Binding, Coreference, and Presuppositions: A Presuppositional Precede-and-Command Binding Theory

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Abstract

Almost all current approaches to the binding theory (the conditions that regulate covaluation between NPs within a sentence) have accepted the view of Reinhart (1983a,b), according to which the binding theory should regulate only syntactic binding and not coreference. They also adopt the view that syntactic movement is implicated somehow in binding (either directly, or indirectly, through constraints on chains). In this paper, I argue that both of these ideas are incorrect. Instead, we want a binding theory that is unrelated to syntactic movement, and one that regulates both binding and coreference, as the classical binding theory had it (e.g., Chomsky 1981). I propose a new binding theory that combines the Precede-and-Command analysis of Bruening (2014) with the presuppositional approach to Binding Condition A in Sauerland (2013).

1 Introduction

The classical binding theory (e.g., Chomsky 1981) did not distinguish between *binding* and *coreference*. Its conditions (Conditions A, B, and C) regulated both, by imposing conditions on coindexing. In contrast, almost all alternatives to the classical binding theory have accepted the view of Reinhart (1983a,b), according to which the binding theory should regulate only syntactic binding and not coreference. Many also adopt the view that syntactic movement is implicated somehow in binding.

In this paper, I argue that both of these ideas are incorrect. First, I argue that the binding theory should regulate both binding and coreference, contrary to all work that has followed Reinhart. Second, I argue that we need a binding theory that is unrelated to syntactic movement. The relation between anaphors in particular and their antecedents can reach across boundaries that are islands to movement. I propose a new binding theory that combines the Precede-and-Command analysis of Bruening (2014) with the presuppositional approach to Binding Condition A in Sauerland (2013). I call this the *PPC binding theory*, for "presuppositional precede-and-command." As I will show, the PPC binding theory successfully accounts for the basic facts of Binding Conditions A, B, and C, as well as the exact range of exceptions to them in focus and ellipsis contexts. It also successfully

captures the binding behavior of epithets, and it extends to reciprocals, something that most alternatives to the classical binding theory ignore. In addition, it explains why strong crossover cannot be circumvented by focus. It also makes novel predictions about cases of overlapping reference, which I argue are largely borne out.

I begin in section 2 by arguing that we need a binding theory that regulates both binding and coreference, as the classical binding theory had it. Section 3 then discusses syntactic movement and shows that the binding conditions are unrelated to movement. Section 4 proposes a new theory, the PPC binding theory, and shows how it accounts for various facts. Finally, section 5 discusses three further issues.

2 The Binding Principles Regulate Both Binding and Coreference

The classical binding theory did not distinguish between binding and coreference. It considered both of them to use the same mechanism, coindexing, and imposed conditions on coindexing. Reinhart (1983a,b), in contrast, argued that the binding conditions should only regulate syntactic binding, and not coreference. Let me begin by reviewing what the distinction is, and why we need it.

First, Reinhart views syntactic binding as the binding of a variable by a lambda operator. In the following example, the pronoun in the embedded clause can be a bound variable, which means that it is bound by the same lambda operator that binds the trace of the quantificational subject:

(1) Every middle-aged man believes that he is an above-average driver.
every middle-aged man λx.x believes that x is an above-average driver

This is also true of pronouns referring to non-quantificational, referential expressions; they can also be bound:

(2) Goofy knows that he is an idiot.
Goofy λx.x knows that x is an idiot.

According to Reinhart, binding in the form of binding by a lambda operator is encoded in the syntax and is subject to syntactic conditions (c-command, for instance). Coreference, in contrast, involves no syntactic relation at all. It is not available at all to non-referential expressions like quantifiers, but with referring expressions like *Goofy*, other NPs can be specified as being coreferential with them in a discourse model. In such a case, the two NPs are not related in the syntax in any way. Rather, the discourse model specifies what they refer to. This is encoded using parentheses, as in the following (for a more technical implementation, see Roelofsen 2010):

(3) Goofy knows that he is an idiot.
Goofy λx.x knows that he is an idiot. (he=Goofy)

In (3), the pronoun is not related to its antecedent *Goofy* in the syntax; there it is simply a free variable. It is only in the model of discourse that it is specified as referring to the individual denoted by *Goofy*.

One of the main motivations for distinguishing between binding and coreference comes from strict and sloppy readings in ellipsis. Consider a simple example of this ambiguity:

(4) Samantha called her mother. The teacher did too.
sloppy reading: 'The teacher called the teacher's mother.'
strict reading: 'The teacher called Samantha's mother.'

The standard analysis of the strict/sloppy ambiguity is that sloppy readings arise from variable binding, while strict readings instead involve coreference (Sag 1976, Reinhart 1983b, Heim and Kratzer 1998):

(5) Samantha called her mother. The teacher did too.
   a. Samantha λx.x called x's mother.
   The teacher λx. x called x's mother.
   b. Samantha called her mother. (her=Samantha)
   The teacher called her mother. (her=Samantha)

In the sloppy reading in (5a), the possessive pronoun is a variable bound by the same lambda operator that binds the subject, resulting in the mother being the mother of the subject in the elided clause as well as in the antecedent clause. In (5b), in contrast, the possessive pronoun is unrelated to the subject, and happens to refer to Samantha. It does so in the elided clause as well, resulting in the strict reading.

The strict-sloppy ambiguity also gives rise to different interpretations in cases of focus:

(6) Even GOOFY knows that he is an idiot.
   a. even Goofy λx.x knows that x is an idiot.
   b. even Goofy λx.x knows that he is an idiot. (he=Goofy)

In the sloppy reading of (6) in (6a), what alternatives to Goofy know is that they themselves are idiots. In the strict reading in (6b), what alternatives to Goofy know instead is that Goofy is an idiot (this is the more salient reading for this sentence).

Making a distinction between binding and coreference thus provides an account of the strict-sloppy ambiguity.[1] It is important to clarify at this point, though, that strict and sloppy readings do not by themselves argue for the view that the binding principles should regulate only binding and not coreference. They simply indicate that we need to make a distinction between binding and coreference, but making that distinction is a separate issue from deciding what the binding conditions regulate. That is, we can distinguish binding from coreference in general, but still have a binding theory whose binding principles do not care about that distinction.

[1] I should note that it is too simplistic to simply equate sloppy readings with variable binding and strict readings with coreference, as the following examples show:

(i) a. All assistant professors think they are underpaid, and all associate professors do too.
   b. Every wife thinks that only she respects her husband.
   c. The woman he lived with told Bill to get out, and the woman Ken lived with did too.

In (ia), the strict reading ("all associate professors think that all assistant professors are underpaid") could not be due to coreference, because the NPs are non-referential quantifiers (see Fiengo and May 1994: 115–117; this particular example comes from Satoshi Tomioka). Similarly for (ib) (example in Reinhart 2006 based on Heim 1998). In (ic), the available sloppy reading cannot be captured by binding, because the variable as the object of *told* needs to be bound by an NP that is buried inside the subject, not by the subject itself (Davis 2009: note 30). I will ignore this simplification here, however.

The argument that the binding theory should only regulate binding and not coreference comes from exceptions to the binding principles. Binding Condition C, for instance, says that an R-expression may not have a commanding antecedent:[2]

(7) * He_1 knows that Goofy_1 is an idiot.

However, in certain circumstances, for instance when the commanding pronoun is focused, Condition C can be violated (Evans 1980, Reinhart 1983b):

(8) Even HE_1 knows that Goofy_1 is an idiot.

Reinhart's proposal that the binding conditions should only regulate syntactic binding and not coreference is meant to account for this. Simplifying greatly, the basic idea is that only syntactic binding is regulated by the binding conditions like Condition C. Coreference is in principle free. However, a pragmatic obviation principle bars coreference when binding would be possible and indistinguishable in interpretation. This is what rules out coreference in a standard Condition C configuration:

(9) * He_1 knows that Goofy_1 is an idiot.

a. * He λx.x knows that x is an idiot.

b. * He knows that Goofy is an idiot. (he=Goofy)

Binding Condition C rules out binding as in (9a). Coreference as in (9b) would be allowed, but because it is indistinguishable in interpretation from the bound reading in (9a), it is ruled out.

In contrast, in the focus case in (8), coreference gives rise to a different interpretation from binding:

(10) Even HE_1 knows that Goofy_1 is an idiot.

a. Even HE λx.x knows that x is an idiot.

b. Even HE knows that Goofy is an idiot. (he=Goofy)

The interpretation with binding would mean that alternatives to Goofy know that they themselves are idiots (the sloppy reading). The interpretation with coreference is different, it means that alternatives to Goofy know that Goofy is an idiot (the strict reading). This is a different interpretation from the bound interpretation, and it is therefore allowed. This explains why principles like Binding Condition C can be violated in certain circumstances, for instance with focus.

Hence, the argument is that the classical binding theory is too strict. On the face of it, (8) violates the classical formulation of Binding Condition C, and ought to be ruled out. The motivation for the view that the binding conditions should only regulate binding and not coreference is the fact that the classical binding theory does not admit of exceptions like the case of focus in (8).

The view that the binding principles should regulate only binding and not coreference has been adopted by, among others, Grodzinsky and Reinhart (1993), Heim (1998), Fox (2000), Safir (2004), Büring (2005b), Reinhart (2006), Roelofsen (2010). It also forms a cornerstone of the most prominent reductionist account, that of Reuland (Reuland 2001, 2011, 2017, Volkova and Reuland

[2]Here and throughout, I use indices only for convenience, to indicate covaluation. Indices have no status in the theory developed here, as will become obvious in section 4.

2014). It appears that the field has overwhelmingly adopted Reinhart's proposal (with one of the few exceptions being Heim 2007).

Contra Reinhart and all of the references just cited, I argue that the motivation for having the binding conditions regulate only binding and not coreference is lacking. In fact exceptions to the binding conditions are not as widespread as they should be under this conception. It actually appears that the binding conditions *do* regulate coreference in addition to syntactic binding.

To show this, I first need to make the important point that reflexives can have strict readings in ellipsis and under focus. This is made clear in the following examples:

(11) a. The judge questioned the man who defended himself about why his lawyer couldn't. ('defend him') (McKillen 2016: 27, (31))

b. Mary did something really terrible. Everyone hates her now. Even SHE hates herself. (modified from McKillen 2016: 57, (15))

It has often been claimed in the literature that reflexives can only have sloppy readings (Keenan 1971, Williams 1977, Partee and Bach 1984, Heim and Kratzer 1998), but others have noted that they can in fact have strict readings (Dahl 1973, Sag 1976, Fiengo and May 1994, Hestvik 1995, Büring 2005a). Importantly, recent experimental work has shown that strict readings are readily available for reflexives and that they are not limited to certain syntactic contexts as works like Hestvik (1995) have claimed.[3] This experimental work includes Frazier and Clifton (2006), Kim and Runner (2009), Ong and Brasoveanu (2014), and especially McKillen (2016). It is also important that this is not a peculiarity of English. Lidz (2001) shows that reflexives in Dutch and Kannada also allow strict readings in ellipsis (see also Rooryck and Vanden Wyngaerd 2011 on Dutch). I suspect that NP reflexives in all languages will allow strict readings in facilitating contexts, like those in (11). So far informal conversations with native speaker linguists bear this out for several different languages.

The next important fact is that the reflexive is required even in cases of strict identity in ellipsis, and a pronoun is not allowed:

(12) a. * The judge questioned the man who$_1$ defended him$_1$ about why his lawyer couldn't. ('defend him')

b. Samantha$_1$ blames herself$_1$/*her$_1$. Her boss does too, and is likely to fire her. ('blame her')

Given the ellipsis, coreference and binding give rise to two different interpretations (sloppy versus strict interpretations). In approaches following Reinhart, then, nothing should block the use of a coreferential pronoun, as in *Samantha blames her (her=Samantha)*. The fact that this *is* blocked is a problem for approaches that follow Reinhart (1983a,b) in having only binding be regulated by Condition B.

The same problem arises for Binding Condition C, as was noted by Reinhart (2006). Condition C also cannot be violated in the antecedent clause in ellipsis, even though doing so should be allowed by virtue of giving rise to a different interpretation:

[3]McKillen's example in (11a) has been constructed so that the reflexive is inside a complex NP. In the analysis of Hestvik (1995), it would have to cross an island boundary in order to c-command the ellipsis site. Such examples, as well as the availability of the strict reading in cross-sentential examples like (11b) and in simple coordination (see the works cited for numerous examples), show that a movement approach like Hestvik's is not correct.

(13) a. * He$_1$ likes Max$_1$'s mother and Felix does too. (Reinhart 2006: 184, (35b))
b. * She$_1$ thinks Melinda$_1$'s paper will be published but Sandra doesn't.

In both of these examples, the binding and coreference interpretations are different (e.g., Felix liking his own mother versus liking Max's mother), and so coreference should be allowed, as it was in (8). What these examples show is that Reinhart's alternative to the classical binding theory is too permissive: it predicts more violations of the binding conditions than are actually allowed.

In addition, Reinhart (1983b) claimed that focus can permit violations of Condition B with pronouns, the same way it can Condition C with R-expressions as in (8) (see the references in Roelofsen 2010):

(14) (Roelofsen 2010: 118, (9–11))
a. Only Max himself voted for him.
b. I know what John and Mary have in common. John hates Mary and Mary hates her too.
c. If everyone voted for Oscar, then certainly Oscar voted for him.

However, some researchers have noted that sentences of this form are not fully acceptable to native speakers, and in fact many speakers reject them (Schlenker 2005b, Jacobson 2007, Heim 2007). In the experiments in McKillen (2016), subjects uniformly reject them. It is true, as McKillen (2016: 160) notes, that attested examples exist. They almost all involve first and second person, though, not third:

(15) (all examples cited in McKillen 2016: 160)
a. Even I laughed at me when I built this alien cross-species genetic analyser. (Futurama S05E05)
b. Mycroft: I got you out. Sherlock: No, *I* got me out. (Sherlock S03E01)

Given the experimental results in McKillen (2016) and judgments that I have gathered informally from numerous native speakers, I take the empirical facts to be the following: With third person pronouns, Condition B cannot be violated (so, the examples in (14) are unacceptable), but it can be with first and second person pronouns, as in (15).

What this means is that exceptions to the binding principles are nowhere near as widespread as they should be on the view that the binding conditions regulate only syntactic binding and not coreference. It should be possible to violate Conditions B and C in the antecedent clause of ellipsis examples as in (12–13), and it should be possible to violate Condition B with third person pronouns in cases of focus as in (14).

What Reinhart (2006: 185) says about the ellipsis case is that an interpretation that is banned by the grammar (Conditions B and C) cannot be "snuck in" by using coreference instead. But this is equivalent to saying that coreference is subject to Conditions B and C. If something cannot violate a principle, then the simplest account is that that thing is subject to that principle. Since coreference in these cases is not able to violate Conditions B and C, we ought to conclude that it is in fact subject to Conditions B and C. Reinhart has to develop a very convoluted account to maintain her proposal that the binding conditions regulate only syntactic binding and not coreference. It would be far simpler to adopt the view of the classical binding theory, where both are subject to the binding conditions.

Of course, this would leave unaccounted for the cases where Conditions B and C can be violated: cases of focus for Condition C (8), and cases of focus with first and second person pronouns only for Condition B (15). However, if the classical binding theory can be made to admit these exceptions and no others, then it will be doing better than the Reinhart view, since that view does not make exactly the right cut in the data (it incorrectly allows violations of Condition B with third person pronouns in existing formulations, for instance). Conceptually, the revised classical binding theory will have a distinct advantage, because it will not have two different systems (the syntactic binding principles and pragmatic principles governing coreference) that overlap in a redundant manner.

In fact, versions of Binding Condition C have already been proposed within the classical binding theory that permit certain exceptions. For instance, Schlenker (2005a) proposes a version of Condition C, *Minimize Restrictors!*, that allows R-expressions to have commanding antecedents for various pragmatic purposes, including disambiguation and adding expressive content. In (8), for instance, Condition C can be violated because doing so serves the purpose of disambiguating to the strict reading. Bruening (2014) adapts this kind of formulation of Binding Condition C into a version of the classical binding theory (sketched and modified in section 4 below). What this means is that the classical binding theory is capable of permitting exceptions to its principles, meaning that it can be modified so that it is not too strict. The argument that we need to separate binding from coreference and have the binding conditions regulate only binding therefore disappears.

Note that in the approach just described, while certain exceptions to Condition C are permitted, Condition B does not admit the same kinds of exceptions. This comes quite close to capturing the empirical facts: exceptions to Condition C are acceptable (8), but exceptions to Condition B are not (12a–12b, 14). The only fact unaccounted for is the exceptional behavior of first and second person pronouns as in (15). If this approach can explain this exceptional behavior and the contrast between third person pronouns on the one hand and first and second person pronouns on the other, then it will be much more successful than Reinhart's alternative.

Taking stock, then, the revised classical binding theory permits exceptions to Condition C as in (9b) but struggles with exceptions to Condition B with first and second person pronouns as in (15). On the other hand, the Reinhart alternative in which the binding principles regulate only binding and not coreference incorrectly predicts that Binding Conditions B and C can be violated in the antecedent clause of ellipsis examples and that Binding Condition B can be violated with third person pronouns. It will of course be possible to amend it so that it rules these out, but it is worth considering what it will be doing when it does this. As described above, in order to rule out violations of the binding conditions in antecedent clauses of ellipsis examples, it has to introduce complications that redundantly do the work of the binding conditions. That is, the pragmatic principles that govern coreference essentially make coreference subject to almost the same conditions as binding. Adding additional complications to account for third person pronouns will be doing more of the same. At some point we have to admit that the general case actually seems to be that coreference is subject to the binding conditions, and the exceptions are exceptional. I contend that we have reached that point, and that it is far better to pursue a binding theory that regulates both binding and coreference.

In section 4, I will propose a version of the classical binding theory that does just that. It does not distinguish binding from coreference, but it correctly allows exceptions to Condition C and some exceptions to Condition B, but only for first and second person pronouns. It therefore seems to be making exactly the right empirical distinctions. It is also simpler than the Reinhart view,

since it has only one set of principles, the syntactic binding conditions, and not a set of partially redundant pragmatic principles in addition.

Reinhart does assert that it is a benefit of her system that it is so complicated (Grodzinsky and Reinhart 1993, Reinhart 2006). She claims that it requires a high processing load to compare the effects of binding and coreference, and that there is evidence for this high processing load from child language acquisition and from other sources. First of all, the acquisition data regarding Condition B seems to have been misunderstood; see Elbourne (2005) and Conroy *et al.* (2009). Second, in the alternative classical binding theory with exceptions to Condition C for pragmatic purposes, it also takes additional processing to allow for the pragmatic exceptions to Condition C. Language users have to consider the intentions of speakers and whether or not they may have some reason to use an R-expression rather than a pronoun. This takes processing resources. Hence, there being a high processing load for permitted violations of Condition C does not decide in favor of Reinhart's theory. It is also consistent with a version of the classical binding theory that permits exceptions for pragmatic purposes.

To sum up this section, the view that the binding conditions should regulate only syntactic binding and not coreference is far too permissive. Coreference actually seems to be regulated by the binding conditions, too. It is better to pursue a theory with only one set of syntactic principles than a theory with redundant syntactic and pragmatic principles.

3 Binding Does Not Involve Syntactic Movement

As mentioned in the introduction, most current approaches to the binding conditions have also adopted the view that syntactic movement is involved in anaphora. These sorts of claims have come in various forms. Kayne (2002), Hornstein (2001), Zwart (2002) posited a movement relation between an anaphor and its antecedent. This sort of approach was shown to be unsuccessful by Safir (2008), and I will not address it further here. An analysis that has been more widely adopted says that some component of a local reflexive moves as a head to incorporate into the predicate of its clause. This is proposed by Lebeaux (1983), Chomsky (1986), Reuland (2001, 2011). Even Sauerland (2013), whose presuppositional approach I will adopt, posits this kind of movement. In a variation, Hestvik (1995) and Rooryck and Vanden Wyngaerd (2011) propose that a reflexive anaphor moves to a position adjoined to VP (or vP), while Ahn (2015) proposes that certain anaphors move to VoiceP.

3.1 Problems with Movement Analyses

All accounts that propose movement as a crucial part of the binding conditions are doomed to failure. Local reflexives can occur in positions from which movement is banned. The most important such case is coordinated objects:

(16) a. She$_1$ washed herself$_1$/*her$_1$ and him.
b. The Queen$_1$ invited the baron and herself$_1$/*her$_1$ to tea.

As discussed in Bruening (2014), coordinated NPs like this involve a canonical Condition B effect: a pronoun is not allowed with a local antecedent, and a reflexive is required. It is true, as Reinhart and Reuland (1993) showed, that reflexives can be exempt from Binding Condition A in

this environment and can have a non-local and non-commanding antecedent, but this is irrelevant to the local coreference cases illustrated here. When a local antecedent is present, a pronoun is not allowed and a local reflexive is required. This is therefore a canonical case of local anaphora covered by Conditions A and B.

In movement theories, then, (some part of) *herself* in such examples must move. However, coordinate structures constitute islands to movement. Movement should not be possible from just one conjunct of a coordinate structure. Note that proponents of head movement to a predicate often point to compounds like *self-invited* and *self-washed* to lend plausibility to the head movement analysis; but incorporation of this type from a coordinate structure is never possible:[4]

(17) a. self-washed, self-invited
b. * self-washed and him, *self-invited the baron and

There are other cases where anaphors occur in positions from which movement is generally not possible. One such case is the subject of an embedded infinitive introduced by *for*, which can never undergo A-movement and can never incorporate:

(18) a. They$_1$ are hoping for themselves$_1$/*them$_1$ to win.
b. * They are hoped for to win.
c. * self-hoped-for to win

This is perhaps not the clearest case, as it is sometimes claimed that this is a position for exempt anaphors and that many speakers allow pronouns (e.g., Reinhart and Reuland 1993).

Another case is reciprocals (and in some languages, reflexives) occurring as subjects of finite clauses, with their antecedents in the higher clause:

(19) We$_1$ didn't know what each other$_1$ wanted.

See Lebeaux (1983) on these in English. At least some such cases involve truly local anaphors and not exempt anaphors (Yang 1983, Sung 1990, Haddad 2007). The kind of head movement envisioned by some of the movement approaches to anaphora is incapable of crossing a finite clause boundary, as it would have to here.

All of these examples show that local anaphors can occur in positions from which movement is impossible. On the face of it, this fact is an insurmountable problem for the claim that syntactic movement is involved in the binding conditions.

3.2 Prosody: Ahn 2015

Before we can conclusively dismiss movement from the binding theory, however, we have to address the possibility that movement is involved in some cases of anaphora but not others. Ahn (2015) claims that prosody provides evidence for two distinct reflexives in English. According to Ahn, only locally subject-oriented anaphors that are not separated from their antecedent by an island boundary can be extrametrical for nuclear stress assignment. This relevance of islands then motivates a movement analysis of these reflexives for Ahn. Reflexives that are not subject-oriented or are separated from their antecedent by an island boundary do not move and are interpreted by

[4]Note that incorporation of an entire coordinated object is possible: *she is a dog and cat washer*.

a different mechanism. In this approach, the evidence introduced in the previous section is not a problem for the movement theory, because these particular anaphors do not undergo movement.

Of course, this approach has the drawback that it requires two different mechanisms for local anaphora. Without strong empirical support, such an approach should obviously be rejected in favor of a single, unified approach. As I will show, Ahn's prosodic evidence is not correct, and there is no empirical evidence favoring an approach with two different mechanisms for local anaphora.

First, it is simply not true that only subject-oriented anaphors can be extrametrical. The following are all cases of extrametrical anaphors that have an object as antecedent (numbers in parentheses refer to page and example number in Ahn 2015):[5]

(20) a. I rolled the rug óver itself.
b. I'm going to glue these bóards to each other.
c. They're introducing the guésts to themselves/each other.
d. The butler is stacking the dishes on tóp of themselves. (119, (177))

Ahn claims that the anaphor in (20d) is extrametrical because the object is actually a subject, namely the subject of a small clause. However, the small clause analysis of such examples has been shown to be unworkable (Bruening 2018). The above examples then all have non-subjects as antecedents.

In some other cases of non-subject-oriented anaphors Ahn claims that the anaphors must bear stress, but this is not correct for me or for other native speakers that I have asked:

(21) a. Wesley locked his bíke to itself. (104, (145); Ahn claims anaphor must be stressed)
b. Liz's actions pitted Jack agáinst himself. (104, (146); Ahn claims anaphor must be stressed)

Contra Ahn, stress on the anaphor in the above two cases can only be contrastive, according to my informants.

As these examples show, it is not correct that local anaphors with non-subject antecedents cannot be extrametrical and must bear stress. The actual fact is that they anaphors with non-subject antecedents are typically extrametrical and stressless, just like anaphors with subjects as antecedents.

Second, Ahn claims that anaphors with a derived subject as antecedent must bear stress, but all of his examples involve contrastive focus (e.g., his (52), page 53). Examples without contrast show that anaphors are typically stressless when their antecedent is a derived subject:

(22) a. These horses can't be bréd with each other/themselves.
b. Bill stríkes himself as funny.

In some cases of derived subjects Ahn is again wrong about the facts. In the following example, stress actually goes on the verb, not the anaphor (as Ahn acknowledges in his footnote 52):

(23) Danny will get glúed to himself. (106, (150), marked as "#?" by Ahn)

[5] Ahn (2015) claims that an example very similar to (20b) must have stress on the anaphor (his example (73), page 63). Simple variations on the same example, like that in (20b), have stress elsewhere instead. I do not know why Ahn's particular example prefers stress on the anaphor, but it seems to be exceptional.

Again, I have confirmed this with multiple native speakers.

In some other cases with a derived subject antecedent Ahn acknowledges that the anaphor does not receive stress; he claims this is because the derived subject is the subject of a small clause in its underlying position. This could not be correct for (24a) at least, given Bruening (2018):

(24) a. The dishes are being stacked on tóp of themselves. (121, (182))
b. Liz was seen embárrassing herself. (121, (183))
c. Patrice was made próud of himself. (121, (184))

However, a small clause analysis could be possible for (24b–c).

Third, contrary to what Ahn asserts, anaphors generally behave exactly like corresponding pronouns. I show this using minimal pairs where the antecedent for the reflexive corresponds to a possessor coreferential with a pronoun, as in (25a vs. b). In all cases, a declarative clause is meant to be an answer to the question, "What happened?" or "What will happen?" unless specified otherwise. The correlation holds across numerous example types. Wherever an anaphor is unstressed, so is a pronoun:

(25) a. Dennis embárrassed himself. (37, (1b))
b. Dennis's friend embárrassed him.

(26) a. Do you ever surpríse yourself? (44, (30))
b. Does your husband ever surpríse you?

(27) a. The car will turn itself óff. (47, (38))
b. The car's computer will turn it óff.

(28) a. Jack was loudly yélling at himself. (48, (40))
b. Jack's mother was loudly yélling at him.

(29) a. Paul is ángry at himself. (48, (41))
b. Paul's mother is ángry at him.

(30) a. Liz will glue Dánny to herself. (63, (72))
b. Liz's brother will glue Dánny to her.

(31) a. Liz will glúe herself to Jack. (125, (193))
b. Liz's son will glúe her to Jack.

(32) a. She shówed herself Danny. (126, (194))
b. Her assistant shówed her Danny.

(33) a. Werner listened to Roberta and defénded himself. (90, (124)
b. Werner's uncle listened to Roberta and defénded him.

(34) a. They will glue Danny to an actress who dislíkes herself. (103, (143))
b. They will glue Danny to an actress whose agent dislíkes her.

(35) a. Jenna cut her hair after promóting herself. (110, (155))
b. Jenna's agent cut her hair after promóting her.

(36) a. Mayor McCheese is an anthropomorphic hamburger that éats itself. (111, (157))

b. Mayor McCheese is an anthropomorphic hamburger whose butler éats it/him.

(37) a. Jenna cut her hair in order to promóte herself. (111, (158))
b. Jenna's agent cut her hair in order to promóte her.

(38) a. Lutz now appears to disgúst himself. (113, (163))
b. Lutz's actions now appear to disgúst him.

(39) a. Jenna now expects Lutz to disgúst himself. (113, (164))
b. Jenna now expects Lutz's actions to disgúst him.

(40) a. Chef Chros tried to reinvént himself. (113, (165))
b. Chef Chros's agent tried to reinvént him.

(41) a. Ms. Lemon asked Chef Chros to reinvént himself. (113, (166))
b. Ms. Lemon asked Chef Chros's agent to reinvént him.

(42) a. Wile E. Coyote shót himself across the canyon. (117, (173))
b. Wile's helper shót him across the canyon.

(43) a. Pete saw Liz embárrass(ing) herself. (119, (178–179))
b. Pete saw Liz's son embárrass(ing) her.

(44) a. Jenna made Patrice próud of himself. (120, (180))
b. Jenna made Patrice's daughter próud of him.

(45) a. (What did John destroy?) He destroyed a létter about himself. (131, (207))
b. (What did John's wife destroy?) She destroyed a létter about him.

Conversely, in most cases where anaphors cannot be extrametrical and must bear stress, pronouns behave the same way:

(46) a. Dennis embarrassed Jenna and himsélf. (37, (11b))
b. Dennis's friend embarrassed Jenna and hím.

(47) a. The writer scrutinizes the book and asks hérself or hímself, 'Is this true?' (51, (48))
b. The writer's editor scrutinizes the book and asks hér or hím, 'Is this true?'

(48) a. Louis plays a character like himsélf. (50, (45))
b. Louis's brother plays a character like hím.

(49) a. Janet reminds Criss of himsélf. (104, (147))
b. Janet reminds Criss's sister of hím.

(50) a. (Tell me something about Jack.) He seems to himsélf to have chánged. (107, (152))
b. His friend seems to hím to have chánged.

This means that anaphors are extrametrical for the same reason pronouns are: both are prosodically weak elements in certain positions but not others. Particularly noteworthy are particle verbs, where both pronouns and reflexives have to precede the particle:

(51) a. The actors used IMDb to look themselves úp / *úp themselves. (101, (138))
b. The actors' agents used IMDb to look them úp / *úp them.

Again this shows that reflexives behave just like prosodically weak pronouns.

It is also worth pointing out the behavior of anaphors inside coordinated objects. As noted above, these are one of the biggest problems for the view that movement is involved in anaphor binding. In Ahn's theory, an anaphor in a coordinated object does not move, because it is in a movement island. Ahn's evidence for this is that such anaphors must be stressed and cannot be extrametrical. However, as just shown in (46), pronouns must be stressed in the same environment. Moreover, an anaphor must be stressed even if the entire clause is coordinated, rather than just the object:

(52) a. Remy burned Marie and himsélf. (62, (70))
b. Remy burned Maríe and he burned himsélf.

This is a problem for Ahn's theory since the anaphor should be able to move in the second conjunct (it would not cross an island boundary in doing so). What this indicates is that coordinated objects are inherently contrastive. That is why they are stressed. They are still contrastive when the entire clause is coordinated but nothing else in the clause contrasts (52a–b). It is clearly contrast that causes the anaphor to be stressed, not the island boundary; compare (52a–b) with the VP coordination case in (33), repeated below:

(53) a. Werner listened to Roberta and deténded himself. (90, (124)
b. Werner's uncle listened to Roberta and deténded him.

In this case the entire VP contrasts with the previous VP, and stress accordingly shifts off of the anaphor or pronoun, since it itself is not what is contrastive. In other words, anaphors are unstressed unless they are in positions of contrast, just like pronouns. Islands are irrelevant.

Ahn (2015) does argue that anaphors and pronouns diverge in certain contexts, but he is simply wrong about some of these (with non-subject and derived subject antecedents, above). He lists only two contexts where anaphors actually diverge from pronouns. The first is double object constructions, which can be dismissed because pronouns are simply ungrammatical as the second object;[6] there is no contrast between pronouns and anaphors in stress in this context. The second involves exempt anaphors that are not in complementary distribution with pronouns (54), but it can be noted that exempt anaphors are always stressed (55):

(54) a. They will invite Máry and me. (55, (54))
b. They will invite Mary and mysélf. (55, (54))
(55) a. How about yoursélf?
b. Physicists like yoursélf are a godsend.

This means that exempt anaphors are special and must be treated differently (as they are in every theory). Non-exempt anaphors, on the other hand, behave exactly like pronouns in their stress properties. We can conclude that whatever explains the contexts where pronouns are unstressed versus stressed will also explain where anaphors are unstressed versus stressed.

Finally, in English, stress on an anaphor can indicate focus on the antecedent, for instance in the answer to a subject question:

[6] Actually, heavily stressed pronouns can be grammatical as the second object, depending on the weight of the first object. This makes them behave like anaphors again, where both have to be stressed as the second object.

(56) Q: Who criticized Ken?
A: Ken criticized himsélf.

Ahn claims that the distribution of this focus marking is exactly the same as extrametricality: it is only possible with anaphors with a local non-derived subject antecedent that is not separated from the anaphor by an island. Ahn is again incorrect about derived subject antecedents and non-subject antecedents:

(57) Q: Who did Ken introduce to Angie?
A: Ken introduced Angie to hersélf. (marked "#" in Ahn 158, (65))

(58) Q: Who was introduced to Ken?
A: Ken was introduced to himsélf. (marked "#" in Ahn 160, (70))

(59) Q: Did Claude criticize Zelda?
A: No, she was only criticized by hersélf.

(60) a. What did you fold over the rug? I folded the rug over itsélf.
b. What did you stack on top of the books? I stacked the books on top of themsélves.

(61) a. Who seems to Jack to have changed? Jack seems to himsélf to have changed. (marked "#" in Ahn, 170, (99))
b. Who strikes Jack as funny? Jack strikes himsélf as funny.
c. Who was/were placed next to that couple? They were placed next to each óther.

Ahn is also not correct about islands. The same focus marking can be used with a reciprocal anaphor (62), but it also occurs with a possessor reciprocal (63):

(62) Q: Who criticized John and Mary?
A: They criticized each óther.

(63) Q: Who criticized John and Mary's friends?
A: They criticized each óther's friends.

Since possessors are not extractable in English, Ahn's movement analysis simply cannot work.

Another example involves an anaphor inside an NP:

(64) Q: Who found a letter to Jack? A: Jack found a letter to himsélf. (196, (147))

Ahn explains this example away by claiming that there is a Refl Voice inside NP, but then the answer could not be an appropriate answer to the matrix subject question. The anaphor has to relate directly to the matrix subject, but then it is separated from its antecedent by an island boundary. Once again, the movement analysis simply cannot work.

To conclude, Ahn (2015) is incorrect about much of the data regarding prosody with anaphors. The data do not motivate two distinct anaphors in English; in particular there is no reason to distinguish anaphors that have a local non-derived subject as antecedent from anaphors that do not, or from ones that are separated from their antecedent by an island boundary. A theoretical account of anaphors in English therefore should only have one class of anaphor, not two. Furthermore, the fact that anaphors can be separated from their antecedent (or the verb) by an island boundary indicates that the right theory of binding does not involve movement, contra Ahn (2015) and numerous others.

4 A New Binding Theory

So far we have seen that the right binding theory should have binding conditions that regulate something that subsumes both syntactic binding and coreference, and it should be completely divorced from syntactic movement. In this section, I propose a new binding theory that will meet these desiderata. It will combine the presuppositional approach to Condition A of Sauerland (2013) with the precede-and-command approach of Bruening (2014). I will accordingly call it the *PPC binding theory*, for "presuppositional precede-and-command."

4.1 The Presuppositional Approach

Sauerland (2013) proposes that Binding Condition A is actually a presupposition of SELF anaphors. SELF anaphors have no at-issue content (they are basically just pronouns), but they add a presupposition to the effect that the predicate of the clause they occur in has two identical arguments. Two arguments being identical subsumes binding and coreference; both satisfy the presupposition. McKillen (2016) proposes a slightly different version of this presuppositional approach.

The presuppositional analysis has two advantages that I want to maintain here. The first is that it has the desired effect of subsuming both binding and coreference. The second is that it will allow apparent violations of the binding conditions in focus and ellipsis contexts, without the need for mechanisms like vehicle change (Fiengo and May 1994) or Reinhart's split between syntactic and pragmatic principles. It does this by treating violations of the binding conditions as a case of weakened presupposition projection, something that is independently attested. Basically, certain presuppositions are not projected into focus alternatives. McKillen (2016) states the generalization as follows:

(65) The presuppositions of F-marked NPs or NPs linked to an F-marked NP can be absent in focus alternatives. (McKillen 2016: 146, (104))

Because "linked to" is very imprecise, I will instead state the generalization as follows:

(66) The presuppositions of F-marked NPs or NPs whose denotations are identical to them can be absent in focus alternatives.

Above we saw that reflexives can have strict readings in ellipsis and focus. This is allowed in the presuppositional approach because the presupposition of argument identity can be absent from focus alternatives, as stated in (66). This simplest case to explain is one like the following:

(67) Only Tatiana hates herself. (strict reading: 'no one else hates Tatiana')
focus alternatives: {x hates herself (herself=Tatiana)}

In an alternative semantics for focus (Rooth 1992), F-marked NPs are replaced with variables in the focus semantic value of the sentence. Since *Tatiana* is F-marked in this example, the focus alternatives are those shown, *{x hates herself}*. If we take *herself* to be coreferential with *Tatiana* rather than bound by the subject, this is the set of alternatives where x hates Tatiana. The sentence then asserts that Tatiana hates Tatiana, and none of the alternatives to Tatiana hates Tatiana. This is exactly the meaning of the sentence on the strict reading. In the focus alternatives, *herself* is allowed to be disjoint from the subject *x*, because its presupposition of argument identity is

allowed to be absent from the focus alternatives since it is identical in denotation to an F-marked NP (*Tatiana*). (In the ordinary semantic value, the presupposition cannot be absent and must be satisfied, and so *herself* cannot refer to anyone other than Tatiana.)

As for strict readings in ellipsis, they are allowed under the ellipsis licensing condition in Merchant (1999: 34). This condition permits a clause to elide if it is focus-matched by its antecedent:

(68) A VP in constituent C_E can be elided if there is a constituent C_A, where:
   a. $[\![C_A]\!]^{g,o} \in [\![C_E]\!]^{g,f}$, and
   b. $[\![C_E]\!]^{g,o} \in [\![C_A]\!]^{g,f}$.

"$[\![C]\!]^{g,o}$" is the ordinary semantic value of C under some assignment function *g*, while "$[\![C]\!]^{g,f}$" is the focus semantic value of C under *g*. Merchant's licensing condition says that the ordinary semantic value of the antecedent clause must be a member of the focus semantic value of the elided clause, and the ordinary semantic value of the elided clause must be a member of the focus semantic value of the antecedent clause.

For a case of a strict reading in ellipsis like the following, the elided clause is then allowed to have a pronoun in it rather than a reflexive and still be elided:

(69) The accused defended himself before his lawyer did.
   a. *antecedent clause:* the accused defended himself (himself=the accused)
      alternatives: {x defended himself (himself=the accused)}
   b. *elided clause:* his lawyer did [defend him] (him=the accused)
      alternatives: {x defended him (him=the accused)}

Under the coreferential interpretation of *himself*, the ordinary semantic value of the antecedent clause, *the accused defended the accused*, is a member of the focus semantic value of the elided clause, *x defended the accused*. The ordinary semantic value of the elided clause, *his lawyer did defend the accused*, is also a member of the focus semantic value of the antecedent clause, *x defended the accused*, if the presupposition of Condition A is absent from the focus alternatives. The bracketed part of the elided clause, *[defend him]*, is therefore allowed to elide, even though it is not strictly identical to its antecedent. Note that there is no need to have a mechanism of vehicle change (Fiengo and May 1994) in the theory; the fact that the elided clause can have a pronoun rather than an anaphor just follows from the licensing condition on ellipsis. (Note that the presupposition of the anaphor cannot be absent from the ordinary semantic value of the antecedent clause, and so the anaphor must refer to the accused.)

The presuppositional approach not only permits strict readings of reflexives, it does so in a way that is independently necessary. It relates the absence of the presupposition to other cases of weakened presupposition projection. von Heusinger (2007), Sauerland (2013), McKillen (2016) discuss a variety of cases of this, like the following:

(70) a. Only I did my homework. (other people did not do their homework)
   b. *Scenario: One German professor attended the party, three Japanese professors, five English professors, and also two office workers.*
      Sam only talked to the GERMAN professor.

c. *Scenario: John, Mary, and Bill all worked as waiters. But John and Bill moved on to different jobs.*
Only Mary is still a waitress.

In (70a), the first person presupposition of the pronoun *my* is absent from focus alternatives. In (70b), the alternatives to *Sam talked to the GERMAN professor*, with F-marking on *German*, are *Sam talked to the Japanese professor* and *Sam talked to the English professor*. But in the scenario given, there is no unique Japanese professor and there is no unique English professor. The fact that the sentence is felicitous in this context indicates that the uniqueness presupposition of the definite article does not need to be satisfied in the focus alternatives. Similarly, in (70c), the female presupposition of the suffix *-ess* does not need to be met in the focus alternatives.[7]

As can be seen, the presuppositional approach nicely captures the availability of strict readings for reflexives in ellipsis and in focus contexts, and it does so by treating them as an instance of an independently attested phenomenon. It also subsumes coreference and variable binding under a single cover, identity. These are two advantages that I would like to maintain by adopting these aspects of the analysis.

There are also two drawbacks of this analysis as it has been formulated so far. First, both Sauerland (2013) and McKillen (2016) posit syntactic movement to get the analysis to work. For Sauerland 2013, SELF moves and adjoins to the predicate. For McKillen 2016, SELF combines first with a pronoun and then with the predicate, without the need for movement. However, movement is still necessary with ECM predicates for McKillen. This is not good, because coordination shows that there could be no movement even with ECM predicates:

(71) The president$_1$ considers both himself$_1$/*him$_1$ and his advisors to be above the law.

The second drawback is that the presuppositional approach has only been formulated for Condition A. It would be desirable to extend it to Conditions B and C, too, since they exhibit similar behavior under focus and ellipsis:

(72) *Condition B*
   a. Trump$_1$ and his campaign manager have very different opinions. Only the campaign manager actually considers him$_1$ worth voting for.
   b. Brandon is proud of her$_1$ and she$_1$ is too.

(73) *Condition C*
   a. Melissa and her husband have very different views of what she has done. Only he thinks that Melissa's accomplishments have been significant.
   b. Brandon is proud of what Melissa$_1$ has accomplished and she$_1$ is too.

For instance, in the discourse in (72a), the only referents are Trump and the campaign manager. The only alternative to the manager is therefore Trump. In the alternatives, then, Condition B appears to be violated (*{x actually considers him worth voting for (him=Trump)}*). Similarly for the other examples: Conditions B and C appear to be violated in the focus alternatives and in the elided clauses.

[7]Note that *waitress* is not actually focused here, nor is it identical to what is focused. Presumably McKillen's "linked to" in (65) is meant to cover this case. My statement in (66) does not. Since the precise distribution of presupposition non-projection is not my main concern, I will leave this aside here.

It is not clear that Sauerland's and McKillen's particular analyses can be extended to pronouns and R-expressions. Both analyses require a very local relation, basically co-argumenthood, which will not work for long-distance Binding Condition C. Since they also consider SELF reflexives to be a combination of SELF with a pronoun, where the SELF part has the identity presupposition, it will not be possible to impose a non-identity presupposition on pronouns (Condition B) without a conflict.

I will therefore not adopt the particular analyses proposed by Sauerland (2013) and McKillen (2016). Instead, I will adapt the spirit of their proposal to a very different analysis of the binding conditions, that proposed by Bruening (2014).

4.2 The Analysis in Bruening (2014)

The main point of Bruening (2014) is to show that the binding conditions do not refer to c-command, as in the classical binding theory, but to *precede-and-command*. Precede-and-command is the conjunction of precedence and a looser notion of command, *phase-command*, defined as follows:

(74) Phase-Command: X phase-commands Y iff there is no ZP, ZP a phasal node, such that ZP dominates X but does not dominate Y.

(75) Phasal nodes: CP, vP, NP

However, Bruening (2014) also proposes a very different way of looking at the binding conditions that explains this particular conjunction of precedence and command. First, syntactic structures are processed and built syntactically in a left-to-right fashion. This is why precedence matters: syntax proceeds in linear order. Second, as structures are built and processed, the grammar/processor keeps track of discourse referents through three sets of referents, as follows (these sets are in superset-subset relations, from largest to smallest):

(76) Discourse Sets (Bruening 2014: 376, (125))

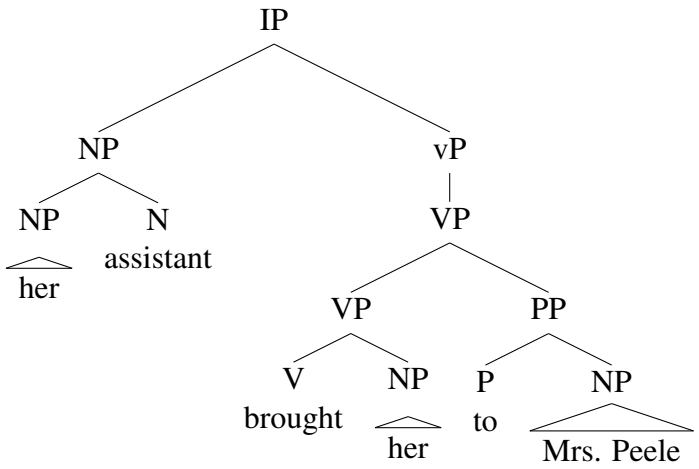
a. Discourse Set D: Consists of all referents in the current discourse.

b. Discourse Set C (the *active* set): Consists of referents represented by NPs in the sentence currently being processed.

c. Discourse Set A (the *local* set): Consists of referents represented by NPs in the local argument domain currently being processed.

There are then principles that regulate when a referent is moved out of one of these sets (Bruening 2014: 377, (126–128)). Basically, referents are moved out of the local set A at clause or predicate boundaries, and referents are moved out of A and C at the right edge of phase boundaries. This is why phase-command matters. For instance, consider a structure like the following:

(77)



In a sentence like this, the referent denoted by the possessive *her* is moved out of sets A and C at the right edge of the NP *her assistant*. Both the pronoun *her* in object position and the R-expression *Mrs. Peele* can then be coreferential with it (but not both at once, because the second *her* is still in Sets A and C when *Mrs. Peele* is processed). However, if the object *her* is replaced with *herself*, *herself* could not refer to the referent denoted by the possessive *her*, because it is no longer in Set A. In addition, note that the object *her* phase-commands *Mrs. Peele*, even though it does not c-command it, because there is no phasal node that dominates *her* that does not also dominate *Mrs. Peele*. Condition C then rules out coreference between the two.

These anaphoric possibilities are set by the binding conditions, as follows:

(78) Binding Condition A:
If a newly processed NP N has the form of a local anaphor, it must denote a discourse referent in set A. (Bruening 2014: 377, (130))

(79) Binding Condition B:
If a newly processed NP N is to be interpreted as denoting a discourse referent R already in set A, then N must have the form of a local anaphor. (Bruening 2014: 377, (129))

(80) Condition C (Minimize Restrictors):
A definite description of the form *the A* may not refer to a discourse referent in active set C if A could be dropped without affecting either (i) the denotation of the description or (ii) its various pragmatic effects. (Bruening 2014: 372, (109))

Condition C is a modified version of the Minimize Restrictors! analysis of Schlenker (2005a). The result of dropping the restriction *A* in *the A* is a pronoun. *The A* is assumed to be the form of all R-expressions, including proper names (viewed as having a hidden definite article).

An obvious issue with this formulation is that it only refers to referential NPs. Since the binding conditions regulate non-referential elements like quantifiers as well as referential NPs, we obviously want to reformulate them.

4.3 Reformulation with Presuppositions

As mentioned above, I will refer to the new binding theory I develop as the PPC binding theory, and I will label the final version of all principles and constraints as "PPC *condition*."

To cover both referential NPs and non-referential NPs, I will follow Heim (2007) and numerous others and assume that all quantifiers raise out of argument position and leave behind a trace of type e. All NPs in argument position (which is what the binding conditions regulate) are then of type e. I reformulate the discourse sets to refer to denotations of NPs of type e, as follows:

(81) PPC Discourse Sets:
   a. PPC Discourse Set D: Consists of all denotations of NPs of type e in the current discourse.
   b. PPC Discourse Set C (the *active* set): Consists of denotations of NPs of type e in the sentence currently being processed.
   c. PPC Discourse Set A (the *local* set): Consists of denotations of NPs of type e in the local argument domain currently being processed.

The following principles then dictate when to move a denotation out of one of the discourse sets. Because the precise formulation of the locality condition on Conditions A and B is not the point of interest here, I simply enumerate points at which denotations are moved out of Set A. I will refer to the domain that these points delimit as an *argument domain*.

(82) PPC Processing Principle 1:
Move denotation of NP N out of local set A and into the active set C when the grammar/processor encounters:
   a. A clause boundary; or
   b. A predicate that did not assign case or thematic role to N; or
   c. A distinct NP M such that M receives its case and thematic role from a predicate other than the one that assigned case and thematic role to N.

(83) PPC Processing Principle 2:
Move denotation of NP N out of sets A and C and into set D at the right edge of a phasal node that dominates N.

In the PPC binding theory, NPs are specified as being subject to certain presuppositions, including a lack of presuppositions. As in the classical binding theory, NPs are classified as falling into certain types. These NP types are listed below in order of most specified to least specified:

(84) PPC Classes of NP
   a. NoPre: NPs specified to have no presuppositions (e.g. English possessive pronoun);
   b. Local Anaphors: NPs with a Condition A presupposition (e.g., English *herself, each other*);
   c. R-Expressions: NPs of the form Det R with a Condition C presupposition;
   d. All others (default class).

There is no class of pronoun; NPs that are not a NoPre, a local anaphor, or an R-expression are simply a default class. Note also that only R-expressions have a particular form; they are all assumed to be of the form *Det(erminer) R(estriction)*. As in the previous theory, deleting the restriction results in a form that is typically referred to as a pronoun. The other classes can all

consist of NPs of any form. For instance, English *her* as a possessor is a NoPre, but in any other position is simply the default.

The presuppositions associated with these classes of NP are the following, given a name to correspond to the classical binding theory:[8]

(85) PPC Binding Condition A:
The denotation of a local anaphor is presupposed to be identical to a denotation already in set A.

(86) PPC Binding Condition B:
The denotation of any NP that is not a local anaphor or a NoPre is presupposed not to be identical to a denotation in set A.

(87) PPC Binding Condition C (Minimize Restrictors):
The denotation of an R-expression (an NP of the form *Det R*) is presupposed not to be identical to the denotation of an NP in active set C if R could have been dropped without affecting the descriptive content of the NP.

Identity of denotation subsumes both binding and coreference. The binding conditions refer to neither directly. There is also no need for syntactic movement in this account: the binding conditions refer to denotations collected in the discourse sets.

Finally, a Disambiguation Principle overrides all presuppositions:

(88) The PPC Disambiguation Principle:
An NP that is being used specifically to refer unambiguously to a referent in the discourse is subject to no presuppositions regarding identity to other NPs.

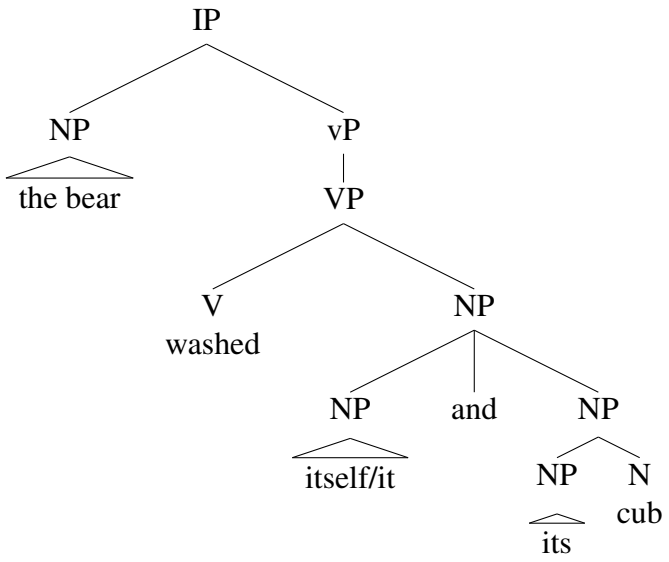
This will account for many of the exceptions to the binding conditions, as will be explained below.

4.4 Simple Examples of Conditions A, B, C

Let me now go through some examples, including some of the crucial ones from above. I begin with the case of a coordinated object:

[8]Note that a given NP could also be subject to other conditions, for instance that it must be syntactically bound.

(89)



a. The bear washed itself and its cub.

b. The bear washed it and its cub.

The syntax begins building the examples from the left. The denotation of *the bear* is put in Set A. Before the end of the sentence, no new argument domain is encountered, nor is the right edge of a phase boundary that contains *the bear*. Therefore the denotation of *the bear* is never moved out of Set A. In (89a), *itself* has the form of a local anaphor. It is therefore presupposed to be identical in denotation to a denotation already in Set A. If it refers to the same bear, then the presupposition is satisfied. Moving on, the possessive pronoun is encountered. Possessive pronouns in English belong to the NoPre class of NP, meaning that they are specified as having no presuppositions regarding identity. Therefore *its* can either be identical to *the bear*, or not. As for *its cub*, it is presupposed not to be identical in denotation to any NP in Set C (which includes Set A). In this sentence, this is only *the bear*.

In (89b), *it* is not a local anaphor, nor is it a member of the NoPre class. It is therefore presupposed not to be identical in denotation to any denotation in Set A. If it is disjoint in reference from *the bear*, then this presupposition is satisfied; if it is not, then the presupposition is violated. This correctly accounts for the fact that if one conjunct of a coordinated object is to be covalued with a local antecedent, it must be a local anaphor and may not be a pronoun. As for *its*, this element is a member of the NoPre class, meaning that it has no presuppositions. It can therefore be identical in denotation to either *the bear* or to *it* (or neither).

Consider now a case of a Condition A violation, like the following:

(90) * The bear thinks the man will feed itself.

Here the denotation of *the bear* is put in Set A. However, at the embedded clause boundary, the syntax begins a new argument domain. The denotation of *the bear* is therefore moved out of Set A and into Set C. The denotation of *the man* is then put in Set A. In the same argument domain, *itself* is merged into the structure. It is a local anaphor. It is therefore presupposed to be identical in denotation to an NP already in Set A. This is only *the man*. *Itself* also has a non-human presupposition. One of these presuppositions has to be violated, since *the man* is human. Hence the deviance of the example.

Consider now examples involving Condition C:

(91) a. She thinks this woman will be very successful.
b. Her former employer thinks this woman will be very successful.

In (91a), the denotation of *she* is moved out of Set A and into Set C at the clause boundary. The R-expression *this woman* is then presupposed not to be identical to it. In contrast, in (91b), the denotation of *her* is moved out of set A and into set D at the right edge of the phase boundary delimited by the right edge of the NP *her former employer*. The denotation of this larger NP is put into Set A, and then moved into Set C upon crossing the clause boundary. *This woman* is then presupposed not to be identical to *her former employer*, but it is free to be identical to *her*.

As can be seen, the PPC binding theory accounts for the basic facts of Conditions A, B, and C. It also accounts for the crucial case of a reflexive versus a pronoun as one conjunct of a coordinated object.

4.5 Focus and Ellipsis

Let us now turn to the focus and ellipsis cases discussed in section 4.1. They receive the same analysis as outlined there. In (92), the presupposition of identity of reference can be absent in the alternatives. In the alternatives, *x* is put into Set A, and then *herself* is encountered. The presupposition can be absent, and so *herself* does not need to be identical in reference to *x*.

(92) Mary did something really terrible. Everyone hates her now. Even SHE hates herself. (modified from McKillen 2016: 57, (15))
alternatives: {x hates herself (herself = Mary)}

(In the ordinary semantic value of the sentence, the presupposition of *herself* must be satisfied, and so it can only refer to *she*.)

As for ellipsis examples like (93), I again assume the ellipsis licensing condition of Merchant (1999), stated in (68). As explained above, if presuppositions can be absent from focus alternatives, then the ordinary semantic value of the elided clause with a pronoun can be a member of the focus semantic value of the antecedent clause with a local anaphor, and vice versa.

(93) The accused defended himself before his lawyer did.
a. *antecedent clause:* the accused defended himself (himself=the accused)
alternatives: {x defended himself (himself=the accused)}
b. *elided clause:* his lawyer did [defend him] (him=the accused)
alternatives: {x defended him (him=the accused)}

This analysis also extends to violations of Condition B in focus and ellipsis. Consider first a focus example:

(94) Trump_1 and his campaign manager have very different opinions. Only the campaign manager actually considers him_1 worth voting for.
alternatives: {x actually considers him worth voting for (him=Trump)}

In the discourse, the only referents are Trump and the campaign manager. The only alternative to the manager is therefore Trump. In the alternative, then, Condition B appears to be violated. In the presuppositional analysis, however, the presupposition of the pronoun (really, any NP that is not a local anaphor or a NoPre) does not need to be met in the alternatives, and so the sentence is felicitous.

Condition B can apparently also be violated in the elided clause in ellipsis. Assume *her* and *she* refer to Melissa in the following:

(95) Brandon is proud of her and she is too.

a. *antecedent clause:* Brandon is proud of her (her=Melissa)
alternatives: {x is proud of her (her=Melissa)}

b. *elided clause:* she is [proud of herself] (herself=Melissa)
alternatives: {x is proud of herself (herself=Melissa)}

Once again, if presuppositions can be absent from focus alternatives, then the ordinary semantic value of the elided clause with a local anaphor can be a member of the focus semantic value of the antecedent clause with a pronoun, and vice versa. The clause with the anaphor can therefore be elided, even though its antecedent has a pronoun and not an anaphor.

Consider now a Condition C example:

(96) Melissa and her husband have very different views of her abilities. Only he thinks that Melissa's accomplishments have been significant.
alternatives: {x thinks that Melissa's accomplishments have been significant}

In the discourse, the only referents are Melissa and her husband. The only alternative to the husband is therefore Melissa. In the alternative, then, Condition C appears to be violated. In the presuppositional analysis, however, the presupposition of the R-expression does not need to be met in the alternatives, and so the sentence is felicitous.

As with Conditions A and B, Condition C can also appear to be violated in the elided clause in ellipsis:

(97) Brandon is proud of what Melissa has accomplished and she is too.

a. *antecedent clause:* Brandon is proud of what Melissa has accomplished
alternatives: {x is proud of what Melissa has accomplished}

b. *elided clause:* she is [proud of what she has accomplished] (she=Melissa)
alternatives: {x is proud of what she has accomplished (she=Melissa)}

Once again, ellipsis can be licensed even though the antecedent and the elided clauses do not strictly match. If presuppositions can be absent from focus alternatives, then the ordinary semantic value of the elided clause is a member of the focus semantic value of the antecedent clause, and vice versa. There is no need for an operation of vehicle change (Fiengo and May 1994); the fact that the elided clause and the antecedent clause can differ simply follows from the licensing condition on ellipsis.

In contrast, Conditions B and C can never be violated in the antecedent clause in a case of ellipsis:

(98) a. * The judge questioned the man who$_1$ defended him$_1$ about why his lawyer couldn't. ('defend him')

b. * She$_1$ thinks Melinda$_1$'s paper will be published but Sandra doesn't.

Presuppositions must be satisfied in the ordinary semantic value, and so we correctly account for the fact that the Binding Conditions can never be violated in the antecedent clause of an ellipsis example. Reinhart's approach stumbles here, as it incorrectly predicts that the elided clause and the antecedent clause should exhibit parallel behavior.

4.6 Epithets Versus Disambiguation

Nediger (2017) discusses epithets and notes a problem for the formulation of Binding Condition C as Minimize Restrictors as in Schlenker (2005a). The PPC binding theory as formulated here does not suffer from this problem, and it allows us to account for the difference between third person pronouns and first/second person pronouns from section 2.

First, epithets can appear to violate Condition C:

(99) John$_1$ is so careless that the idiot$_1$ will get killed in an accident one of these days. (Nediger 2017: (23a))
(cf. *He$_1$ is so careless that John$_1$ will get killed in an accident one of these days.)

This is straightforwardly allowed by PPC Condition C (Minimize Restrictors): Dropping the restriction (to use a pronoun) would lose the descriptive content of *idiot*, and so it is allowed not to drop.[9]

The issue raised by Nediger (2017) is that epithets cannot take a local antecedent:

(100) a. * John$_1$ is so careless that he$_1$ will kill the idiot$_1$ in an accident one of these days. (Nediger 2017: 112, (23))

b. John$_1$ is the stupidest realtor ever. *He$_1$ accidentally sold the idiot$_1$'s own house.

Nediger seems to be assuming that Condition C is what rules out an R-expression with a local commanding antecedent. This is not the case in the current account. Condition B is what rules it out:

(101) PPC Binding Condition B:
The denotation of any NP that is not a local anaphor or a NoPre is presupposed not to be identical to a denotation in set A.

Epithets are not local anaphors or NoPres, therefore they are always presupposed not to be identical to the denotation of any NP in the local domain. They can appear to violate Condition C, but never Condition B. Their behavior is therefore exactly as expected in the PPC binding theory.

A problem arises, though, because we then expect that Condition B can never be violated, either with pronouns or R-expressions. This is not correct. Under certain conditions it can be, for instance with R-expressions under conditions of focus. This is true both when the antecedent is focused (102), and when the repeated name is focused (103):

[9]There is an additional restriction on epithets which I will not discuss here: epithets are anti-logophoric, which means that they cannot refer to the author of the attitude report they are embedded within (Dubinsky and Hamilton 1998).

(102) a. Only BERTRAND likes Bertrand.
b. Even BERTRAND hates Bertrand.
c. A: Nobody likes Bertrand. B: BERTRAND likes Bertrand.

(103) a. Bertrand only likes BERTRAND.
b. Bertrand even likes BERTRAND.
c. A: Bertrand doesn't like anybody. B: Bertrand likes BERTRAND.

In (102a), the alternatives are *{x likes Bertrand}*, where *x* is alternatives to Bertrand. The presupposition of non-identity is met here. It is in the assertion ('Bertrand likes Bertrand') that it is not. So having presuppositions be absent from focus alternatives does not help with these kinds of examples.

Recall from section 2 that some researchers had claimed that focus also permits violations of Condition B with pronouns, but more recent research found that these kinds of examples are unacceptable:

(104) (modified from Roelofsen 2010: 118, (9–11))
a. * Only Max himself voted for him.
b. * I know what John and Mary have in common. John hates Mary and Mary hates her too.
c. * If everyone voted for Oscar, then certainly Oscar voted for him.

However, Condition B can be violated with first and second person pronouns:

(105) (examples cited in McKillen 2016: 160)
a. Even I laughed at me when I built this alien cross-species genetic analyser. (Futurama S05E05)
b. Mycroft: I got you out. Sherlock: No, *I* got me out. (Sherlock S03E01)

It therefore appears that Condition B is much less violable than Condition C is. Condition C can be violated by epithets, for the reason of adding descriptive content, and by repeated R-expressions, for disambiguation. Condition B can only be violated by repeated R-expressions and repeated first and second person pronouns. I should also point out that repetition of the exact same R-expression as the antecedent is not required:

(106) A: Who did the suspect call? B: The suspect, who we are calling Person X, called Person X.

It also does not appear that focus is particularly important, although most examples of this do involve focus:

(107) OK, here's what I think happened: Prisoner 1 stabbed prisoners 2 and 4, then prisoner 3 stabbed prisoner 1 and prisoner 3.

It appears that the motivation for violations of Condition B is uniformly disambiguation.

This is the reason that I proposed a Disambiguation Principle that overrides all presuppositions:

(108) The PPC Disambiguation Principle:
An NP that is being used specifically to refer unambiguously to a referent in the discourse is subject to no presuppositions regarding identity to other NPs.

This principle says that when an NP is being used specifically for the purpose of unambiguously picking out a discourse referent, then the presuppositions of Condition B and Condition C do not hold. This makes sense, since an NP being used for that purpose should have no presuppositions about who it refers to. The presupposition only holds of NPs not being used for this purpose.

Even with this principle, Condition B still rules out epithets with a local antecedent as in (100). Epithets are not used to unambiguously refer, they are used to add expressive and/or descriptive content. They are therefore always presupposed not to be identical to a denotation in Set A. The Disambiguation Principle does permit the examples in (102–103), because the R-expressions in those examples are being used to unambiguously refer to an individual (which then disambiguates to the coreferential or strict interpretation).

As for pronouns, only first and second person appear to be able to violate Condition B easily. This is because third person pronouns are generally not used to unambiguously refer, at least not without an accompanying pointing gesture. A repeated R-expression always serves that purpose much better. It is therefore always better to repeat a name or an R-expression than it is to use a pronoun with a local antecedent. (The other option is to use a local reflexive, but then that is ambiguous between the strict and the sloppy reading under focus.) With first and second person, however, there is no R-expression that can be used to refer unambiguously to the speaker or the hearer. The only lexical items that do that are first and second person pronouns. Therefore these pronouns *can* be used to unambiguously refer, and so they can violate Condition B.[10]

Since the Disambiguation Principle is about unambiguous *reference*, this account predicts that non-referential NPs can never violate Condition B. This appears to be correct:

(109) a. A: Who did every suspect call? B: Every suspect called every suspect. (*'Every suspect called him/herself.')

b. NO ONE got no one out. (*'No one got him/her self out.')

In contrast, epithets can be quantificational, as in (110):

(110) Every one of my captors$_1$ was so cruel that I am convinced the evil bastard$_1$ has a special place reserved for them in hell.

This is because descriptive content is not about reference or disambiguation. The exception to Condition C for descriptive content is covered in Condition C itself, not in the Disambiguation Principle.

To summarize, Condition C and Condition B differ in the exceptions they allow. Condition C allows exceptions for at least two different reasons, while Condition B allows exceptions only for unambiguous reference. This is why epithets can appear to violate Condition C but not Condition B, while repeated R-expressions can violate both. The Disambiguation Principle also successfully accounts for the difference between third person pronouns and first and second person pronouns.

[10]An audience member at NELS 49 asks why the sequence *R-expression$_1$...R-expression$_1$* is always better than the sequence *pronoun$_1$...R-expression$_1$*. Disambiguation may again provide the answer. Repeated R-expressions will always be unambiguous, but a pronoun is potentially ambiguous. If the point of repeating the R-expression is disambiguation, then it will always be better to be as unambiguous as possible.

4.7 Epithet Possessors

Nediger (2017) notes that epithets as possessors also cannot be locally bound:

(111) (Nediger 2017: 112–113, (24–25))

a. Every bastard$_1$'s mother thinks the bastard$_1$ is crazy.

b. * Every bastard$_1$ raised the bastard$_1$'s hand.

c. * He$_1$ raised the bastard$_1$'s hand.

d. * Jacob$_1$ raised the bastard$_1$'s hand.

e. * The bastard$_1$ raised the bastard$_1$'s hand.

Nediger suggests that there is an additional restriction on epithets when they are possessors. This is that they have an antisubject orientation. Nediger claims that this constraint is supported by the following pair, where the possessive epithet cannot refer to the local subject but can (marginally) refer to a local object:

(112) (Nediger 2017: 113, (27))

a. * Raisa$_1$ showed Olga the idiot$_1$'s house.

b. ? Raisa showed Olga$_1$ the idiot$_1$'s house.

The above example seems exceptional in its (very marginal) acceptability, however. No other example that I have been able to construct permits an epithet to refer to a local object:

(113) a. * He's so stupid, I was able to sell him$_1$ the idiot$_1$'s own pants.
(cf. I was able to sell the idiot$_1$ his$_1$ own pants.)

b. * The hostess placed him$_1$ next to the poor bastard$_1$'s ex-wife.
(cf. The hostess placed the poor bastard$_1$ next to his$_1$ ex-wife.)

c. * They finally told him$_1$ about the poor bastard$_1$'s children.
(cf. They finally told the poor bastard$_1$ about his$_1$ children.)

In the current theory, the reason that possessive pronouns in English can have a local antecedent or not is that they belong to the class of NP that is specified as being subject to no presuppositions (the NoPre class). Epithets do not belong to this class. They are always R-expressions. This means that they are always ruled out by Condition B if they have a local antecedent. There is no need to posit a special condition on possessive epithets, their behavior simply follows from Condition B.

Note that this predicts that epithet possessors can take a non-local subject as antecedent, which is correct:

(114) a. John$_1$ is so careless that the idiot$_1$'s poor driving is going to kill someone one of these days.

b. John$_1$ was devastated when his own advisor accidentally destroyed the poor bastard$_1$'s research notes.

This is not expected by the anti-subject-orientation analysis, unless that analysis is amended to exclude specifically the most local subject.

So, epithets behave exactly as expected in the current analysis. They are always ruled out with a local antecedent by Condition B. This is true whether they are possessors, or not. Not only that, I

take their behavior as possessors to support the NoPre analysis of English possessive pronouns. If we were instead to reformulate Condition B in such a way as to allow a possessor to take the local subject as its antecedent, then we would have no explanation for why epithet possessors cannot take the local subject as their antecedent.

4.8 Other NoPre Forms

As just discussed, English possessive pronouns belong to the NoPre class of NP, which means that they have no presuppositions about identity of denotation. They can therefore take a local antecedent, or not. Similar elements have been found in other languages, as well. Consider Peranakan Javanese, as discussed by Cole *et al.* (2015). This language has a well-behaved local anaphor, *awake dheen dhewe*, and it also has a well-behaved pronoun that is in complementary distribution with it, *dheen*. However, there is a third form that can be used in any of the contexts where either the anaphor or the pronoun could be used. This is *awake dheen*. Cole *et al.* (2015) argue that this form could not simply be ambiguous between an anaphor and a pronoun, and it is therefore problematic for the classical binding theory. Their argument is based on the fact that *awake dheen* can have strict readings in ellipsis.

This is not a problem at all in the current account, and it is in fact expected. In the PPC binding theory, a form like *awake dheen* that can have a local antecedent or not is a member of the NoPre class. It is subject to no presuppositions. It is therefore free to be identical in denotation to an NP in Set A, or not. It can also be interpreted via coreference rather than binding, so it can have strict or sloppy readings.[11]

In addition, it is not the case that binding theory is just irrelevant in Peranakan Javanese. The following example is ungrammatical because of PPC Condition B:

(115) * Awake dheen$_1$ nendhang Siti$_1$
body.3 3Sg NSPF.kick Siti
'She$_1$ kicked Siti$_1$.' (Cole *et al.* 2008: 583, (9a))

Cole *et al.* (2015) propose as an alternative to the classical binding theory that there are no binding principles, only preferences that may become "grammaticalized." This could not be correct, because if it were, we would expect all kinds of systems that do not exist. There would be no explanation for why "grammaticalization" would always lead to the same binding principles. As just shown, Peranakan Javanese clearly has Binding Condition B, and it also has Binding Conditions A and C. If *awake dheen* is a member of the NoPre class, then the facts of Peranakan Javanese fit the PPC binding theory perfectly. There are certainly no grounds for jettisoning the binding theory entirely, and doing so seems like a terrible mistake.

Other languages have also been shown to have NoPre forms that can take a local antecedent or not. Khanty is similar to Peranakan Javanese in having a form that can take a local antecedent or not (Volkova and Reuland 2014). Old English lacked reflexives altogether and used pronouns

[11] Note that the argument in Cole *et al.* (2015) is based on the assumption that reflexives only have sloppy readings. As we have already seen, however, this is false. Cole *et al.* (2007: 25) claim that the anaphor *awake dheen dhewe* cannot have sloppy readings. However, I would guess that even this form will be able to have strict readings in the right contexts. It is true that in many languages anaphors prefer sloppy readings, and it takes setting up a facilitating context to bring out the strict reading.

even with a local antecedent (e.g., van Gelderen 2000); and German and French first and second person object pronouns can also take a local antecedent, or not. All of these are analyzed in the PPC binding theory as elements of the NoPre class.[12]

Before moving on, I would also like to point out what data like this show about competition models. In competition accounts (e.g., Safir 2004), if a more specified, more locally bound form exists and can be used in a given configuration, then it precludes other forms from appearing there. Typically, a morphologically complex, necessarily locally bound SELF anaphor will beat out a pronoun in a configuration of local binding. However, if there is no such form, then a pronoun can appear. This type of account readily explains why pronouns can be locally bound just when there is no local reflexive.

Languages like Peranakan Javanese are deadly problems for such accounts, as was pointed out by Volkova and Reuland (2014). Peranakan Javanese has a local anaphor, and the existence of this form should preclude the ambiguous form from appearing in any configuration where the local anaphor is allowed. This is not the case, however; they are not in complementary distribution. I conclude from this that competition accounts are on the wrong track, and we instead need to recognize a NoPre class of NP.

4.9 Reciprocals

Another advantage of the PPC binding theory is that it can readily account for reciprocals. Reciprocals also fall into the class of local anaphors in the classical binding theory, but they have typically been ignored in alternatives to it. (It is difficult to see how they can be accommodated in some approaches, such as those of Reinhart and Reuland 1993 and Reuland 2011.) In the PPC binding theory, reciprocals are simply specified as falling into the class of local anaphors, meaning that they are subject to the presupposition of PPC Condition A. Unlike reflexive anaphors, they have additional at-issue semantics, but this is not relevant to their need for a local antecedent. It is an advantage of the current account that the presupposition on local anaphors has nothing to do with their semantics. Reflexives and reciprocals differ markedly in their semantics, but what they have in common is the need for a local antecedent.

For more discussion of reciprocals in the presuppositional account, see Sauerland (2013).[13]

4.10 Summary

In this section, I have proposed a new binding theory, the PPC binding theory, which combines the precede-and-command approach of Bruening (2014) with the presuppositional approach to

[12] An alternative is that a form could be ambiguous between a local anaphor and the default class. This might be true if the form has different properties depending on which class it belongs to. Volkova and Reuland (2014) state that the Khanty form has different agreement properties depending on whether or not it has a local antecedent.

[13] One complication is that reciprocals permit strict readings just like reflexives do:

(1) a. They hate each other almost as much as their enemies do. ('hate them')
b. We blamed each other. The boss did, too, and fired us both. ('blamed us')

I believe this can be accounted for straightforwardly in the current approach, but I will leave a demonstration of this to future work.

Condition A in Sauerland (2013). The PPC binding theory can account for all of the basic binding facts, including the facts of coordinated objects that all movement accounts struggle with. It also accounts for strict readings of reflexives in focus and ellipsis, the exceptions to Condition B and Condition C, the difference between third person pronouns and first/second person pronouns, epithets, and forms that can take a local antecedent or not. It also extends naturally to reciprocals, which most current alternatives to the classical binding theory simply ignore. Because it is based on precede-and-command rather than c-command, it also covers all of the data discussed in Bruening (2014). See that paper for details.

5 Three Further Issues

In this section I discuss three further issues: strong crossover, overlapping reference, and focus logophors. Strong crossover simply falls out from the PPC binding theory, including its immunity to focus. As for overlapping reference, the PPC binding theory predicts that some cases will be ungrammatical, but others will be perfectly acceptable. Some initial acceptability judgments indicate that this is correct. Finally, I suggest some possible approaches to local anaphors being used without local antecedents in argument position (which might extend to other exempt anaphors, for instance inside picture-NPs).

5.1 Strong Crossover

Strong crossover and its immunity to focus simply follow from the PPC Binding Condition C. Following Wasow (1972) and Chomsky (1981), strong crossover is often accounted for as a Condition C violation (see Lasnik and Funakoshi 2017 for an overview):

(116) * Which girl$_1$ does she$_1$ think John likes ~~which girl$_1$~~?

In the copy theory of movement (Chomsky 1993), there is an unpronounced R-expression in the extraction site, as shown with strikethrough. This R-expression is bound by an antecedent in an A-position that precedes and phase-commands it (the pronoun *she*). This is a violation of Condition C.

Lasnik and Funakoshi (2017) and Nediger (2017) point out that, unlike standard Condition C violations, focus on the antecedent does not remedy the violation (Lasnik and Funakoshi cite a 2008 class handout of Seth Cable for this observation):

(117) * Who$_1$ does only HE$_1$ (HIMSELF) still think Mary likes t_1?
(Lasnik and Funakoshi 2017: (89))

Both take this to suggest that Strong Crossover should not be accounted for as a Condition C violation.

In the current analysis, this is no barrier to analyzing strong crossover as a Condition C violation. As explained in section 4.6, focus permits apparent violations of Condition C in non-wh cases because the R-expression is used for disambiguation. An R-expression that is being used for the purpose of unambiguous reference does not have the Condition C presupposition. Since the null R-expression is not pronounced in the wh-case in (117), there is no way it can serve this

pragmatic function. An unpronounced element cannot be used for unambiguous reference (and the overt wh-phrase cannot be used for this purpose, either). Therefore focus does not help in (117). An unpronounced R-expression is always going to be subject to Condition C, even in cases of focus. (Note that there are also not distinct strict and sloppy readings for examples like (117).)

Strong crossover therefore falls out from the way Condition C is stated here, as does the failure of focus to remedy the violation. I take this to be a strong advantage of the approach.

5.2 Overlapping Reference

The PPC binding theory also makes very specific predictions about cases of overlapping reference, which I argue are correct. Unlike most binding theories, it rules out some cases of overlapping reference but permits others. (For extensive discussion of cases of overlapping reference, see Lasnik 1981, 1989, Higginbotham 1983.)

First, examples like the following are predicted to be completely unacceptable:

(118) a. * John$_1$ and Mary like himself$_1$.
b. * We like myself.
c. * He$_1$ argued that John$_1$ and Mary should be given the contract.
d. * The bear$_1$ washed it$_1$ and its cub.

In (118a), the local anaphor's presupposition of identity is not satisfied. There is an NP that *himself* is identical to, namely, *John*, but this is moved out of Set A at the right edge of the larger, conjoined, NP. At the time the anaphor is processed, the only NP in Set A is the conjoined NP. In (118b), the local anaphor *myself* is presupposed to be identical to *we*, but it is not. In (118c), the R-expression *John* is presupposed not to be identical to *he*, but this is violated. In (118d), at the point the pronoun *it* is evaluated, it is presupposed not to be identical to *the bear* (see section 4.4).

In contrast, the PPC binding theory predicts that examples like the following should be grammatical:

(119) a. We all voted for me.
b. John$_1$ and Mary recommended him$_1$.
c. They$_{\{1,2\}}$ argued that John$_1$ was the best person for the job.

In (119a), *me* is presupposed to be non-identical in denotation to *we*, and it is. This example is therefore predicted to be grammatical, contra Postal (1966) and most publications since. In (119b), *John* is moved out of Set A at the right edge of the coordinated NP, so *him* can be identical to it; and in (119c), *John* just has to be non-identical in denotation to *they*, and it is.

I contend that the examples in (119 are significantly more acceptable than those in (118), contra Lasnik (1981, 1989), Higginbotham (1983). My intuition is that there is a sharp difference between the two classes of examples: those in (118) are absolutely impossible, while those in (119) are within the realm of possibility, and may even be fully acceptable in context. To test this, I ran a SNAP judgment task (Mahowald *et al.* 2016) with the mini dialogues shown in (120). Five subjects were asked to rate these as either acceptable, unacceptable, or marginal. I coded the responses as unacceptable=0, marginal=0.5, acceptable=1. The table in (120) shows the sum of the judgments reported by the five subjects. A score of 5 means that the sentence is completely acceptable to

everyone, and a score of 0 indicates that a sentence is unacceptable for everyone. (The sentences were presented in a random order, not the order shown here.)

(120) Results of a SNAP Judgment Task

	dialogue	*sum*	*prediction*
a.	A: Did some of the animals clean some of the other animals? B: Yes, the bear washed it and its cub. (it, its refer to the bear)	0	0
b.	A: Which animal did the bear and the zookeeper clean together? B: The bear and the zookeeper cleaned itself together. (itself refers to the bear)	0	0
c.	A: What did John go to see the boss about? B: He wanted to convince the boss that John and Mary should be assigned to the new project. (he refers to John)	1	0
d.	A: Who recommended who? B: Well, Mary and John recommended her, but Stan and Sue recommended Kyle. (her refers to Mary)	2	5
e.	A: Who did you guys vote for? B: We all voted for me.	4.5	5
f.	A: What did John and Mary go to see the boss about? B: They wanted to convince the boss that Mary was the best person for the job. (they refers to John and Mary)	5	5

The results indicate that the PPC binding theory is correct in most of its predictions: (120a–c) are correctly predicted to be unacceptable, while (120e–f) are correctly predicted to be acceptable. The one case where the subjects' judgments diverge from the predictions of the PPC binding theory is (120d). It is possible that the test dialogue here is not the appropriate one for eliciting this coreference, but I will have to leave it to future research to investigate this particular data point more fully. Other than this one type of example, the PPC binding theory's novel predictions about overlapping reference seem to be borne out. I take this as important evidence in its favor.

5.3 Focus Logophors

The last issue is one that I will leave unresolved, but I will point out possible directions within the PPC binding theory that can be explored to account for it. This is the case of exempt anaphors in argument positions.

We have seen that focus can permit violations of the binding conditions, especially Condition B and Condition C. Focus also permits local anaphors to be used without a local antecedent in some cases, for some speakers, in apparent violation of Condition A. Such apparently antecedentless anaphors are what Reinhart and Reuland (1993) refer to as "focus logophors":

(121) (Reinhart and Reuland 1993: 672, (27))

a. This letter was addressed only to myself.

b. Why should the state always take precedence over myself?

c. Bismarck's impulsiveness has, as so often, rebounded against himself.

By far the most common example of this involves first person *myself*.

I see three possible accounts of this. First, for speakers who permit this (I am not one of them), the local anaphor here is not actually a local anaphor, it is being used in some other way (however exempt anaphors are used in general, for instance inside picture-NPs). The second option is that the local anaphor is a local anaphor, but it is being used for unambiguous reference in these cases. By the Disambiguation Principle, this means that it would not be subject to any presuppositions of identity. This seems like a reasonable account of first and second person local anaphors, since they will of course always be unambiguous, but it does not seem quite as reasonable for third person (but third person is much less frequent in this use anyway).

The third option is that the reflexive is again a local anaphor, but speakers who allow this permit first person and sometimes second person and third person logophoric centers to be in Set A all the time. Then the local anaphor can refer to them, even though no NP with that denotation was used in the local syntactic context. This makes such reflexives completely well-behaved local anaphors, it just requires Set A to be able to include NPs that are not present in the sentence.

I will not attempt to decide between these three alternatives here, nor will I attempt to spell out an analysis of exempt anaphors in which they are used as something other than a local anaphor. The point here is that several different approaches are available within the PPC binding theory.

5.4 Summary

This section has gone through some issues regarding strong crossover, overlapping reference, and exempt anaphors in argument positions. Strong crossover simply falls out from the the PPC binding theory, which also makes novel predictions about overlapping reference. A SNAP judgment task indicates that these predictions are largely correct. As for exempt anaphors, there are approaches that can be pursued within the PPC binding theory to account for them.

6 Conclusion

I have argued here that we obtain a simpler, more empirically adequate binding theory if that theory regulates both binding and coreference. I have proposed a new binding theory that combines the presuppositional analysis of Sauerland (2013) with the precede-and-command analysis of Bruening (2014). This new binding theory, the PPC binding theory, regulates both coreference and binding, by imposing presuppositions regarding identity of denotation. This theory explains numerous facts and has numerous advantages, as I have shown here.

Although the new binding theory that I have proposed is quite different in implementation from the classical binding theory, it actually adopts most of the central tenets of the classical binding theory. Among these are that the binding conditions do not distinguish between binding and coreference; that NPs fall into classes subject to distinct conditions; and that the binding conditions are unrelated to syntactic movement. They also do not involve competition, and they are unrelated to the semantics and featural makeup of the elements involved. All of these tenets are motivated and advantageous, as I have shown. Alternative accounts of the binding conditions are inadequate in numerous ways, in particular in relating them to movement, in not being able to account for reciprocals, and in not covering coreference. In essence, then, I have argued that the classical binding theory was correct in its fundamental assumptions.[14]

[14]The most prominent reductionist account of the binding conditions, Reuland (2011), also fails in its stated goal

There are obviously still a lot of issues for the binding theory that I have not been able to discuss here. For one thing, I have mostly focused on English, and there is more to be accounted for when we turn to other languages. Only future work can tell us how SE anaphors like Dutch *zich* will fit into the classes of NPs proposed here, for instance (but note that Dutch *zich* seems to have different properties in different configurations, see Rooryck and Vanden Wyngaerd 2011, among others). Continuing with cross-linguistic diversity, in some languages, local anaphors are strictly subject-oriented, and so the binding conditions will have to allow some parameterization in order to capture this (either Set A can only include subjects, or the presupposition requires identity of denotation with a subject in Set A). The locality condition may have to be modified or parameterized across languages, as well (to allow embedded subjects as local anaphors, for instance, briefly alluded to in section 3). Many languages have reflexive possessors; these should fit into the theory straightforwardly, but future work will have to verify that.

Bibliography

Ahn, Byron (2015), *Giving Reflexivity a Voice: Twin Reflexives in English*. Ph.D. thesis, University of California Los Angeles.

Bruening, Benjamin (2014), "Precede-and-Command Revisited." *Language* 90: 342–388.

Bruening, Benjamin (2018), "Depictive Secondary Predicates and Small Clause Approaches to Argument Structure." *Linguistic Inquiry* 49: 537–559.

Büring, Daniel (2005a), *Binding Theory*. Cambridge: Cambridge University Press.

Büring, Daniel (2005b), "Bound to Bind." *Linguistic Inquiry* 36: 259–274.

Chomsky, Noam (1981), *Lectures on Government and Binding*. Dordrecht: Foris.

of reducing binding to other principles. The principle it attempts to reduce binding to is not independently necessary, as there is no motivation for an Inability to Distinguish Indistinguishables (IDI) constraint aside from local reflexivity. It is even unmotivated there, as it predicts that the presence of additional structure should render the marking of reflexivity superfluous. This is false for coordinated objects (Yanti *et al.* 2017: note 6), discussed at length in the text, and for many other cases, including the following:

(i) a. The elephants$_1$ fell all over each other$_1$/*them$_1$.
b. The dude$_1$ puked all over himself$_1$/*him$_1$ on the couch.
c. The two lovers$_1$ can't live with or without each other$_1$/*them$_1$.
d. Some people have the experience that they$_1$ are standing next to or beside themselves$_1$/*them$_1$.

(ii) a. He's going to hurt his fool self.
b. That crackhead is about to kill his damn self!
c. * He$_1$'s going to hurt the fool him$_1$/ him$_1$ the fool.
d. * That crackhead$_1$ is about to kill damn him$_1$/the damn bastard$_1$!

In (i), the presence of PP structure, modification with a quantifier, and disjunction should make the covalued arguments distinguishable in Reuland's theory. The same goes for the addition of the expressive element in (ii). It is clear that Binding Conditions A and B have nothing to do with a putative inability to distinguish covalued arguments.

Chomsky, Noam (1986), *Knowledge of Language: Its Nature, Origin, and Use*. New York: Praeger.

Chomsky, Noam (1993), "A Minimalist Program for Linguistic Theory." In Kenneth Hale and Samuel Jay Keyser, eds., *The View from Building 20: Essays in Linguistics in Honor of Sylvain Bromberger*, Cambridge, MA: MIT Press, pp. 1–52.

Cole, Peter, Gabriella Hermon, Yassir Tjung, Chang-Yong Sim, and Chonghyuck Kim, eds. (2007), *Anaphoric Expressions in the Peranakan Javanese of Semarang*. Muenchen: Lincom.

Cole, Peter, Gabriella Hermon, Yassir Tjung, Chang-Yong Sim, and Chonghyuck Kim (2008), "A Binding Theory Exempt Anaphor." In Ekkehard König and Volker Gast, eds., *Reciprocals and Reflexives: Theoretical and Typological Explorations*, Berlin: Mouton de Gruyter, pp. 577–590.

Cole, Peter, Gabriella Hermon, and Yanti (2015), "Grammar of Binding in the Languages of the World: Innate or Learned?" *Cognition* 141: 138–160.

Conroy, Anastasia, Eri Takahashi, Jeffrey Lidz, and Colin Phillips (2009), "Equal Treatments for All Antecedents: How Children Succeed with Principle B." *Linguistic Inquiry* 40: 446–486.

Dahl, Östen (1973), "On So-Called 'Sloppy Identity'." *Synthese* 26: 81–112.

Davis, Henry (2009), "Cross-Linguistic Variation in Anaphoric Dependencies: Evidence from the Pacific Northwest." *Natural Language and Linguistic Theory* 27: 1–43.

Dubinsky, Stanley, and Robert Hamilton (1998), "Epithets as Antilogophoric Pronouns." *Linguistic Inquiry* 29: 685–693.

Elbourne, Paul (2005), "On the Acquisition of Principle B." *Linguistic Inquiry* 36: 333–365.

Evans, Gareth (1980), "Pronouns." *Linguistic Inquiry* 11: 337–362.

Fiengo, Robert, and Robert May (1994), *Indices and Identity*. Cambridge, MA: MIT Press.

Fox, Danny (2000), *Economy and Semantic Interpretation*. Cambridge, MA: MIT Press and MIT Working Papers in Linguistics.

Frazier, Lyn, and Charles Clifton, Jr. (2006), "Ellipsis and Discourse Coherence." *Linguistics and Philosophy* 29: 315–346.

van Gelderen, Elly (2000), *A History of English Reflexive Pronouns: Person,* Self*, and Interpretability*. Amsterdam/Philadelphia: John Benjamins.

Grodzinsky, Yosef, and Tanya Reinhart (1993), "The Innateness of Binding and Coreference." *Linguistic Inquiry* 24: 69–101.

Haddad, Youssef A. (2007), "Subject Anaphors: Exempt or Not Exempt?" *Linguistic Inquiry* 38: 363–372.

Heim, Irene (1998), "Anaphora and Semantic Interpretation: A Reinterpretation of Reinhart's approach." In Uli Sauerland and Orin Percus, eds., *The Interpretive Tract*, Cambridge, MA: MITWPL, vol. 25 of *MIT Working Papers in Linguistics*, pp. 205–246.

Heim, Irene (2007), "Forks in the Road to Rule I." Invited talk at NELS 38, available at https://semanticsarchive.net/Archive/TA0ZGI3O/Nels%2038%20talk.pdf.

Heim, Irene, and Angelika Kratzer (1998), *Semantics in Generative Grammar*. Oxford: Blackwell.

Hestvik, Arild (1995), "Reflexives and Ellipsis." *Natural Language Semantics* 3: 211–237.

von Heusinger, Klaus (2007), "Alternative Semantics for definite NPs." In Kerstin Schwabe and Susanne Winkler, eds., *On Information Structure, Meaning and Form: Generalizations across Languages*, Amsterdam: John Benjamins, pp. 485–508.

Higginbotham, James (1983), "Logical Form, Binding, and Nominals." *Linguistic Inquiry* 14: 395–420.

Hornstein, Norbert (2001), *Move! A Minimalist Theory of Construal*. Cambridge, MA: Blackwell.

Jacobson, Pauline (2007), "Direct Compositionality and Variable-Free Semantics: The Case of 'Principle B' Effects." In Chris Barker and Pauline Jacobson, eds., *Direct Compositionality*, Oxford: Oxford University Press, pp. 191–236.

Kayne, Richard (2002), "Pronouns and their Antecedents." In Samuel David Epstein and T. Daniel Seely, eds., *Derivation and Explanation in the Minimalist Program*, Oxford: Blackwell, pp. 133–166.

Keenan, Edward L. (1971), "Names, Quantifiers, and the Sloppy Identity Problem." *Research on Language and Social Interaction* 4: 211–232.

Kim, Christina S., and Jeffrey T. Runner (2009), "Strict Identity, Coherence, and Parallelism in VP Ellipsis." In Ed Cormany, Satoshi Ito, and David Lutz, eds., *Proceedings of Semantics and Linguistic Theory (SALT) 19*, eLanguage, pp. 275–287.

Lasnik, Howard (1981), "On Two Recent Treatments of Disjoint Reference." *Journal of Linguistic Research* 1: 48–58.

Lasnik, Howard (1989), "On the Necessity of Binding Conditions." In Howard Lasnik, ed., *Essays on Anaphora*, Dordrecht: Reidel, pp. 149–172.

Lasnik, Howard, and Kenshi Funakoshi (2017), "Condition C Violations and Strong Crossover." In Martin Everaert and Henk van Riemsdijk, eds., *The Wiley Blackwell Companion to Syntax*, Somerset, NJ: John Wiley and Sons, vol. II, second ed., pp. 1052–1078. DOI: https://doi.org/10.1002/9781118358733.wbsyncom021.

Lebeaux, David (1983), "A Distributional Difference between Reciprocals and Reflexives." *Linguistic Inquiry* 14: 723–730.

Lidz, Jeffrey (2001), "Condition R." *Linguistic Inquiry* 32: 123–140.

Mahowald, Kyle, Peter Graff, Jeremy Hartman, and Edward Gibson (2016), "SNAP Judgments: A Small N Acceptability Paradigm (SNAP) for Linguistic Acceptability Judgments." *Language* 92: 619–635.

McKillen, Alanah (2016), *On the Interpretation of Reflexive Pronouns*. Ph.D. thesis, McGill University.

Merchant, Jason (1999), *The Syntax of Silence: Sluicing, Islands, and Identity in Ellipsis*. Ph.D. thesis, University of California Santa Cruz.

Nediger, Will (2017), "Overcoming Empirical Challenges for an Extended Approach to Condition C." *Linguistic Inquiry* 48: 99–127.

Ong, Matthew, and Adrian Brasoveanu (2014), "Strict and Sloppy Reflexives in VP Ellipsis." In Christopher Piñón, ed., *Empirical Issues in Syntax and Semantics 10*, Online publication: http://www.cssp.cnrs.fr/eiss10/, pp. 251–268.

Partee, Barbara H., and Emmon Bach (1984), "Quantification, Pronouns, and VP Anaphora." In Jeroen Groenendijk, Theo M. V. Janssen, and Martin Stokhof, eds., *Truth, Interpretation and Information: Selected Papers from the Third Amsterdam Colloquium*, Dordrecht: Foris, pp. 99–130.

Postal, Paul M. (1966), "A Note on 'Understood Transitively'." *International Journal of American Linguistics* 32: 90–93.

Reinhart, Tanya (1983a), *Anaphora and Semantic Interpretation*. Chicago: University of Chicago Press.

Reinhart, Tanya (1983b), "Coreference and Bound Anaphora." *Linguistics and Philosophy* 6: 47–88.

Reinhart, Tanya (2006), *Interface Strategies*. Cambridge, MA: MIT Press.

Reinhart, Tanya, and Eric Reuland (1993), "Reflexivity." *Linguistic Inquiry* 24: 657–720.

Reuland, Eric (2001), "Primitives of Binding." *Linguistic Inquiry* 32: 439–492.

Reuland, Eric (2011), *Anaphora and Language Design*. Cambridge, MA: MIT Press.

Reuland, Eric (2017), "Grammar of Binding in the Languages of the World: Unity versus Diversity." *Cognition* 168: 370–379.

Roelofsen, Floris (2010), "Condition B Effects in Two Simple Steps." *Natural Linguistic Semantics* 18: 115–140.

Rooryck, Johan, and Guido Vanden Wyngaerd (2011), *Dissolving Binding Theory*. Oxford: Oxford University Press.

Rooth, Mats (1992), "A Theory of Focus Interpretation." *Natural Language Semantics* 1: 117–121.

Safir, Ken (2008), "Construal and Narrow Syntax." *Syntax* 11: 330–355.

Safir, Kenneth (2004), *The Syntax of Anaphora*. Oxford: Oxford University Press.

Sag, Ivan (1976), *Deletion and Logical Form*. Ph.D. thesis, Massachusetts Institute of Technology. Distributed by MIT Working Papers in Linguistics, Cambridge, Mass.

Sauerland, Uli (2013), "Presuppositions and the Alternative Tier." In Todd Snider, ed., *Proceedings of Semantics and Linguistic Theory (SALT) 23*, eLanguage: http://elanguage.net/journals/salt/index, pp. 156–173.

Schlenker, Philippe (2005a), "Minimize Restrictors! (Notes on Definite Descriptions, Condition C and Epithets)." In Emar Maier, Corien Bary, and Janneke Huitink, eds., *Proceedings of Sinn und Bedeutung 9*, Radboud University Nijmegen: NCS, pp. 385–416. `www.ru.nl/ncs/sub9`.

Schlenker, Philippe (2005b), "Non-Redundancy: Towards a Semantic Reinterpretation of Binding Theory." *Natural Language Semantics* 13: 1–92.

Sung, Li-May (1990), *Universals of Reflexives*. Ph.D. thesis, University of Illinois at Urbana-Champaign.

Volkova, Anna, and Eric Reuland (2014), "Reflexivity without Reflexives?" *The Linguistic Review* 31: 587–633.

Wasow, Thomas (1972), *Anaphoric Relations in English*. Ph.D. thesis, Massachusetts Institute of Technology. Distributed by MIT Working Papers in Linguistics, Cambridge, Mass.

Williams, Edwin (1977), "Discourse and Logical Form." *Linguistic Inquiry* 8: 101–139.

Yang, Dong-Whee (1983), "The Extended Binding Theory of Anaphors." *Language Research* 19: 169–192.

Yanti, Peter Cole, and Gabriella Hermon (2017), "The Grammar of Binding in the Languages of the World: A Response to Reuland." *Cognition* 168: 380–384.

Zwart, Jan-Wouter (2002), "Issues Related to the Derivational Theory of Binding." In Samuel David Epstein and T. Daniel Seely, eds., *Derivation and Explanation in the Minimalist Program*, Oxford: Blackwell, pp. 269–304.