Condition B

1 Introduction

From one point of view, the need for a syntactic condition that blocks local binding of pronouns such as the various formulations of Condition B can be seen as a virtual necessity. The necessity follows as a consequence of the assumptions that syntax feeds semantics, that the output of syntax determines semantic interpretation through semantic composition, and that pronominal interpretation is determined in the syntax. There are many ways this necessity can be illustrated, though perhaps the simplest is with respect to an approach to binding based on indices. Consider the sentences in (1).

(1) a. No man criticized his mother
    b. No man criticized him

(1a) readily allows for his to be bound by no man, but a similar bound interpretation is unavailable for the pronoun him in (1b). Under an indexing approach to binding, the interpretation of (1a) in which the pronoun his co-varies with the quantified expression no man derives from those two expressions sharing an index. This can be done in a very simple way as in (2a), following the long syntactic tradition stemming from Chomsky (1981), or in a slightly more complicated way as in (2b), along the lines of Heim (1998), with outer indices like that on [no man] playing the role of binders and inner indices like that on his indicating bound elements.

(2) a. No man$_1$ (t$_1$) criticized his$_1$ mother
    b. [No man]$^1$ ([t$_1$]) criticized [his$_1$] mother

These different approaches to indexing in the syntax make for differences in the semantics. However, they converge on the interpretations that can be associated with the sentence in (1a), with the representations in (2) deriving the rough semantic interpretation in (3).

(3) [No x: man x] (x criticized x’s mother)

This is of course a desirable feature of these approaches to pronominal interpretation since a bound variable interpretation for the pronoun his in (1a) is readily available. If we extend this approach naively to the sentence in (1b), however, we end up with a much less desirable result. Assigning indices to the quantified expression and the pronoun in the same manner as we did for (1a) will result in one of the representations in (4).

(4) a. No man$_1$ (t$_1$) criticized him$_1$
    b. [No man]$^1$ ([t$_1$]) criticized [him$_1$]

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1 This paper has been substantially revised based on extensive and insightful comments from two reviewers. I thank the reviewers for their patience in dealing with the initial version of this paper, which was by all accounts submitted prematurely. While the current version differs substantially from the earlier version in focus, scope and presentation, the reviews helped significantly to shape the paper and to make it clear what was and was not needed. Any inadequacies still remaining are of course my own.
And following the exact same procedures for assigning interpretations to these representations as we used for (2), (1b) will end up getting assigned the interpretation in (5).

(5) \[\text{[No } x : \text{man } x ] (x \text{ criticized } x)\]

The problem here is obvious: (1b) does not have (5) as an available interpretation. And yet (5) follows from the representations given in (4) as a consequence of the same assumptions used to generate (3) as an interpretation from (2). Short of throwing out our semantic assumptions, it looks like the only obvious way to block the interpretation in (5) is by blocking the syntactic representations in (4) that give rise to that interpretation. This makes the need for a syntactic constraint that blocks (4) look like a necessity. And blocking representations like those in (4) is exactly the work that Binding Theory Condition B in its various formulations is meant to do.

The idea of trying to block interpretations like (5) by blocking their production in the syntax is most directly evident in Chomsky’s (1981, 1986) approach to Condition B, which explicitly stipulates that a pronoun must be free – i.e. not co-indexed with a c-commanding antecedent – in its local syntactic domain. However, it is equally present throughout the literature. Reinhart (1983) departs from Chomsky in taking Binding Theory to only restrict bound variable relations and not mere coreference. However, for her as well Condition B applies in the syntax to block representations whose interpretation would give rise to an unwanted bound variable reading. Heim (1998) takes Condition B to block codetermination rather than syntactic binding *per se*, but her definition of codetermination includes reference to linking and co-linking, both of which are syntactic relations represented via indexing. Here too, then, Condition B ends up as essentially a stipulation that certain indexing patterns are not allowed to be formed in the syntax. The analyses of Fox (1998), Büring (2005), Roelofsen (2008) and Heim (2009) likewise share this perspective. While the above perspective looks compelling on the surface, in the next section I will argue that it is not a necessity. In particular, I will show that Condition B as an independent stipulation can be dispensed with from the syntax by slightly changing our understanding of how pronominal interpretation obtains.

### 2 Accounting for Condition B Effects Without Condition B

From an intuitive perspective, interpretation of a non-deictically used pronoun involves a process of anaphora – of finding a suitable antecedent either within the same sentence or in the preceding discourse context. While this intuition is strong, very few approaches to Binding Theory focus on this process, and those like

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2 Heim’s (1998) formulation of Condition B is as follows:

**Condition B:** A pronominal is not codetermined with any c-commanding A-position in its Governing Category.

**Definition:** $\alpha$ and $\beta$ are codetermined iff

(i) $\alpha = \beta$, or

(ii) either one of $\alpha$ or $\beta$ is linked to the other, or

(iii) $\alpha$ and $\beta$ are colinked, or

(iv) for some $\gamma$, $\alpha$ and $\gamma$ are codetermined and so are $\gamma$ and $\beta$.

**Definition:**

a. $\beta$ is linked to $\alpha$ iff $\alpha$’s outer index = $\beta$’s inner index.

b. $\alpha$ and $\beta$ are colinked iff $\alpha$’s inner index = $\beta$’s inner index.
Higginbotham (1983), Heim (1998) and Roelofsen (2008) who make a nod toward the process fail to detail how anaphora resolution works – where it applies and how. In this section I will spell out one hypothesis for how anaphora gets resolved that will make at least the basic instances of Condition B effects fall out as an epiphenomenon. While the analysis developed is intended as a serious proposal in its own right, its more important role is as a proof of concept, showing that it is possible to derive core Condition B effects from timing effects in the resolution of anaphora.

The key to reducing Condition B effects to timing issues is to take seriously Chomsky’s (2001) notion of derivation by phase, but to reinterpret this notion in terms of processing so that phases are processed top-down left-to-right rather than bottom up. Rather than taking the phase to be a unit of phonological spellout, as is fitting for a bottom up approach, I reanalyze the phase as a unit of discourse incrementation. At the completion of a phase in the syntax, everything in the phase that has no further syntactic role to play has its interpretation added to the discourse context.

To use this idea for dispensing with Condition B, we need only analyze pronouns as anaphoric exclusively on elements contained within the discourse context. By doing so, local anaphora for pronouns like that in (1b) will fail to obtain because the intended antecedent simply will not be present in the discourse context at the point at which the pronoun needs to be interpreted. The particulars of the analysis are spelled out in (6).

(6) a. A pronoun can only be anaphoric on something present in the discourse context.
   b. Lexical items are interpreted semantically immediately upon entering the syntactic derivation.
   c. An expression can only have its interpretation added to the discourse context after it has fulfilled all its syntactic roles.
   d. Semantic composition and discourse incrementation apply top down, left-to-right, phase by phase.

To see how these assumptions operate, consider the case of (7) below.

(7) John Smith nominated him

Top-down left-to-right processing means that the first expression to be processed is the subject John Smith, starting out in what is more standardly taken to be its final LF position in SpecIP. Following (6b), when this expression is entered into the syntax it is immediately interpreted. For illustration I will take a name to denote an individual. At this stage, then, we have the following situation:

(8) Syntax: [CP John Smith]
    Semantics: john smith (= [[John Smith]])
    Discourse: C

The name at this point has not yet been case marked nor has it been assigned a thematic role in the syntax, and so

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[3] In the syntactic representations I mark only phase categories, hence CP and vP rather than IP or VP, since the detail within a phase category is unimportant to the analysis of anaphora developed. I use the letter C to represent prior discourse context.
by (6c) it cannot be added to the discourse context. Note that in addition the CP phase has not yet been completed, so (6d) as well disallows John Smith from being added to the discourse context at this stage.

The next expression to be processed is the verb, nominated. I assume that this verb triggers insertion of tense within the CP phase while the verb itself gets entered into the lower vP phase. On the assumption that tense exhausts its syntactic contribution within the CP phase, its interpretation can be added to the discourse context at this point. Not so for the subject, however. Case is assigned to the subject within the CP phase and insertion of the lower vP phase boundary signals completion of the CP phase. The subject, however, does not have its thematic role resolved within the CP phase and so still cannot be added to the discourse context by (6c). The need for a thematic role rather triggers its lowering into the vP phase. Adopting a copy theory of movement, this will give us the following situation.

(9) Syntax: [CP John Smith PAST [vP John Smith nominated]
Semantics: John Smith, [PAST], λx. λy. y nominated x
Discourse: C + [PAST]

At this point we finally reach the pronoun. As should be obvious from looking at (9), if the pronoun were allowed to pick up an antecedent through either the syntax or the semantics we would end up making it possible for the pronoun to refer to John Smith, contrary to what is wanted. Indeed, this is part of the empirical motivation for taking anaphoric resolution to be obligatorily to something present in the discourse context, as stipulated in (6a). As with the other expressions, the pronoun needs to be interpreted immediately upon entering the syntactic derivation. Looking at the discourse context, however, we see that the only potential antecedents are those contained within C, the context preceding the processing of (7). Crucially, John Smith has not yet been added to the discourse context and so cannot serve as the antecedent to the pronoun. If we take the pronoun to pick up Bill as its antecedent from within C, then after completion of the vP phase we have the situation in (10).

(10) Syntax: [CP John Smith PAST [vP John Smith nominated him]]
Semantics: John Smith, [PAST], λx. λy. y nominate x, Bill,
[PAST] ([λx. λy. y nominate x](Bill)(John Smith))
(abbreviated John Smith nominated Bill)
Discourse: C + [PAST] + John Smith nominated Bill

To see how a successful case of sentence-internal anaphora resolution works, compare the derivation just sketched to that of (11).

(11) John Smith nominated his mother

The processing of (11) will parallel that of (7) through addition of nominated. At this point, however, (11) contains the complex DP his mother. By analyzing DP as a phase boundary, the vP phase comes to a close, meaning that everything inside of vP that has no further syntactic role to play can be added to the discourse context. This results in the intermediate stage given in (12), where Δ acts as a placeholder in the semantics for
the DP interpretation to come.

(12) Syntax: \[ [CP \text{ John Smith PAST }] \{vP \text{ John Smith nominated } [DP] \} \]
Semantics: \[ john smith, [[PAST]], \lambda x. \lambda y. y nominate x, \]
\[ [[PAST]]((\lambda x. \lambda y. y nominate x)(\Delta)(john smith)) \]
(abbreviated \( john smith nominated \Delta \))
Discourse: \[ C + [[PAST]] + john smith nominated \Delta \]

At this point we reach the pronoun \( his \), which by assumption is required to pick up its antecedent from the discourse context. Unlike in (9), however, here the interpretation of the subject has already been added to the discourse context, making it a viable antecedent. Picking this interpretation as the antecedent for the pronoun will then lead ultimately to the interpretation in (13).

(13) Syntax: \[ [CP \text{ John Smith PAST }] \{vP \text{ John Smith nominated } [DP \text{ his mother}] \} \]
Semantics: \[ john smith, [[PAST]], \lambda x. \lambda y. y nominate x, \]
\[ [[PAST]]((\lambda x. \lambda y. y nominate x)(\text{john smith's mother})(john smith)) \]
(abbreviated \( john smith nominated john smith's mother \))
Discourse: \[ C + [[PAST]] + john smith nominated john smith's mother \]

This shows how the timing of discourse incrementation can at least in simple cases distinguish between those cases in which anaphora is intuitively felt to be possible and those in which it is not.

3 Extensions of the Core Analysis
3.1 VP Ellipsis: The Basic Case

The analysis sketched in the previous section is not yet complete. In particular, it does not yet allow for sloppy identity interpretations of pronouns under VP ellipsis. To see the problem, consider the simplest case of VP ellipsis in (14).

(14) John Smith nominated his mother. Bill Jones did too.

As was first noted in Sag (1976) and Williams (1977), when the pronoun in the first sentence in (14) is taken to be anaphoric on \( John \), the VP ellipsis in the second sentence can be given either of two interpretations. On a strict identity reading it means that Bill nominated John’s mother, while on a sloppy identity reading it means that Bill nominated Bill’s mother. The analysis of pronominal anaphora sketched in the preceding section, however, only generates the strict identity reading.

To see this we first need an operative analysis of VP ellipsis. The standard analysis is what could be called a VP identity approach. In its essentials, the VP identity approach requires that the interpretation of the elided VP be identical to that of its antecedent VP. This identity can either be the result of anaphora resolution of an empty VP (Williams 1977), a copy operation that copies the interpretation of the antecedent VP into the ellipsis site (Fiengo and May 1991), or it can be a pre-condition to phonetically eliding a VP taken to be
generated and interpreted independently (Sag 1976).4

Looking at the analysis of (11) we can see that the VP identity approach to VP ellipsis will not make a sloppy reading possible in (14). The reason is simple: the pronoun is only ever interpreted as denoting John Smith. At no stage in the derivation does it instead function as a variable. This means that the analysis only derives the VP interpretation in (15a) from the first sentence, not that in (15b).

(15) a. \( \lambda y. y \text{nominate john smith's mother} \)
    b. \( \lambda y. y \text{nominate y's mother} \)

With this restriction on VP interpretation, A VP anaphora approach, a copying approach and a deletion under identity approach all lead to the second sentence in (14) meaning Bill Jones nominated John Smith's mother too. To generate a sloppy identity interpretation under the identity approach to VP ellipsis it is necessary to generate an interpretation for the antecedent VP like (15b), but as mentioned this interpretation is not yet generated by the proposed analysis of pronominal interpretation.

3.2 Generating Bound Variable Readings

To overcome this problem and generate sloppy identity interpretations, some way is needed of generating a bound variable reading for pronouns.56 Sticking with the assumption that pronouns are discourse anaphoric expressions, I will outline two approaches to this problem that will generate the required VP meanings. The first is to abandon the copy theory of movement and to replace it with trace generation and trace abstraction. The details of such an analysis could be based on Heim and Kratzer (1998), where in place of (12) we instead generate something like (16).

(16) Syntax: \([_{CP} \text{John Smith PAST } ]_{vP} 1 t_1 \text{ nominated } [_{DP} \text{ }]\)
    Semantics: john smith, \(\text{[PAST, } ]\), \(\lambda x. \lambda y. y \text{ nominated } x, g(I)?, I?^7\)
    \(\text{[PAST]} \left(\lambda z. \left(\lambda x. \lambda y. y \text{ nominate } x(\lambda)(z))\right)(\text{john smith})\)
(abbreviated john smith nominated Δ)

Discourse:  C + [[PAST]] + john smith nominated Δ

This will make the interpretation of the trace, z, available as a potential antecedent for the pronoun his inside the DP, giving rise to a final semantics for the sentence looking like (17).  

![Equation](17)  

\[ [[\text{PAST}]] (\lambda z. ((\lambda x. \lambda y. y \text{nominate } x)(z \text{’s mother})(z))) (\text{john smith}) \]

From here we can construct a VP interpretation that can be copied into the VP ellipsis site of the second sentence yielding the sloppy identity interpretation desired. The relevant interpretation would be that in (18a), which reduces by lambda conversion to (18b).

![Equation](18)  

- a. \( \lambda z. ((\lambda x. \lambda y. y \text{nominate } x)(z \text{’s mother})(z)) \)
- b. \( \lambda z. z \text{nominate } z \text{’s mother} \)

The second approach to generating a bound variable interpretation for the pronoun maintains the copy theory of movement. The basic idea of the analysis is the same as that sketched above, except that it does away with the trace and its interpretation and instead allows the pronoun to pick as its antecedent a variable inside the interpretation of the verb, a process I call anaphora on a thematic role.  

![Equation](12)  

Syntax:  

\[ [\text{CP} \text{ John Smith PAST } [\text{VP John Smith nominated } [\text{DP} \text{ john smith nominated } \Delta] \text{ abbreviated } \text{john smith nominated } \Delta] \]

Semantics:  

\( \text{john smith, } [[\text{PAST}]], \lambda x. \lambda y. y \text{nominate } x, \)

\( [[\text{PAST}]] (\lambda z. (\lambda x. \lambda y. y \text{nominate } x)(\Delta(\text{john smith}))) \)

(abbreviated \( \text{john smith nominated } \Delta \))

Discourse:  

\( C + [[\text{PAST}]] + \text{john smith nominated } \Delta \)

Taking the pronoun in the DP to be anaphoric on the variable \( y \) inside the verb meaning will generate a final interpretation for the example in (19).

![Equation](19)  

\( [[\text{PAST}]] ((\lambda x. \lambda y. y \text{nominate } x)(y \text{’s mother})(\text{john smith})) \)

From this we can once again generate a VP interpretation that gives rise to a sloppy identity reading, namely the interpretation in (20a), which once again reduces by lambda conversion to (20b).

\( \text{For both this approach and the one to follow it is essential that what gets added to the discourse context include semantic meanings prior to lambda conversion since lambda conversion wipes out the referential / bound variable distinction that is needed to generate the strict / sloppy identity distinction under a VP identity analysis of VP ellipses.} \)

\( \text{If } v \text{ is taken to introduce an external thematic role separately from that of the verb, then this role too could be used as the target of anaphora. Since both thematic roles are introduced within the same phase, the choice between these alternatives is immaterial to our present concerns.} \)

\( \text{This approach in principle allows variables to be captured through lambda conversion, a non-standard assumption in lambda calculus. Adopting this assumption makes it necessary to ensure that variables are never re-used frivolously. If in (i), for example, the interpretations of think and like were } \lambda x. \lambda y. y \text{think } x \text{ and } \lambda x. \lambda y. y \text{like } x \text{ respectively, reusing the variables } x \text{ and } y, \text{ then analyzing the pronoun him as anaphoric on the subject} \)

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The choice between the two approaches just outlined I take to be one of personal preference. In order to avoid the complications noted in footnote 5, in this paper I will adopt the second approach, though nothing essential hinges on this choice.

4 Restrictions on Pronominal Interpretation

With the basic analysis now in place, we can turn our attention to accounting for restrictions on pronominal interpretation that have been uncovered since attention was first focused on the problem in the 1960s. The list of observed phenomena involving restrictions on pronominal interpretation is relatively large. It includes standard Condition B effects within a clause (21a) and in ECM constructions (21b), Strong Crossover effects in (21c,d), Weak Crossover effects in (21e,f), absence of local cobinding in (21g), and VP ellipsis in (21h,i,j).

I will examine these cases in turn below. As will be seen, the analysis developed has a broad empirical coverage, but does not by itself account for all of the restrictions listed here. Empirically, this puts the analysis about on a par with theories that stipulate Condition B as a restriction on syntactic representations.

4.1 The Easy Cases

The first example, (21a), we have already examined in some detail. We saw that *him* cannot be anaphorically related to the interpretation of the subject *John Smith*. Having added a means for generating a bound variable interpretation for the pronoun *his* in (11), we now have to make sure that we did not in the process sneak in another way of generating a local bound variable interpretation for *him* in (21a). Recall that a bound variable interpretation for a pronoun was derived by taking the pronoun to be anaphoric not on the referent of the subject but rather on the subject thematic role inside the verb. We can see by looking at (9),

(i) Bill thinks John likes him.
(ii) $[\lambda x. \lambda y. y \text{think } x](^\text{\lambda x. } \lambda y. y \text{ like } x)(\text{john})(\text{bill})$
(iii) bill thinks (^john likes john)

This example is taken from Fox (1999).
repeated here, that this path to interpretation will not be available for (21a).

(9) Syntax: \([\text{CP} \text{John Smith} \text{PAST} \{vP \text{John Smith nominated}\}\]

Semantics: \([\text{john smith} \{\text{[PAST]}\}, \lambda x. \lambda y. y \text{ nominated } x]\]

Discourse: \(C + \{\text{PAST}\}\)

(9) is a representation of the derivation at the point at which the pronoun \textit{him} is to be added to the sentence. When added, it needs to be interpreted, meaning it needs to find an antecedent. The verb meaning, however, has not yet been added to the discourse context, making both it and its contained thematic roles unavailable as potential antecedents. Thus we can see that adding the possibility of anaphora on a thematic role does not result in our generating an unwanted interpretation for the pronoun in this case. The version of (21a) with the quantified subject \textit{no man} is essentially the same. Since the QP does not refer, the pronoun presumably cannot be interpreted as anaphoric on the QP interpretation.\(^{12}\) If anaphora on the thematic role bound by the QP were possible, this would generate a bound variable reading. However, the relevant thematic role is inaccessible to the pronoun for the same reason that it was in the case with a referential NP subject – the verb’s meaning isn’t present in the discourse context at the point at which the pronoun needs to be anaphorically resolved.

Treating pronouns as anaphoric brings with it the possibility of the pronoun and the subject \textit{John Smith} “accidentally” coreferring. This possibility will arise in particular if there is an instance of \textit{John Smith} in the discourse preceding (21a). As we can see in the discourse in (22), this possibility is one that is mostly harmless.

(22) A: Tell me something that happened to John Smith.
B: John Smith nominated him.\(^{13}\)

The discourse is not impeccable, and so something will need to be said about why not, but interpreting \textit{him} as denoting John Smith in this discourse is far easier than doing so in (21a) uttered out of the blue.

Let us now turn to the ECM example in (21b), \textit{John Smith/Every man believes him to be intelligent}. Here again we have a situation in which out of the blue \textit{him} cannot be anaphoric on the subject: neither a coreferential nor a bound variable interpretation is possible. The analysis given above can account for this fact as it stands, with only one additional requirement: that the pronoun \textit{him} not be restricted to an embedded CP. There are two ways this syntactic requirement can be satisfied. The first is if \textit{him} is generated in a case-marked position within the upper vP and lowered into a lower CP at some later point. The second is if ECM constructions lack a CP altogether in their lower clause. [[ECM Citations needed]] For our purposes either assumption will do, though for illustrative purposes I will adopt the latter approach. With this assumption, the derivation up to the point where the pronoun is encountered will look like (23).

\(^{12}\) I am ignoring instances of E-type anaphora here of the type brought to light in Evans (1980). Under a more complete analysis, it will be necessary to ensure that at least the restrictor of the subject QP gets lowered into the vP phase to block E-type anaphora, and to block direct anaphora on a variable contained within the QP it will likely be necessary for the Q to be lowered into the vP phase as well. I leave these important details aside.

\(^{13}\) The intended meaning comes out most clearly with accents on the subject and the verb, and with the object deaccented.
(23) Syntax: \[ [\text{CP} \text{ John Smith} \text{ PRES} \{vP \text{ John Smith believes}\} \]
Semantics: \[ \text{John Smith, } [\text{PRES}], \lambda p. \lambda x. x \text{ believes p} \]
Discourse: \[ C + [\text{PRES}] \]

Since no additional phase boundary is added before the pronoun, the vP phase is not yet complete at this stage and so its contents cannot be added to the discourse context. This means that just as in the simpler case of (21a), the pronoun cannot have its anaphora resolved either to John Smith or to the subject thematic role of the verb, i.e. \( x \). Once again the analysis fails to generate the illicit anaphoric interpretation.

As with (21a), it is predicted to be possible here again to generate coreference via anaphora on an individual introduced into the discourse context prior to (21b), and once again we find such a possibility to be realized:

(24) A: What does everyone think about John Smith?

B: Well, John Smith believes him to be intelligent.

Again the example is not impeccable, but also again it stands head and shoulders above trying to interpret the pronoun as directly anaphoric on its co-sentential subject when the sentence is uttered out of the blue.

I turn now to the case of strong crossover as in (21c) \( \text{Who did he nominate?} \) and (21d) \( \text{He nominated no man.} \) On an indexing approach to binding, examples like these pose a problem, since the standard mechanisms of semantics would produce a bound variable interpretation for the pronoun from either of the representations in (25), and yet such a bound variable interpretation is patently unavailable. [[SCO Citations needed.]]

(25) a. Who did he nominate t\(_i\)?

b. no man he nominated t\(_i\)

On the analysis presented here, however, the absence of a bound interpretation for the pronoun falls out without any further stipulation. The derivation of (25a) up to the point where the pronoun gets introduced will look like (26) (ignoring the details of the semantics of questions).

(26) Syntax: \[ [\text{CP who did}] \]
Semantics: \[ [\lambda p. \exists x (\text{person}(x) \& P(x)), [\text{PAST}]] \]
Discourse: \[ C \]

With \textit{he} being introduced in SpecIP, no other phase boundary occurs before the pronoun, meaning that the CP phase is still incomplete. Consequently, nothing from the sentence gets added to the discourse context prior to the pronoun’s being interpreted. There will thus be nothing for the pronoun to pick up as an antecedent. Furthermore, even in more complicated cases in which a phase boundary separates \textit{who} from \textit{him}, as in \( \text{Who do people think he likes?} \), \textit{who} still does not get added to the discourse context prior to interpretation of \textit{him} since \textit{who} does not receive its case or get assigned a thematic role until the lowest phase in the sentence, the embedded
vP phase. Finally, a bound variable reading of the pronoun can’t be derived from the pronoun’s being anaphoric on the thematic role bound by the wh-expression since the verb that provides this thematic role doesn’t get added to the discourse context until the pronoun gets added, making that thematic role inaccessible as an antecedent for the pronoun. The same analysis applies in essentially the same way to the example in (21d) involving a QP in place of a wh-expression. The QP example, however, brings in questions of how to analyze QP scope that are largely orthogonal to the questions of pronominal interpretation we are interested in.

The analysis of Weak Crossover effects as in (21e,f) parallels that of Strong Crossover effects just examined. Once again the explanation is that the relevant reading would require the pronoun to take the thematic role bound by the wh-expression/QP as an antecedent, but the pronoun has to have its anaphora resolved at a point in the derivation where the relevant predicate has yet to be added to the discourse context. Since the analysis introduces nothing new, I leave it to the reader to reconstruct it.

4.2 The Hard Cases

For the examples examined until this point, the analysis of pronominal interpretation developed earlier has been adequate, requiring no extra stipulations beyond what could be considered standard assumptions. For the co-binding and VP ellipsis examples that is not the case. Something more will need to be added to give a complete explanation of these phenomena, so I treat them in greater depth below.

4.2.1 Co-binding

Consider first the case of co-binding in (21g), John Smith/No man claimed that he nominated him. The analysis outlined above predicts that each of the pronouns can be anaphoric on either the subject John Smith or the external thematic role of claimed. The former will result in the pronouns being coreferential with the name John Smith, yielding as an interpretation that John claimed that John nominated John. The latter will result in their both being bound by John Smith/No man, yielding as an interpretation that John/no man is an x such that x claimed that x nominated x. The problem is that out of the blue these interpretations are not possible, an observation that goes back at least to Higginbotham (1983). This result has been held to show once again that a syntactic restriction on pronominal reference is required. However, I will argue here that no such restriction is either required or called for.

The general idea that Higginbotham proposed was that pronouns standing in a standard Condition B violation configuration cannot be co-linked, i.e. they cannot both be linked (directly or indirectly) to the same antecedent. (21g) is illustrative in this regard since it shows a case in which such linking is impossible. However, there are several problems that arise with this analysis once it is examined closely. The first problem is that the generalization that the analysis is based on is not fully general. To see this, consider a variant of (21g) modeled after an example from Evans (1980).

(27) There was a meeting yesterday to select a new chair of the department. Did anyone nominate John, for the position?

Yes, HEi nominated him.14

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14 For ease of exposition I indicate intended anaphoric relations with indices. Capitals are used to mark focus and italics to mark deaccenting.
This example contains two pronouns which can easily be analyzed as independently anaphoric on John. Despite the fact that the pronouns stand in what should be a Condition B violation configuration, the final sentence entails that John nominated John with no hint of such a violation here. This suggests that perhaps the problem with the original example in (21g) does not have to do with anaphora.

In (27) it is clear that the focus structure of the sentence combined with the relation of the sentence to the discourse context is doing something to facilitate a coreferential reading of the pronouns. There have been several attempts to account for the impact that focus can have on binding. Heim (2009), for example, argues that focus on a subject can rescue a Condition B violation because focus requires a focus operator, and adjoining an operator to the subject would make the subject no longer c-command the object. Without c-command, the two pronouns in (27) would fail to be in a Condition B violation configuration and so co-reference would be expected to be possible. However, this explanation should work with any sentence having the same focus structure regardless of the context it occurs in, and we see in (28) that this is not the case.

(28) There was a meeting yesterday to select a new chair of the department. What happened there?
   a. *(Only) JOHN NOMINATED him.
   b. (Only) JOHN NOMINATED someone.

As we see in (28a), it is not possible in the context given for the pronoun him to be coreferent with JOHN despite the focus on the subject. Furthermore, adjoining an overt occurrence of only does nothing to help, despite the fact that doing so makes JOHN even further embedded within the subject. (28b) strongly suggests that the difficulties found in (28a) come from the object pronoun – there is no independent problem with the focus structure of the sentence or with the occurrence of that sentence in the context given.

Adopting a version of Condition B according to which pronouns cannot be codetermined with their coarguments, Heim (1998) accounts for examples like (27) by positing an Exceptional Codetermination Rule:

(29) Exceptional Codetermination Rule (Heim 1998)
Let LF be a logical form in which a pronoun is codetermined with, but not bound by one of its coarguments. Then, LF is (marginally) allowed, in violation of Condition B, if it is semantically distinguishable from its binding alternative in the given context.

Roelofsen (2008) suggests that a difference in either propositional content or focus value suffices for two sentences to be semantic distinguishable. Accepting this way of implementing semantic distinguishability, the ECR in (29) will allow (27) because the occurrence of HE nominated him therein, with shared inner indices on the pronouns as in (30a), comes out as semantically distinguishable form its binding alternative in the context, given in (30b).

(30) a. [HE$_1$] nominated [him$_1$]
   b. [HE]$^*$ nominated [him$_1$]

The propositional content of the binding alternative in (30b) is identical with that of (30a) – both are true iff John nominated John. However, the two sentences have different focus values. That of (30a) is given informally in (31a), and that of (30b) in (31b).

\[(31)\]
\[
a. \{x \text{ nominate } \text{John: } x \text{ is an individual}\}
\]
\[
b. \{x \text{ nominated } x: x \text{ is an individual}\}
\]

The proposition that Mary nominated John will be a member of (31a), but will not be a member of (31b). Conversely, the proposition that Mary nominated Mary will be a member of the latter focus value but not of the former. This makes the two sentences semantically distinguishable, which according to the ECR makes it possible for (27) to violate Condition B.

Here once again we have an explanation that only works for some but not all of the examples it should apply to, and once again (28a) is a problem case. The sentence *Only John nominated him* has two ways in which the pronoun his could potentially have its anaphora resolved sentence internally. On one interpretation, him is anaphoric on John, and the sentence entails that no one else nominated John. On another interpretation, him is bound by only John, and the sentence entails that no one other than John nominated him/herself. These two interpretations are semantically distinguishable, and hence by the ECR it should be possible for the coreferential interpretation to circumvent Condition B. However, the coreferential interpretation is as bad as the bound interpretation, contrary to prediction.

Finally, consider Reinhart (2006). Reinhart argues that binding possibilities are restricted by Rule I, revised from her earlier work and given below.

\[(32)\] Rule I
\[
\alpha \text{ and } \beta \text{ cannot be covalued in a derivation } D, \text{ if}
\]
\[
a. \alpha \text{ is in a configuration to A-bind } \beta ,
\]
\[
b. \alpha \text{ cannot bind } \beta \text{ in } D, \text{ and}
\]
\[
c. \text{ The covaluation interpretation is indistinguishable from what would be obtained if } \alpha \text{ A-binds } \beta .
\]

Here as with Heim (1998, 2009) the question arises of when two interpretations count as indistinguishable. If we accept Roelofsen’s characterization here as well, then we find that Rule I is incapable of explaining when pronominal coreference is possible and when it is not. In particular, Rule I fails to exclude (28a), repeated below.

\[(28)\] There was a meeting yesterday to select a new chair of the department. What happened there?
\[
a. *\text{JOHN, NOMINATED him}.
\]

The question that arises here is whether the pronoun him (=β) can be covalued (coreferent) with JOHN (=α). Note first that (28a) satisfies both (32a) and (32b). That is, (a) JOHN is in a configuration to A-bind him, and (b) JOHN cannot bind him (by Condition B). However, the interpretation that arises by taking JOHN to bind him differs from that that arises from taking him to simply be coreferent with JOHN. The focus interpretation
of (28a) under coreference is given in (33).

\[(33) \quad \{R(john)(x): \text{x is an individual and R is a 2-place relation}\}\]

The focus interpretation under an assumption of binding, in contrast, is (34).

\[(34) \quad \{R(x)(x): \text{x is an individual and R is a 2-place relation}\}\]

Since (34) differs from (33), by clause (32c) of Rule I it should be possible to obtain a coreferential interpretation for (28a). However, such an interpretation is unavailable. This shows that Rule I is insufficient to determine when a potential anaphoric interpretation of a pronoun is possible and when it is not.

Note that on the analysis being put forth in this paper the distinction between (27) and (28) is exactly what is expected. In both sentences it is predicted to be impossible for the pronoun him to be anaphoric on the occurrence of HE/JOHN in the same sentence. In (27), however, there is an alternative potential antecedent made available in the preceding sentence that can be used to secure the desired coreference, while in (28) there is not. Coreference can thus be derived indirectly in (27) but not in (28).

While the example in (27) suffices to show that there is no problem in principle with two pronouns sharing an antecedent even when the pronouns are in a(n apparent) Condition B violation configuration, the explanation given for that example does not yet tell us what is wrong with the original example in (21g), John/No man claimed that he nominated him. While it might be possible to fine-tune the analysis of anaphora to block this example, it is difficult to see how such a fine-tuning could be accomplished in a principled fashion. Instead, I propose that what is wrong with (21g) has nothing to do with anaphora, but rather derives from problems with givenness. Schwarzschild (1999) argued that sentences in a discourse have to satisfy a givenness constraint. Modifying his analysis slightly along the lines of Tancredi (1992), I take an expression X to count as given iff the result removing all foci from X is instantiated in the discourse context. We can see how this analysis successfully applies in the case of (27). In the final sentence of that example, i.e. HE nominated him, the result of removing the focused subject is the VP nominated him. The interpretation of this VP, i.e. \(\lambda x. x \text{nominated john}\), occurs already in the discourse context, and so the sentence satisfies givenness as required.

As with anaphoric interpretation of pronouns, givenness constraints can be satisfied either across sentences as in (27) or within a sentence as in (35).

\[(35) \quad \text{There was a meeting yesterday to select a new chair of the department. What happened there?}\]
\[\text{a. JOHN claims that MARY NOMINATED him.}\]
\[\text{b. MEN claim that MARY NOMINATED a man.}\]

If we assume that both processes – anaphora resolution and givenness licensing – are discourse processes, then we would naturally expect that the timing of discourse incrementation that applies for anaphora will apply for givenness licensing as well. It would be equally natural to assume that givenness is checked phase by phase, an
assumption I will adopt without argument. Once we make that assumption, the pattern of deaccenting seen in (35) becomes easy to explain. In both (a) and (b) something is added to the discourse context in the higher vP phase that instantiates the deaccented expression in the lower vP phase.

With this last piece in place, we are now ready to give an explanation to the problematic example in (21g). I assume that what needs to be blocked is what might be called a neutral pronunciation of this example, indicated in (36).

(36) John/No man claimed that he NOMINATED him

After processing the upper two phases, the discourse context will be incremented with the interpretations of John/no man and claimed as well as with the composition of these interpretations. In processing the lower vP phase we have one focused expression – the verb NOMINATED – and two deaccented expressions – the two pronouns. To check for satisfaction of givenness, we eliminate the verb and check to see if what remains is instantiated. What remains are two identical pronoun interpretations. The discourse context, however, contains only one instantiation of this interpretation. We can naturally take this to violate givenness.

Partial support for the analysis just given comes from restrictions on deaccenting that are independent of anaphora. Consider in this respect the two sentences in (37), both uttered out of the blue.

(37) a. A woman claimed that A MAN NOMINATED a woman
  b. #A woman claimed that a woman NOMINATED a woman

Both of these sentences contain only indefinites, which are incapable of being given an anaphoric interpretation, and so there is no issue of possible intended coreference. (37a) is taken to be about two women and (37b) about three. However, givenness can be licensed not only by identity of referent but also, as (37a) shows, by identity of content (see fn. 11). That is, the final occurrence of a woman in (37a) can have its deaccenting licensed by the presence of the initial occurrence of a woman despite the fact that the two DPs cannot be intended as referring to the same woman. We see in (37b), however, that it is not possible for two separate

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15 Spathas (2010) too argued for the need to check givenness sentence-internally. The analysis proposed here differs from his analysis, though, in that Spathas takes givenness to be checked at cyclic nodes, not at phase boundaries. I save a detailed comparison of the predictions of these two analyses for a later date.

16 As has been known at least since Rochemont (1986), the matching up required for licensing given expressions is not absolute identity. Without getting into a detailed analysis of the relevant phenomena, I will simply note here that intended identity of reference as is found with anaphora in (35a) and identity of content as with the repeated indefinite in (35b) are two ways of satisfying the relevant identity requirement on deaccenting / givenness.

17 The reliance on instantiation, following Tancredi (1992), rather than entailment along the lines of Schwarzschild (1999) comes from the need to block licensing of multiple deaccenting by a single occurrence of an individual such as John in a context. If we were to adapt Schwarzschild’s analysis we would end up with a requirement that the discourse context entail $\exists R (R(\text{John})(\text{John})).$ The problem is that $\exists x (\text{claimed}(x)(\text{John}))$ actually satisfies this requirement. All we need to do is to define a relation $R$ such that for any individual $y$, $R(y)(y)$ is true iff $\exists x (\text{claimed}(x)(y))$. The proposal in the text avoids this problem by (implicitly) requiring separate instantiation of each relevant interpretation within a phase. If Schwarzschild’s analysis can be modified by implicitly restricting the relations $R$ one can employ, then it should be possible to retain his entailment-based analysis rather than the instantiation-based analysis adopted here. Developing such an analysis is beyond the scope of this paper, however.
occurrences of a woman within the lower clause to both have their deaccenting licensed by the single occurrence of a woman in the upper clause. This is the same pattern of dependency that was found to be impossible in (21g). However, since the relevant NPs in (37) are anaphorically unrelated, the unacceptability of (37b) cannot be reduced to restrictions on anaphora, no matter how indirect. Whatever the proper explanation is for the unacceptability of (37b), it looks clear that that same analysis should apply to (21g). This not only gives us an explanation of the degraded status of that example but also relieves us of the burden of having to place otherwise unmotivated restrictions on the output of anaphora.

Before concluding this section, it is worth making a couple further points about (21g). I argued above that the badness of that example comes not from problems of indirect anaphora but rather from its not satisfying givenness. It follows that if we can find a context that the sentence can be embedded in in which the givenness is licensed the sentence should be acceptable. Such a context is given below.

(38) There was a meeting yesterday to select a new chair of the department. Did anyone talk about John there? In particular, did he himself talk about him?

_He_/HE claims that _he_ NOMINATED _him_.

Here we have a context in which the question has been raised of whether John talked about John. It is, to be sure, a somewhat unnatural context, but necessarily so. What’s needed to make the accentuation possible is a relation in the context between John and himself, but one that cannot be represented with a bound variable. The context in (38) accomplishes this by essentially embedding an Evans (1980)-like example in the context. While not exactly natural English, the final sentence can easily be uttered in this context with coreference intended among all the pronouns.

It should finally be noted that the example in (38) gives the lie to the notion that distinct guises have anything to do with creating acceptable sentences that violate standard versions of Condition B, a claim made by Heim (1998). In (38), all pronouns are ultimately dependent on the interpretation of a single expression, namely the name John, for their interpretation. Whatever guise might be associated with this name, it is but a single guise.

4.2.2 VP Ellipsis

I turn now to the problems of VP ellipsis. An explanation of the behavior of pronouns in VP ellipsis environments is in most cases orthogonal to the question of how to account for Condition B effects. However, historically VP ellipsis has been taken to be a test bed for theories of pronominal interpretation, and the analysis of Condition B effects presented here is a theory of pronominal interpretation. For that reason, I will (too) briefly outline how the analysis of pronominal interpretation presented above can interact with a theory of VP ellipsis to account for patterns of interpretation found there. In doing so I will focus exclusively on the interpretation of pronouns in ellipsis environments.

One of the core facts that any analysis of VP ellipsis has to account for is the ambiguity that arises when an elided VP contains a pronoun, as in (39).
John loves his mother and Bill does **love his mother** too.

If the overt *his* in the antecedent clause refers to someone other than John, then the pronoun in the elided VP has to have the same reference. If, on the other hand, the overt pronoun refers to John, the elided VP in the second clause can be given one of two distinct interpretations. On a strict identity interpretation, it refers to John and the second sentence means that Bill loves John’s mother. On a sloppy identity interpretation, it ends up referring to Bill and the second sentence means that Bill loves Bill’s mother. As we saw earlier, a VP identity approach to VP ellipsis accounts for this ambiguity nicely by analyzing the pronoun as ambiguous between a bound variable interpretation and a referential interpretation.

While the VP identity approach to VP ellipsis is fairly successful, it faces challenges with cascading ellipsis as in (21h,j).

(21) h. Smithers thinks that his job sucks, and Homer does, too. But Marge doesn’t.

j. John thinks he’s a genius. Bill does too, but his father doesn’t.

These sentences each have two across the boards readings that are readily generated under any VP identity approach to ellipsis. However, they also have a third reading in which the first elided VP is interpreted as sloppy (Bill think’s Bill’s a genius / Homer thinks Homer’s job sucks) while the second elided VP is strict w.r.t. the first elided VP (Bill’s father doesn’t think Bill is a genius / Marge doesn’t think Homer’s job sucks). This third reading poses a problem for any VP-identity based analysis of VP ellipsis. The reason is simple. If the first elided VP has to be identical with the VP of the initial clause in these examples, and the second elided VP has to be identical with the first elided VP, then all three VPs have to be identical. The strict identity reading of the first elided VP, however, requires that the pronoun in the initial VP be referential, while the sloppy identity reading of the second elided VP requires that the pronoun in the first elided VP be a bound variable. And these conflicting requirements cannot be met if VP ellipsis requires VP identity.

To overcome the problem just seen with (21h,j), I will propose a non-standard analysis here. I take VP ellipsis to be possible if application of the elided VP’s meaning to the subject in the antecedent clause yields the interpretation of the antecedent clause. To illustrate the basic analysis, consider once again the example in (39), with the interpretation of *his* in the first clause anaphoric on *John*, yielding the meaning that John loves John’s mother. The VP in the second clause can then be elided just in case when its interpretation is applied to (the interpretation of the antecedent subject) *John* it yields this same meaning. There are two potential interpretations of the second VP that will give rise to this meaning. On the one, *his* is interpreted referentially just as in the antecedent VP, yielding a VP meaning of $\lambda x. x$ loves John’s mother. On the other, *his* in the deleted VP is anaphoric on the external thematic role of *loves* yielding the bound variable interpretation $\lambda x. x$ loves x’s mother. The former option generates the strict identity interpretation and the latter the sloppy identity interpretation.

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18 Fiengo and May gave a rather convoluted explanation of (21j) that depended on *his* being coindexed with *Bill*, but that analysis fails to carry over to (21h).

19 This approach to VP ellipsis is independent of the mechanisms used to secure the referential and bound variable interpretations of pronouns. I use the analysis of pronouns presented earlier for illustration.

20 This derivation of strict and sloppy readings proceeded from the assumption of a referential interpretation of
Applying the analysis to (21h,j) we find it possible to generate all the readings that arise. I will illustrate with (21j). If the initial pronoun refers to Sam, then the first clause will mean that John thinks Sam is a genius. The only VP meaning that can generate this interpretation when applied to Sam is \( \lambda x. x \text{ thinks } \text{Sam is a genius} \). The analysis of VP ellipsis given above therefore requires the first elided VP to have that meaning, and will result in the second clause meaning that Bill thinks Sam is a genius. The second elided VP will have the same unique possibility for the same reason, resulting in the interpretation Bill’s father doesn’t think Sam is a genius. Turning to the case where the overt pronoun in the first clause refers to John, there are two VP meanings that can generate this interpretation: \( \lambda x. x \text{ thinks } \text{John is a genius} \), and \( \lambda x. x \text{ thinks } x \text{ is a genius} \). Regardless of the interpretation actually assigned to the overt VP, our analysis allows us to have either VP meaning for the second clause, i.e. for the first elided VP. The first choice yields a strict identity reading for that clause, and the second choice a sloppy identity reading. For the interpretation of the final clause we have to take these two possibilities in turn. In the case where the second clause has a strict identity interpretation, the only VP meaning that could generate that interpretation is the one that actually occurs, namely \( \lambda x. x \text{ thinks } \text{John is a genius} \). The final elided VP will thus have to have this as its interpretation producing the across the boards strict reading. In the case where the second clause has a sloppy identity interpretation, there are two VP meanings that could produce that same interpretation: the actual VP meaning, \( \lambda x. x \text{ thinks } x \text{ is a genius} \), and the non-actual \( \lambda x. x \text{ thinks } \text{Bill is a genius} \). The latter VP meaning could not have been employed in the middle clause since this would generate the meaning John thinks Bill is a genius for the first clause, violating our identity requirement for VP ellipsis. However, it can be employed in the final clause, yielding the desired sloppy-strict reading, on the assumption that the antecedent for the second elided VP is the middle clause.

While the analysis of VP ellipsis just sketched generates all of the interpretations desired, without further restriction it overgenerates. In particular, in the case in which the first elided VP is given a sloppy identity interpretation (Bill thinks Bill is a genius), the mechanisms employed make it possible to generate the unavailable interpretation Bill’s father doesn’t think that John is a genius by taking the antecedent of the second elided VP to be the overt VP of the initial clause. Since such an interpretation is impossible, clearly something needs to be done. Without proposing any detailed mechanisms, I would like to suggest that the problematic derivation involves an illicit antecedence relation, skipping over an immediate potential antecedent to take a more distant one. That such an antecedence relation is impossible can be seen by considering the structurally parallel example in (40).

(40) John loves Mary, and Bill loves Sue, but Sam doesn’t.

Here the final sentence can easily mean that Sam doesn’t love Sue. It cannot mean that Sam doesn’t love Mary. If it were possible for the final sentence to be taken as contrasting with the initial sentence, however, then the latter interpretation would be expected to be possible.  

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21 There are actually cases in which such an antecedence relation is possible, where what is being contrasted is a two-clause chunk of discourse as in (i).

\[i: \text{John wants to go out, but his wife won’t leave the house. Bill does too, but his wife won’t either.}\]

Here there are two instances of VP ellipsis, each of which skips the most immediate potential antecedent to
It should be noted that nothing in the above analysis puts any restrictions on how the anaphora of the pronoun gets resolved. In particular, it is equally possible in principle for the final elided pronoun to be anaphoric on John, Bill or, say, Sam. However, the discourse requirement of the final clause contrasting with the clause that immediately precedes it blocks the logical fourth possibility of generating the interpretation *Bill’s father doesn’t think John is a genius* in the context of a sloppy reading of the middle clause in (21j), and also blocks a fifth logical possibility not usually considered, that of generating the interpretation *Bill’s father doesn’t like his own mother* in the context of a strict reading of the middle clause. These would only be possible if *His father doesn’t could be taken as contrasting exclusively with John thinks John is a genius* and not with *Bill thinks Bill/John is a genius*, but we have seen already in (40) that that pattern of contrast is impossible. It should finally be noted that simultaneous contrast with both of the first two clauses, if that is something that is independently possible, will force an across the board interpretation. If people naturally take the third clause to contrast with both of the preceding clauses, this fact could account for the preference for across the board readings when examples like these are presented out of the blue.

Turn now to (21i) *John claims he loves his mother, and Bill does too*. As with the example in (21h), Fiengo and May (1994) and others have taken this example to have a total of three acceptable readings (under the assumption that both pronouns in the first clause are anaphoric on John) rather than the logically possible four. In particular it is argued that there are two across the board readings but only one mixed reading, a sloppy-strict reading with the first pronoun interpreted sloppily and the second one strictly. If this claim is true it is problematic for the analysis proposed here, which clearly generates all four logical possibilities. However, Roelofsen (2008), citing Hardt (1993), argues that all four logical possibilities are in fact realized:

Max is suspected of murdering Bob’s mother. Bob has claimed that Max was visiting Bob’s mother at the time of the murder. But Max has presented as his alibi that he was at home with his own mother during the night in question. When the district attorney asks where Max was, someone replies:

[(41)] Well, Max says he was visiting his mother, but Bob does too.

The preferred interpretation of the target clause in [(41)] is that Bob said that Max was visiting Bob’s mother. But this reading corresponds exactly with the strict-sloppy reading in Dahl’s puzzle.
While this leaves open the question of why the strict-sloppy interpretation is relatively difficult to obtain, it suggests once again that the pronominal anaphora needed to generate this interpretation should not be blocked.\footnote{Roelofsen (2008) suggests that the difficulty in getting mixed readings, and in particular for getting the strict-sloppy reading just illustrated, can be reduced to a preference for local anaphora. His approach cannot be adopted here, however, since it depends crucially on a VP identity-based theory of VP ellipsis.}

The above comments on VP ellipsis are far too brief and by no means intended as the final word on the construction. The purpose behind developing the analysis was only to show that well-known restrictions on VP ellipsis do not constitute a barrier to the analysis of pronoun interpretation being proposed in this paper, and in particular that they do not point to a need to place syntactic restrictions on either the process of anaphora or its output. Clearly more work will be needed for the ideas about VP ellipsis outlined here to be turned into a full-fledged theory, but that work will have to await another occasion.

5. Remaining Problems for the Analysis

The analysis of anaphora and its interaction with discourse incrementation proposed in this paper accounts for the core data standardly covered by binding theory Condition B. However, the analysis itself is still incomplete in at least three respects. The first involves the treatment of strong and weak crossover effects. While the analysis successfully predicts the unacceptability of all instances of crossover, it fails to distinguish the moderate badness of weak crossover from the extreme badness of strong crossover. The difference suggests a timing difference for processing the head of a phase category and the rest of that phase, though I will not go into this level of detail here. Second, nothing in the analysis suggests why pronouns in psych predicate sentences should behave any differently from pronouns in sentences with other kinds of predicates, and in particular why the former should allow both forward and backward anaphora as seen in (42).

\begin{enumerate}
\item His acne bothers every schoolboy.
\item Every disease bothers people suffering from it.
\end{enumerate}

Third, the analysis does not account for reconstruction effects, as in (43).

\begin{enumerate}
\item His mother every boy loves.
\end{enumerate}

In both (42a) and (43), if we were to follow a strict top-down, left-to-right processing order, it should not be possible for the pronoun to be bound by the quantifier. The pronoun would have to be interpreted immediately upon being encountered, but neither the quantifier nor the verb has been added to the discourse context at that point. And yet in both sentences there is no problem with this binding. Finally, as already noted, the analysis does not account for E-type interpretations of the type illustrated in (44).

\begin{enumerate}
\item Few congressmen admire Kennedy, and they are junior \hfill (Evans 1980)
\item Every man who gave his paycheck to his wife is wiser than every man who gave it to his mistress
\end{enumerate}

In (44a), \textit{they} refers to the congressmen who admire Kennedy, but there is no expression that has this as its
interpretation, nor is there a thematic role applied to such a referent, so the mechanisms of anaphora considered here clearly will not generate the relevant interpretation. In (44b), the pronoun *it* is intuitively interpreted as *his paycheck*, with the occurrence of *his* therein bound by the local occurrence of *who*, and yet once again the mechanisms of anaphora considered here fail to generate such an interpretation. While all of these problems are serious and will require extensions or revisions to the main analysis, space and time limitations require that I put them off for another occasion.

6 Discussion and Conclusion

The analysis developed in this paper takes pronominal anaphora to be unambiguously a discourse process, and constrained only by the implicit workings of discourse incrementation. This view of the matter differs starkly from that expressed in Büring (2005, pp. 9-10) who summarizes what can be called the standard view:

> It should be stressed that the Binding Conditions … are no longer about the traditional, intuitive concept of antecedence, but about a more abstract concept, binding. Binding Theory, so construed, is then a theory only about a subset of anaphoric relations, excluding non-c-command anaphora, both across and with sentences.

The question of which approach is correct is obviously an empirical question, but it also has a strong conceptual component. And from a conceptual point of view the analysis presented here is superior in that it accounts for restrictions on the interpretation of pronouns without having to add an *ad hoc* restriction to the syntax specifically for that purpose. Consider the specifics of the analysis given in (6), repeated here.

(6)  

a. A pronoun can only be anaphoric on something present in the discourse context.  
b. Expressions are interpreted semantically immediately upon entering the syntactic derivation.  
c. An expression can only have its interpretation added to the discourse context after it has fulfilled all its syntactic roles.  
d. Semantic composition and discourse incrementation apply top down, phase by phase.

The hypothesis in (6a) restricts pronominal anaphora to discourse anaphora, and in this respect differs from the basic assumptions behind a syntactic binding theory. However, as the quote from Büring makes clear, binding theory is not meant to replace a theory of discourse anaphora but merely to supplement it. Occam’s razor thus gives us here a clear reason to prefer (6a) should that assumption prove adequate: (6a) treats all instances of pronominal interpretation in the same way and derives observed restrictions from that single process of interpretation rather than adding on top of it syntactic restrictions on an independent relation of binding. (6b-d) all involve timing issues, issues that for the most part have been left aside in most theorizing about binding. However, if expressions get interpreted in the course of a discourse, and if at some point their interpretations get added to the discourse context, common ground or what have you, then the question of when they get added is one that cannot be avoided in the final analysis. The three hypotheses given represent an initial hypothesis of

23 Shan and Barker (2003) implement a version of discourse incrementation within a continuation-based analysis which derives crossover and superiority effects. Their analysis, however, does not derive Condition B effects, from timing effects or otherwise. It is not clear to me at present whether the analysis proposed here – taking the phase to be the relevant unit for discourse incrementation – could be adapted to their framework, though I do not see any obvious reasons why it could not be.
how that addition comes about, making explicit things that have until now mostly been left implicit, but inclusion of some such analysis is a necessity for any complete analysis of language that makes use of a concept such as discourse context or common ground. While the specifics of the analysis may well ultimately prove to be unsustainable, the issues they are addressing will not thereby go away. In this respect, the analysis given in (6) constitutes a minimalist approach to accounting for Condition B effects in that the effects fall out from the normal operation of independently required mechanisms.

To the degree to which the analysis presented here is successful, it suggests a wider range of application for the timing issues involved. In particular, it suggests that any phenomenon in which an otherwise regular process that can apply across sentences is blocked from applying too locally within a sentence is a strong candidate for a discourse process, one that can be accounted for by specifying the operational discourse mechanisms and showing how they interact with discourse incrementation. In addition to pronominal interpretation and givenness licensing, determination of domains of quantification can be added as another plausible candidate for such a process. The locality restriction on this process can be illustrated in (45).

(45)  
a. 10 students criticized every boy  
b. 10 students’ mothers criticized every boy

It is possible to understand every boy in (45b) as meaning every boy among the 10 students, i.e. as quantifying over the set of 10 students introduced by the subject. Such an interpretation is not possible in (45a), indicating that whatever process it is that allows 10 students to fix the domain of quantification of a quantifier such as every boy is a process that cannot apply too locally. How many other phenomena can be given an account along these lines remains to be seen.

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