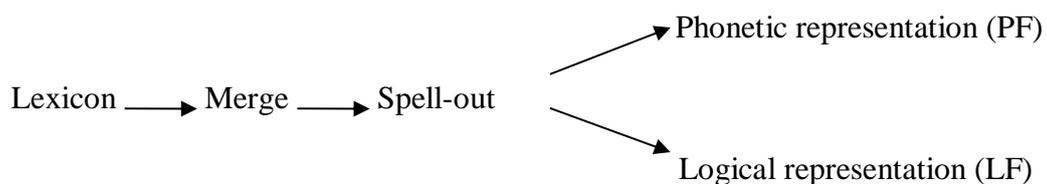

Figure 1. The structure of syntactic levels in the Minimalist Program

First, the items containing phonetic, syntactic and semantic information are selected from the lexicon; they are then formed into phrases with the help of the Merge operation.[2] The resulting syntactic structure is then sent to the spell-out where the syntax-phonology and syntax-semantics interfaces create the PF and LF representations. These derivations all conform to the following Economy Principle (EP),

(3) no symbols or rules are used beyond the minimally necessary

and the Principle of Full Interpretation (PFI) in (4),

(4) representations only contain information that contributes at the respective level.

In May (1985), LF is a level of linguistic representation derived from the syntactic S(urface)-structure representing the syntactic information relevant to semantic interpretation, or, in other words, "the contribution of grammar to meaning" (May, 1985). He argues that such mapping from S-structure to LF is transformational and tracks back this transformation to Move α (5) (now, a subclass of Merge).

(5) Move any constituent to any structural position.

This movement will leave an empty trace that will have to be governed in accordance with the Empty Category Principle (ECP),

(6) all empty categories must be properly governed.

May calls this movement Quantifier raising (QR), an A'-movement operation, which serves to preserve quantifier scope,

(7) The scope of A is the set of nodes that A c-commands at LF.

 in accordance with the Scope Principle,

(8) Quantifier A takes scope over quantifier B in case A c-commands a chain containing B.

In the case of (2), the quantified phrase [every book Mary did *t*] undergoes QR and moves out of the VP. This is in order for the quantified expression to gain scope over the VP, which now both satisfies the identity-condition for deletion and reconstruction without infinite regress.

(2b) [[every book Mary read/did t] [Peter read t]]

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[2]   It should be noted here, that as some solutions for the problem of ACD constructions were written when only the theory of Move α existed, the shift from Move α to Merge resulted in different approaches to ACD constructions. The implications of this will be discussed where relevant.

The QR-approach of resolving ACD constructions is, however, not without its own set of limitations and problems. As it is a covert movement only appearing at LF, we have no empirical evidence for its case apart from ACD constructions being grammatical. It is, by definition, an arbitrary movement with no regard to last resort conditions which may cause problems if fit into a Minimalist framework. There are, however, a few concrete puzzles which cause problems to May's account of LF movement. Two of these are the clause-bounded nature of QR, and the phenomenon called "name raising" which lead to a different solution to the ACD problem.

Baltin (1987) shows that in the case of multiple question operators, empirical evidence shows that ACD constructions are unambiguous, whereas theory should produce ambiguity. Wh-phrases behave like quantifiers; thus, at LF, the wh-in-situ phrase is moved by QR to Spec CP creating a coordinate structure (9b). This is relevant in the present discussion as these constructions licence ACDs (9c).

(9a) Who bought how many books that Bill bought?

(9b) $[_{CP}$ who$_i$ [how many books that Bill bought]$_j$ $[_{IP}$ t$_i$ bought t$_j$]]

(9c) Who bought how many books that Bill did?

The problem arises for pragmatically difficult, but acceptable questions as in (10a); according to May's account, these should be ambiguous with the elided VP interpreted as either of the preceding VPs:

(10a) Who thought that Fred read how many of the books that Bill did?

(10b) Who thought that Fred read how many of the books that Bill read?

(10c) Who thought that Fred read how many of the books that Bill thought that he had read?

However, (10a) can only be interpreted as (10b), thus showing that QR cannot raise an expression to a higher clause. This is not expected if QR indeed works – as May claims – like overt wh-movement, only at LF level.

One of May's arguments for the QR-approach is evidenced with the ungrammatical construction:

(11a) *Dulles suspected Philby, who Angleton did.

As movement operations at LF can only happen to constituents with LF-related features – and names are not amongst them –, the expression containing the gap needing reconstruction cannot take scope over the VP, causing a real problem of infinite regress this time, as the constituent in question cannot be argued to undergo LF-motivated movement to the left periphery, and thus rendering the sentence ungrammatical. Wyngaerd and Zwart (1991) point out that despite this, similar constructions like (11b) and (11c) can still occur, even though some movement is clearly necessary for the sentences to be grammatical:

(11b) Dulles suspected Philby, who Angleton did as well.

(11c) Dulles suspected Philby, who Angleton did not.

According to May, non-restrictive relative clauses are only adjuncts of the matrix VP and reconstruction does not copy the empty VP resulting in:

(11d) Dulles suspected Philby, who Angleton did suspect Philby.

Wyngaerd and Zwart (1991) show, however, that in this case May is faced with a problem: (11a) is either wrong because of the infinite regress problem, or – adopting the above analysis for non-restrictive clauses – he has to assume that it contains vacuous quantification. Either way, this cannot account for the fact that (11b, c) are considered more or less grammatical.

4. A Minimalist Solution

Hornstein (1994) suggests an alternative approach that solves the previous two problems while staying compatible with the Minimalist framework. As a truly minimalist theory, it avoids pied-piping at LF, so QR only moves the quantifier leaving the rest of the NP in place. However, this less aggressive operation cannot solve the problem of ACD constructions as the antecedent still dominates its dependent. As the infinite regress problem can be effectively solved by any kind of movement out of the VP, he proposes an A-movement of the quantified expression to Spec AgrO. This movement has to be obligatory to satisfy last resort conditions, has to apply at LF, and has to move the relative clause out of the matrix VP. There is already such a movement argued for on independent grounds, as this is how Accusative Case is argued to be assigned to the object.

(12) [$_{TP}$ John$_1$ [$_{AgrOP}$ [everyone who Bill loves]$_2$ [t$_1$ loves t$_2$]]]

The problems of clause-boundedness and "name raising" are also eliminated by this analysis. Instead of taking scope over the rest of the sentence as in (8a), the phrase [how many of the books that Bill did] will only have scope over the VP (and not the matrix CP) enabling only

the correct interpretation. The phrase cannot be raised cyclically to higher and higher positions as no further A-movement is required to check Case features. As the phrases that undergo this movement do not necessarily contain quantifiers, this approach to ACD sidesteps the previous problem of "name raising" as well. This would also predict that sentences like (11a) are grammatical in spite of empirical evidence, but Horstein explains that it is not the ACD interpretation that causes the problem, but rather the intonational characteristics of appositives and the lack of particles needed for VP ellipsis across sentential boundaries.

Hornstein provides further evidence with the following contrast which cannot be resolved with QR:

(13a) Beck believes every suspect Kollberg does to be guilty.

(13b) *Beck believes that every suspect Kollberg does is guilty.

He argues that the Exceptional Case Marking (ECM) construction in (13a) makes the A-movement of [every suspect Kollberg does] to Spec AgrO of the matrix clause obligatory thus raising out of the matrix VP, licensing the copying of this VP. In (13b) this movement would doubly case-mark the NP and would not fulfil last resort conditions. This contradicts predictions in Larson and May (1990) that QR is clause-bounded in finite clauses but not in non-finite clauses, evidenced by the possible interpretations of (14a, b).

(14a) At least one person considers every senator to be smart. ∃ »∀, ∀ » ∃

(14b) At least one person considers every senator smart.   ∃ » ∀,*∀ » ∃

In (14a) the universal quantifier can take scope over the existential, but not in (14b) as the clause-boundedness of QR prevents the universally quantified phrase from raising. This would also mean that apparently grammatical constructions like (15) would be impossible.

(15) I consider everyone you do smart.

However, as in Horstein's account it is A-movement to Spec AgrO that allows ACD constructions, not QR, ECM constructions are expected to be acceptable as this movement is mandatory in their case.

Naturally, this does not explain the grammaticality of ACD constructions where A-movement to AgrO is not motivated by Case checking. In (17a, b) the ACD is the object of an adverb, and the PP complement of the main verb; in (17a) the ACD is a mandatory-, and in

(17b) it is within an optional manner adverb, so A-movement is not necessary in either situation.

> (16a) John talked to everyone that Bill did.

> (16b) John gave his address to everyone that Bill did.

> (17a) John worded the letter as quickly as Bill did.

> (17b) John recited his lines in the same way that Bill did.

Referring to Larson's (1988) analysis of *to* as a materialization of the Dative Case, Hornstein explains that in some cases, such as (16a, b), PPs are Case-marked and needed to check Case at LF and thus raise out of their VP to Spec AgrIO (indirect object) positions. This, of course, licenses the copying of the full VP into the empty one. In the case of (17a, b), the adverb is generated adjoined to VP or higher, bypassing antecedent-containment and the need for A-movement altogether – the same holds in constructions with *to* other than the Dative. This would mean that [as quickly as Bill did] in (17a) is an adjunct, not an argument, however, this problem can be solved by assuming that selection restrictions apply in the semantics and not in the syntax, allowing adjunction.

In his reply, Kennedy (1997) argues that QR and ACD constructions may have a closer relationship than Hornstein would like to admit. Pointing that out, while sentences containing in situ wh-phrases (9a) pose a problem to May's QR approach, sentences like (18) do not, he suggests that the operations responsible for the LF representations of the two sentences are different in principle and also in constraints.

> (18) Dulles thought that Philby questioned every suspect Angleton did.

While the interpretation of wh-in-situ establishes a correspondence between the wh-phrase and a wh-operator in Spec CP, QR adjoins the quantified phrase to any suitable maximal projection. As such, this operation is a constrained A'-movement that adjoins phrases to the embedded IP and not higher, making the embedded VP the only suitable antecedent for reconstruction. This can also explain the contrast between (13a) and (13b). QR is bounded in finite clauses (13b), but non-finite clauses (13a) allow the ECM subject to raise and adjoin to matrix IP, thus making the ACD construction acceptable.

Kennedy solves Baltin's problem of (10a) by saying that the movement of the in situ wh-phrase is needed to resolve the ACD, but assuming movement to Spec AgrO is not enough, since that position is not a suitable target for the wh-word; this movement is

constrained by the locality principle, and thus moves to the first available landing site, Spec CP of the embedded clause (19).

(10a) Who thought that Fred read how many of the books that Bill did?

(19) [$_{CP}$ who$_x$ e$_x$ thought [$_{CP}$[how many books that Bill did]$_y$ that Fred read e$_y$]]

Antecedent containment is resolved; the VP headed by *read* can be copied into the elided VP. At this point, economy dictates however, that only the wh-operator – or its associated features – moves to the matrix. Therefore, the wh-phrase remains contained within the matrix which does not licence its copying into the empty VP, allowing only the embedded reading. This seems to lead to the conclusion that the boundedness restriction of both QR and wh-in situ problems can be explained through the economy principle.

Kennedy further argues that there is a parallelism between quantifier scope and ACD, namely the following: in a structure where wide scope interpretation is available, so is the matrix reading for the elided VP. This is shown in the parallel between (20a) where both narrow and inverse scope meanings are correct and (20b) where both embedded and matrix readings can take place.

(20a) At least one tourist wants to visit every city.   ∃ » ∀, ∀ » ∃

(20b) Tim wants to visit every city Bill does.   visit, want[3]

This, of course, poses a problem to the A-movement account, as the phrase with the elided VP could only move to the embedded Spec AgrO, predicting only the embedded reading to be available. Hornstein tries to resolve this ambiguity by arguing that *want* is a restructuring verb that can licence A-movement through clause boundaries. This, however is not an argument against the clause-bounded QR account, because if restructuring verbs unify biclausal sentences into monoclausal ones then QR can adjoin the quantified phrase to IP of either the matrix or the embedded verb. Kennedy thus states that even if Hornstein's argument that only restructuring verbs can licence matrix readings of ACD constructions is correct, this only supplies similarity to the QR and A-movement accounts: they both predict that matrix readings are available in the case of non-finite embedded clauses and restructuring verbs, and

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[3]   The two possible interpretations:(20b embedded reading) Tim wants to visit every city Bill visits.

(20b matrix reading) Tim wants to visit every city Bill wants to visit.

unavailable in the case of finite embedded clauses. He further states that this means that the A-movement account would predict that non-restructuring contexts and verbs will not allow matrix reading, while this is not the case with QR. To support this, Kennedy provides a wide array of data such as the following:

(21a) Betsy's father wants her to read every book her boss does.
(read, want)

(21b) When she started the program, Polly had to begin to learn every language Erik did.
(learn, begin)

(21c) If you intend to read all of the articles Albert does, then you'd better get started now.
(read, intend)

In (21a) restructuring is blocked by the overt subject in the complement of the restructuring verb; in (21b) restructuring is blocked by multiple embeddings; and (21c) altogether lacks a restructuring verb. This prevents the movement of the DP containing the ACD construction to into matrix Spec AgrO, making matrix readings unavailable for the A-movement account. This cannot be amended unless these constructions and verbs are analysed as restructuring which is not empirically justified.

Kennedy dismisses Hornstein's analysis of adjunct ACD constructions by stating that they create ill-formed LF representations (22b) in sentences like (22a).

(22a) Tim has [$_{VP}$ [$_{VP}$ performed] [$_{PP}$ in every club Bill has]]

(22b) Tim has [$_{VP}$ [$_{VP}$ performed] [$_{PP}$ in every club [$_{CP}$ Op$_i$ Bill has [$_{VP}$ performed]]]]

(22b) is a case of vacuous quantification as the operator associated with the relative clause does not bind a variable. The QR account has no problem with this construction, as adjunct ACD does not need the re-analysis of structure and does not differ from "argument" ACD.

In light of Chomsky (1995) the A-movement account is made unavailable. To achieve PF convergence, feature driven movement only carries lexical material if it is associated with a strong feature. Covert movement, such as the Case-motivated A-movement used to resolve ACD constructions, is restricted to the movement of features, which do not trigger the pied-piping of lexical material, as this would impair PF convergence. Hornstein's A-movement will only check formal features at AgrO, leaving the lexical material VP-internal and the

infinite regress-problem unresolved. This restriction of covert movement should rule out the QR account as well, but Kennedy argues that, akin to overt movement, it is interpretable at the interface level that drives the movement of lexical material at LF. Quantificational determiners need to rise to an operator position to bind the variable associated with their maximal projection. As nominal quantification in natural languages is restricted, "the quantifier must combine with an open formula that restricts the possible assignments of values to the variables it binds in its scope" (Kennedy, 1997). This relation between quantifier and restrictor is represented at LF as one between a head and its complement. Thus, the movement of the entire quantified phrase is required to achieve LF convergence. ACD constructions provide syntactic evidence of this.

5. Antecedent-Contained Deletion as Deletion at Phonological Form

It should be noted that – despite its name – the accounts presented so far all deal with ACD constructions by the way of reconstruction. In their 1999 article, Wyngaerd and Zwart suggest a number of reasons why the Minimalist Program's current developments make reconstruction-solutions superfluous and flawed, and propose a deletion-based approach to the ACD-puzzle. In the Extended Standard Theory, rewrite rules generate an abstract phrase structure top-down, the terminal nodes of this structure are then filled up by lexical insertion. Nodes that do not have lexical elements inserted remain empty; in case of a VP ellipsis construction this will mean that LF interpretation rules must deal with this empty phrase. However, in the Minimalist Program, Merge creates structure from bottom up, merging lexical elements together. This will not allow the generation of empty heads as the lexical item has to project its features to label the phrase. While the existence of such empty categories cannot be outright disproven, the reliance of LF reconstruction analyses on empty phrases to interpret ACD constructions creates a discrepancy with the intentions of the Minimalist Program, making a solution that does not utilize empty lexical items preferable.

The copy theory of movement also creates problems for the QR account "as traces of A'-movement are taken to be copies of the moved element which for some reason fail to get spelled out at PF" (Wyngaerd and Zwart, 1999). This would create instances like (23a, b) where QR leaves behind a full copy of the quantified phrase which will contain another instance of the empty VP. This doubly creates infinite regress, after reconstruction.

(23a) Dulles [$_{VP1}$ suspected [everyone Angleton did [$_{VP2}$ e]]]

(23b) [**everyone Angleton did [$_{VP2}$ e]]**$_i$ [Dulles [$_{VP1}$VP1 suspected **[everyone Angleton did [$_{VP2}$ e]]**$_i$]]

(23c) [everyone Angleton did [$_{VP2}$ **suspect everyone Angleton did [e]]**]$_i$

[Dulles [$_{VP1}$ suspected [everyone Angleton did [$_{VP2}$ **suspect everyone**

Angleton did [e]]]$_i$]]

Naturally, the situation is more complex, but the principle stands: the copy theory of movement created to resolve a number of reconstruction phenomena is the exact thing preventing the QR-plus-reconstruction account from working.

Wyngaerd and Zwart propose a deletion account of dealing with QR, based on Tancredi (1992)'s argument that VP ellipsis is an extreme case of deaccenting, thus ACD constructions are resolved with the help of deletion at PF.[4] He observed a number of parallelisms between deaccenting and deletion, such as the interpretations of pronouns contained in elided and deaccented VPs. This phenomenon is straightforwardly explained in a deletion account: extreme deaccenting will lead to the non-spell out of the VP. A reconstruction account would, however, need to apply the same conditions to deaccenting at PF and reconstruction at LF. Tancredi's deaccenting is driven by the organization of information and focus structure of a sentence. In (24a) 'John' and 'Bill' are the foci, while 'said he is brilliant' is the common ground for deaccenting (indicated by italics), which is kept constant. (24b) shows that the ground does not need to have morpholexical identity for deaccenting to apply, which allows for an ACD construction such as (24c) to be dealt with using this approach.

(24a) John said he is brilliant before Bill *said he is brilliant.*

(24b) John said he is brilliant before Bill *said he is a smart guy.*

(24c) Dulles suspected everyone Angleton did *suspect.*

Since Williams (1977), most major accounts for solving ACD constructions have been reconstruction approaches. He suggested that the discourse grammar level of representation is ordered after sentence grammar. As VP-ellipsis is a discourse motivated process, it will

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[4]   I will not provide an summary as detailed as for previous accounts, as some ideas raised by the theory are more relevant and interesting that the theory itself.

involve base generated empty VPs in sentence grammar. This is, naturally, incompatible with the Merge process of the Minimalist Program,.

6. Lexico-Logical Form

It seems that the Minimalist Program has the tools to diagnose the problem – or rather the framework that the phenomenon poses a problem to – but not the ones to solve it. Different approaches, such as an LF-first framework may provide more elegant solutions. Brody's Lexico-Logical Form (1995) describes a "radically minimalist" LF-first theory, based on Chomsky's (1993) minimalist assumption that the grammar does not contain non-interface levels. Numerous claims had been made that D-structure is an abstraction of S-structure; Brody claims that it is an abstraction of LF: If syntactic levels are only the ones that mediate between the lexicon and LF, it follows that LF will be the only syntactic level. He deals away with D- and S-structure, claiming that D-structure is included in LF where all representational conditions hold, making LF-to-PF mapping purely phonological. Lexical input will not go through derivation, both the lexicon and semantic interpretation will be accessed at the level which he calls Lexico-Logical Form (LLF).

This theory also makes Move α redundant in favour of chain relations. They share the same basic notion and numerous characteristics: constraints like Subjacency, the ECP (6); having one thematic position (at the lowest level of projection) and one Case-marked position (the highest level of the chain). Moreover, binding and scope reconstruction effects also generally involve these two phenomena. It can be considered accidental that Move α always creates chains and chains are generally created by Move α. With such strict correspondence between the two, theoretical economy dictates that only the independently motivated one is necessary, making the other redundant. Brody argues that this follows from a difference between derivational and representational approaches, and that a framework where LF is the sole semantic interface is incompatible with the derivational approach for two main reasons. The first is the Principle of Full Interpretation (4) that allows only those elements to exist at a certain level – in this case, LF – that receive interpretations provided by grammar-external systems – in this case, semantics–, elements without interpretations cannot appear at interface levels. Traces of NP-movement appear to violate PFI (4), as they are necessary for theta-role assignment but do not get interpreted. Brody assumes that it is the chains that carry semantic content that have to receive interpretation, thus these empty categories (like the trace in (25)) are to be regarded as subconstituents of the chains themselves.

(25) John was seen t   chain: [John, t]

The second main reason is the Main Thematic Condition (MTC) which states that the non-root positions of chains are all non-thematic. This is further supported by the Generalized Projection Principle (GPP) that says that only chain-root positions of a structure (called the D-set of the structure) can be involved in projectional requirements. The GPP is required in a representational framework as an equivalent to the ban of lowering transformations in a derivational framework. Excluding lowering transformations does, however, not explain why "raising into selected, selecting, or categorically projecting positions is invariably impossible" (Brody, 1995) (except in some cases). This is seen as further argument for the existence of chains and the redundancy of Move α.

As previously mentioned, both the lexicon and the semantic system are accessed at LLF, a level that incorporates the qualities of the traditional D- and S-structure. X-bar and theta theory, the two main principles that hold at D-structure, now hold at the D-set of an LLF structure by virtue of the GPP. The situation of the S-structure is similar, as in minimalist theory, it is the S-structure that gets interpreted "quasi-semantically" (Brody, 1995) in LF and phonologically in PF; in this framework, as no derivations take place and (L)LF-to-PF spellout does not entail movement either, the LLF representation already reflects the PF positions, and contains all relevant semantic information as well.

As lexical material occupies the same position where they are at PF, the non-derivational approach raises the question of the status of LF movement, some manner of which is also the general solution of ACD constructions. Brody (1995) argues that, similarly to overt movement, covert movement is also expressed through chains. Explaining it in terms of Expletive Replacement and wh-in-situ, he argues that as PFI (4) applies to chains externally, expletives are allowed automatically at LLF. This will make it necessary for chains to contain more than one lexical category, with the provision that – as chains are taken to be the abstract representation of the contentive (non-expletive) they contain, and expletives contribute only minimally to the interpretation – they can involve any number of lexical items, but only a single contentive. The similarity of the characterisation of overt and covert movement can be attributed to the similar restrictions on both, such as the ECP (6), the MTC and Subjacency. The main difference will be that in overt movement the contentive will be found at the "moved" position in the chain, while chains expressing covert movement will have the contentive in the "unmoved" position. QR is dealt with in much the same way; Brody attributes scope relations to c/m-command relations between scope markers (SM).

ACD constructions pose a problem for this framework, as they seem to show exactly that QR changes the position of lexical material before binding applies. If we consider binding to apply at LF, this means that there should be a syntactic rule for QR. Without this covert movement there is no way to avoid infinite regress. To solve this, Brody relies on the independently motivated concept of vehicle change as defined by Fiengo and May (1990) and Wyngaerd and Zwart (1991). Claiming that reconstruction does not necessarily create exact copies, vehicle change allows variables and referential (R-)expressions to be copied as their pronominal correlate, a pronoun. In short, vehicle change can be summarised as (26):

(26) [-pronominal] → [+pronominal]

According to Fiengo and May (1990); the value of the pronominal feature in a [-pronominal, -anaphoric] variable can be changed in reconstruction, resulting in [+pronominal, -anaphoric], that is the lexical pronoun in English. Wyngaerd and Zwart (1991) support this by the empirical evidence that reconstruction of VP-deletion does not necessarily result in the literal copy of the elided VP.

(27a) Cheryl stops to look at every pretty flower she stumbles onto, and I do [e], too.

(27b) Cheryl stops to look at every pretty flower she stumbles onto, and I stop to look at every pretty flower I stumble onto, too.

(28a) John loves his mother, but I don't [e].

(28b) John loves his mother, but I don't love my mother.

(29a) John kissed Mary yesterday, but Harry probably will [e] tomorrow.

(29b) John kissed Mary yesterday, but Harry probably will kiss Mary tomorrow.

In (27a, b), it is the most natural interpretation that switches *she* with *I*; in (28b), the sloppy interpretation of (28a) a similar phenomenon occurs. In (29a, b), it appears that reconstruction can also disregard inflection (Sag, 1976). Vehicle change is a case similar to non-exact copying, where it is a feature of NPs that is changed.

Fiengo and May (1990) show further evidence for the case of vehicle change, where it is used to avoid the violation of principle C in sentences like (30a).

(30a) Mary loves John$_i$, and he$_i$ thinks that Sally does [e] too

(30b) Mary loves John$_i$, and he$_i$ thinks that Sally loves John$_i$ too

(30c) Mary loves John$_i$, and he$_i$ thinks that Sally loves him$_i$ too

The reconstruction of the apparently grammatical (30a) would yield (30b) which contains a breach of principle C as the R-expression *John* is bound. If vehicle change takes place, the reconstruction allows the copying of a pronoun in this position, resulting in (30c) where principle C is kept.

Wyngaerd and Zwart (1991) also use vehicle change to amend the QR account in cases like (31a).

(31a) John kissed every girl who t̲ wanted him to [e]

(31b) [every girl who$_i$ t$_i$ wanted him to kiss t$_i$]$_i$ [John kissed t$_i$]

(31c) [every girl who$_i$ t$_i$ wanted him to kiss her]$_i$ [John kissed t$_i$]

After QR and reconstruction in (31b), a new unbound – and therefore illicit – variable is introduced, because the operator already bound a variable outside the VP prior to QR. Yet, the sentence is grammatical, because a resolution can be provided by vehicle change: the variable is copied as a pronoun (31c), resulting in a well-formed representation. However, they go further and suggest that vehicle change alone is able to deal with ACD constructions. QR may be eliminated if an in situ reconstruction involving vehicle change can happen. This is achieved through the observation that the process makes it possible to introduce not only pronominal correlates, but variables under reconstruction.

(32a) John kissed Mary, but I wonder who Harry did [e] (sc. kiss t)

(32b) John loves himself, but I wonder who Harry does [e] (sc. love t)

(32c) John was killed by Mary, but I wonder who Sally did [e] (sc. kill t)

Vacuous quantification would take place if vehicle change would not change the R-expression (32a), the anaphor (32b) and the NP-trace (32c) into a variable. This allows a quantified phrase to be copied as a variable as well, resulting in (33b).

(33a) John [$_{VP1}$ kissed every girl Harry did [$_{VP2}$ e]]

(33b) John [$_{VP1}$ kissed every girl OP$_i$ Harry [$_{VP2}$ kissed t$_i$]]

(31a) John kissed every girl who t̲ wanted him to [e]

(33c) John kissed every girl who t̲ wanted him to kiss her

(33b) provides the correct interpretation of (33a), no empty VP and no vacuous quantification occurs. (31a) is reconstructed as (33c) with a pronoun, otherwise illicit movement would take place. Thus, Wyngaerd and Zwart (1991) suggest a wider interpretation of vehicle change

than Fiengo and May (1990), that provides a possible alternative to QR in solving ACD constructions.

Brody (1994) argues that in the representational LLF framework, overt movement is naturally expressed as chain formation, but covert movement can only be handled awkwardly – as lexical material would take different positions at LF and PF. He argues that an interpretation of vehicle change, where it is possible to introduce variables for quantified phrases – as in situ quantified expressions, "in some sense incorporate an occurrence of the variable they bind" (Brody, 1994) – but not for proper names, is compatible with the framework and eliminates the necessity of QR or other covert movement. In case of proper names, such as (11b, c), Brody's solution is not explicit, but it is implied that they are reconstructed as pronouns through the application of vehicle change.

(11b) Dulles suspected Philby, who Angleton did as well. [suspect him]

(11c) Dulles suspected Philby, who Angleton did not.   [suspect him]

He further provides binding-theoretic and scopal proof that QR cannot occur pre-(L)LF in ACD constructions and that vehicle change and scope marker relations are adequate tools for dealing with ACD constructions.

(34a) *He_x suspected [everyone $John_x$ could/wanted to]

(34b) *He_x [$_{VP}$ [everyone $John_x$ could/wanted to] [$_{VP}$ met t]]

(34c) Someone met everyone that John could/wanted to

(34d) $Everyone_x$ Someone [$_{VP}$ x [that John could/wanted to] [$_{VP}$ met t]]

Sentences like (34a, b) show that no pied-piping of lexical material can occur as it would resolve the principle C violation. Fiengo and May (1990) preserve this breach by proposing that the NP adjoins to the VP and not to IP. This does not solve the similar problem in (34c), however, as *everyone* can have higher scope than *someone*, while the rest of the quantified expression remains adjoined to VP; (34d) does not correspond in interpretation. The scope ambiguity of (35a) is explained in a QR account by the availability of the narrow reading with both matrix and embedded scope of the quantified phrase, and the broad reading only being available with the matrix scope. The broad reading in embedded scope would still lead to an infinite regress.

(35a) John wants to visit [every city you do]

(35b) *John wants {SM to visit [every city you {want SM to visit t}]}

(35c) John wants SM {to visit every city you visit}

(35d) SM John {wants to visit every city you want to visit}

In Brody's account the reconstruction of broad reading in embedded scope would lead to the scope marker of the quantified expression to be copied and, thus, vacuous scope-marking to occur (35b). No such violation occurs in the embedded scope narrow reading (35c) and the matrix scope broad reading (35d) reconstruction.

There is undeniable theoretical elegance in Brody's Lexico-Logical Form framework. Relying on the basest principles of the Minimalist Program, it creates a "radically minimalist" theory that allows the lexicon and semantics to constrain the grammar itself. This structure of grammar can be considered more cognitively and psychologically satisfactory than that of the Minimalist Program (Figure 1.) and its earlier incarnations, where at least one extra transformation is needed through S-structure to uphold the principles that should hold both at D-structure and LF, and LF-to-PF mapping is anything but a straightforward affair. This LF-driven framework convincingly disposes of the notion of QR and provides an independently motivated solution to the ACD-puzzle.

7. Summary

Many conflicting explanations have been proposed to account for different aspects of ACD constructions, none of which explain the phenomenon with indisputable results. One might assume a number of reasons for this: first, that it might be a language-bound problem that has something to do with a yet unknown parameter of English. Little has been done in terms of cross-linguistic research of ACD constructions; perhaps a comparison with a language with overt scope or more prominent discourse functions would be illuminating. Second, it might be a more complex problem than these Chomskyan-Minimalist accounts would like to admit. It seems obvious that the construction has ties to numerous syntactic problems, like quantification, binding and the syntax-semantics interface that deals with the interpretation of such relations; but as Wyngaerd and Zwart (1999) suggest it might be a more holistic phenomenon relating to information structure and having a solution in sentence phonology. These constructions pose a significant multi-faceted challenge to the mainstream Minimalist Program and suggest that a re-evaluation of the dynamics between the lexicon, syntax, semantics and even pragmatics is necessary.

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