# When Variable Re-binding Bleeds Antecedent-Contained Deletion[*]

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## 1. Introduction

Ross (1967) observed the interesting property of VP-Ellipsis (VPE) that a pronoun interpreted in the elided VP can refer ambiguously in the way shown in (1). Following Ross, we will refer to the faithful interpretation of the pronoun in (1a) as the *strict* reading and to the unfaithful interpretation in (1b) as the *sloppy* reading.
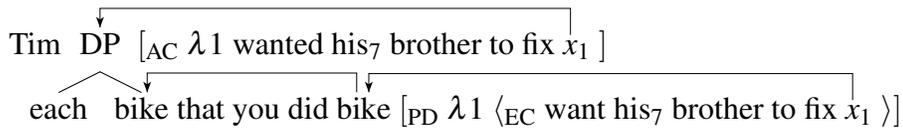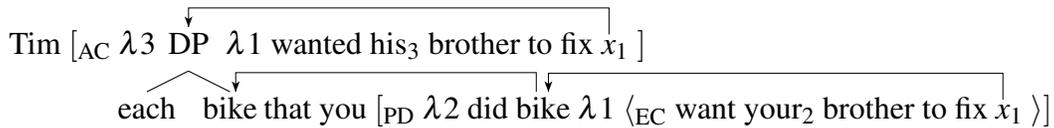
(1)    $Tim_1$ loves $his_1$ sister and $you_2$ also do $\Delta$.

    a.    *strict*  : $\Delta$ = love $his_1$ sister
    b.    *sloppy* : $\Delta$ = love $your_2$ sister

A puzzle, which to my knowledge has not been discussed in the literature, is that sloppy pronouns are more restricted in an Antecedent-Contained Deletion (ACD) than they are in coordinate VPE. The minimally differing examples in (2) and (3) provide the relevant contrast.

(2)    $Tim_1$ wanted $his_1$ brother to fix each bike that $you_2$ (also) did.

    a.    *strict*  : $\Delta$ = want $his_1$ brother to fix
    b.    **sloppy* : $\Delta$ = want $your_2$ brother to fix

(3)    $Tim_1$ wanted $his_1$ brother to fix each bike and $you_2$ also did.

    a.    *strict*  : $\Delta$ = want $his_1$ brother to fix each bike
    b.    *sloppy* : $\Delta$ = want $your_2$ brother to fix each bike

    I will offer an account of this puzzle that is schematized roughly in (4) and (5) below.

(4)     *Strict interpretation in ACD*

Tim  DP  [$_{AC}$ $\lambda 1$ wanted his$_7$ brother to fix $x_1$ ]

each   bike that you did bike [$_{PD}$ $\lambda 1$ $\langle_{EC}$ want his$_7$ brother to fix $x_1$ $\rangle$]

(5)     *\*Sloppy interpretation in ACD*

Tim [$_{AC}$ $\lambda 3$ DP  $\lambda 1$ wanted his$_3$ brother to fix $x_1$ ]

each   bike that you [$_{PD}$ $\lambda 2$ did bike $\lambda 1$ $\langle_{EC}$ want your$_2$ brother to fix $x_1$ $\rangle$]

Following Takahashi & Fox (2005) we will adopt from Rooth (1992) the idea that an elided constituent (EC), which is enclosed in angle brackets $\langle \ldots \rangle$, must be properly contained within some potentially larger *Parallelism Domain* (PD) over which the identity condition on ellipsis must hold with some antecedent constituent (AC). The primary insight we will adopt from Takahashi & Fox (2005) is that sloppy interpretations of pronouns will require extending the Parallelism Domain to contain the binder of the bound pronoun in order to ensure that identity can be established. I capitalize on the fact that, as the Parallelism Domain is extended, the antecedent constituent must likewise be extended to match. The effect is that the QR operation that licenses ACD (e.g., Fiengo & May 1994) may be unable to escape antecedent-containment under a sloppy interpretation of a pronoun, as in (5).

We will take a closer look at the data that motivates our puzzle and present an empirical generalization regarding the availability of sloppy pronouns in section 2. In section 3, I will provide some background and motivation for the particular account of sloppy pronouns and ellipsis licensing that are employed in the analysis sketched above. Section 4 will present this analysis in more detail and demonstrate that, because the PD and AC cannot interact in coordinate VPE, both strict and sloppy readings are expected to be available. Section 5 investigates a significant prediction of this analysis regarding specific environments wherein sloppy pronouns are predicted to become available. We will find that this prediction is entirely borne out. We will conclude with section 6 where I discuss the implications of this analysis for theories of ellipsis licensing and point out an open puzzle.

## 2.     Sloppy Pronouns in Antecedent-Contained Deletions

Consider the minimal pair of examples in (6) and (7). In (6) we see an instance of coordinate VPE in which the elided pronoun refers ambiguously to either *Kim* or *you*. The elided pronoun in the ACD configuration in (7), on the other hand, has a strong preference for a strict interpretation and refers to *Kim*.

(6)     Kim$_1$ expects her$_1$ sister to read the book and you$_2$ also do $\Delta$.

    a.     *strict*   : $\Delta$ = expect her$_1$ sister to read the book
    b.     *sloppy* : $\Delta$ = expect your$_2$ sister to read the book

(7)     Kim$_1$ expects her$_1$ sister to read the book that you$_2$ (also) do Δ.

    a.   *strict*  : Δ = expect her$_1$ sister to read the book
    b.  *\*sloppy* : Δ = expect your$_2$ sister to read the book

The context provided in (8) is intended to draw out the sloppy interpretation in which you and Kim each have an expectation about what your own sister will read. Even when presented with a facilitating context the asymmetric pattern persists.[1]

(8)     You expect your sister to read the Viking adventure saga *The Long Ships*. Your friend Kim doesn't like the idea that your sister has read a book that her sister hasn't read. So, ...

    a.  \*Kim expects her sister to read the book that you (also) do.         (*ACD*)
    b.  Kim expects her sister to read the book and you also do.         (*VPE*)

We can be sure that the source of this contrast is not an issue with having an ACD site hosted by the embedded object of an infinitival clause. Kennedy (1997) has independently argued that this is possible but it is also shown here by the availability of the strict interpretation in (7a). The examples in (9)–(11) below suggest further that the pattern we are observing is a general one. ACD has been independently attested in the second object of the double object construction (e.g., Bruening 2001), within an argument of a small clause (e.g., Larson & May 1990), and in the object of an embedded finite clause (Wilder 2003, Jacobson 2008, Syrett 2015). This is confirmed by the availability of the strict interpretation of the elided pronoun in the (a.) variants of (9)-(11) respectively. Of particular interest to us is that the sloppy interpretation is missing or at least strongly dispreferred in each of these examples, but is available in the coordinate VPE configurations in the (b.) variants.[2]

(9)    a.    Tim gave his mother [$_{DP}$ each photo that I (also) did ⟨ give his/\*my mother ⟩].
          b.    Tim gave his mother each photo and I also did ⟨ give his/my mother ⟩.

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[1] The majority of the speakers who I have consulted report the contrast between (6) and (7). Many of them also report that the sloppy interpretation is entirely missing from the ACD example in (7). A few speakers, though, have reported that the sloppy interpretation is available in both constructions. I currently have nothing insightful to say regarding the nature of this variation or how it might arise. Future research will require more rigorous investigative methodologies and more attention to the source of potential variation.

    It is relevant at this point to note that Tomioka (1999) presents an analysis of third person sloppy pronouns that are not c-commanded by their antecedent as E-type pronouns. Future research might ask whether a similar strategy can provide a sloppy interpretation in the relevant configurations. I have attempted to control for this possibility here by using indexical pronouns in the ellipsis site, which resist an E-type interpretation.

[2] It is important to note a significant complication in the data: reflexive pronouns do not appear to be as constrained with respect to sloppy interpretations in ACD configurations. This is shown below in (i). At present I have do not have an articulated explanation for why this would be the case, though see footnote 3.

(i)      Kim$_1$ expects herself$_1$ to read the book that you$_2$ do ⟨ expect her/yourself to read $x$ ⟩.

(10)  a.  Sue watched her brother touch
      [$_{DP}$ the cookies that you (also) did ⟨ watched her/*your brother touch ⟩].
      b.  Sue watched her brother touch the cookies
      and you also did ⟨ watched her/your brother touch ⟩.

(11)  a.  Bob thinks his sister wrote
      [$_{DP}$ every song that you (also) do ⟨ think his/*your sister wrote ⟩].
      b.  Bob thinks his sister wrote every song
      and you also do ⟨ think his/your sister wrote ⟩.

   I will argue that the availability of a sloppy interpretation is a function of the elided pronoun appearing in one or the other of these particular structural configurations, coordinate VPE or ACD.[3] By way of a descriptive generalization, we can predict the availability of a sloppy pronoun from the statement in (12).

(12)  A pronoun $P_E$ elided with some $VP_E$ cannot receive a sloppy interpretation if the binder of the corresponding pronoun $P_A$ in the antecedent $VP_A$ c-commands $P_E$.

The generalization in (12) says that the elided pronoun will not permit a sloppy interpretation if it is c-commanded by the binder of the spoken pronoun.[4] This is the situation in ACD configurations; the subject, which binds the spoken pronoun, c-commands the ellipsis site,

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[3]The puzzle presented here is superficially similar to the previously observed pattern whereby a reflexive pronoun resists a strict interpretation in coordination configurations but allows it in adjunction configurations (e.g., Hestvik 1995). However, note that our puzzle involves the sloppy interpretation going missing in ACD configurations while both readings are available in coordination configurations. Additionally, the availability of both the strict and sloppy reading in the *because*-clause below in (i) suggests that our puzzle is not purely a function of the discourse relations evoked by Kehler (2000) to account for reflexives.

(i)  Kim$_1$ expects her sister to read the book because you$_2$ do ⟨ expect her/your sister to read the book ⟩.

[4]For full disclosure, (12) may not be the exact right generalization. Presumably, the PP-adverbial in (i) below and the circumstantial *because*-clause in (i) from footnote 3 are adjoined within the c-command domain of the surface position of the matrix subject, which serves as the binder of $P_A$.

(i)  Pam$_1$ washes her$_1$ car on [$_{DP}$ every day that you$_2$ do ⟨ wash her$_1$/your$_2$ car on $x$ ⟩].
                                                              (Jeremy Hartman, p.c.)

What may be relevant for allowing the sloppy reading, then, is that the ellipsis site is not c-commanded by the *base-position* of the binder for $P_A$, which in these cases is the base-position of the matrix subject. Space limitations preclude properly motivating and providing a sufficiently complete account of the data captured by this more specific generalization. This is due, in part, to the observation by Fiengo & May (1994, 240) that sloppy pronouns are permitted in the PP-object of a ditransitive predicate; see the example in (ii).

(ii)  Tim gave his photo to [$_{DP}$ each person that you did ⟨ send your photos to $x$ ⟩].

Given this alternative generalization, we would be required to assert that PP-objects at least can be generated above the base-position of the subject, contrary to the influential VP-shell approach to ditransitive predicates

including the elided pronoun. In coordinate VPE, the elided material and the antecedent material are distributed over two conjuncts and cannot be in a c-command relationship. We will return to an account for this generalization in section 4.

## 3.    Re-binding and Parallelism Domains

Our basis for the analysis of sloppy anaphora comes from Sag (1976) and Williams (1977) which, following Partee (1973), interprets the elided constituent as a $\lambda$-expression. As shown in (13), the interpretation of the elided pronoun can be reduced to whether it is free or bound within the ellipsis site. When the elided variable is free, as in (13a), it will be interpreted as referential and the strict reading can emerge. If, as in (13b), the elided pronoun is a bound variable, it will refer sloppily to the DP that saturates this open predicate.

(13)    Kim$_1$ expects her$_1$ sister to read the book and you$_2$ also do $\Delta$.

    a.    *strict*  : $[\![ \Delta ]\!]^{C,g} = \lambda x.x$ expects *y*'s sister to read the book
    b.    *sloppy* : $[\![ \Delta ]\!]^{C,g} = \lambda x.x$ expects *x*'s sister to read the book

Sag (1976, 131–132) argues that this mode of capturing sloppy identity in VPE makes the prediction that what Takahashi & Fox (2005) refer to as *re-binding* will not be possible. That is, it should not be possible for a bound variable in an ellipsis site to have an antecedent other than the DP that saturates the open predicate that is the elided constituent. This prediction appears to be borne out by the contrast in (14) where the elided pronoun can refer sloppily to *Sue* only when the VP directly under *Sue* is targeted for ellipsis.

(14)    a.    Tim $[_{VP_A} \lambda 1$ said I kissed him$_1$ ] and Sue did $\langle_{VP_E} \lambda 2$ say I kissed her$_2$ $\rangle$, too.
    b.    *Tim $\lambda 1$ said I $[_{VP_A}$ kissed him$_1$ ] and Sue $\lambda 2$ said I did $\langle_{VP_E}$ kiss her$_2$ $\rangle$, too.

For Sag (1976), ellipsis is licensed in (14a) by the fact that the logical formulas derived for the embedding VPs in this representation will be identical, excepting the alphabetic names of the bound variables. When, in (14b), ellipsis targets the embedded VP, the result is a re-binding configuration; the elided pronoun is bound by the index $\lambda 2$ from outside the VP$_E$. From the point of view of licensing ellipsis, VP$_A$ and VP$_E$ cannot produce equivalent logical formulas. Essentially, these constituents contain free variables carrying different indices. As (15) demonstrates, this should be expected to block ellipsis.

(15)    *I $[_{VP_A}$ kissed him$_1$ ] and you also did $\langle_{VP_E}$ kiss him$_2$ $\rangle$.

Subsequent research has shown, however, that re-binding is possible under various conditions (e.g., Evans 1988, Jacobson 1992). For instance, in (16), the trace in VP$_E$ is re-bound by the topicalized DP *Sue*.

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(e.g., Larson 1988). Future work will pursue this approach to account for the similar behavior between the PP-adverbial in (i) and the PP-object in (ii) as well as the contrast between (ii) and the near-minimally differing example in (9a), which could be understood by treating the second DP argument as most embedded.

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(16)    $\text{Tim}_1$ I $[_{\text{VP}_\text{A}}$ kissed $x_1$ ] but $\text{Sue}_2$ I didn't $\langle_{\text{VP}_\text{E}}$ kiss $y_2$ $\rangle$.

In response to such facts Takahashi & Fox (2005) maintain the basic assertions of the analysis from Sag (1976) and Williams (1977) but they adopt the idea from Rooth (1992) that the identity relationship required for licensing ellipsis does not necessarily hold between an appropriate antecedent and the ellipsis site directly. Instead, the relevant identity relationship is evaluated between some constituent that properly contains the ellipsis site and an appropriate antecedent. Such a licensing condition can be stated as in (17) and (18) below.

(17)    For ellipsis of EC [elided constituent] to be licensed, there must exist a constituent (PD [parallelism domain]), which reflexively dominates EC, and satisfies *Parallelism.*                                        (adapted from Takahashi & Fox 2005, 229, (19))

(18)    *Parallelism*
        PD satisfies the parallelism condition if PD is semantically identical to another constituent AC [antecedent constituent], modulo focus-marked constituents.
                                        (simplified from Takahashi & Fox 2005, 229, (20))

To see this system in action we can consider example (19). Because there are no re-bound variables the PD only needs to be as big as the $\text{VP}_\text{E}$. The corresponding VP of the first conjunct, then, can serve as a potentially appropriate AC. This PD and AC will have equivalent logical formulas, so Parallelism is satisfied and ellipsis is licensed.

(19)    Kim $[_{\text{AC}}$ kissed $\text{him}_1$ ] but I didn't $[_{\text{PD}} \langle_{\text{VP}_\text{E}}$ kiss $\text{him}_1 \rangle]$.

It is when a variable is re-bound from outside the $\text{VP}_\text{E}$—as in the case of topicalization, presented again in (20)—that a PD larger than the actual $\text{VP}_\text{E}$ must be identified. By including the binder $\lambda 2$ for the re-bound variable $y_2$ we can identify the bracketed AC as an appropriate antecedent and avoid the problem identified for (15). The pronouns in the PD and AC can now each be treated as bound variables. This means that these constituents will be found to be semantically equivalent, modulo the focus-marked negation. Thus, Parallelism is satisfied and ellipsis is correctly licensed.[5]

(20)    Tim $[_{\text{AC}} \lambda 1$ I kissed $x_1$ ] but Sue $[_{\text{PD}} \lambda 2$ I didn't $\langle_{\text{VP}_\text{E}}$ kiss $y_2 \rangle]$

The benefit of this extended system is the additional degree of freedom provided when choosing which constituent in the phrase marker will require the identification of an appropriate antecedent as part of licensing ellipsis. We will capitalize on the idea that the AC

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[5]To account for the original contrast in (14), Takahashi & Fox (2005, 229, (21)) add to the technology above an adaptation of the requirement from Merchant (2008) that ellipsis target the largest deletable constituent, viz. MAXELIDE. Basically, their MAXELIDE favors ellipsis of the largest deletable constituent reflexively dominated by the PD. In (14), this is necessarily the embedding VP immediately under the DP *Sue*, which serves as the re-binder for the embedded pronoun.

necessarily enlarges as the size of the PD enlarges. We will find that, with a particular conception of how ACD configurations are resolved, the requirement to extend the AC given a re-bound variable in the ellipsis site means that it may not be possible to satisfy Parallelism.

## 4. Bleeding ACD with Re-binding

### 4.1 Background on ACD

ACD configurations present their own puzzle for the resolution of ellipsis. The $VP_E$ in examples like (21) does not obviously find a suitable antecedent that would satisfy any sort of identity condition on licensing ellipsis.

(21)    a.    Kim $[_{VP_A}$ watched the documentary that I did $\langle _{VP_E}$ watch $x\,\rangle]$.
       b.    $[_{VP_A}$ watched the documentary that I did watch $x\,] \neq \langle _{VP_E}$ watch $x\,\rangle$

A typical way of remedying this situation is through an application of Quantifier Raising (QR) that covertly moves the host of the ACD site (May 1985, Larson & May 1990, Fiengo & May 1994). For reasons that will become apparent, we will more closely follow Merchant (2000) as well as Fox (1999, 2002), who builds on Fox & Nissenbaum (1999), and assume that the relevant application of QR targets the edge of VP (22a).

(22)    a.    Kim $[_{VP}\ [_{VP_A}$ watched $x\,]\ [_{DP}$ the documentary that I did $\langle _{VP_E}$ watch $x\,\rangle]\,]$
       b.    $[_{VP_A}$ watched $x\,]\ =\ \langle _{VP_E}$ watch $x\,\rangle$

The application of QR here (perhaps along with late-merger of the relative clause; see Fox 2002) has the effect of creating a suitable antecedent for ellipsis. The ACD site can be interpreted outside the constituent $VP_A$, which contains a variable that is the trace of the QR operation. Comparing the $VP_A$ and $VP_E$ in (22b) now, we see how the LF representations of these constituents might be closer to satisfying Parallelism. Part of what we will do in the following subsections is account for the fact that the trace of the relative clause head will count as a re-bound variable.

### 4.2 Generating the Strict Reading

Consider the grammatical ACD configuration with a strict interpretation of the elided pronoun. This example is provided again in (23a) on the following page. In (23b) is its LF representation in which the host of the ACD site has undergone QR to the edge of the matrix VP.

    Both the elided pronoun and its correlate in the antecedent VP will be referential pronouns. Given an assignment function where $g(7) = Kim$, the strict reading can emerge. This also means that the only bound variable in the $VP_E$ is the trace of the relative clause head *book*. It is only this element for which we need to consider the effects of re-binding. I will assert that, for the purpose of defining the PD, this variable is re-bound by the binder

index introduced with an intermediate trace of *book* at the edge of the highest VP inside the relative clause domain.

(23)    a.    Kim expects her$_7$ sister to read
              [$_{DP}$ the book that you do ⟨ expect her$_7$ sister to read $x$ ⟩].

        b.

(tree diagram)

IP
├── Kim
└── VP
    ├── AC
    │   ├── VP: expects her$_7$ sister to read $x_1$
    │   └── 1
    └── DP
        ├── the
        └── book
            └── CP
                ├── that
                └── IP
                    ├── you
                    └── do
                        └── VP
                            ├── book
                            └── PD
                                ├── 1
                                └── ⟨ VP$_E$ ⟩: expect her$_7$ sister to read $x_1$
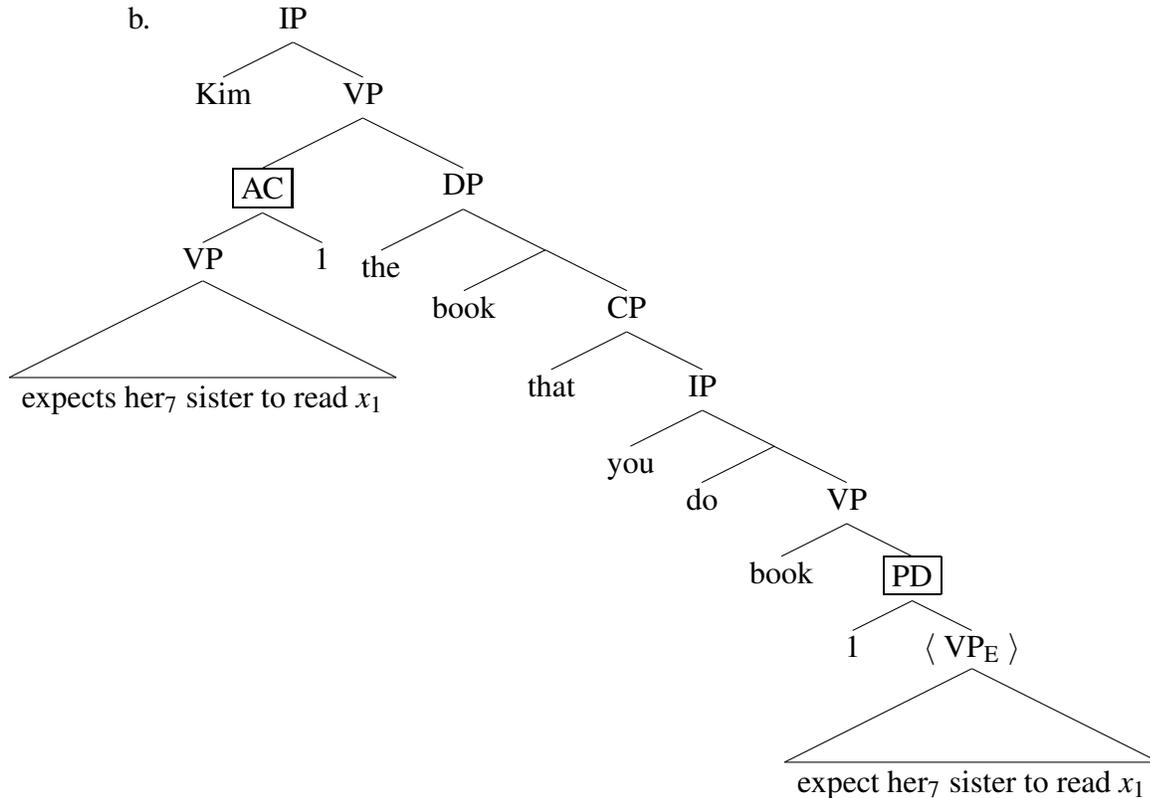
With this PD, the AC can be defined by the parallel binder index at the edge of the matrix VP that is introduced by the instance of QR involved in the resolution of the ACD site. Because the the re-bound variables in the PD and AC are bound from parallel positions the logical formulas generated from the isomorphic LF representations for these constituents will be identical; see (24) below. Thus, Parallelism is satisfied and ellipsis of the relative clause VP is correctly licensed.

(24)    $[\![ [_{AC} \lambda 1 \text{ expects her}_7 \text{ sister to read } x_1 ]\!]] = [\![ [_{PD} \lambda 1 \text{ expect her}_7 \text{ sister to read } x_1 ]\!]]$

## 4.3    Blocking the Sloppy Reading

The example illustrating the unavailable sloppy interpretation is provided again in (25a) on the following page. Its corresponding LF representation, in which the host of the ACD site has undergone QR to the edge of the matrix VP, is provided in (25b).

As per the basics of the analysis of sloppy pronouns laid out in section 3, the elided pronoun and its correlate in the antecedent VP will each be bound by the subject of their respective clause. On the sloppy interpretation, then, the VP$_E$ contains two re-bound vari-

ables: the trace of the relative clause head is still re-bound from a position at the edge of the highest relative clause VP and the pronoun *your* is re-bound by *you*. In order to ensure that Parallelism can be satisfied, the re-binding of *your* will require extending the PD outside the highest relative clause VP to contain the binder index 2 under *you*. This in turn means extending the AC to find a parallel binder for the pronoun *her*. This makes the AC the constituent immediately dominates the binder index 3 under *Kim*.[6]

(25)  a.  *$Kim_3$ expects $her_3$ sister to read
[$_{DP}$ the book that $you_2$ do $\langle$ expect $your_2$ sister to read $x$ $\rangle$].

b.
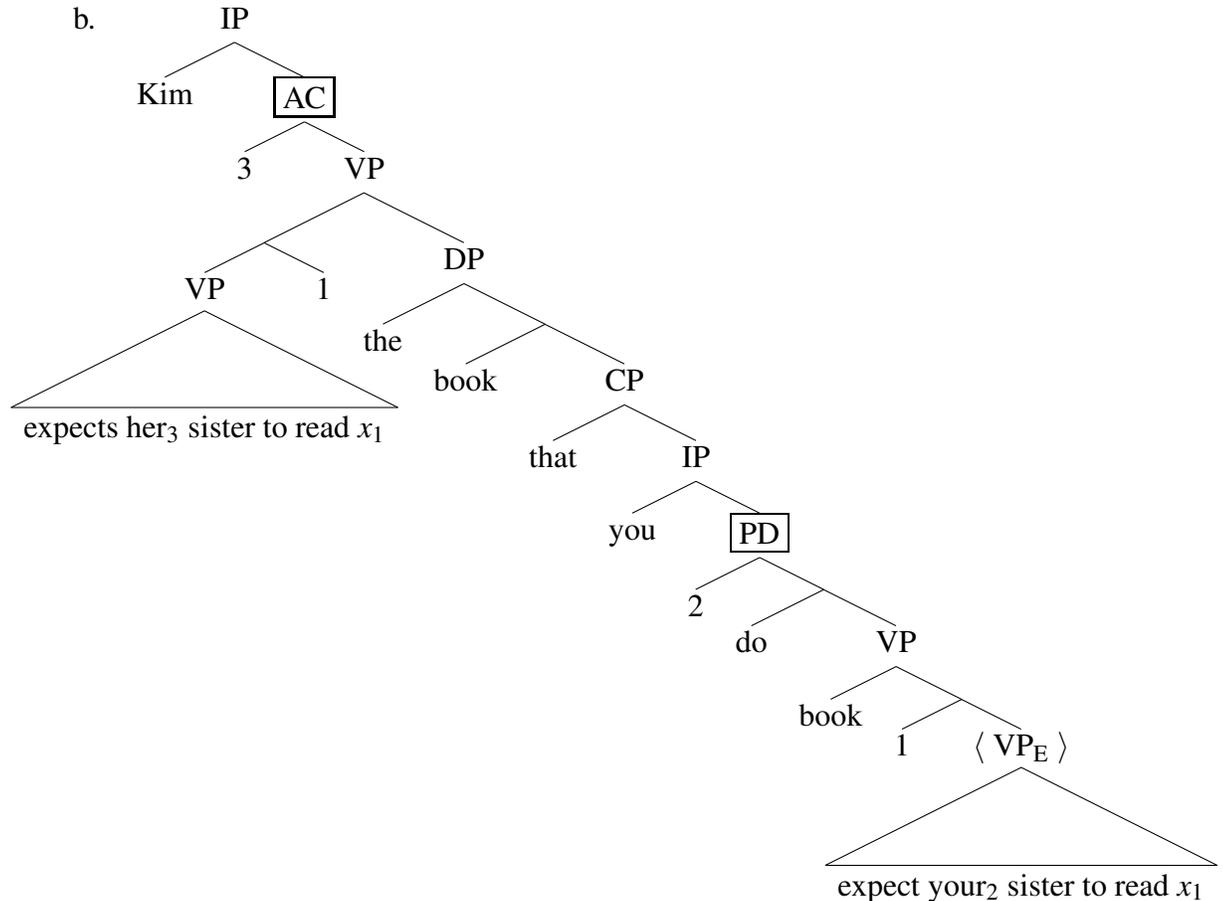


Examining the structure in (25b) one finds that sufficiently extending the AC picks out a constituent that now contains the PD. The logical formulas generated by these non-isomorphic LF representations cannot be identical; see (26) below. Therefore, Parallelism cannot be satisfied and ellipsis of the relative clause VP cannot be licensed on this interpretation.

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[6]By comparing the treatment of (23) and (25) the reader might note that I am ultimately assuming that pronominal binding by the subject necessarily induces re-binding while A-movement of the subject does not (cf. Hartman (2011), though see Messick & Thoms (2016))

(26)     $[[_{\text{AC}} \lambda 3 [$ the book that you $\lambda 2$ book $\lambda 1$ expect your$_2$ sister to read $x_1 ]$
$\lambda 1$ expects her$_3$ sister to read $x_1 ]]$
$\neq [[_{\text{PD}} \lambda 2$ book $\lambda 1$ expect your$_2$ sister to read $x_1 ]]$

In short, this analysis asserts that the variable re-binding associated with generating sloppy pronouns requires identifying an antecedent constituent that is too big for standard applications of QR to escape. With respect to the generalization in (12), it is when the re-binder in the antecedent clause c-commands the elided pronoun (or the host of the ACD site more accurately) that it may not be possible for QR to escape containment within the extended antecedent constituent. To better appreciate this, we can turn briefly to the account of sloppy pronouns in to coordinate VPE.

## 4.4    Coordination Configurations

Recall from section 2 that the distribution of sloppy pronouns is not so constrained in the context of coordination configurations. Simply put, this is because, unlike in ACD configurations, the PD and AC are in separate clausal conjuncts and will not interact. Importantly, extending the AC in response to re-binding cannot result in antecedent-containment.

In (27) is the example of the strict reading in a coordination structure. To generate the strict reading, the elided variable and its correlate in the spoken VP will be treated as referential pronouns. The elided VP will not contain any re-bound variables and the PD will be coextensive with the VP$_\text{E}$.

(27)     Kim $[_{\text{AC}}$ expects her$_7$ sister to read the book $]$ and
you also do $[_{\text{PD}} \langle_{\text{VP}_\text{E}}$ expect her$_7$ sister to read the book $\rangle]$

In the same way as we have already seen, the sloppy reading arises when the elided pronoun is interpreted as a bound variable. This will, again, require extending the PD to include the binder index introduced under *you*, as shown in the rough LF representation in (28). This example is separated from the ungrammatical ACD configuration in (25) by the fact that the extended AC required to satisfy Parallelism will not be extended to the point that it contains the PD.
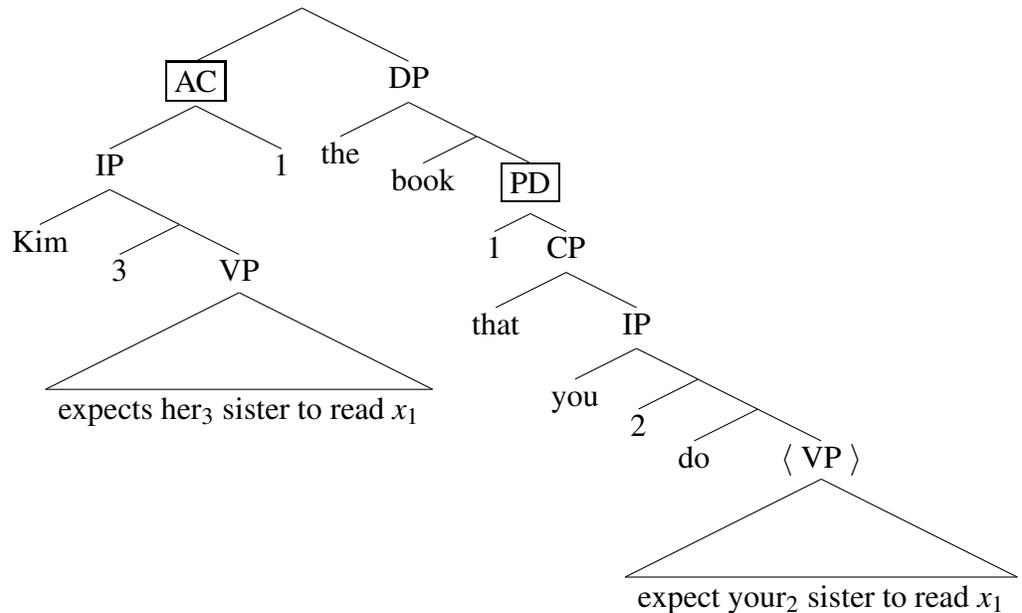
(28)     Kim $[_{\text{AC}} \lambda 3$ expects her$_3$ sister to read the book $]$ and
you $[_{\text{PD}} \lambda 2$ also do $\langle_{\text{VP}_\text{E}}$ expect your$_2$ sister to read the book $\rangle]$.

In generating either the strict or sloppy interpretation of the elided pronoun in a co-ordination structure, the LF representation for the PD and AC in each of these cases will generate semantically equivalent logical formulas. Thus, under either interpretation of the elided pronoun, Parallelism is satisfied and ellipsis is correctly licensed in coordination configurations.

## 5.    Feeding ACD with Additional Movement

Notice that the analysis presented in the previous section crucially relies on the assertion that the QR operation employed in the resolution of ACD only targets a position at the edge of VP. In other words, a hypothetical LF representation of the sort in (29) below must be unavailable. If, as shown in this structure, the host of the ACD site *the book...* were able to out-scope the subject and the higher copy of the relative clause head also defined the PD, it would allow the PD to escape the extended AC. The result would be that these constituents are semantically equivalent in satisfaction of Parallelism and ellipsis would be licensed on the sloppy interpretation.

(29)

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                         ┌────────────────┴─────────────────┐
                    ┌───┴───┐                          ┌────┴────┐
                   AC                                 DP
              ┌────┴────┐                       the ┌──┴───┐
             IP          1                         book   ┌──┴──┐
          ┌──┴──┐                                         PD
         Kim  ┌──┴──┐                                  ┌──┴──┐
             3     VP                                 1     CP
                 ┌─┴──────┐                              ┌──┴──┐
          expects her₃ sister to read x₁            that     IP
                                                         ┌───┴───┐
                                                        you   ┌──┴──┐
                                                             2   ┌──┴──┐
                                                                do  ⟨ VP ⟩
                                                              expect your₂ sister to read x₁
```

This means that the present analysis makes an interesting prediction. We expect to find that the sloppy interpretation of a pronoun elided in an ACD site would become available if it were possible to generate a structure like the one in (29). The following two subsections serve to show that this prediction is borne out with both covert and overt movement of the host of the ACD site.

### 5.1    Wide Scope

One way to motivate an LF representation like (29) would be for the host of the ACD site to take quantificational scope over the matrix subject. We can start by observing with the example in (30) that this is in principle possible. The relevant inverse-scope reading is available with a bound interpretation of a pronoun in the embedded subject position.

(30)  a.  A guard$_1$ expects his$_1$ sister to stand outside every building.
      b.  Every building [ $\lambda 2$ a guard [ $\lambda 1$ $y_1$ expects his$_1$ sister to stand outside $x_2$ ]]

      c.  'For every building $x$ there is a guard $y$ such that $y$ expects $y$'s sister to stand outside $x$.'

Simply inserting a relative clause similar to what we used above seems to produce the wrong result, however. The sloppy interpretation remains strongly dispreferred if not impossible in (31).

(31)  *A guard$_1$ expects his$_1$ sister to stand outside
           [$_{DP}$ every building that you$_2$ do $\langle$ expect your$_2$ sister to stand outside $x$ $\rangle$].

The reason for this may be related to the observation by Koster-Moeller & Hackl (2008) that ACD constructions show the same Scope Parallelism effects that Fox (2000) investigates in coordinate VPE. Put simply, for the inverse-scope reading to be licensed in the matrix clause, inverse-scope must be licensed in the relative clause. Once we correct for these effects, the inverse-scope reading and the sloppy interpretation emerge; see (32).

(32)  A guard$_1$ expects his$_1$ sister to stand outside
           [$_{DP}$ every building that a spy$_2$ does $\langle$ expect her$_2$ sister to stand outside $\rangle$].

## 5.2  Topicalization

Additional evidence that the structure in (29) can be derived and that it can be derived by covertly as in (32) comes from the observation that sloppy pronouns become available by topicalizing the ACD host. Consider the relevant structure in (33) without an ACD site.

(33)  [$_{DP}$ This book ]$_1$, Kim WOULD expect her sister to read $x_1$.

The topicalization that we see in this example generates a structure very much like we see in (29), correcting for linearization. Importantly, topicalization will place the host of the ACD site in a position above the matrix subject and outside of an extended AC. As expected on the analysis in section 4, an elided pronoun in the ACD site hosted by the topicalized DP now permits a sloppy interpretation. The relevant example is provided in (34).

(34)  [$_{DP}$ The book that you$_2$ WOULDN'T $\langle$ expect your$_2$ sister to read $x$ $\rangle$]$_1$,
                          Kim$_3$ WOULD expect her$_3$ sister to read $x_1$.

## 6.  Conclusion

In this paper we have uncovered a puzzle wherein sloppy pronouns are more restricted in ACD configurations than in coordinate VPE. Adopting the theory of ellipsis licensing pre-

sented in Takahashi & Fox (2005), we assumed that the re-binding associated with sloppy pronouns extends the domain over which the identity condition on ellipsis is evaluated. I argued that, in such cases, the QR operation that licenses ACD (e.g., Fiengo & May 1994) may not be able to escape antecedent-containment. This analysis rests on the idea that the PD and AC are drawn directly from the phrase marker. If this is the correct analysis, it suggests (i) that there is syntactic structure present in the ellipsis site at the point of interpretation and (ii) that antecedent identification for ellipsis is sensitive to the structural configuration in which the elided constituent is found (e.g., Rooth 1992, Merchant 2013).

Finally, the general unavailability of (29) is reminiscent of the observations that motivate *Scope Economy*: QR does not cross the subject unless it affects scope relations (Fox 2000, Reinhart 2006). However, it is curious from the view of more general economy considerations that QR cannot generate (29) despite both satisfying Parallelism and producing an otherwise unavailable semantic interpretation. This suggests, first, that QR is not licensed purely to escape the antecedent of an ACD site (cf. Cecchetto 2004). In turn, this suggests that the application of QR is subject to syntactic economy constraints that do not have direct access to the output of the semantic computation (e.g., Fox 2000).

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