

## On the Derivation of Extraposition from NP and Antecedent-Contained Deletion

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Fox (2002) argues with Fox and Nissenbaum (henceforth, F&N) (1999) that adjunct extraposition (AEx) and antecedent-contained deletion (ACD) are both derived by a composite operation, rightward QR followed by late merger of adjuncts (cf. Lebeaux (1988)). Chomsky (2004), pointing out some theoretical problems with this analysis, proposes that AEx, ACD, and even complement extraposition (CEX) are derived via afterthoughts. Contra this proposal, however, we demonstrate that, though AEx and ACD are derived along the line in Chomsky's proposal, only CEX has a distinct derivation, including movement of a single constituent consisting of a source DP and an extraposed PP (cf. Mikami (2010)).

Let us begin by reviewing Fox (2002), who proposes to revise an account of ACD which draws upon QR (cf. Larson and May (1990)), under the copy theory of movement. In order to see how this proposal works, consider the following:

- (1) a. John likes every boy Mary does.  
       b. John [<sub>VP</sub> likes every boy Mary does [<sub>VP</sub> *e*]].  
       c. John [<sub>VP</sub> likes every boy Mary does [<sub>VP</sub> <likes every boy Mary does [<sub>VP</sub> *e*]>]].
- (2) a. [every boy Mary does [<sub>VP</sub> *e*]] [<sub>TP</sub> John [<sub>VP</sub> likes *t*]].  
       b. [every boy Mary does [<sub>VP</sub> <likes *t*>]] [<sub>TP</sub> John [<sub>VP</sub> likes *t*]].

The ACD sentence in (1a), unlike typical VP-ellipsis ones, has a structure in which the elided VP is contained in the antecedent VP. This is depicted in (1b). Given that an elided VP undergoes its interpretation via copying an antecedent VP onto the ellipsis site at LF (cf. Fiengo and May (1994)), the elided VP in (1b), denoted with *e*, should be interpreted being reconstructed as in (1c). However, the structure so created still includes the elided VP, so it fails to obtain its appropriate interpretation.

ACD sentences, bearing such a so-called infinite regress problem, have been resolved under the structure in (2a). In (2a), the nominal expression that contains the elided VP moves via QR outside the antecedent VP, which allows the elided VP to be properly interpreted, as shown in (2b). Fox (2002) attempts to provide this account of ACD with a minimalist revision in terms of the copy theory of movement. This theory requires a QRed element to leave behind an identical one, not a trace. This, again, renders the QR-based account of ACD undermined.

With this in mind, Fox (2002) explains the infinite regress problem, adopting

the derivation for (1a) in (3), based on rightward QR followed by late merger of adjuncts, originally proposed as a derivation of AEx (see F&N (1999)).

- (3)  $[\text{VP John likes every boy}] \xrightarrow{\text{DP-movement}} [[\text{VP John likes every boy}] \textit{every boy}] \xrightarrow{\text{adjunct merger}} [[\text{VP John likes every boy}] \textit{every boy that Mary does} <\textit{likes boy}>]$

In (3), after the structure VP is assembled, the DP *every boy* undergoes rightward QR, which is followed by the late merger of the relative clause *that Mary does* and the deletion of the upper copy of *every boy* (see Cinque (1981-82), Kayne (1976), and Sauerland (1998) for detailed structures of relatives). The current analysis of ACD correctly resolves the infinite regress problem, because the ellipsis site is interpreted being excluded from within the antecedent VP.

Although Fox's analysis is attractive in that it has some empirical consequences, it bears these theoretical problems: (i) late merger, which is countercyclic, should be replaced by a cyclic adjunction operation (cf. Chomsky (2004)), (ii) it is unclear why QR applies to the right though it is a movement operation that displays no ordering property (cf. Chomsky (2004)), (iii) any movement, including QR, should be feature-motivated (cf. Hornstein (1999), Kitahara (1996)), and (iv) it is not obvious why the upper copy is deleted and the lower copy is pronounced with respect to the QRed DP.

These theoretical problems disappear if ACD is derived via afterthoughts, along the line in Chomsky's (2004) analysis, as indicated in (4).

- (4) John likes every boy (that is, more accurately...) ~~every boy~~ Mary does <likes *t*>.
- (5) a. I saw the (best) picture yesterday from the museum.  
b. ??I saw the (best) picture yesterday of the museum.
- (6) a. I saw the (best) picture yesterday ~~the (best) picture~~ from the museum.  
b. I saw the (best) picture yesterday \*~~the (best) picture~~ of the museum.

In (4), after the matrix clause *John likes every boy* is built up, it is externally merged with the afterthought for the object DP *every boy Mary does*. The DP *every boy* as a part of this afterthought is destressed and thus deleted at PF. As just seen, the derivation in (4) involves neither late merger nor QR, so it is able to straightforwardly overcome the theoretical problems with Fox's (2002) analysis.

Furthermore, Chomsky states that the derivation based on afterthoughts can capture the contrast in availability of AEx in (5a) and CEx in (5b), whose

derivations are described in (6a) and (6b), respectively. They show that *the (best) picture* in (6a) which is a part of the afterthought can be deleted, but the one in (6b) cannot. This undeletability in the latter stems from the fact that, because the whole afterthought forms a single constituent, it is impossible to delete its partial element.

In what follows, assuming that afterthoughts can be introduced by phases, we would like to inspect whether Chomsky's analysis is empirically confirmed by the relevant data, which Fox (2002) and F&N (1999) explain under their approach. Let us first consider the puzzle in licensing of ACD, noted by Tiedeman (1995).

- (7) a. I said that everyone arrived [that you did <said that everyone arrived>].  
 b. \*I said that [everyone you did <said that everyone arrived>] arrived.
- (8) a. I [<sub>v\*P</sub> [<sub>v\*P</sub> said that everyone arrived] [<sub>DP</sub> everyone that you did]].  
 b. I [<sub>v\*P</sub> said that [[everyone you did] arrived]].

The contrast in (7) illustrates that the same locality condition, appealing to clause boundedness, is not responsible for the difference in acceptability between (7a) and (7b), given that extraposition in (7a) can cross the matrix clause, but QR in (7b) cannot. This distinction follows, however, if ACD is generated via afterthoughts. As shown in (8a), the structure for (7a), the ellipsis site is outside the antecedent VP through the afterthought, and thus, ACD is permitted in (7a). In (8b), on the other hand, *everyone you did* does not appear as an afterthought. This yields the infinite regress, hence the unacceptability of (7b).

The examples in (9)-(10), which respect Condition C (cf. Fiengo and May (1994), Sauerland (1998)), support the proposal that ACD as well as AEx is related with a derivation based on afterthoughts.

- (9) You introduced him<sub>i</sub> to everyone John<sub>i</sub> wanted you to <introduce him<sub>i</sub> to>.  
 (10) I gave him<sub>i</sub> a picture yesterday from John's<sub>i</sub> collection.  
 (11) You [<sub>v\*P</sub> [<sub>v\*P</sub> introduced him<sub>i</sub> to everyone] [<sub>DP</sub> everyone John<sub>i</sub> wanted you to]].  
 (12) I [<sub>v\*P</sub> [<sub>v\*P</sub> gave him<sub>i</sub> a picture yesterday] [<sub>DP</sub> a picture from John's<sub>i</sub> collection]].

The ACD sentence in (9) has the derivation in (11), in which *everyone John wanted you to* occurs as an afterthought. This means that the name *John* is not in the c-command domain of the pronoun *him*. The same holds for the AEx sentence in (10), which has *a picture from John's collection* as an afterthought, as in (12).

Sentences (9) and (10) are thus acceptable with Condition C satisfied.

Further investigation, however, argues against Chomsky's analysis of CEx based on afterthoughts. Consider the following examples:

- (13) a. I saw a (very good) picture yesterday of the museum.  
 b. I heard a similar rumor yesterday that you were quitting.
- (14) a. ??/\*I gave him<sub>i</sub> a picture yesterday of John's<sub>i</sub> mother.  
 b. ??/\*I gave him<sub>i</sub> an argument yesterday that this sentence supports John's<sub>i</sub> theory.
- (15) a. I made an argument *that was very similar to the one/argument you did <made>*.  
 b. \*I made an argument *that we should adopt the argument you did <made>*.

If Chomsky's account of the unacceptability of (5b) is correct, we predict that there cannot exist any cases containing CEx. However, this prediction is not borne out from the availability of CEx in (13). Suppose now that CEx can be derived in a similar way to the one that AEx employs, via afterthoughts followed by deletion of non-constituent DPs (cf. Craenenbroeck and Dikken (2006)), putting aside the question of where the contrast in (5) comes from. It is expected then that CEx sentences have no Condition C effect in the same configuration as in (10), contrary to fact. The sentences in (14) clearly produce Condition C effects. This suggests that extraposed PPs in CEx sentences are base-generated with source DPs. This is also confirmed from the fact that complement-internal ACD, unlike adjunct-internal ACD, is not derivable. The elided VP in (15a) is properly interpreted via afterthoughts; the one in (15b), being included in the complement, is base-generated with the DP *an argument* under the antecedent VP, hence the infinite regress.

Our present analysis of CEx is consistent with each one in F&N (1999) and Mikami (2010). F&N argue that CEx is derived via rightward A'-movement of an extraposed PP, base-generated with source DPs. Mikami proposes, arguing against their claim, that a source DP and an extraposed PP, created as a single constituent, undergo A-movement to Spec-V, and then, CEx is generated by pronouncing the PP in the lower copy, serving as focus, at PF. The latter is more promising than the former, in that CEx is associated with admitted leftward movement, and, in addition, it has consequences for scope and binding facts in some other constructions.

In conclusion, we have argued, contra Chomsky (2004), that AEx and ACD are both generated via afterthoughts; in contrast, only CEx is related with a derivation involving movement of a single constituent.