Coreference asymmetries under ellipsis as evidence for syntactic Structure Removal

Andrew Murphy & Gereon Müller
{andrew.murphy, gereon.mueller}@uni-leipzig.de

Universität Leipzig

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1 Introduction

This squib demonstrates how a syntactic approach to ellipsis can explain two puzzling cases of coreference asymmetries in the ellipsis literature: vehicle change (Fiengo & May 1994) and Dahl’s puzzle (Dahl 1974). It will be shown that, under the view that material is elided in the course of the derivation, both of these phenomena reduce to a simple effect of locality and derivational timing: a non-clausemate syntactic object cannot be bound by a higher DP because it is no longer present in the structure after ellipsis has applied.

2 Ellipsis as deletion in Narrow Syntax

As discussed by Merchant (2016), theories of ellipsis can be broadly divided into two types: (i) those that assume that there is fully-fledged syntactic structure in the ellipsis site (e.g. Merchant 2001; Aelbrecht 2011; Chung 2013), (ii) and those that do not (e.g. Chao 1987; Lobeck 1995; Chung et al. 1995). The analysis of ellipsis proposed here is compatible with both of these views as there is first full structure in the ellipsis site, which is subsequently removed. In recent work, Müller (2015, 2016a,b) has argued for a syntactic operation that removes syntactic structure on the basis of diathesis, restructuring and complex pref fields. In particular, this allows approach has the advantage of being able to
reconcile evidence with conflicting representations in these domains. We adopt this operation and utilize it to derive ellipsis as a deletion process applying within syntax proper (cf. Baltin 2012). For example, consider the derivation of VP ellipsis (VPE) in (1). First, we follow Merchant (2013) in assuming that VPE is triggered by a Voice head above vP. In lieu of an [E]-feature (Merchant 2001), syntactic deletion is the result of a Remove feature \([-v-]\) on Voice that triggers deletion of its vP complement:\(^1\)

(1) John loves syntax and Mary does \([vP \triangle] \) too.

\begin{enumerate}
\item [a.] \([vP \text{ Mary } [vP \text{ love syntax }]]\)
\item [b.] \([\text{VoiceP } \text{ Voice}_{[v-]} [vP \text{ Mary } [vP \text{ love syntax }]]]\)
\item [c.] \([\text{VoiceP } \text{ Mary } [\text{Voice'} \text{ Voice } \triangle]]\)
\end{enumerate}

Although the output of syntax now contains no trace of a vP, there was structure present at an earlier point of the derivation, meaning that one can still derive the well-known connectivity effects normally attributed to isomorphic structure (e.g. case matching; Ross 1969 and P-stranding; Merchant 2001).\(^2\)

The final assumption we make is that deletion spanning multiple clauses takes places incrementally. For example, long-distance VPE first involves deletion of the lower vP, (2c) followed by deletion of the matrix vP\(_2\) (2e).

(2) John thinks that Pete loves syntax and Mary does \([vP \triangle] \) too.

\begin{enumerate}
\item [a.] \([vP \text{ Pete } [vP \text{ love syntax }]]\) \hspace{1cm} (Merge vP\(_3\))
\item [b.] \([\text{VoiceP } \text{ Voice}_{[v-]} [vP \text{ Pete } [vP \text{ love syntax }]]]\) \hspace{1cm} (Merge VoiceP)
\item [c.] \([\text{VoiceP } \text{ Pete } [\text{Voice'} \text{ Voice } \triangle]]\) \hspace{1cm} (Delete vP\(_3\))
\item [d.] \([\text{VoiceP } \text{ Voice}_{[v-]} [vP \text{ Mary } [vP \text{ think } [\text{CP that } [\text{TP Pete } [\text{VoiceP } \triangle ] ]]]]]] \hspace{1cm} \text{too }\]
\end{enumerate}

\(^1\)The symbol indicates that some material has been deletion, however this is just a notational convenience and has no theoretical relevance.

\(^2\) Since syntactic structure is present early in the derivation, we assume that semantic interpretation takes place directly during the derivation (see e.g. Hardt 1993; Barker & Jacobson 2007; Kobele 2006, 2012, 2014) and eschew additional processes such as LF-copying (Kitagawa 1991; Chung et al. 1995). In other words, the semantic component accesses derivation trees, rather than derived trees (as in TAG or Minimalist Grammars).
In the following sections, we show how this approach can provide a unified account of 
vehicle change and Dahl’s puzzle, two puzzling phenomena in the domain of ellipsis.

2.1 Vehicle change

Fiengo & May (1994) pointed out that an R-expression in an ellipsis site that is c-commanded 
by a co-referent pronoun does not trigger a Condition C effect (3).

(3) Mary loves John, and he thinks that Sally does \( [\text{VP love him}_i / *\text{John}_i] \) too.  

(Fiengo & May 1994:220)

This is of course surprising under the view that ellipsis sites contain fully-fledged syn-
tactic structure. Merchant (2001:24) shows that the same effect is found with sluicing:

(4) Alex was arrested, but he doesn’t know why \( [\text{TP he}_i / *\text{Alex}_i \text{was arrested}] \).

Fiengo & May (1994) attribute this to a process they call vehicle change (cf. Vanden Wyngaerd & Zwart 1991; Safir 1999, 2004; Merchant 2001; Aoun & Nunes 2007; Hunter & Yoshida 2016). Fiengo & May conceive of this as an operation that allows an R-expression 
to be changed into (or reconstructed as) a co-referent pronoun to avoid a Condition C vi-
olation. This is supported by the fact that a vehicle change cannot apply if the R-expression 
and its binder are clausemates (Fiengo & May 1994:222):

(5) *Mary hit John and he did \( [\text{VP hit him}_i / \text{John}_i] \) too.

This is because transforming the DP into a pronoun satisfies Condition C, but in turn 
violates Condition B. However, ‘vehicle change’ is ultimately just a name for a problem 
(see Merchant 2005), the problem being why an R-expression can be treated as a co-
referent pronoun under ellipsis.

In the syntactic deletion approach outlined above, the effects of vehicle change follow 
naturally. First, we assume a derivational approach to binding, based on Agree (see Reu-
Condition C is therefore viewed as an ‘everywhere’ constraint that holds throughout the derivation, i.e. at no point in the derivation can an R-expression be c-commanded by a co-referent pronoun (cf. Epstein et al. 1998; Lebeaux 2009). Furthermore, recall that VP ellipsis is triggered by the Voice head and applies in an incremental fashion as in (2).

In the derivation of (3), the co-referent R-expression is first introduced into the lower clause. When the subject is merged, Condition C is respected (6a). In subsequent steps, the subject moves to Spec-VoiceP (6b) and the embedded vP is elided (6c), John along with it. Subsequently, when the pronoun that would have triggered a Condition C violation is introduced in the matrix clause (6d), the R-expression is no longer present in the structure. Thus, Condition C is satisfied at every stage of the derivation.

(6) **Condition C neutralization in biclausal contexts:**

a. \[ vP \text{Sally} \left[ \text{VP love John}_1 \right] \]  (\(\checkmark\) Condition C)

b. \[ \text{VoiceP Sally, Voice[−v−]} \left[ vP \text{ t}, \left[ \text{VP love John}_1 \right] \right] \]  (Merge VoiceP)

c. \[ \text{VoiceP Sally Voice } \triangle \]  (Delete vP)

d. \[ vP \text{he, VP thinks [}\text{CP that [TP Sally does [VoiceP Voice } \triangle ]}]\]  (\(\checkmark\) Condition C)

The crucial aspect of this analysis of Condition C obviation is that the relevant items are sufficiently far apart structurally so that John can be removed from the derivation before the c-commanded coreferent pronoun can trigger Condition C.

Recall that the main ‘vehicle change’ argument for treating R-expressions as pronouns comes from the fact Condition B effects cannot be circumvented (5). This fact also follows simply as an effect of locality and timing. If the co-referential elements are clausemates as in (5), then removal of the R-expression comes too late to circumvent a Condition C violation, as can be seen in (7).

(7) **No neutralization of Condition C in monoclausal contexts:**

a. \[ vP \text{he, VP hit John}_1 \]  (*Condition C)
b. \[[\text{VoiceP he}, \text{Voice}_{[-\nu-]} [\nuP t, [\nuP \text{hit John}]]]\] \hspace{1cm} (\text{Merge VoiceP})

c. \[[\text{VoiceP he Voice }\triangle]\] \hspace{1cm} (\text{Delete }\nuP)

Given the assumption that ellipsis involves incremental syntactic deletion, the effects typically attributed to some distinct process of ‘vehicle change’ come for free. We therefore do not need to invoke additional operations or constraints in the grammar to explain these phenomena.

2.2 Dahl’s puzzle

Dahl (1973, 1974) noticed a curious restriction on sloppy identity under ellipsis. It can be illustrated on the basis of the following examples from Fox (2000:112):

\[(8)\quad \text{John, said that he, likes his, mother and Bill, did } [\nuP \triangle] \text{ too.}\]

- a. Bill, said that he, likes his, mother. \hspace{1cm} (\text{strict, strict})
- b. Bill, said that he, likes his, mother. \hspace{1cm} (\text{sloppy, sloppy})
- c. Bill, said that he, likes his, mother. \hspace{1cm} (\text{sloppy, strict})
- d. *Bill, said that he, likes his, mother. \hspace{1cm} (*\text{strict, sloppy})

Of the four logical coreference possibilities for the elided pronouns in (8), only three are possible. In the unavailable interpretation in (8d), he is interpreted strict, whereas his has a sloppy reading. Descriptively speaking, it seems that binding of his mother by Bill cannot skip the intermediate pronoun he if it bears a different index. Fiengo & May (1994:132) call this Dahl’s puzzle (also see Büring 2005; Hardt 2008; Duguine 2008). There have already been a number of analyses of this puzzle evoking additional economy conditions and strong crossover (or some combination thereof) (see e.g. Fox 2000; Reinhart 2006; Roelofsen 2010, 2011; Drummond 2014). However, solutions of this kind struggle with the fact that the binding configuration which is ruled out in Dahl’s puzzle is licit outside of ellipsis contexts as shown in (9) (Fiengo & May 1994:130).\footnote{An important caveat is that this reading requires that the pronoun his in the final clause must be...}
(9) John said that he, likes his, mother and Bill, said that he, likes his, mother too.

We argue that what Fiengo & May (1994) call the 'eliminative' effect of ellipsis on particular readings also follows as a side-effect of incremental syntactic deletion. In essence, the explanation is identical to the one for vehicle change; in (8d), his mother is no longer present in the structure at the point at which the matrix subject Bill is merged and, thus, coreference via binding cannot be established.

First, consider the derivation of (8a) with the strict reading in each case. The possessive pronoun in the lowest clause starts off with some arbitrary referential index (i). At the step of the derivation in (10a), two operations are locally available to he – either Agree with the DP and copy its index, or apply Disjoint Reference to acquire a different index.\(^4\) In this case, the former applies (10a). In subsequent steps (10b & c), the Voice projection is introduced and the vP is deleted. Now, when the matrix subject Bill is merged, the same options are available and disjoint reference is established (10d). This derives the strict reading in (8a).

(10) **Derivation of (8a):**

\[
\begin{align*}
\text{a.} & \quad [\text{VP } \text{he[REF: i]} [\text{VP likes his[REF: i] mother ]}] \quad \text{(Agree)} \\
\text{b.} & \quad [\text{VoiceP } \text{he[REF: i]} [\text{Voice' Voice [-v-] [VP t he [VP likes his[REF: i] mother ]]]}] \\
\text{c.} & \quad [\text{VoiceP } \text{he[REF: i]} [\text{Voice' Voice [-v-] △ }]] \quad \text{(Delete vP)} \\
\text{d.} & \quad [\text{VP Bill[REF: j]} [\text{VP said [CP that [TP he[REF: i] [VoiceP t he [Voice' Voice [-v-] △ ]]]]]}]
\end{align*}
\]

To derive the fully sloppy reading in (8b), the derivation is the same as (10), however last step also involves Agree so that Bill shares the index of the lower pronouns (i).

For the mixed cases in (8c) and (8d), it is important to note that it is only possible for the matrix R-expression to bind the possessive pronoun if this link is established via the focused (see Tancredi 1992; also see Asher et al. 2001).

\(^4\)Note that Disjoint Reference need not be a distinct operation of grammar, but could instead be the result of failure to agree (cf. ?)
intermediate pronoun. In (8c), Disjoint Reference is first established between he and his, meaning that his will have a strict interpretation (11a). After ellipsis, he is still accessible to the R-expression so a sloppy interpretation can be established (11d).

(11) Derivation of (8c):

a. \([vP \he_{[\text{REF};j]} [\text{VP likes his}_{[\text{REF};j]} \text{ mother }]]\) (Disjoint Reference)

b. \([\text{VoiceP } \he_{[\text{REF};j]} [\text{Voice } \text{ Voice}_{[\text{−}v\text{−}] } [vP \text{ the } [\text{VP likes his}_{[\text{REF};j]} \text{ mother }]]]]\)

c. \([\text{VoiceP } \he_{[\text{REF};j]} [\text{Voice } \text{ Voice}_{[\text{−}v\text{−}] } \triangle ]]\) (Delete vP)

d. \(*[vP \text{ Bill}_{[\text{REF};\Box]} [\text{VP said } [\text{CP that } [\text{TP } \he_{[\text{REF};j]} [\text{VoiceP } \text{ tthe } [\text{Voice } \text{ Voice}_{[\text{−}v\text{−}] } \triangle ]]]]]\])

In the unavailable reading in (8d), the lower his has a sloppy interpretation, while the intermediate pronoun he has a strict interpretation. This is impossible derive in the current system since the pronoun his is no longer present in the structure when the matrix subject Bill is merged (12d). As we have seen, due to this state of affairs, the only way for his to co-refer to Bill is if its index is transmitted via he. In (8d), this is not possible since the intermediate pronoun has a strict interpretation. As a result, the only locally available binding option is the pronoun he (12d), deriving the sloppy reading in (8b).

(12) Derivation of (8d):

a. \([vP \he_{[\text{REF};j]} [\text{VP likes his}_{[\text{REF};j]} \text{ mother }]]\) (Disjoint Reference)

b. \([\text{VoiceP } \he_{[\text{REF};j]} [\text{Voice } \text{ Voice}_{[\text{−}v\text{−}] } [vP \text{ tthe } [\text{VP likes his}_{[\text{REF};j]} \text{ mother }]]]]\)

c. \([\text{VoiceP } \he_{[\text{REF};j]} [\text{Voice } \text{ Voice}_{[\text{−}v\text{−}] } \triangle ]]\) (Delete vP)

d. \(*[vP \text{ Bill}_{[\text{REF};j]} [\text{VP said } [\text{CP that } [\text{TP } \he_{[\text{REF};j]} [\text{VoiceP } \text{ tthe } [\text{Voice } \text{ Voice}_{[\text{−}v\text{−}] } \triangle ]]]]]\])

As a result, we derive the fact that the R-expression cannot ‘skip’ a possible index on a pronoun. However, we do so in a way that does not invoke additional notions of economy or crossover as in previous accounts. Furthermore, it is also explains why this particular pattern of coreference is only blocked in ellipsis contexts (cf. (9)).
3 Conclusion

In this squib, we have argued for an approach to ellipsis which involves the genuine deletion of material in syntax proper. We have shown that classic coreference asymmetries under ellipsis such as vehicle change and Dahl’s Puzzle fall out naturally if ellipsis is assumed to take place incrementally in the Narrow Syntax. What unifies the two phenomena is that material which is too structurally distant from a potential binder is removed from the derivation before the relevant dependency can be established.

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