Derivational ellipsis and Vehicle Change

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Abstract

This paper offers a new perspective on the absence of Principle C effects under ellipsis, a phenomenon that is also known as *vehicle change*. While the established view treats vehicle change as a stipulated interpretational equivalence between pronouns and R-expressions inside ellipsis sites (Fiengo & May 1994), it is argued that these effects can also be captured by a derivational approach to ellipsis. The analysis proposed here assumes that ellipsis applies in a successive-cyclic fashion and that the absence of Principle C effects follows from the fact that the R-expression is no longer syntactically accessible at the relevant point in the derivation. It is shown how this can not only capture the central mono-clausal/bi-clausal distinction with vehicle change, but can also extend to additional data which prove problematic for the standard view.

1 Introduction

The modern consensus in the ellipsis literature is that elliptical utterances contain fully-fledged syntactic structure in the ellipsis site (Merchant 2018a). This then raises the question of how and when the non-pronunciation of this structure is determined. Following Merchant (2001), it is often assumed that ellipsis is determined at PF by a feature [E] on a functional head. On this view, the internal structure of an ellipsis site remains accessible throughout the derivation. An alternative approach pursued by Aelbrecht (2010) argues that ellipsis is licensed in the syntax proper, that is, ellipsis renders the ellipsis site inaccessible to the rest of the syntactic derivation. One might legitimately ask whether it is possible to distinguish these two analyses. One possible way of approaching this is to see how ellipsis interacts with other rules in the grammar. If ellipsis were a syntactic operation, then it could interact with other syntactic processes, by either feeding or bleeding them. If ellipsis is a relatively late process, e.g. at PF, then we would not expect it to feed or bleed syntactic operations because it necessarily follows them (in fact, we expect *counterfeeding* and *counterbleeding*; Kiparsky 1973).

As a case in point, consider the much-discussed interaction of T-to-C movement in sluicing (Lasnik 1999, 2014; Merchant 2001; Baltin 2010; Hartman 2011). In typical object wh-questions, which the fragment in (1B) is derived from, the auxiliary moves from T to C. However, the auxiliary cannot surface overtly in a fragment answer (1).

(1) A: John has invited someone.

   B: Who (*has) [$_{TP}$ ⟨ John t_{has} invited t_{who}⟩] ?

Of course, this diagnostic depends very much on there being consensus about the module of grammar that a particular operation belongs to. For those, who believe ellipsis is implemented at PF, data like (1) point to the conclusion that head movement is actually a phonological, rather than syntactic operation (e.g. Chomsky 1995a; Merchant 2001; Boeckx & Stjepanović 2001). For others, the interaction of head movement and ellipsis could support the view that the triggering of ellipsis is (at least in part) syntactic. While this particular case remains controversial, exploring the interaction of ellipsis with other grammatical processes seems to be a promising avenue for trying to uncover the timing of ellipsis in the derivation.

In this paper, we aim to develop a new argument for the derivational view, where ellipsis is triggered in the syntax proper. Our argument is based on the much-discussed, yet still poorly-understood, phenomenon of 'vehicle change', in which bound R-expressions inside ellipsis sites do not give rise to the expected Principle C violations (2).

(2) Mary loves John$_i$, and he$_i$ thinks that Sally does [$_{VP}$ ⟨love him$_i$ / *John$_i$⟩] too.

(Fiengo & May 1994:220)

If we think that there is otherwise good evidence to assume that VP ellipsis sites contain silent internal structure (e.g. Hankamer & Sag 1976; Johnson 2001; van Craenenbroeck 2017), then the absence of a Principle C violation in (2) is surprising. While the relatively widely-accepted view of vehicle change involves a stipulated equivalence between R-expressions and pronouns inside ellipsis sites (Fiengo & May 1994), we present an alternative analysis based on a derivational view of ellipsis. The core intuition will be that we do not find Principle C violations with R-expressions inside ellipsis sites because the relevant R-expression is no longer syntactically accessible at the point at which its potential binder is merged. We will show that this can not only derive the mono-/bi-clausal distinction that originally motivated Fiengo & May's (1994) 'replace-with-a-pronoun' analysis, but also other examples which have been shown to be problematic for it.

2 Derivational ellipsis

Since Merchant (2001), it is now widely assumed that ellipsis sites contain fully-fledged syntactic structure that is unrealized at PF. This means that, all else being equal, a constituent that will later be elided will not be afforded any special syntactic status. An alternative approach, which is often referred to as *derivational ellipsis*, contends that ellipsis is implemented in syntax proper. This makes the prediction that constituents undergoing ellipsis should, in some cases, show different syntactic behaviour from their unelided counterparts. The main evidence for derivational ellipsis comes from cases in which it seems that an elided constituent is unexpectedly inaccessible for some syntactic processes such as movement or agreement. In what follows, we briefly recap three such arguments based on Ā-movement, head movement and

φ-agreement.

2.1 Wh-movement and ellipsis

Aelbrecht (2010, 2012) discusses what she calls *Modal Complement Ellipsis* (MCE) in Dutch. This construction involves ellipsis of an AspP constituent in the presence of a modal verb (3a). Although subjects can be freely extracted from MCE, objects cannot (3b,c).

(3) *No extraction from Modal Complement Ellipsis in Dutch* (Aelbrecht 2010:59,63):

    a. Emiel wou   Sarah wel een cadeautje geven, maar hij$_1$ mocht   niet [$_{AspP}$ t$_1$
        Emiel wanted Sarah PRT a   present   give   but   he   was.allowed not
        ~~Sarah een cadeautje geven~~]
        Sarah a   present   give
        'Emiel wanted to give Sarah a present, but he wasn't allowed to.'

    b.?*Ik weet niet wie Kaat WOU   uitnodigen, maar ik weet wel wie$_2$ ze$_1$ MOEST
        I   know not who Kaat wanted invite   but   I   know PRT who she must.PST
        [$_{AspP}$ t$_1$ [$_{VP}$ t$_2$ ~~uitnodigen~~]]
                  invite
        'I don't know who Kaat WANTED to invite, but I do know who she HAD to.'

    c. *Ik weet niet aan wie Thomas die bloem WOU   geven, maar ik weet wel aan wie$_2$
        I   know not to   who Thomas that flower wanted give   but   I   know PRT to   who
        hij$_1$ MOEST   [$_{AspP}$ t$_1$ [$_{VP}$ t$_2$ ~~die bloem geven~~]]
        he   must.PST   that flower give
        'I don't know to whom Thomas WANTED to give that flower, but I know to whom he HAD to.'

The core component of Aelbrecht's (2010) analysis of this asymmetry is that ellipsis takes place in the syntax as a form of spell-out. Consider the analysis of (3b) in (4), which we have represented as left-headed for expository purposes. Under Aelbrecht's approach, the T head bearing the [E]-feature triggers null spell-out of its complement once the higher licensing head Mod is merged. Since VoiceP corresponds to the traditional vP phase in Chomsky (2000, 2001), wh-objects must move to the edge of VoiceP in order to remain accessible to higher probes. However, since the phase edge is contained inside the complement of the ellipsis triggering head T, it is spelled-out as a part of the elided domain and this prevents further movement of the wh-phrase. Since subjects move to Spec-TP, they escape from the ellipsis site before it becomes inaccessible.
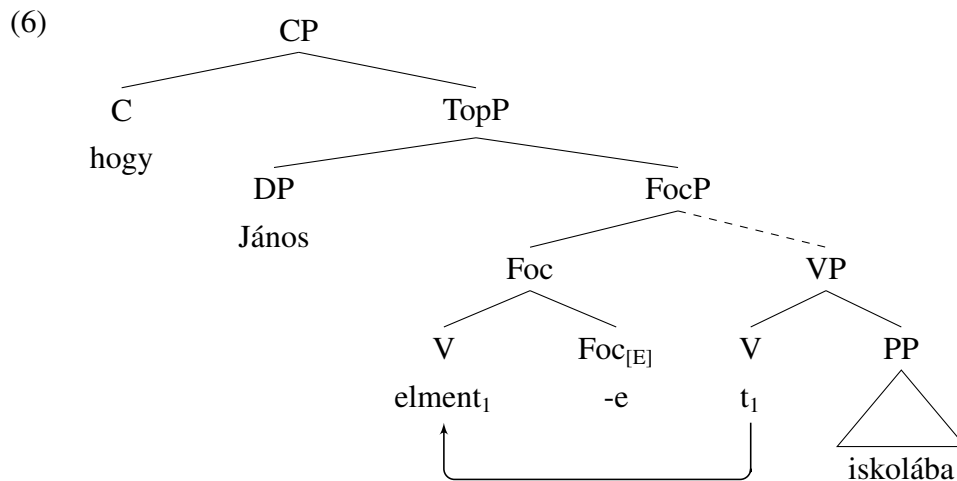
(4)
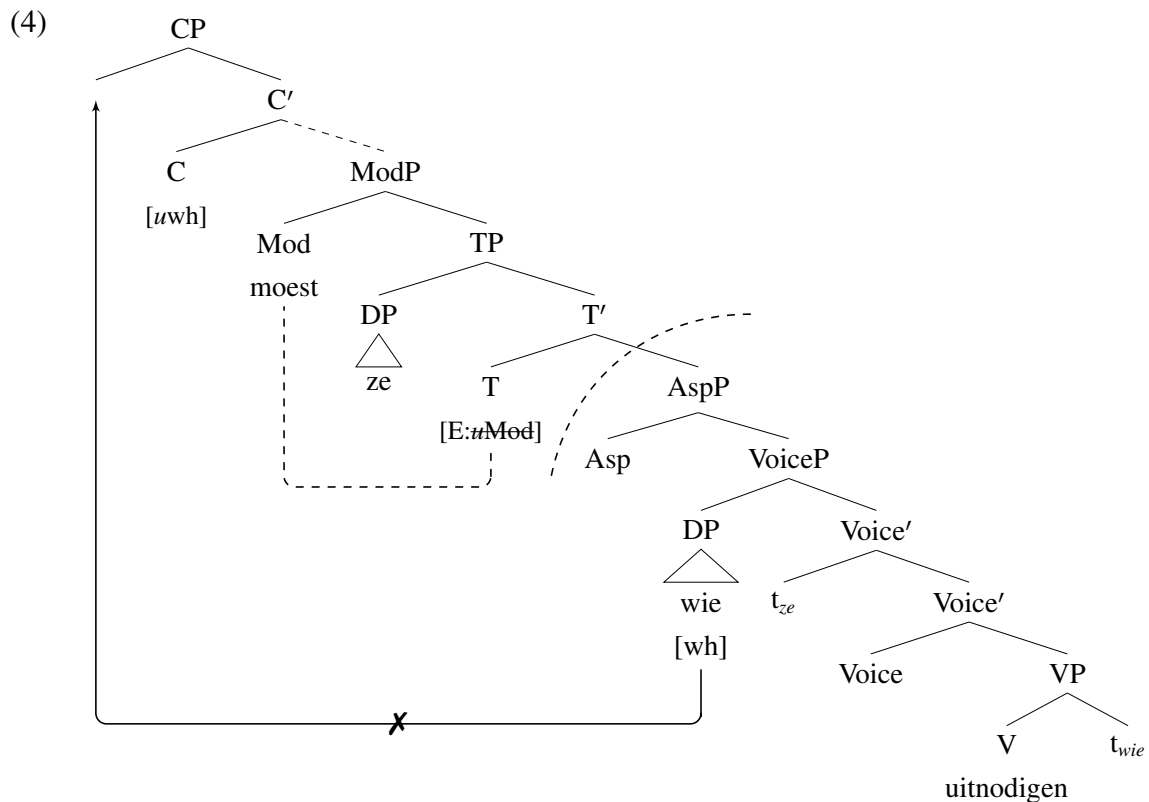
It is only possible to derive the asymmetry about extraction from ellipsis sites, i.e. that ellipsis bleeds extraction, if ellipsis also takes place in the syntax proper (also see Baltin 2012 on British *do*).

2.2 Head movement and ellipsis

A similar argument comes from van Craenenbroeck & Lipták (2008). They show that there is a morpheme *-e* in Hungarian which surfaces in (embedded) polar interrogatives (5).

(5) Kiváncsi vagyok, hogy   János el-ment*(-e)   iskolá-ba
     curious   be.1SG COMP Janos PV-went*(-Q) school-to
     'I wonder if Janos left for school.'

They assume that *-e* realizes the head of a focus projection, FocP. In polar interrogatives such as (5), the verb moves to the head out of the TP of this projection (6).

(6)

```
                          CP
                ┌─────────┴─────────┐
                C                  TopP
              hogy        ┌─────────┴─────────┐
                         DP                  FocP
                       János        ┌─────────┴ ─ ─ ─ ─ ┐
                                    Foc                 VP
                              ┌─────┴─────┐       ┌──────┴──────┐
                              V        Foc_{[E]}   V            PP
                           element₁      -e       t₁           ╱╲
                              └──────────────────┘          iskolába
```
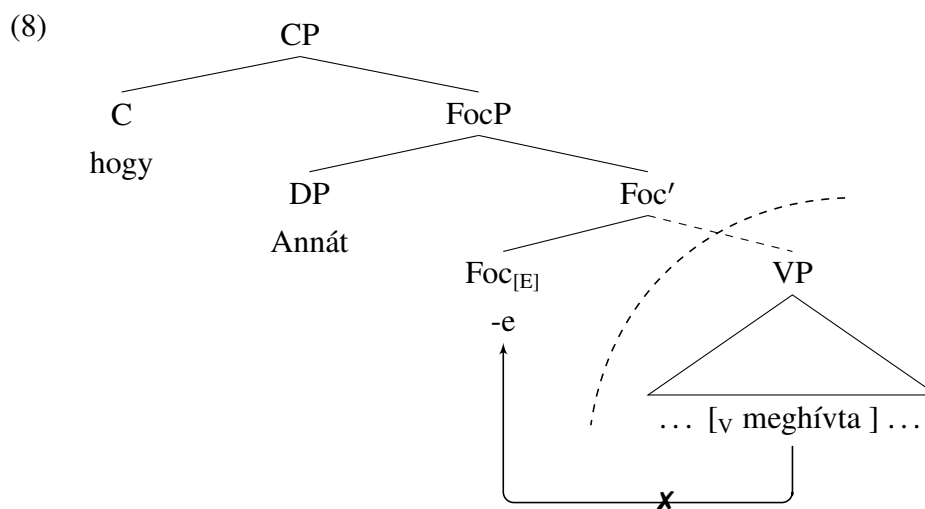
Furthermore, this kind of ellipsis is possible in embedded polar questions such as (7a). Here, what we find is that the *-e* suffix that would normally surface on the verb is attached to the phrasal remnant of ellipsis (7b).

(7)   *No head movement out of ellipsis in Hungarian* (van Craenenbroeck & Lipták 2008:140ff.):

     a.   János meghívott valakit   és   azt hiszem   hogy   BÉLÁT [$_{VP}$ △]
        Janos invited   someone and that think.1SG COMP Bela
        'Janos invited someone and I think it was Bela whom he invited.'

     b.   János meghívott egy lányt, de   nem tudom   hogy   ANNÁT*(-e) [$_{VP}$ △]
        Janos invited   a   girl   but not   know.1SG COMP Anna*(-Q)
        'Janos invited a girl, but I don't know if it was Anna.'

Their interpretation of these facts is that, normally, the verb would move to the Foc head in embedded yes-no questions. However, if that head also bears an ellipsis-triggering [E]-feature, then head movement is blocked (8). This follows if ellipsis is derivational and bleeds movement of the verb out of the ellipsis site, much like in the example of T-to-C movement in English sluicing that we saw in (1).

(8)

```
                          CP
                ┌─────────┴─────────┐
                C                  FocP
              hogy        ┌─────────┴─────────┐
                         DP                  Foc′
                       Annát        ┌─────────┴ ─ ─ ─ ─ ┐
                                  Foc_{[E]}              VP
                                    -e                   ╱╲
                                                   … [_V meghívta ] …
                                     └──────────✗──────────┘
```

2.3 Agreement and ellipsis

It has also been argued that ellipsis can bleed agreement relations. Johnson (2013, 2015a) presents data from Hocąk, which show the impossibility of object agreement into an elided VP. In (9a), the verb *hoji* ('hit') in each conjunct bears an object agreement marker *hi-* (and is pronounced as the fused form *hųųji*). In (9b), the VP has been elided and object agreement is not possible.

(9) *VP ellipsis bleeds object agreement in Hocąk* (Johnson 2013, Johnson (M.) 2015a):

    a. Cecil-ga   (nee) hi-hoji   anąga Hunter-ga   šge (nee) hi-hoji
       Cecil-PROP (me) 1.OBJ-hit and   Hunter-PROP also (me) 1.OBJ-hit
       'Cecil hit me, and Hunter hit me too.'

    b. Cecil-ga   (nee) hi-hoji   anąga Hunter-ga   šge [$_{VP}$ △] ųų / *hi'-ųų
       Cecil-PROP (me) 1.OBJ-hit and   Hunter-PROP also   do / *1.OBJ-DO
       'Cecil hit me, and Hunter hit me too.'

Of course, this could follow if ellipsis in Hocąk were simply an empty category, i.e. a deep anaphor in the sense of Hankamer & Sag (1976). However, the data in (10) show that it is possible to extract an object from the elided VP, which suggests that it does contain underlying syntactic structure.

(10) *Extraction from VPE in Hocąk* (Johnson 2014:261,263):

    a. Meredith-ga   waagax-ra Ø-ruii   nųnige wiiwagax-ra$_1$ hąąke [$_{VP}$ △]
       Meredith-PROP paper-DEF 3.SG-buy but   pencil-DEF   NEG
       Ø-ųų-ni
       3.SBJ-do-NEG
       'Meredith bought the paper, but not the pencils.'

    b. Bryan-ga   Ø-ruwi   jaagu$_1$ Meredith-ga   [$_{VP}$ △] Ø-ųų-ra
       Bryan-PROP 3.SBJ-buy what   Meredith-PROP   3.SBJ-do-COMP
       'Bryan bought what(ever) Meredith did.'

Instead, Johnson proposes that ellipsis of the VP prevents object agreement into the VP. We can appeal to a similar logic as with extraction: at the point at which object agreement takes place, the constituent containing the goal for object agreement has undergone ellipsis and is therefore no longer accessible. An analysis of the absence of object agreement in (9b) is given in (11).

(11)

AgrP
Agr   VoiceP
[φ:□]
Voice vP
[E]
v VP
V   DP
[φ:1sg]
✗
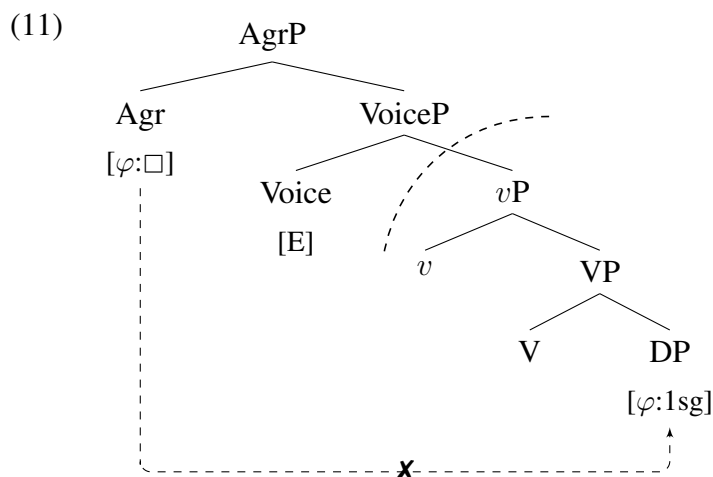
Cases of ellipsis bleeding other syntactic operations allow for a compelling argument to be made that ellipsis, in some cases, is triggered in narrow syntax. In what follows, we will propose that a similar argument can be made on the basis of vehicle change effects.

3   Vehicle Change

Fiengo & May (1994) pointed out that an elided R-expression that is c-commanded by a co-referent pronoun outside an ellipsis site does not give rise to a Principle C violation (also see Dalrymple 1991/2005). This can be seen in the VP ellipsis example in (12).

(12)   Mary loves John$_i$, and he$_i$ thinks that Sally does [$_{VP}$ ⟨love him$_i$ / *John$_i$⟩] too.

(Fiengo & May 1994:220)

This is a puzzle that, following Fiengo & May (1994), is referred to as *vehicle change* (Vanden Wyngaerd & Zwart 1991; Brody 1995; Safir 1999, 2004*b*; Merchant 2001; Aoun & Nunes 2007; Hunter & Yoshida 2016). Vehicle change seems to be a a general property of ellipsis that is found in elliptical constructions such as sluicing (13a), comparative deletion (13b) and antecedent-contained deletion (13c).

(13)   a.   *Vehicle change with sluicing* Merchant (2001:24):
             Alex$_i$ was arrested, but he$_i$ doesn't know why [$_{TP}$ ⟨he$_i$ / *Alex$_i$ was arrested⟩]
       b.   *Vehicle change with comparative deletion* (Lechner 2004:16):
             Mary is prouder of John$_i$ than he$_i$ believes that I am [$_{VP}$ ⟨proud of him / *John$_i$⟩]
       c.   *Vehicle change with ACD* (Fiengo & May 1994:275):
             Mary introduced John$_i$ to everyone he$_i$ wanted her to [$_{VP}$ ⟨introduce him / *John$_i$ to⟩]

The phenomenon of vehicle change is unexpected if ellipsis sites contain syntactic structure that is isomorphic to their antecedent. On this view, we might expect the inclusion of a pronoun in the ellipsis site to violate the identity requirements on elided phrases (e.g. Chung's (2006; 2013) *no new words* requirement; Merchant 2013a:460). On the other hand, we know that ellipsis must be afforded some degree of interpretational flexibility to deal with so-called 'sloppy readings'

where the form of the pronoun must be allowed to differ from its antecedent (14b) (Bouton 1970; Sag 1976b; May 1985).

(14)   a.   John$_i$ loves his$_i$ mother and Mary$_j$ does [$_{VP}$ ⟨love his$_i$ mother⟩] too.   (*strict*)
       b.   John$_i$ loves his$_i$ mother and Mary$_j$ does [$_{VP}$ ⟨love her$_j$ mother⟩] too.   (*sloppy*)

An important question is how this flexibility can be constrained, while still allowing for the absence of Principle C effects in (13).[1]

3.1   'Replace-with-a-pronoun' (Fiengo & May 1994)

Fiengo & May (1994) attribute the absence of a Principle C violation in vehicle change contexts to the equivalence of pronouns and R-expressions under ellipsis. For them, the essence of vehicle change is that an R-expression contained in an ellipsis site can be construed as a co-referent pronoun for the purposes of binding. In other words, the 'vehicle' for a particular referential index is flexible. It is important to note that Fiengo & May (1994) do not assume that there is underlying syntactic structure in the ellipsis site, but rather that its content must be 'reconstructed' at LF (e.g. Wasow 1972; Williams 1977; Kitagawa 1991; Chung et al. 1995). Thus, vehicle change means that reconstruction of an ellipsis site is insensitive to the feature [±pronoun], which they assume to distinguish pronouns and proper names (Fiengo & May 1994:221). On a PF deletion view of ellipsis, vehicle change can be implemented as a transformation on the ellipsis site that allows an R-expression in an ellipsis site to be replaced with a co-referent pronoun (see Safir 1999:614; Cecchetto & Percus 2006:93), or one could simply stipulate an equivalence class between the two elements for the purposes of ellipsis identity, i.e. [−pronominal] = [+pronominal] (Merchant 2001:204). We can therefore characterize the classic view of vehicle change as in (15).

(15)   *Vehicle Change* (Fiengo & May 1994:218):
       In an ellipsis site, a nominal can take any syntactic form as long as its indexical structure is unchanged.

For convenience, let us refer to Fiengo & May's (1994) approach as the 'replace-with-a-pronoun' analysis of vehicle change, since we can think of this view of vehicle change as equivalent to having a rule such as (16) that is applicable to elided constituents.

(16)   [−pronominal] → [+pronominal]
       (e.g. [$_{DP}$ John]$_i$ → [$_{DP}$ he]$_i$)

The central motivation for the 'replace-with-a-pronoun' theory comes from the contrast in (17). Recall from (12), repeated below as (17a), that an R-expression in an embedded clause does

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[1]Something that must be controlled for is that Principle C effects seem to be ameliorated by focus in examples such as *Even HE$_i$ hates John$_i$* (see e.g. Evans 1980:357; Reinhart 1983:61f.). This effect also carries over to the vehicle change contexts discussed here, however we do not assume these apparent ameliorations of Principle C to be related.

not violate Principle C. However, if the co-referent elements are clausemates, then the expected Principle C effect surfaces (17b).

(17)   *No vehicle change in mono-clausal contexts* (Fiengo & May 1994:220, 222):

    a.   Mary loves John$_i$, and he$_i$ thinks that Sally does [$_{VP}$ ⟨love him$_i$ / *John$_i$⟩] too.

    b.   *Mary hit John$_i$ and he$_i$ did [$_{VP}$ ⟨hit *him$_i$ / *John$_i$⟩] too.

This follows from Fiengo & May's (1994) 'replace-with-a-pronoun' theory since switching an R-expression with a pronoun means that, while Principle C becomes irrelevant, the pronoun will now have to satisfy Principle B. As can be seen in the binding principles listed in (18), Principle B states that pronouns must be free within their binding domain (18) (for present purposes, we can assume the minimal TP to be the relevant binding domain).

(18)   *Binding Principles* (Chomsky 1981; Büring 2005; Truswell 2014:216f.):

    a.   *Principle A*:

        Reflexives must be bound within their binding domain.

    b.   *Principle B*:

        Pronouns must be free within their binding domain.

    c.   *Principle C*:

        R-expressions must be globally free.

In (17a), the pronoun in the ellipsis site licensed by vehicle change violates neither Principle B or C, since *him* is not bound within its minimal TP. Replacing *John$_i$* with *him$_i$* in (17b), however, leads to a Principle B violation as it has a binder (a co-referent, c-commanding expression) *he$_i$* in the same binding domain. For this reason, applying vehicle change to avoid a particular binding-theoretic violation, namely Principle C, necessarily incurs a different violation (Principle B) and the relevant example is therefore ruled out as ungrammatical.

    Some additional evidence for the 'replace-with-a-pronoun' analysis comes from possessors. Assuming now that DP is also a binding domain (e.g. Truswell 2014:218), then vehicle change should be able to apply to an R-expression with a clausemate antecedent, as long as the R-expression is contained within a DP. While the unelided counterparts of (19) are ungrammatical, a possessor inside a DP does not give rise to a Principle C violation.

(19)   *Vehicle change in DPs* (Fiengo & May 1994:277; Drummond & Shimoyama 2014:95):

    a.   I like John's$_i$ friends more than he$_i$ does [$_{VP}$ ⟨like [$_{DP}$ his$_i$ / *John's$_i$ friends] ⟩]

    b.   Mary introduced [$_{DP}$ John's$_i$ mother] to everyone that he$_i$ did [$_{VP}$ ⟨introduce [$_{DP}$ his$_i$ / *John's$_i$ mother] to⟩]

These examples differ crucially from the one in (17b) because *his$_i$* in (19a,b) is free in its binding domain (DP) and therefore does not violate Principle B.

3.2 Some challenges for 'replace-with-a-pronoun'

While the 'replace-with-a-pronoun' approach to vehicle change makes some correct predictions about the distribution of Principle C effects inside ellipsis sites, there are also a number of problems associated with it. Fiengo & May (1994:221,fn.24) claim that 'vehicle change is operative in both sentential and nominal domains'. We saw that this accounts for cases such as (19) where vehicle change was possible due to the fact that a DP-internal pronoun does not violate Principle B, however this is not always the case. Aoun & Nunes (2007:529) point out that the data in (20) pose a problem for Fiengo & May's (1994) analysis. As (20a) shows, in the absence of ellipsis, a bound pronoun in this position does in fact incur a Principle B violation. However, the co-reference under ellipsis is acceptable (20b).

(20)   a. *John/he$_i$ never tells stories about him$_i$
       b. Mary always tells stories about John$_i$, but he$_i$ never does [$_{VP}$ ⟨tell stories about *him$_i$ / *John$_i$⟩]

This asymmetry is puzzling under Fiengo & May's (1994) approach. If vehicle change involves exchanging the R-expression with a co-referent pronoun (in some relevant sense), then we would expect the Principle B violation to persist under ellipsis. We could potentially rule this out if we allowed vehicle change to also turn a pronoun into a reflexive in cases such as (20b). However, such a step is clearly not desirable, as it would undermine the account of the lack of vehicle change with clausemate arguments in (17b), since vehicle change into a reflexive such as *himself* could also be used to rescue cases such as (21).

(21) *Mary hit John and he$_i$ did [$_{VP}$ ⟨hit *him$_i$ / *John$_i$/ ✓himself$_i$⟩] too.

As Safir (2004*a*:152) points out, this view of vehicle change would overgenerate and is thus undesirable from an empirical perspective. However, it is important to bear in mind that nothing beyond stipulation rules this out. Why is it that pronouns and R-expressions can count as equivalent inside ellipsis sites, but pronouns and reflexives cannot?

There are other empirical challenges for the 'replace-with-a-pronoun' view of vehicle change. Drummond & Shimoyama (2014) show that there is an asymmetry between the applicability of vehicle change across a TP and a CP boundary, respectively. First, consider the *for*-infinitive in (22). While this is a context in which we do typically find Principle B violations (22a), these are absent in vehicle change contexts (22b). This is another asymmetry between contexts for vehicle change and where we find Principle B effects overtly.

(22)   *Vehicle change across CP boundary* (Drummond & Shimoyama 2014:103):
       a. *John/he$_i$ wants [$_{CP}$ for him$_i$ to win]
       b. I want [$_{CP}$ for John$_i$ to win] just as much as he$_i$ does [$_{VP}$ ⟨want [$_{CP}$ for *him$_i$ / *John$_i$ to win]⟩]

Examples such as these contrast with what we can assume to be genuine cases of ECM-verbs like *believe*, which we assume to involve TP-embedding (following Drummond & Shimoyama

2014). Again, these contexts show clear Principle B sensitivity (23a,c) that is also found with elided R-expressions that should give rise to vehicle change (23b,d).

(23)   *No vehicle change across TP boundary* (Drummond & Shimoyama 2014:103):

    a. *He $_i$ believes [$_{TP}$ him$_i$ to be intelligent]

    b. *I believe [$_{TP}$ John$_i$ to be intelligent] just as much as he$_i$ does [$_{VP}$ ⟨believe [$_{TP}$ *him$_i$ / *John$_i$ to be intelligent]⟩]

    c. *He$_i$ caught [$_{TP}$ him$_i$ lying]

    d. *I caught [$_{TP}$ John$_i$ lying] more often than he$_i$ did [$_{VP}$ ⟨catch [$_{TP}$ *him$_i$ / *John$_i$ lying]⟩]

This asymmetry between (22) and (23) does not follow from the 'replace-with-a-pronoun' analysis, since we expect to find the same Principle B profile that we do overtly. Nevertheless, a successful account of vehicle change must account for effects of this kind. The coming-apart of vehicle change and Principle B in such cases suggests that there is more going on with vehicle change than simple pronominal equivalency.

In sum, while the classic 'replace-with-a-pronoun' view of vehicle change accounts for the basic mono-/bi-clausal distinction that originally motivated it, the appeal to Principle B struggles to capture a wider range of cases. Furthermore, there is a sense in which vehicle change is not really an explanation of the phenomenon, but rather simply a 'name for the problem' (see Giannakidou & Merchant 1998:245; Merchant 2001:204f.; 2005); the problem being why we do not always find the kind of Principle C effects that we would expect if ellipsis sites contained fully-articulated structure. In what follows, we argue that the derivational view of ellipsis licensing can shed light on the core of the vehicle change phenomenon and capture the full range of data surveyed above.

3.3   A derivational alternative

Recall that the derivational approach to ellipsis assumes that it applies in the Narrow Syntax and, as a result, renders the ellipsis site opaque for later syntactic operations. The essence of vehicle change is that an R-expression contained in an elided constituent that is bound from outside that ellipsis site does not behave as if it were bound. Adopting a derivational ellipsis account, we can simply say that there is no Principle C effect inside ellipsis sites because, at the point at which the potential binder is merged, the offending R-expression has been elided and is no longer accessible to the syntactic derivation.

Following standard approaches, we assume that ellipsis of a constituent XP is triggered by a licensing feature [E] on a licensing head (Merchant 2001, 2004; van Craenenbroeck & Lipták 2013). VP ellipsis, which is actually ellipsis of vP, is assumed to be licensed by an [E]-feature on Voice (see Merchant 2013b for evidence from voice mismatches). Furthermore, we adopt the view that the licensing of ellipsis takes place in syntax proper and that it renders the elided domain opaque for further syntactic computation, following Aelbrecht (2010) and others mentioned in Section 2.

To see this, let us consider an example. For the sentence in (24), the arguments are first merged in vP (24a). Subsequently, the Voice head bearing the [E]-feature is merged (24b). Adopting Merchant's (2013b) analysis of voice mismatches, we assume that VP ellipsis involves deletion of vP licensed by an [E]-feature on a higher head Voice. The subject must therefore vacate the vP in order to survive ellipsis (24c). In the following step, the [E]-feature triggers ellipsis of its complement (24d). Given the derivational theory of ellipsis assumed here, its internal structure is now inaccessible for the remainder of the derivation. We will represent this now opaque, elided constituent as '△' to indicate this inaccessibility. Finally, the remainder of the structure is built in the subsequent steps (24e).

(24)   Bill loves Mary and John does too.

    a. $[_{v\text{P}}$ John $[_{v'}$ v $[_{\text{VP}}$ loves Mary $]]]$

    b. $[_{\text{VoiceP}}$ Voice$_{[\text{E}]}$ $[_{v\text{P}}$ John $[_{v'}$ v $[_{\text{VP}}$ loves Mary $]]]]$

    c. $[_{\text{VoiceP}}$ John$_1$ $[_{\text{Voice}'}$ Voice$_{[\text{E}]}$ $[_{v\text{P}}$ t$_1$ $[_{v'}$ v $[_{\text{VP}}$ loves Mary $]]]]]$

    d. $[_{\text{VoiceP}}$ John $[_{\text{Voice}'}$ $[_{v\text{P}}$ △ $]]]$

    e. $[_{\text{TP}}$ John $[_{\text{T}'}$ does $[_{\text{VoiceP}}$ t$_1$ $[_{\text{Voice}'}$ $[_{v\text{P}}$ △ $]]]$ too $]]$

Alongside a derivational approach to ellipsis, we also assume a derivational approach to the binding principles, based on Agree (see Reuland 2001, 2011; Fischer 2006; Hicks 2009; Kratzer 2009; Rooryck & Vanden Wyngaerd 2011). Although derivational approaches to anaphora have focused mainly on Principles A and B (Hicks 2009; Reuland 2011), we can implement Principle C in a similar way. To this end, we propose the constraint in (25) that we assume to hold throughout the derivation.

(25)   *Derivational Principle C*:
    At no point of the derivation can an R-expression be c-commanded by a co-referent pronoun.

This captures the nature of Principle C as an 'everywhere condition', as argued for by Lebeaux (2009) (also see Epstein et al. 1998). Some of the evidence for this comes from sentences such as (26), which show that a surface Principle C violation cannot be circumvented by reconstructing to a position below the R-expression. Even though there is ample evidence that such reconstruction is in principle possible (e.g. Fox 1999).

(26)   a. *He$_i$ seems to John$_i$ ___ to be expected ___ to win
    b. *He$_i$ seems to John's$_i$ mother ___ to be expected ___ to win   (Lebeaux 2009:23)

However, reconstruction under A-movement actually reveals a potential problem with the derivational approach to Principle C in (25). While (26) shows that Principle C cannot be circumvented by reconstruction of the pronoun to a position below the DP, it is known that A-moved DPs do not give rise to Principle C effects (e.g. Chomsky 1993; Fox 1999). As (27) shows, the DP containing *John* originates in a position below the c-commanding co-referent pronoun *him*. Given a strictly monotonic derivation, there will necessarily be a stage of the derivation at

which *John* is c-commanded by a co-referent pronoun, seemingly in violation of (25) (though see Heck 2016 for a non-monotonic alternative).

(27)   [These pictures of John$_i$] seem to him$_i$ to ___ be wonderful

This 'antireconstruction' property of A-movement with regard to Principle C is a well-known issue and we can adopt the proposal by Takahashi & Hulsey (2009), namely *Wholesale Late Merger*, to capture it. In their analysis, the NP-internal material giving rise to Principle C violations has the option of being adjoined late (i.e. at the landing site). Thus, the example in (27) could be analyzed as (28) where the NP is only present in the higher copy. In this structure, the constraint in (25) is not violated.

(28)   [these pictures of John$_i$] seem to him$_i$ to [these] be wonderful
            ⌣‾‾‾‾‾‾‾‾‾‾‾⌣
            Late-merged

It is important to note that, on Takahashi & Hulsey's (2009) approach, Late Merger is constrained by the Case properties of the moved item. Any late-merged material must receive Case. Thus, DPs originating in Case positions are not compatible with Late Merger, since late-adjoining an NP complement in a higher (non-Case) position would render it caseless. Thus, Late Merger is only compatible with A-movement to Case positions and this thereby rules out Principle C amnesty under Ā-movement. Since the R-expressions subject to vehicle change in ellipsis sites are also in Case positions, Late Merger is not applicable to cases of vehicle change.

The upshot of the approach to Principle C advanced here is that there can be no stage of the derivation in which a pronoun c-commands a co-referent R-expression. In other words, if the following representation in (29) is generated, this ultimately results in a crash in the derivation.

(29)   *[pro$_i$ … [… R-exp$_i$ …] …]

Vehicle change effects will result from a derivation in which the timing of ellipsis ensures that the offending representation in (29) is never actually generated.

3.3.1   The mono-clausal/bi-clausal distinction

Let us now reconsider the basic locality distinction that originally motivated Fiengo & May's (1994) analysis of vehicle change effects in terms of pronoun equivalence. Recall from (17), repeated as (30), that Principle C effects inside ellipsis sites are obviated in bi-clausal (30a), but not mono-clausal contexts (30b).

(30)   *No vehicle change in mono-clausal contexts* (Fiengo & May 1994:220, 222):
        a. Mary loves John$_i$, and he$_i$ thinks that Sally does [$_{VP}$ ⟨love him$_i$ / *John$_i$⟩] too.
        b. *Mary hit John$_i$ and he$_i$ did [$_{VP}$ ⟨hit *him$_i$ / *John$_i$⟩] too.

This distinction follows under the derivational ellipsis analysis sketched above. In bi-clausal contexts, the R-expression that could trigger a Principle C violation is no longer present in the structure when its higher binder is merged. To see this, consider the step-by-step derivation of

(30a) below. First, the embedded vP is created (31a). At this point, Principle C is respected since *John*$_i$ is not c-commanded by a co-referent pronoun. Once VoiceP has been created, the vP constituent containing *John*$_i$ is elided and no longer accessible (31c). The derivation continues until the matrix vP is built (31d). At this point, *he*$_i$ enters the structure, however the R-expression *John*$_i$, which could potentially lead to a Principle C effect, is no longer accessible to the derivation. Principle C is therefore respected at all stages of the derivation.
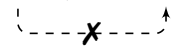
(31)   *Principle C neutralization in bi-clausal contexts:*

     a. [$_{v\text{P}}$ Sally [$_{\text{VP}}$ love John$_i$]]   (✓*Principle C*)

     b. [$_{\text{VoiceP}}$ Sally [$_{\text{Voice}'}$ Voice$_{[\text{E}]}$ [$_{v\text{P}}$ t$_{\text{DP}}$ [$_{\text{VP}}$ love John$_i$]]]]   (*Merge VoiceP*)

     c. [$_{\text{VoiceP}}$ Sally [$_{\text{Voice}'}$ Voice [$_{v\text{P}}$ △]]]   (*Delete vP*)

     d. [$_{v\text{P}}$ he$_i$ [$_{\text{VP}}$ thinks [$_{\text{CP}}$ that [$_{\text{TP}}$ Sally does [$_{\text{VoiceP}}$ t$_{\text{DP}}$ [$_{\text{Voice}'}$ Voice [$_{v\text{P}}$ △]]]]]]]

                                                    (✓*Principle C*)

Given the assumption of derivational ellipsis, the absence of a Principle C effect is not due to *John* being replaced by a co-referent pronoun in the ellipsis site, but rather because the R-expression is no longer accessible to the derivation when its potential binder is merged.

Now returning to the mono-clausal cases, recall that Fiengo & May's (1994) analysis was primarily motivated by the fact that a pronoun is still subject to Principle B, which rules out vehicle change among clausemate arguments. Under the derivational alternative presented here, the absence of Principle C obviation in this context follows for a different reason. Since VP ellipsis is triggered by the Voice head, all of the arguments of the verb are introduced prior to ellipsis. At this early stage, the Principle C violation has already been incurred (32a). When VP ellipsis eventually removes the object from the derivation (32c), it is too late as Principle C has already been violated.

(32)   *No neutralization of Principle C in mono-clausal contexts:*

     a. [$_{v\text{P}}$ he$_i$ [$_{\text{VP}}$ hit John$_i$]]   (*Principle C)

            └----✗----┘

     b. [$_{\text{VoiceP}}$ he$_i$ [$_{\text{Voice}'}$ Voice$_{[\text{E}]}$ [$_{v\text{P}}$ t$_{\text{DP}}$ [$_{\text{VP}}$ hit John$_i$]]]]   (*Merge VoiceP*)

     c. [$_{\text{VoiceP}}$ he$_i$ [$_{\text{Voice}'}$ Voice$_{[\text{E}]}$ [$_{v\text{P}}$ △]]]   (*Delete vP*)

Thus, the mono-clausal/bi-clausal distinction that originally motivated vehicle change in terms of pronoun replacement follows as a simple effect of locality and derivational timing. When the R-expression and its binder are non-clausemates, there is a sufficient window in the derivation for VP ellipsis to remove it before its potential binder is merged. If they are clausemates, then ellipsis comes too late to bleed a potential Principle C effect.[2]

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[2]Here, we assume that the subject is introduced in Spec-vP, a lower projection distinct from Voice (see e.g. Richards 2010; Merchant 2013b). Others have assumed that there is a single 'bundled' v head, which is sometimes split into two distinct projections (Harley 2017). Others have assumed that the external argument originates in the higher projection of the split vP (e.g. Harley 2013). For the purposes of our analysis, this does not make a significant difference as long as the derivational timing is such that the [E]-feature is checked after the external argument is merged. This will still result in a Principle C violation being incurred. Since we suggest that this

This analysis extends to cases with vehicle change under sluicing such as (13a), since sluic-ing necessarily involves a clause boundary. Examples such as (33) also provide an argument that there is actually elided structure within the ellipsis site. The remnant of sluicing in (33) contains a secondary predicate *drunk*. Assuming that secondary predication is not possible across clause boundaries, then secondary predication must be established at an early stage of the derivation before *Alex* has been elided (33a). After movement to Spec-CP (33b), the TP constituent is elided (33c). As with the above cases, the R-expression has already been elided at the point when the subject *he* is merged at matrix Spec-vP (33d).

(33) Alex_i wrote this paper drunk_i, but he_i wouldn't tell me [how drunk_i]

    a. $[_{v\text{P}} \text{Alex}_i [_{v'} v [_{\text{VP}} \text{write paper}] [\text{how } [\text{PRO}_i \text{ drunk}]]]]]$ *(Secondary predication)*

    b. $[_{\text{CP}} [\text{how } [\text{PRO}_i \text{ drunk}]] \text{ C}_{[\text{E}]} [_{\text{TP}} \text{Alex}_i [_{v\text{P}} [_{\text{VP}} \text{write paper}]]]]$ *(wh-movement)*

    c. $[_{\text{CP}} [\text{how } [\text{PRO}_i \text{ drunk}]] \text{ C}_{[\text{E}]} [_{\text{TP}} \triangle]]$ *(Delete TP)*

    d. $[_{v\text{P}} \text{he}_i v+\text{tell} [_{\text{VP}} \text{me} [_{\text{V}'} t_{\text{V}} [_{\text{CP}} [\text{how } [\text{PRO}_i \text{ drunk}]] \text{ C}_{[\text{E}]} [_{\text{TP}} \triangle]]]]]$ *(✓Principle C)*

For this reason, no violation of Principle C arises. It may look like *he* binds the PRO in (33d), however, control into the the secondary predicate was already established by the embedded subject at an earlier step of the derivation.

3.3.2   Successive-cyclic ellipsis

Now that we have accounted for the basic distinction that motivated Fiengo & May's (1994) approach to vehicle change, let us consider the cases that we identified as problematic for it. These involved possible vehicle change contexts in which Principle B violations are usually found, which is not predicted by the 'replace-with-a-pronoun' view. To account for such cases, we make an additional assumption, namely that ellipsis is 'successive-cyclic'. This means that ellipsis of a larger constituent takes place in smaller chunks. We identify these chunks as phases. Thus, if a phase head such as Voice bears an [E]-feature, then all phase heads c-commanded by Voice must also bear an [E]-feature. For example, if we have VP ellipsis of a verb taking a clausal complement, both the C and Voice heads c-commanded by the ellipsis trigger will also bear [E]-feature, as shown in (34).

(34) $[_{\text{VoiceP}} \textbf{Voice}_{[\textbf{E}]} [_{v\text{P}} v [_{\text{VP}} \text{V} [_{\text{CP}} \text{C}_{[\text{E}]} [_{\text{TP}} [_{\text{VoiceP}} \text{Voice}_{[\text{E}]} [_{v\text{P}} v [_{\text{VP}} \dots]]]]]]]]]]$

This may seem to pose a Look Ahead problem, as we need to ensure that a given head bears an [E]-feature if it will be c-commanded by an ellipsis-licensing head at a later stage in the derivation. There are a number of ways that this could be achieved technically.[3] One possible

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ellipsis could be viewed as a form of null phasal spell-out, it seems reasonable to assume that it applies once the phase is complete, following Chomsky's (2000) original definition of the PIC. Thus, if the external argument were to be merged in the specifier of a single v phase head, ellipsis would only take place once the entire vP is complete, thereby giving rise to the same local Principle C effects.

   [3]A reviewer points out that the constraint that all phase heads within the ellipsis site also bear an [E]-feature could be easily derived if assumed top-down derivations (Richards 2002; Phillips 2003; Bianchi & Chesi 2014; Chesi 2015; Georgi & Salzmann 2016). On this view, the licensing head would come first and could license the

implementation is that each phase head bears a spell-out feature [SP:±] that has either the value + (leading to overt spell-out) or − (leading to null spell-out, i.e. ellipsis). In each case, the spelled-out domain is rendered inaccessible for further computation. The lowest head must be merged with a valued feature and the higher heads will typically bear unvalued features. Their values will be acquired under Agree with the next head down. For example if the lowest head is [SP:+], then all higher heads will be specified as '+' via Agree (35).

(35) [$_{HP}$ H$_{[SP:□]}$ ... [$_{HP}$ H$_{[SP:□]}$ ... [$_{HP}$ H$_{[SP:+]}$ ...]]]

The lowest head can also be pre-specified as '−'. If this feature were allowed to percolate up to the highest phase head, then this would result in complete ineffability (i.e. elision of the entire utterance). Thus, we assume that the typical ellipsis licensing head that bears [E] acts as a plug for the percolation of [SP:−].[4] To capture this, it has a prevalued feature [*SP:−], which must be checked by a matching feature on the next lowest head. The *-diacritic on this feature means that it must be checked and that it is not a possible goal for Agree. As (36) shows, the ellipsis licensing head bears another valued feature [SP:+] that is a goal for higher heads.

(36) [$_{HP}$ H$_{[SP:+, *SP:−]}$ ... [$_{HP}$ H$_{[SP:□]}$ ... [$_{HP}$ H$_{[SP:−]}$ ...]]]

The effect of this is that ellipsis-triggering features inside the ellipsis site will percolate up to the true licensing head, but not beyond. This derives the core intuition of the analysis here, i.e. that all phase heads in an ellipsis site bear an [E]-feature, while still avoiding the fundamental Look Ahead problem. To aid exposition, however, we will omit these details in what follows and simply mark the heads corresponding to [SP:−] as [E], following the traditional literature. Phase heads triggering ordinary spell-out will remain unmarked.

Given this view of ellipsis as a kind of spell-out, the present analysis of vehicle change is faced with the question of why ellipsis bleeds Principle C violations, but standard phasal (non-elliptical) spell-out does not. In unelided clauses, Principle C effects are still present across phase boundaries. It is therefore clear that we must afford null spell-out some special status with regard to referential/Agree dependencies. One possibility is to adopt a view of the PIC for overt phasal spell-out that exempts Agree dependencies (e.g. Stjepanović & Takahashi 2001; Bošković 2007). Here, null spell-out would have to be assumed to differ in this regard (see section 4.2 for further discussion of this point). Another alternative would be to adopt a more radical view of deletion as involving an operation of syntactic Structure Removal, following the ideas developed in Müller (2017, 2018) (see section 4.1 for discussion relating to the interpretational consequences of this move). For now, we assume either of these approaches to be broadly compatible with the general derivational ellipsis analysis we develop here.

[E]-features on the lower c-commanded heads directly. One issue with assuming a top-down derivation, however, is that it does not seem to be able to capture the vehicle change effect as an effect of derivational ellipsis. Recall that this effect follows from the R-expression becoming inaccessible before its binder is merged. Under a top-down derivation, assuming we want to have full syntactic structure in the ellipsis site, the ellipsis site including the R-expression will be merged at a point where the binder is already present in the derivation.

[4]This head also bears some similarity to what Panagiotidis (2015) calls a *switch* in his theory of extended projections.

To see how this successive-cyclic approach to ellipsis works, consider the example in (37). After the arguments of the verb have been merged (37a), the embedded Voice head is added (37b) and triggers ellipsis of vP_1 (37c). The derivation proceeds to the next phase head, C (37d) At this point, the entire TP is elided (37e). Structure-building continues to the next phase head, namely matrix Voice (37f). This head elides vP_2 (37g) and the derivation proceeds (37h).

(37)   John [$_{VP}$ thinks that Pete loves syntax] and Mary does [$_{VP}$ △] too.

    a.   [$_{vP_1}$ Pete [$_{VP}$ love syntax]]   *(Merge vP$_1$)*

    b.   [$_{VoiceP}$ Voice$_{[E]}$ [$_{vP_1}$ Pete [$_{VP}$ love syntax]]]   *(Merge VoiceP)*

    c.   [$_{VoiceP}$ Pete [$_{Voice'}$ Voice$_{[E]}$ [$_{vP_1}$ △]]]   *(Delete vP$_1$)*

    d.   [$_{CP}$ that$_{[E]}$ [$_{TP}$ Pete [$_{VoiceP}$ t$_{DP}$ [$_{Voice'}$ [$_{vP_1}$ △]]]]]   *(Merge CP)*

    e.   [$_{CP}$ that$_{[E]}$ [$_{TP}$ △]]   *(Delete TP)*

    f.   [$_{VoiceP}$ Voice$_{[E]}$ [$_{vP_2}$ Mary [$_{VP}$ think [$_{CP}$ that$_{[E]}$ [$_{TP}$ △]]]] too]   *(Merge VoiceP)*

    g.   [$_{VoiceP}$ Mary [$_{Voice'}$ Voice$_{[E]}$ [$_{vP_2}$ △]] too]   *(Delete vP$_2$)*

    h.   [$_{TP}$ Mary [$_{T'}$ does [$_{VoiceP}$ t$_{DP}$ [$_{Voice'}$ Voice$_{[E]}$ [$_{vP_2}$ △]] too]]]   *(Merge TP)*

Ultimately, this approach derives the same end result for the data discussed above, however it involves deletion in multiple steps.

3.3.3   DP boundaries

The assumption of successive-cyclic ellipsis will be useful for deriving some of the cases that were problematic for Fiengo & May (1994). Recall that an exception to the mono-/bi-clausal split was that vehicle change effects are found in contexts in which the R-expression was contained inside a DP. This was shown by examples (19a) and (20b), which are repeated in (38).

(38)   a.   I like John's$_i$ friends more than he$_i$ does [$_{VP}$ ⟨like [$_{DP}$ his$_i$ / *John's$_i$ friends] ⟩]

    b.   Mary always tells stories about John$_i$, but he$_i$ never does [$_{VP}$ ⟨tell stories about *him$_i$ / *John$_i$⟩]
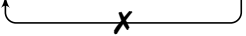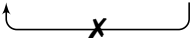
This also follows from the present analysis given certain assumptions about the DP. Bošković (2005) discusses the fact that possessors cannot undergo wh-extraction in English (39a), whereas other languages such as Serbo-Croatian permit this (39b) (also known as the *Left-Branch Condition* Ross 1967; Corver 1990).

(39)   *Left-Branch Extraction* (Bošković 2005:2):

    a. *Whose$_1$ did you see [$_{DP}$ t$_1$ father] ?

    b. Čijeg$_1$ si   vidio [$_{NP}$ t$_1$ oca   ] ?
       whose are seen   father
       'Whose father did you see?'

Bošković (2005) argues that this asymmetry follows from the assumption that languages without LBE have a DP phase boundary. This DP phase enforces successive-cyclic movement through its edge. Crucially, he also assumes that possessors are merged inside the complement of the

phase head D. The Left-Branch Condition is now derived by the conspiracy of two independent constraints. The *Phase Impenetrability Condition (PIC)* (Chomsky 2000, 2001) states that movement is only possible from the phase edge. Thus, elements extracted from a phase must pass through the edge of that phase, i.e. Spec-DP. Furthermore, Bošković (2005) assumes that there is a lower-bound on movement dependencies, namely that they are subject to *Anti-Locality* (Abels 2003; Grohmann 2003). In a nutshell, this means that movement from Spec-NP to Spec-DP counts as 'anti-local' and is therefore ruled out. The combination of these two factors make it impossible for a possessor to be extracted from DP since direct extraction violates the PIC (40a), whereas successive-cyclic movement violates Anti-Locality (40b). Thus, a language such as English does not allow Left-Branch Extraction.

(40) a. [... [$_{DP}$ D [$_{NP}$ whose [$_{NP}$ book]]] ...]

b. [whose ... [$_{DP}$ D [$_{NP}$ t$_1$ [$_{NP}$ book]]] ...]   (*violates PIC!*)

c. [... [$_{DP}$ whose [$_{D'}$ D [$_{NP}$ t$_1$ [$_{NP}$ book]]]] ...]   (*violates Anti-Locality!*)

If we take Bošković's (2005) assumptions for granted, then ellipsis of a *v*P containing a DP will also require an [E]-feature on the phase head D (41), given our assumption about successive-cyclic ellipsis that all phase heads c-commanded by the licensing head also bear ellipsis-triggering features. Furthermore, possessors will originate inside the complement of D (see Larson & Cho 2003 and Elbourne 2001 for different arguments for this assumption).[5]

(41) [$_{VoiceP}$ Voice$_{[E]}$ [$_{vP}$ he$_i$ [$_{VP}$ like [$_{DP}$ D$_{[E]}$ [$_{NP}$ John's$_i$ [$_{NP}$ friends]]]]]]

The result of this is that ellipsis must apply in successive steps, as we saw above. First, NP ellipsis will apply inside the DP, triggered by the [E]-feature on D (42b). When the matrix subject is introduced, no Principle C violation arises (42c). Even though *he$_i$* is in the same clause as *John$_i$*, they do not co-occur in the same local representation and therefore do not violate derivational Principle C.

(42) *No Principle C inside nominals*:

a. [$_{DP}$ D$_{[E]}$ [$_{NP}$ John's$_i$ [$_{NP}$ friends]]]   (*Merge DP*)

b. [$_{DP}$ D$_{[E]}$ [$_{NP}$ △]]   (*Delete NP*)

c. [$_{vP}$ he$_i$ [$_{VP}$ like [$_{DP}$ D$_{[E]}$ [$_{NP}$ △]]]]   (✓*Principle C*)

d. [$_{VoiceP}$ he$_i$ Voice$_{[E]}$ [$_{vP}$ t$_{DP}$ [$_{VP}$ like [$_{DP}$ D$_{[E]}$ [$_{NP}$ △]]]]]   (*Merge vP*)

e. [$_{VoiceP}$ he$_i$ [$_{Voice'}$ Voice$_{[E]}$ [$_{vP}$ △]]]   (*Delete vP*)

f. [$_{TP}$ he$_i$ does [$_{VoiceP}$ [$_{Voice'}$ t$_{DP}$ Voice$_{[E]}$ [$_{vP}$ △]]]]   (*Merge TP*)

---

[5]The possessor can move out of the DP phase in cases of NP ellipsis, however, (see e.g. Lobeck 1995).

(i) I read Mary's book, but I didn't read [$_{DP}$ John's$_1$ [$_{NP}$ ⟨t$_1$ book⟩]]

We suggest that this is an instance of repair-driven movement (either in syntax or PF) that is employed to avoid non-given material being elided, as has been proposed for multiple sluicing (Heck & Müller 2003), fragment answers (Weir 2014) and *why*-stripping (Yoshida et al. 2015).

A similar derivation applies to the example in (38b). Here, we assume that P is also a phase head in English, following Abels (2012). This means that DP-internally we will have [E]-features on P and D. After the PP is merged (43a), ellipsis applies to make *John* inaccessible. The derivation proceeds further to elide the NP (43c,d) and when the binder is introduced the R-expression is no longer visible and Principle C is respected (43e).

(43) a. [$_{PP}$ about$_{[E]}$ [$_{DP}$ John$_i$]]   (*Merge PP*)

     b. [$_{PP}$ about$_{[E]}$ [$_{DP}$ △]]   (*Delete DP*)

     c. [$_{DP}$ D$_{[E]}$ [$_{NP}$ stories [$_{PP}$ about$_{[E]}$ [$_{DP}$ △]]]]   (*Merge DP*)

     d. [$_{DP}$ D$_{[E]}$ [$_{NP}$ △]]   (*Delete NP*)

     e. [$_{vP}$ he$_i$ [$_{DP}$ D$_{[E]}$ [$_{NP}$ △]]]   (*Merge vP*)

Thus, we have seen that these problematic cases of vehicle change can be accounted for as a simple by-product of a derivational approach to ellipsis.[6]

3.3.4 CP vs. TP boundaries

Successive-cyclic ellipsis can also account for the asymmetry between vehicle change across CP and TP boundaries that we saw in (22), repeated below.

(44) *Vehicle change across CP boundary* (Drummond & Shimoyama 2014:103):
    I want [$_{CP}$ for John$_i$ to win] just as much as he$_i$ does [$_{VP}$ ⟨want [$_{CP}$ for *him$_i$ / *John$_i$ to win]⟩]

For verbs like *want* that can select a *for to*-infinitive, this would lead to [E]-features on both the embedded C and Voice phase heads (45).

(45) [$_{VoiceP}$ Voice$_{[E]}$ [$_{vP}$ he$_i$ [$_{VP}$ want [$_{CP}$ for$_{[E]}$ [$_{TP}$ John$_i$ to [$_{VoiceP}$ Voice$_{[E]}$ win]]]]]]]

The steps involved in the derivation of this example are given in (46). The elided clause is built up to the embedded CP headed by *for* (46c). The obviation of Principle C follows from the crucial intermediate step in (46d) where the TP is elided. This means that *John* is no longer visible when its potential binder (the matrix subject) is merged (46e).

(46) *No Principle C across CP boundaries*:

     a. [$_{vP_1}$ John [$_{VP}$ win]]

     b. [$_{VoiceP_1}$ John [$_{Voice'}$ Voice$_{[E]}$ [$_{vP_1}$ △]]]   (*Delete vP*)

     c. [$_{CP}$ for$_{[E]}$ [$_{TP}$ John$_i$ [$_{VoiceP_1}$ t$_{DP}$ [$_{Voice'}$ Voice$_{[E]}$ [$_{vP_1}$ △]]]]]   (*Merge CP*)

     d. [$_{CP}$ for$_{[E]}$ [$_{TP}$ △]]   (*Delete TP*)

     e. [$_{vP_2}$ he$_i$ [$_{VP}$ want [$_{CP}$ for$_{[E]}$ [$_{TP}$ △]]]]   (✓*Principle C*)

     f. [$_{TP}$ he$_i$ does [$_{VoiceP_2}$ [$_{Voice'}$ t$_{DP}$ Voice$_{[E]}$ [$_{vP_2}$ △]]]]   (*Merge TP*)

Things are different, however, with genuine TP embedding, as we saw with ECM-verbs like

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[6]As a reviewer notes, however, this analysis does predict that vehicle change inside DPs may vary depending on the phasal properties of D in a given language. We leave investigation of this prediction to future research.

believe (23) (repeated below).

(47) *No vehicle change across TP boundary* (Drummond & Shimoyama 2014:103):
      *I believe [$_{TP}$ John$_i$ to be intelligent] just as much as he$_i$ does [$_{VP}$ ⟨believe [$_{TP}$ *he$_i$ /
      *John$_i$ to be intelligent]⟩]

The crucial difference here is that there is no intermediate C head in (47). This means that there
will only be ellipsis licensing features on embedded and matrix Voice (48).

(48) [$_{VoiceP}$ Voice$_{[E]}$ [$_{vP}$ he$_i$ [$_{VP}$ believe [$_{TP}$ John$_i$ to [$_{VoiceP}$ Voice$_{[E]}$ [$_{VP}$ be intelligent]]]]]]]

The derivation proceeds as follows. First, the lower VoiceP is first merged (49a) and its com-
plement vP_1 is elided (49b). Subsequently, the embedded TP is built (49b). Now, this VP is
selected by the matrix verb and it external argument is merged. At this point, *John$_i$* has not been
elided, because there was no intermediate C head. For this reason, a Principle C violation is in-
curred at this point and the derivation is illicit (49d). Even if we continue, as steps (49e–f) show,
Principle C has already been violated at an earlier stage. Due to the assumption of Derivational
Principle C (25), we correctly predict the absence of vehicle change effects in this context.

(49) *Principle C across TP boundaries*:

   a. [$_{VoiceP_1}$ John$_i$ [$_{Voice'}$ Voice$_{[E]}$ [$_{vP_1}$ t$_{DP}$ [$_{VP}$ be intelligent]]]] *(Merge VoiceP$_1$)*

   b. [$_{VoiceP_1}$ John$_i$ [$_{Voice'}$ Voice$_{[E]}$ [$_{vP_1}$ △]]] *(Delete vP)*

   c. [$_{TP}$ John$_i$ [$_{T'}$ to [$_{VoiceP_1}$ t$_{DP}$ [$_{Voice'}$ Voice$_{[E]}$ [$_{vP_1}$ △]]]]] *(Merge TP)*

   d. [$_{vP_2}$ he$_i$ [$_{VP}$ believe [$_{TP}$ John$_i$ to [$_{VoiceP_1}$ [$_{vP_1}$ △]]]]] *(✗Principle C)*

   e. [$_{VoiceP_2}$ he$_i$ [$_{Voice'}$ Voice$_{[E]}$ [$_{vP_2}$ t$_{DP}$ [$_{VP}$ believe [$_{TP}$ John$_i$ to … [$_{vP_1}$ △]]]]]] *(Merge VoiceP$_2$)*

   f. [$_{TP}$ he$_i$ does [$_{VoiceP_2}$ t$_{DP}$ [$_{Voice'}$ Voice$_{[E]}$ [$_{vP_2}$ △]]]] *(Delete vP$_2$)*

This can also be seen with even smaller domains. Consider the example in (50) containing a
small clause. The subject of the small clause *John* still triggers a Principle C violation in the
ellipsis site, i.e. vehicle change does not apply.

(50) *I consider John$_i$ just as intelligent as he$_i$ does ⟨consider *him$_i$ / *John$_i$ intelligent⟩

We assume that small clauses constitute PredPs and that Pred is a phase head (see Citko 2014).
This means that there will be an [E]-feature on the phase heads Pred and Voice. In this structure,
the PredP will be merged (51b) and then the Pred head will elide its complement (51b). Sub-
sequently, the matrix subject is introduced in Spec-vP (51c) and this gives rise to the Principle
C violation (51d). Ellipsis happens later in the derivation (51e), but this is too late to avoid
ungrammaticality.

(51) *Principle C across PredP boundaries*:

   a. [$_{PredP}$ John$_i$ [$_{Pred'}$ Pred$_{[E]}$ [$_{AP}$ intelligent]]] *(Merge PredP)*

   b. [$_{PredP}$ John$_i$ [$_{Pred'}$ Pred$_{[E]}$ [$_{AP}$ △]]] *(Delete vP)*

    c. [$_{vP}$ he$_i$ [$_{VP}$ consider [$_{PredP}$ John$_i$ [$_{Pred'}$ Pred$_{[E]}$ [$_{AP}$ △]]]]]   (*Merge vP*)

    d. [$_{vP}$ he$_i$ consider [$_{PredP}$ John$_i$ [$_{Pred'}$ Pred$_{[E]}$ [$_{AP}$ △]]]]   (✗*Principle C*)

    e. [$_{TP}$ he$_i$ does [$_{VoiceP}$ t$_{DP}$ [$_{Voice'}$ Voice$_{[E]}$ [$_{vP}$ △]]]]   (*Delete vP + Merge TP*)

As this section has shown, successive-cyclic ellipsis via all intermediate phase heads allows us to account for the distinction with vehicle change between CP and TP complements.

This raises an interesting question regarding silent structure. It has often been assumed that non-finite clauses can have CP structure, even in the absence of an overt complementizer like *for* (Postal 1974; Kayne 1984). On the other hand, there are structural-economy approaches that assume, in the absence of an overt C head, that the structure is sometimes smaller, e.g. just a TP (Bošković 1997; Doherty 2000). Since the current analysis crucially relies on the presence of such structure, whether or not we find vehicle change in the absence of an overt C head bears directly on this issue. We follow Drummond & Shimoyama (2014) and judge vehicle change with or without a finite *for* for verbs such as *want* to be equally possible (52).

(52)   I want (for) John$_i$ to win just as much as he$_i$ does.

This suggests that, in examples such as (52), there is a CP phase even in the absence of an overt *for*. This contrasts with what we took to be genuine ECM verbs such as *believe* (23) or *consider*, which we assume select a TP complement that is transparent for Case assignment from the matrix verb (or raising-to-object). Here, vehicle change effects persist due to the lack of a phase boundary, and the associated impossibility of successive-cyclic ellipsis.

A further consequence here regards the analysis of complementizer-less finite clauses. Again, it has sometimes been assumed that clauses without *that* are structurally-reduced, i.e. TPs (see Erlewine 2017 as a recent example). Given the current analysis, we would then expect to find a vehicle change asymmetry depending on the presence of an overt complementizer. The structural economy approach would assume something like the analysis in (53) for such cases. As (53) shows, however, this prediction of this account is not borne out, as clauses both with and without complementizers give rise to vehicle change effects.

(53)   a. I expect [$_{CP}$ that John$_i$ will leave] and he$_i$ does [$_{VP}$ ⟨expect [$_{CP}$ that John$_i$ will leave]⟩] too.

        b. I expect [$_{TP}$ John$_i$ will leave] and he$_i$ does [$_{VP}$ ⟨expect [$_{TP}$ John$_i$ will leave]⟩] too.

Thus, we are forced to reject a structural economy approach to both *for*-to infinitives and *that*-clauses and assume that these contain silent CP projections that also act as phase heads.

3.3.5   Vehicle change and movement

The analysis developed thus far can also account for another fact involving vehicle change and its interaction with movement. Consider the following contrast from Hunter & Yoshida (2016:562). In B's response in (54), we see a configuration in which there is an R-expression in the ellipsis site and a co-referent pronoun is the remnant of stripping. Note that the case on the

remnant pronoun is due to application of some 'default Case' mechanism; see Schütze 2001). Also, we represent lower copies of movement here with a strikethrough. Since the response in (54B) is grammatical, we seem to be dealing with a simple case of vehicle change inside the ellipsis site.

(54)   A: Someone said that John$_i$ left
       B: Yeah, but not [$_{DP}$ him$_i$] [$_{TP}$ ⟨~~he/him$_i$~~ said that John$_i$ left⟩]

This contrasts with (55) where the positions of the pronoun and R-expression are reversed. Here, the R-expression is contained in the remnant of ellipsis and the co-referent pronoun is in the ellipsis site. The ungrammaticality of B's response shows that, somewhat surprisingly, we do not find vehicle change in this context.

(55)   A: He$_i$ said that Mary left
       B:*Yeah, but not [$_{CP}$ that John$_i$ left] [$_{TP}$ ⟨he$_i$ said ~~that John$_i$ left~~⟩]

The puzzle that this contrast poses is why vehicle change cannot apply to the lowest copy of *John* in (55).

(56)   a.   not [$_{DP}$ he$_i$] ⟨~~he$_i$~~ said that **he**$_i$ left⟩
       b. *not [$_{CP}$ that John$_i$ left] ⟨he$_i$ said ~~that **he**$_i$ left~~⟩

The core intuition of Hunter & Yoshida (2016) is that vehicle change cannot apply to an R-expression that is contained inside a remnant of contrastive stripping. This captures the basic difference between (56a) and (56b), where in the latter case the target of vehicle change *John* is part of the remnant of ellipsis. The idea is that applying vehicle change to the copy of *John* in the ellipsis site would remove the required identity with its higher movement copy.[7]

   This fact also follows relatively straightforwardly under the present account. In the derivation of the grammatical (54), *John* is absent from the derivation before its binder is merged due to the assumption of successive-cyclic ellipsis outlined above. The important step is again when the embedded CP is merged, TP ellipsis applies and removes the R-expression (57d). When the matrix vP is merged (57e), no Principle C violation is incurred, as we saw above with *for to*-infinitives. Since we are now dealing with stripping and not VPE, the last step in (57f) involves TP ellipsis (see Merchant 2003; Wurmbrand 2017).

(57)   a.   [$_{vP_1}$ John [$_{VP}$ left]]
       b.   [$_{VoiceP}$ John [$_{Voice'}$ Voice$_{[E]}$ [$_{vP_1}$ △]]]   (*Delete vP*)
       c.   [$_{CP_1}$ that$_{[E]}$ [$_{TP_1}$ John$_i$ [$_{VoiceP}$ t$_{DP}$ [$_{Voice'}$ Voice$_{[E]}$ [$_{vP_1}$ △]]]]]   (*Merge CP*)
       d.   [$_{CP_1}$ that$_{[E]}$ [$_{TP_1}$ △]]   (*Delete TP*)

---

[7]Hunter & Yoshida (2016) discuss some ways in which this might follow. For example, in an approach where movement is multidominance, there is only one instance of *John* in multiple positions. Thus, applying vehicle change in the ellipsis site would also necessarily affect the overt occurrence in the remnant of ellipsis. It is less clear that this follows under other approaches, in an LF copying approach (as discussed by Hunter & Yoshida 2016:566), it seems we could apply vehicle change after the ellipsis site has been copied. Indeed, this is a common analysis of sloppy identity in such approaches (e.g. Partee 1975; Williams 1977).

e. [$_{v\text{P}_2}$ he$_i$ [$_{\text{VP}}$ said [$_{\text{CP}_1}$ that [$_{\text{TP}_1}$ △]]]]   (✓ *Principle C*)

f. [$_{\text{XP}}$ not [$_{\text{CP}_2}$ he/him$_i$ [$_{\text{C}'}$ C$_{[\text{E}]}$ [$_{\text{TP}_2}$ △]]]]   (*Stripping*)

Importantly, things are different in the derivation of (55). Here, the CP has to survive ellipsis as the remnant. For this reason, there can be no [E]-feature on C if we want its TP complement to surface overtly when the CP is fronted.[8] The crucial steps of the derivation are shown in (58). Due to the lack of an [E]-feature on the embedded C head (58b), the R-expression is still accessible at the point at which the matrix subject is merged.

(58)   a. [$_{\text{CP}_1}$ that [$_{\text{TP}_1}$ John$_i$ [$_{\text{VoiceP}}$ Voice [$_{v\text{P}}$ t$_{\text{DP}}$ left]]]]   (*Merge CP*)

b. [$_{v\text{P}_2}$ he$_i$ [$_{\text{VP}}$ said [$_{\text{CP}_1}$ that [$_{\text{TP}_1}$ John$_i$ [$_{\text{VoiceP}}$ Voice [$_{v\text{P}}$ t$_{\text{DP}}$ left]]]]]]   (✗ *Principle C*)

c. [$_{\text{XP}}$ not [$_{\text{CP}_2}$ [$_{\text{CP}_1}$ that John$_i$ left] [$_{\text{C}'}$ C$_{[\text{E}]}$ [$_{\text{TP}_2}$ △]]]]   (*Stripping*)

This interaction between movement and vehicle change also follows under this approach since successive-cyclic ellipsis cannot apply within a constituent that will be moved outside of the ellipsis site (since doing so would result in the ungrammatical string with just *that*). Under this account, it is not necessary to posit the additional restriction on vehicle change in movement contexts that Hunter & Yoshida (2016) suggest. If vehicle change follows as the result of derivational ellipsis, then these facts can be incorporated into the existing theory rather straightforwardly.

3.4 Positive polarity items

So far, we have seen the core insight of the present view of vehicle change is that absence of Principle C effects inside ellipsis sites receives an explanation in terms of derivational timing. In other words, the offending item is no longer accessible when its binder is merged. We can arguably find the same effect with other items that have such an 'anti-licensing' requirement. The way we have implemented Principle C so far is that there can be no point in the derivation at which an R-expression is c-commanded by a co-referent pronoun (29). We can also find a similar effect with polarity items under ellipsis. It is well-known, for example, that we find what appear to be polarity alternations under ellipsis (59) (Sag 1976b; Merchant 2013b; Crnič 2015).

(59)   *NPIs under ellipsis* (Sag 1976b:157f.):
         John didn't see anyone but Mary did [$_{\text{VP}}$ ⟨see *anyone / someone⟩]

The current approach can be extended rather straightforwardly to positive polarity items (PPIs), in particular. Positive polarity items such as *somewhat* and *rather* are said to be 'anti-licensed' in the scope of negation (60) (e.g. Ladusaw 1980; Giannakidou 1998).

(60)   a. I was(*n't) *somewhat* disappointed about the decision to fire Pete.

---

[8]We assume that the addition of an [E]-feature on C is blocked in such contexts due to some more general economy condition in which an [E]-feature on a c-commanded phase head can be suppressed if this is the only way to achieve a convergent derivation.

b. I (*don't) find Lucy's new boyfriend *rather* annoying.

Assuming that (anti-)licensing is syntactic (e.g. Progovac 1994; Giannakidou 2000; Zeijlstra 2004), we can state the conditions on PPI-licensing as follows: A PPI cannot be c-commanded by a negative phrase at any stage of the derivation. This is then entirely analogous to the derivational approach to Principle C in (25). What we find is that a PPI can occur in an ellipsis site that is c-commanded by negation (61).
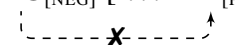
(61) *PPIs under ellipsis*:

a. John was *somewhat* disappointed about the decision to fire Pete, but I wasn't [$_{\text{VP}}$ ⟨*somewhat disappointed about the decision to fire Pete⟩]

b. I find Lucy's new boyfriend *rather* annoying, but she clearly doesn't [$_{\text{VP}}$ ⟨find him *rather annoying⟩]

It was suggested (albeit somewhat tentatively) by Fiengo & May (1994:220) that these cases could also fall under the scope of vehicle change. While their view of vehicle change with referential DPs involved an equivalence between R-expressions and pronouns, it is not entirely clear what some of the alternations should be (*anyone~someone*, *rather~?*). In addition, this would require quite a powerful theory of vehicle change that would go beyond just modifying a [±pronominal] specification of a DP. This is a move that seems generally undesirable (see e.g. Johnson 2001:468f.).

In the present account, what we require is that the representation in (62), in which a negative expression c-commands an item specified for positive polarity, never arises.

(62) [NEG$_{\text{[NEG]}}$ [… PPI$_{\text{[POS]}}$ …] …]

Given the assumptions we had previously, we can derive (61b) as follows. First the VoiceP is created (63a), at which point the PPI is present in the structure, but negation is not. Subsequently, the vP is elided (63b). When the NegP is merged (63c), the PPI is no longer in the structure and the expected anti-licensing effect is obviated. Finally, the renaming structure is created (63d).

(63) *No anti-licensing of PPIs*:

a. [$_{\text{VoiceP}}$ she [$_{\text{Voice′}}$ Voice$_{\text{[E]}}$ [$_{v\text{P}}$ t$_{\text{DP}}$ [$_{\text{VP}}$ find him rather$_{\text{POS}}$ annoying]]]]   (*Merge VoiceP*)

b. [$_{\text{VoiceP}}$ she [$_{\text{Voice′}}$ Voice$_{\text{[E]}}$ [$_{v\text{P}}$ △]]]   (*Delete vP*)

c. [$_{\text{NegP}}$ -n't$_{\text{[NEG]}}$ [$_{\text{VoiceP}}$ she [$_{\text{Voice′}}$ Voice$_{\text{[E]}}$ [$_{v\text{P}}$ △]]]]   (✓*PPI-Licensing*)

d. [$_{\text{TP}}$ She$_{\text{i}}$ clearly does [$_{\text{NegP}}$ -n't$_{\text{[NEG]}}$ [$_{\text{VoiceP}}$ t$_{\text{i}}$ [$_{\text{Voice′}}$ Voice$_{\text{[E]}}$ [$_{v\text{P}}$ △]]]]]   (✓*Merge TP*)

Thus, the absence of anti-licensing effects with PPIs can also be explained in a derivational approach in an entirely similar way to the classic cases involving Principle C.

4   Further issues

4.1   Interpretation

There are still remaining questions regarding interpretation. This issue is ultimately linked to the precise theory of ellipsis we wish to adopt. If we follow a derivational ellipsis approach along the lines of Aelbrecht (2010), then ellipsis is a kind of spell-out that renders a portion of syntactic structure inaccessible for further syntactic operations and will not be parsed at PF. However, this structure will still be present at the LF interface for the purposes of interpretation. In terms of interpretation, this approach is therefore not substantially different to the standard approach to interpreting elliptical utterances following Merchant (2001). A relevant issue, however, pertains to how we treat inverse scope out of ellipsis sites (e.g. Hirschbühler 1982; Fox 2000). As (64) shows, wide scope of the elided quantifier *someone* is possible, which is usually attributed to Quantifier Raising (May 1985).

(64)   Tom can't forget someone and Mary can't [$_{v}$P $\triangle$] either.

One contemporary approach to Quantifier Raising actually involves movement to the scope position in the Narrow Syntax with realization of the lower copy (e.g. Bobaljik 2002). This view of QR runs into problems with examples such as (65), however.

(65)   Tom wants me to explain something simple to Sally$_i$ but she$_i$ doesn't [$_{v}$P $\triangle$]

In (65), we have both an inverse scope interpretation ($\exists > \neg$) and vehicle change in the ellipsis site. On a derivational ellipsis account in which QR involves syntactic movement, we need the ellipsis site to remain accessible up to the point that negation is merged, so that the quantifier *something simple* can move to its scope position above it. However, keeping the structure available in this way (assuming that NegP is merged above vP) will mean that *Mary* will also be accessible when the subject *she* is merged, thereby resulting in a Principle C violation. Thus, while a spell-out approach to derivational ellipsis is generally compatible with standard views of ellipsis identity, it requires that QR is not analyzed as syntactic movement, but rather as an LF process.

Another option is that ellipsis involves removal of structure in the syntax proper, an operation that has been recently discussed by Müller (2017, 2018, 2019) among others. On this analysis, ellipsis would involve genuine deletion of syntactic material in the ellipsis site. While this naturally derives the syntactic inaccessibility of elided material, it does raise some non-trivial issues regarding interpretation. If one were to adopt a Structure Removal approach to ellipsis, it seems that it would be necessary to find a way to 'reconstruct' the elided material for the purposes of interpretation. This could be achieved by means of *LF Copying* or some equivalent mechanism (see Partee 1975; Williams 1977; Kitagawa 1991; Fiengo & May 1994; Lobeck 1995; Chung et al. 1995; Kobele 2014; Sakamoto 2016). As (66) shows, the antecedent for an elided phrase can provide the meaning for the ellipsis site directly.

(66) John met someone, but I don't know who.

someone $\underbrace{\lambda x[_{v\text{P}} \textit{John met } x]}$, but I don't know who [$_{\text{TP}} \triangle$]

$\ $ \- \- \- \- \- \- \- \- \- \- LF Copying \- \- \- \- \- \- \- \- \- $\ $

For examples such as (64) and (65), we can assume that QR to derive inverse scope can take place after the relevant denotation has been copied into the ellipsis site. This correctly predicts that there should be no interaction of scope with vehicle change.

An LF copying analysis coupled with a Structure Removal approach to ellipsis is somewhat different from traditional analyses such as Chung et al. (1995), which do not assume fully-articulated syntactic structure in the ellipsis site to begin with. On the present account, however, there is first isomorphic structure in the syntax (at least temporarily) and an appropriate ellipsis site must be later reconstructed at LF. In many cases, the structures undergoing Removal and LF-copying will be identical, so the approach might seem redundant. We would like to briefly highlight one case in which we think it is not. This involves a construction that Elliott & Murphy (2018) call *unconditional sluicing*. This refers to sluiced clauses embedded under what Rawlins (2013) calls 'unconditional' predicates such as *no(t) matter* (67).

(67) She won't talk to anyone – it doesn't matter who ⟨it is/#she won't talk to⟩!

(Merchant 2001:175,fn.8, Barros 2014:90)

It has been argued that, due to the unacceptable overt continuation in (67), the ellipsis site cannot be isomorphic to its antecedent, and must instead have an underlying cleft-source (Merchant 2001; van Craenenbroeck 2010a). We find a similar construction in other languages such as German. However, German is more informative than English because it also shows strict case-matching on the remnant of sluicing (e.g. Ross 1969). In (68), the correlate of the sluice *jedem* bears dative case. Furthermore, the interpretation of the ellipsis site suggests that the ellipsis site involves a cleft rather than isomorphic structure, since an overt continuation of an isomorphic source leads to semantic incongruity.

(68) *Unconditional sluicing in German* (Elliott & Murphy 2018:3):

Er würde wirklich jedem   vertrauen, egal   wem   ⟨#er vertrauen würde⟩.
he would really   everyone.DAT trust   no.matter who.DAT he trust   would
'He would really trust anyone, it doesn't matter who ⟨#he would trust/✓it is⟩!'

However, the postulation of a cleft in the ellipsis site is problematic, since the pivot of a cleft requires nominative case and, as (69) shows, sluicing with a nominative remnant is not possible.

(69) *No sluicing of clefts under* egal (Elliott & Murphy 2018:3):

Er würde wirklich jedem   vertrauen, egal   wer   *(es ist)
he would really   everyone.DAT trust   no.matter who.NOM *(it is)
'He would really trust anyone, it doesn't matter who it is.'

An important way in which a Structure Removal approach to ellipsis differs to standard LF Copying analyses is that there was actually syntactic structure in the ellipsis site at some point of the derivation. This is what will allow us to account for the apparent ineffability of the

ellipsis site. An ellipsis site can be reconstructed that does not match the structure responsible for assigning case to the remnant. The basic idea is that there is first isomorphic structure in the ellipsis site with the case-assigning verb (70a). The wh-remnant moves to Spec-CP as in a standard sluicing derivation (Ross 1969; Merchant 2001) (70b). Subsequently, the TP constituent is removed from the structure so that the C head now lacks a complement (70c). However, the assignment of dative case to the wh-remnant *wem* took place at a previous step before the verb was deleted.

(70)   a. $[_{vP}\ v\ [_{VP}$ vertrauen$_{[DAT]}$ wem $]]$ *(Case assignment in syntax)*

   b. $[_{CP}$ wem$_1$ $[_{C'}$ C$_{[E]}$ $[_{TP}$ ... $[_{VP}$ vertrauen$_{[DAT]}$ t$_1$ $]]]]$ *(wh-movement)*

   c. $[_{CP}$ wem$_1$ $[_{C'}$ C$_{[E]}$ △ $]]$ *(Delete TP)*

   d.   *$[_{CP}$ wem$_1$ $[_{C'}$ C$_{[E]}$ $[_{TP}$ er $[_{vP}$ $[_{VP}$ vertrauen t$_1$ $]$ würde $]]]]$ *(LF Copying blocked)*

   e. $[_{CP}$ wem$_1$ $[_{C'}$ C$_{[E]}$ $[_{TP}$ es $[_{vP}$ $[_{VP}$ ist t$_1$ $]]]]]$ *(Cleft repair)*

At LF, the ellipsis site must be reconstructed. We can assume that LF Copying is the default option, unless there is some other condition which blocks it. It seems that the unconditional predicate *egal* is incompatible with a strictly isomorphic 'copied' LF representation for the ellipsis site (70d). As a result, we assume that a cleft-like structure can be posited by means of repair (70e) (van Craenenbroeck 2010a). Thus, we now have a cleft structure in the ellipsis site, but a non-nominative case on the remnant of sluicing. This is only possible because we had a previous isomorphic representation where case was assigned, which was later replaced with a different structure at LF. This structure containing a non-nominative pivot of a cleft could not be generated any other way.

   This section has discussed two possible approaches to interpretation within the derivational ellipsis approach outlined here. These are of course dependent on the exact implementation of derivational ellipsis as phasal spell-out or Structure Removal. It seems that there are both virtues in favour of as well as specific challenges facing each approach. For this reason, we do not attempt to further adjudicate between them here.

4.2   Licit dependencies into the ellipsis site

While the current approach correctly predicts the inaccessibility of R-expressions in the ellipsis site for Principle C, there are still some remaining issues. The account of vehicle change proposed in this paper, as well as Johnson's (2015a) analysis of Hocąk, depends on the fact that an Agree dependency cannot reach into an ellipsis site. However, there are examples where it does seem that this is possible. The most well-known example involves φ-agreement in a language like English. In English expletive constructions, for example, the associate of the expletive can be elided, but nevertheless still controls agreement on the copula (71).

(71)   a.   Some people think there are no such rules, but there $\begin{Bmatrix} \text{are} \\ \text{*is} \end{Bmatrix}$ (Ross 1969:273)

b. I didn't think there would be a famous linguist at the party, but there $\begin{Bmatrix} \text{was} \\ \text{*were} \end{Bmatrix}$

(van Craenenbroeck 2010:136)

A plausible analysis of this is given in (72), where the T head probes into the ellipsis site.

(72) [$_{TP}$ there [$_{T'}$ T$_{[\varphi:PL]}$ ... be [$_{VoiceP}$ Voice$_{[E]}$ [$_{vP}$ ⟨t$_{be}$ no such rules⟩]]]]

This would be problematic, however, if the elided vP is rendered inaccessible before the higher T head can probe, as was assumed for the previously motivated analysis of vehicle change.

It is possible, however, to maintain the vehicle change analysis in light of these facts if we posit that φ-agreement is established by a different kind of Agree. In fact, this has already been proposed on independent grounds. Namely, a similar problem arises with φ-agreement and phase theory. There are two main formulations of the *Phase Impenetrability Condition*, a constraint that determines how much structure is accessible at a given point (however see Richards 2011 for an alternative). The first version (PIC$_1$), given in (73a), means that the complement of a phase head is spelled-out as soon as the phase is complete. The second version (PIC$_2$) in (73b) is slightly weaker and postpones spell-out of a phase complement until the next higher phase head is merged.

(73) a. *Phase Impenetrability Condition* (PIC$_1$) (Chomsky 2000:108):
In a phase α with head H, the domain of H is not accessible to operations outside α, only H and its edge are accessible to such operations.

b. *Phase Impenetrability Condition* (PIC$_2$) (Chomsky 2001:14):
Given the structure [$_{ZP}$ Z ... [$_{HP}$ α [$_{H'}$ H YP]]], where H and Z are phase heads, the domain of H is not accessible to operations at ZP; only H and its edge are accessible to such operations.

If we consider the search space of T in an ordinary transitive construction, this means that under PIC$_1$ only the phase head v and its specifier are accessible to T (74a). Under PIC$_2$, the entire vP is accessible to T (74b), since the VP is only transferred once the next higher phase head (C) is merged.

(74) a. [$_{CP}$ C [$_{TP}$ T [$_{vP}$ DP [$_{v'}$ v [$_{VP}$ V DP]]]]]
search space of T (PIC$_1$)

b. [$_{CP}$ C [$_{TP}$ T [$_{vP}$ DP [$_{v'}$ v [$_{VP}$ V DP]]]]]
search space of T (PIC$_2$)

Assuming that all vPs constitute phases (Legate 2003; Boeckx & Grohmann 2007), Legate (2005) pointed out that the following data pose a problem. Namely, (75a) shows that a DP can raise across two vP boundaries. Furthermore, if an expletive is merged in Spec-TP, the DP *ten trains* remains in its base-position inside the VP, but still controls agreement on T (75b).

(75) *Long-distance agreement in expletive constructions* (Legate 2005:148):

    a. [$_{TP}$ Ten trains [$_{vP}$ seem(*-s) [$_{TP}$ to have [$_{vP}$ arrived ⎯ into the station today]]]]

    b. [$_{TP}$ There [$_{vP}$ seem(*-s) [$_{TP}$ to have [$_{vP}$ arrived ten trains into the station today]]]]

The problem is that there must be an Agree relation between matrix T and the direct object of *arrive*, however the contents of the VP should be inaccessible to T under either version of the PIC. As (76) shows, under the stronger PIC$_1$, only the edge of the higher vP phase is accessible. If we adopt the weaker PIC$_2$, then the complement of v_1 is spelled-out as soon as the higher v is merged. Thus, there is no standard definition of the PIC which would allow for this kind of agreement (see Keine 2017 for a similar problem in Hindi).

search space of T (PIC$_1$)

(76)   [$_{TP}$ There T$_{[\varphi:\square]}$ [$_{vP_2}$ v_2 seem [$_{TP}$ to have [$_{vP_1}$ v_1 [$_{VP}$ arrived ten trains] into the station]]]]

search space of T (PIC$_2$)

As a solution, Legate (2005) proposes that Agree must be cyclic, i.e. carried out between the phase heads. This is shown in (77), where the lowest v head agrees with its phase-local DP. When the next higher phase-head is merged, the VP is spelled-out. However, the higher v head agrees with the lower v head. These features are then later passed on to the T head.

(77)   [$_{TP}$ T$_{[\varphi:\square]}$ [$_{vP}$ $v_{[\varphi:\square]}$ [$_{VP}$ V [$_{vP}$ $v_{[\varphi:\square]}$ [$_{VP}$ V DP$_{[\varphi:PL]}$]]]]]]

This approach is necessitated by the widely-accepted conception of strong vP-phases. If we were to assume that φ-agreement differs from the determination of anaphoric dependencies, with only the former being determined by cyclic Agree, then the bleeding effect of ellipsis on certain dependencies can be maintained.

    One could object to this that there also seem to be cases of variable binding into ellipsis sites that are well-formed. An example of this is given in (78).

(78)   Every$_i$ teacher thinks that his$_i$ students work hard and every$_j$ professor does [$_{VP}$ ⟨think that his$_j$ students work hard⟩] too

On the present account involving successive-cyclic ellipsis, the bound variable pronoun *his*$_j$ would no longer be present in the structure when the quantified DP subject is merged (79).

(79)   a. [$_{CP}$ that$_{[E]}$ [$_{TP}$ his$_j$ students [$_{VoiceP}$ Voice [$_{vP}$ △]]]]

      b. [$_{CP}$ that$_{[E]}$ [$_{TP}$ △]]   *(Delete TP)*

      c. [$_{vP}$ every$_j$ professor [$_{VP}$ think [$_{CP}$ that$_{[E]}$ △]]]   *(Binding impossible)*

We suggest that this problem can be solved by appealing to an insight by Grano & Lasnik (2018) that a bound pronoun inside a phase seems to void spell-out of that phase. They refer to this as the 'bound pronoun effect'. For example, both *tough*-movement and gapping appear to be clause-bound phenomena, as (80a) and (81a) show. However, if there is a bound pronoun within the embedded clause, this strict clause-boundedness is lifted, as we see in (80b) and (81b).

(80) *Bound pronoun effect with long-distance* tough-*movement* (Grano & Lasnik 2018:466f.):

    a. *This magazine is too lowbrow Op$_1$ for John to claim [$_{CP}$ that Bill reads t$_1$]

    b. ?This magazine is too lowbrow Op$_1$ for John$_i$ to claim [$_{CP}$ that he$_i$ reads t$_1$]

(81) *Bound pronoun effect in embedded gapping* (Grano & Lasnik 2018:466f.):

    a. *Mary claims that Jill likes apples and Ann ⟨c̶l̶a̶i̶m̶s̶ ̶t̶h̶a̶t̶ ̶J̶i̶l̶l̶ ̶l̶i̶k̶e̶s̶⟩ oranges

    b. ?Mary$_i$ claims that she$_i$ likes apples and Ann$_j$ ⟨c̶l̶a̶i̶m̶s̶ ̶t̶h̶a̶t̶ ̶s̶h̶e̶$_j$ ̶l̶i̶k̶e̶s̶⟩ oranges

Grano & Lasnik's (2018) claim is that the bound pronoun has an unvalued feature related to binding, which 'voids phasehood', i.e. delays spell-out. If we were to assume that this unvalued feature also has the same effect of voiding intermediate steps of successive-cyclic ellipsis, we can allow for binding into ellipsis sites.

For concreteness' sake, we suggest that binding/co-reference is established by means of [INDEX]-features (cf. Hicks 2009). Pronouns and anaphors bear an unvalued [INDEX]-feature, which is valued under (upward or downward) Agree with a relevant goal, as can be seen for the reflexive anaphor in (82a). R-expressions, on the other hand, come with a pre-valued index feature. If this value is copied to a pronoun, Principle C will be violated (82b).

(82) a. [$_{vP}$ John$_{[INDEX:i]}$ [$_{VP}$ loves himself$_{[INDEX:\Box]}$]]

    b. *[$_{vP}$ he$_{[INDEX:\Box]}$ [$_{VP}$ likes John$_{[INDEX:i]}$]]

In such a theory, if we specify an embedded C head as an intermediate licenser of successive-cyclic ellipsis, this will be voided if it would elide an unvalued pronoun (83b). Thus, this intermediate step of TP ellipsis will be blocked and this will keep the embedded structure across the finite clause boundary accessible (83c).

(83) a. [$_{CP}$ that$_{[E]}$ [$_{TP}$ his$_{[INDEX:\Box]}$ students [$_{VoiceP}$ [$_{vP}$ △]]]]

    b. [$_{CP}$ that$_{[E]}$ [$_{TP}$ his$_{[INDEX:\Box]}$ students [$_{VoiceP}$ [$_{vP}$ △]]]]   *(Ellipsis of TP blocked)*

    c. [$_{vP}$ every$_{[INDEX:i]}$ prof. [$_{VP}$ think [$_{CP}$ that$_{[E]}$ [$_{TP}$ his$_{[INDEX:i]}$ students [$_{VoiceP}$ [$_{vP}$ △]]]]]]

                                                             (Binding possible)

    d. [$_{VoiceP}$ every$_{[INDEX:i]}$ prof. [$_{Voice'}$ Voice$_{[E]}$ [$_{vP}$ △]]]   *(Delete vP)*

It is important to note that this does not undermine the basic analysis of vehicle change developed above, since spell-out/ellipsis is only voided by an unvalued index-feature on an item. R-expressions inside ellipsis have, by assumption, valued features, as in (82b), and will therefore be subject to intermediate steps of ellipsis.

There is an interesting prediction of this approach raised by a reviewer. We might expect that delayed ellipsis due to a bound variable pronoun in the ellipsis site could interact with vehicle change. Consider the example in (84). Here, we have a bound variable pronoun *his* in the ellipsis site as well as an R-expression *Mary* bound by *her* outside the ellipsis site.

(84) Every man told me to read his description of Mary before any man$_j$ told her$_i$ to ⟨read his$_j$ description of Mary$_i$⟩

While this example is grammatical, the present account would predict that the [E]-feature cannot trigger ellipsis of its DP complement until the feature on *his* has been valued.

(85) $[_{v\text{P}}$ any$_{[\text{INDEX}:j]}$ man tell her$_i$ $[_{\text{TP}}$ to $[_{v\text{P}}$ read $[_{\text{DP}}$ D$_{[\text{E}]}$ his$_{[\text{INDEX}:\square]}$ description of Mary$_i$]]]]

Given the assumptions laid about above for examples such as (43), however, the P head *of* would also bear an ellipsis feature due it being a phase head. This means that *Mary* will be elided early in the derivation (86b). Once the DP is merged, ellipsis of its NP complement cannot apply due to the unvalued feature on the bound pronoun *his* (86c). However, since *Mary* was elided at an earlier stage of the derivation, no Principle C violation is incurred when the co-referent pronoun *her* is merged (86d).

(86) a. $[_{\text{PP}}$ of$_{[\text{E}]}$ $[_{\text{DP}}$ Mary$_i$]]

  b. $[_{\text{PP}}$ of$_{[\text{E}]}$ $[_{\text{DP}}$ $\triangle$]]

  c. $[_{\text{DP}}$ D$_{[\text{E}]}$ $[_{\text{NP}}$ his$_{[\text{INDEX}:\square]}$ description $[_{\text{PP}}$ of$_{[\text{E}]}$ $[_{\text{DP}}$ $\triangle$]]]]

  d. $[_{\text{VP}}$ her$_i$ $[_{\text{V}'}$ tell $[_{\text{TP}}$ to $[_{\text{VoiceP}}$ Voice$_{[\text{E}]}$ $[_{v\text{P}}$ read $[_{\text{DP}}$ D$_{[\text{E}]}$ $[_{\text{NP}}$ his$_{[\text{INDEX}:\square]}$ description $[_{\text{PP}}$ of$_{[\text{E}]}$ $[_{\text{DP}}$ $\triangle$]]]]]]]]]]

Under these assumptions, the example in (84) is not problematic for the theory developed here. Furthermore, this solution might also be applicable to the challenge raised by (65).

5 Conclusion

In this paper, we have argued that vehicle change can be viewed as the result of a derivational approach to ellipsis. Assuming that ellipsis is triggered in syntax proper, we predict that elided constituents should be inaccessible to further syntactic computation. While bleeding relations of this kind have already been discussed for movement and agreement, we argue that they can also be found with binding-theoretic effects such as vehicle change. Given a derivational approach to Principle C, the effects attributed to vehicle change simply follow from the fact that an R-expression is no longer accessible at the point at which its binder is merged. We have shown how this accounts for the basic mono-/bi-clausal asymmetry that originally motivated Fiengo & May's (1994) analysis. Furthermore, we saw that there are some problematic cases for the pronoun equivalence view, i.e. structures that are transparent for Principle B yet still allow for vehicle change. We argued that if ellipsis applies in a successive-cyclic, phase-based fashion (as is assumed for movement), then we can also accommodate these problematic cases.

Importantly, the derivational ellipsis view can also potentially provide a better understanding of why we find vehicle change effects. While the alternative 'replace-with-a-pronoun' view can account for the basic puzzle of vehicle change, it does not really explain what it is about elided R-expressions that means that they can count as equivalent to pronouns (but not reflexives, for example). By treating it as an effect of derivational timing, the alternative approach we have explored in this paper aims to unify vehicle change with the growing body of arguments from movement and agreement phenomena in favour of a syntactic implementation of ellipsis.

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