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How to Neutralize a Finite Clause Boundary: Phase Theory and the Grammar of Bound Pronouns

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Abstract: A bound pronoun in the subject position of a finite complement clause renders the clause boundary relatively transparent to processes ordinarily limited to monoclausal, control, and raising configurations. We argue that this observation supports a convergence-based approach to phasehood, as well as the view that bound pronouns sometimes enter the derivation with unvalued phi-features. We sketch various ways of implementing this core idea, and draw connections to control, fake indexicals, and island effects.

Keywords: bound pronouns, phase theory, clause-mate conditions, control, fake indexicals, islands

1 Introduction

This paper has two main goals. The first goal is to lay out data on an under-documented phenomenon in English syntax whereby a bound pronoun in the subject position of a finite complement clause renders the clause boundary relatively transparent to processes or relations ordinarily confined to monoclausal, control, and raising configurations. (This observation and many of the relevant facts are laid out by Lasnik 2006. See also section 2 below for other pertinent references.) The second goal is to suggest an account of this phenomenon that has repercussions for two areas of grammar, namely phase theory and bound pronouns.

The basic observation is illustrated in (1)-(2) for gapping, and we will show below that the same pattern holds for a wide range of other syntactic phenomena as well. (1a) illustrates a baseline unremarkable example of gapping, and (1b) and (1c) show that the gapped material can span a raising or control boundary respectively. (2a) shows that gapping ordinarily cannot span a finite clause boundary, but (2b) shows that this restriction is loosened if the subject of the embedded clause is a bound pronoun. We call this the "bound pronoun effect". Our concern in this paper is why the presence of the bound pronoun renders sentences like (2b) so much better than expected; the fact that such sentences are not quite as acceptable as the ones with infinitival complements we leave to future research.

(1) a. Joe likes apples and Tim <~~likes~~> oranges.
b. Joe_1 seems t_1 to like apples and Tim_2 <~~seems t_2 to like~~> oranges.
c. Joe_1 claims PRO_1 to like apples and Tim_2 <~~claims PRO_2 to like~~> oranges.

(2) a. *Joe$_1$ claims that Bill likes apples and Tim$_2$ <~~claims that Bill likes~~> oranges.
b. ?Joe$_1$ claims that he$_1$ likes apples and Tim$_2$ <~~claims that he$_2$ likes~~> oranges.

The bound pronoun effect invites a very simple analysis, namely that sketched in (3).

(3) a. Gapping is phase-bound.
b. Bound pronouns enter the derivation with unvalued phi-features.
c. Unvalued features void phasehood.

If the locality domain for gapping is the phase, and bound pronouns enter the derivation in a way that voids the otherwise phasal status of the complement clause, then the contrast between (2a) and (2b) follows.

But a wider range of data reveals a more nuanced picture. In particular, the bound pronoun effect holds only when it is the subject of the complement clause that is the bound pronoun. As illustrated in (4a), non-subject bound pronouns do not improve acceptability. Furthermore, the bound pronoun must be the *entire* subject of the complement clause: as illustrated in (4b), subject-internal bound possessors do not have the ameliorating effect.

(4) a. *Joe$_1$ claims that Bill gave him$_1$ apples and Tim$_2$ <~~claims that Bill gave him$_2$~~> oranges.
b. *Joe$_1$ claims that his$_1$ son likes apples and Tim$_2$ <~~claims that his$_2$ son likes~~> oranges.

Rather than give up on the account in (3) altogether, though, we think that the additional data warrant a qualified version of (3), whereby bound pronouns sometimes but not always enter the derivation with unvalued phi-features, and (possibly) whereby unvalued features sometimes but not always void phasehood. Our task for the rest of this paper is to sketch out ways of making these modifications precise, as well as to discuss their implications for the analysis of islands and for the analysis of other phenomena for which unvalued pronouns have been invoked, namely control and fake indexicals.

The rest of the paper is organized as follows. Section 2 summarizes some of the previous literature on clause-mate conditions and lays out data illustrating the bound pronoun effect for a wide range of syntactic processes and relations. Section 3 develops a phase-theoretic account of the data and compares two alternative ways of implementing the basic proposal. Section 4 discusses intervention effects. Section 5 discusses consequences for control and fake indexicals, and section 6 brings island effects into the picture. Finally, section 7 concludes.

2 The Empirical Landscape and Some Previous Literature

The idea that some syntactic processes and relations cannot cross a clause boundary has played a role in generative theorizing since the 1950s. (See Lasnik 2002 for an overview.) It has also long been observed that not all clause boundaries are created

equal: Chomsky's (1973) Tensed Sentence Condition and Specified Subject Condition both acknowledge the relative weakness of nonfinite clause boundaries. In a related vein, Postal (1974) uses the term "quasi-clause" (a coinage he attributes to Perlmutter) for raising and control complements, and he suggests that quasi-clause boundaries are "not as strong a barrier to at least some syntactic phenomena as full clause boundaries" (p. 232). Postal invokes quasi-clauses in discussing a range of processes and relations that appear to be able to span a nonfinite but not a finite clause boundary, including heavy NP shift, comparative deletion, tough movement,[1] multiple questions, and double negation (the latter obeying an "anti-clause-mate" condition). (The clause-boundedness of multiple questions is noted also by Kuno & Robinson 1973.)

Other phenomena for which clause-boundedness and the finite/nonfinite distinction have since been found to be relevant include inverse scope (May 1985; Larson & May 1990; Hornstein 1994; Farkas & Giannakidou 1996; Kennedy 1997; Kayne 1998; Fox 2000; Moulton 2008; Wurmbrand 2011), antecedent-contained deletion (Larson & May 1990; Hornstein 1994; Kennedy 1997), multiple sluicing (Merchant 2001; Nishigauchi 1998; Barrie 2008; Lasnik 2014), reciprocal binding (Higginbotham 1981), "family of questions" readings (May 1977, 1985; Williams 1986; Sloan & Uriagereka 1988; Sloan 1991; Lasnik 2006; Agüero-Bautista 2007), and slang NPI licensing (Lasnik 2002).

But for some of these phenomena, not all authors claim that the relevant distinction is simply between finite clauses and nonfinite clauses. One trend in the literature builds on Rizzi's (1978) seminal work on Italian, where clitic climbing and related phenomena are shown to be ordinarily clause-bound except in some but not all sentences involving nonfinite complementation. Crucially, Rizzi showed that the availability of clitic climbing across a nonfinite clause boundary is conditioned by the choice of the embedding verb, generalizing that only modal, motion, and aspectual verbs extend locality. There is now a sizeable literature on restructuring that corroborates versions of this claim for analogous effects in Spanish (Aissen & Perlmutter 1983), German (Wurmbrand 2001; Lee-Schoenfeld 2007), and potentially a much wider range of languages as well (Cinque 2004; Grano 2015; Wurmbrand 2015).

In this connection, Lechner (2001), building on Johnson (1996), claims that gapping and comparative deletion in English only apply across nonfinite clause boundaries if the embedding verb is a restructuring verb. Hornstein (1994) makes

[1] Chomsky (1981:314) claims that tough movement across a finite clause boundary is "sometimes more or less acceptable", citing the example in (i).

(i) This book is difficult to convince people that they ought to read.

Notably, the subject of the relevant clause in this example is a bound pronoun. But unlike most of the examples of the bound pronoun effect considered in this paper, the pronoun is bound by the object rather than the subject of the embedding clause. For more on the issue of object binders, see the discussion of intervention in section 4 below.

the same claim for inverse scope and antecedent-contained deletion (though this view is questioned by Kennedy 1997 and Wurmbrand 2013; see also Moulton 2008 for relevant experimental work on inverse scope). Another phenomenon for which restructuring has been invoked in English is infinitival *to* contraction in locutions like *wanna* (from *want to*) or *hafta* (from *have to*): see Goodall 1991. In a different vein, Grano (2012, 2015) observes that in English, a control verb's (in)ability to embed a finite complement (as well as other related properties) closely tracks the verb's status as a (non-)restructuring verb in languages like German and Italian.

The bound pronoun effect investigated in this paper constitutes yet another challenge to the characterization of locality domains in terms of a simple finite/nonfinite contrast: just as the restructuring literature has shown that not all nonfinite complements are created equal, the bound pronoun effects shows that not all finite complements are created equal either. The bound pronoun effect has been observed before, by Sloan (1991) for "family of questions" readings, Nishigauchi (1998) for multiple sluicing in Japanese, and Merchant 2001:113 note 4 (citing Nishigauchi) for multiple sluicing as well as gapping. (See also Lasnik 2014.) Lasnik (2006) assembles a range of data from English showing the bound pronoun effect for gapping, pseudogapping, inverse scope, antecedent-contained deletion, reciprocal binding, heavy NP shift, multiple sluicing, and "family of questions" readings. In a possibly related vein, Ruys (1992) and Kratzer (1998b) observe that bound pronouns facilitate the availability of intermediate scope in certain kinds of syntactic configurations.[2]

The starting point for this paper is that for a wide range of "clause-mate" phenomena, nonfinite complement clauses pattern like finite complement clauses with bound pronominal subjects in being fully acceptable (in the former case) or at least somewhat acceptable (in the latter case), whereas finite complement clauses without bound pronominal subjects give rise to categorical unacceptability. The data supporting this position are given as a series of minimal trios in (5)-(14), each trio exemplifying a different clause-mate phenomenon. In each case, the matrix verb is *claim*. We use *claim* for two reasons. First, *claim* readily accepts both finite complements and controlled nonfinite complements with little or no difference in meaning, thus facilitating the formation of minimal trios. Second, *claim* belongs to a class of verbs that resist restructuring cross-linguistically (Wurmbrand 2001), and so we take the acceptability of the (a) sentences below as evidence that these clause-mate phenomena are not sensitive to the cross-linguistically attested split between restructuring and non-restructuring verbs.

[2] Aside from restructuring and the bound pronoun effect, other potential complications for the characterization of locality domains include control/raising asymmetries (there is agreement that inverse scope is possible out of control complements but disagreement about whether it is possible out of raising complements: Wurmbrand 2013; Frank & Storoshenko 2015) and asymmetries between control and raising complements on the one hand and ECM or raising-to-object complements on the other hand.

(5) GAPPING

a. Joe$_1$ claims PRO$_1$ to like apples and Tim$_2$ <~~claims PRO$_2$ to like~~> oranges.
b. ?Joe$_1$ claims that he$_1$ likes apples and Tim$_2$ <~~claims that he$_2$ likes~~> oranges.
c. *Joe$_1$ claims that Bill likes apples and Tim$_2$ <~~claims that Bill likes~~> oranges.

(6) PSEUDOGAPPING

a. Joe$_1$ claims PRO$_1$ to like apples and but he doesn't <~~claim PRO$_2$ to like~~> oranges.
b. ?Joe$_1$ claims that he$_1$ likes apples but he doesn't <~~claim that he$_2$ likes~~> oranges.
c. *Joe$_1$ claims that Bill likes apples and but he doesn't <~~claim that Bill likes~~> oranges.

(7) COMPARATIVE DELETION

a. More people$_1$ claim PRO$_1$ to like apples than <~~claim PRO$_1$ to like~~> oranges.
b. ?More people$_1$ claim that they$_1$ likes apples than <~~claim that they$_1$ like~~> oranges.
c. *More people$_1$ claim that Bill likes apples than <~~claim that Bill likes~~> oranges.

(8) INVERSE SCOPE

a. At least one professor claims to read every journal. ∃>∀
b. At least one professor$_1$ claims that he$_1$ reads every journal. ? ∃>∀
c. At least one professor$_1$ claims that Bill reads every journal. *∃>∀

(9) ANTECEDENT-CONTAINED DELETION

a. Joe$_1$ claims PRO$_1$ to read everything Tim$_2$ does <~~claim PRO$_2$ to read~~>.
b. ?Joe$_1$ claims that he$_1$ reads everything Tim$_2$ does <~~claim that he$_2$ reads~~>.
c. *Joe$_1$ claims that Bill reads everything Tim$_2$ does <~~claim that Bill reads~~>.

(10) MULTIPLE QUESTIONS

a. Tell me who$_1$ claims PRO to read which journal.
b. ?Tell me who$_1$ claims that they$_1$ read which journal.
c. *Tell me who$_1$ claims that Bill reads which journal.

(11) TOUGH MOVEMENT

a. This magazine is too lowbrow for John$_1$ to claim PRO$_1$ to read.
b. ?This magazine is too lowbrow for John$_1$ to claim that he$_1$ reads.
c. *This magazine is too lowbrow for John$_1$ to claim that Bill reads.

(12) RECIPROCAL BINDING

a. [John and Bill]$_1$ claim PRO$_1$ to like each other.
Intended reading: John claims to like Bill and Bill claims to like John.
b. ?[John and Bill]$_1$ claim that they$_1$ like each other.

Intended reading: John claims that he likes Bill and Bill claims that he likes John.

c. *[John and Bill]$_1$ claims that Tim likes each other.

Intended reading: John claims that Tim likes Bill and Bill claims that Tim likes John.

(13) MULTIPLE SLUICING

a. Someone$_1$ claims PRO$_1$ to be worried about something, but I don't who$_2$ <~~claims PRO$_2$ to be worried~~> about what.

b. ?Someone$_1$ claims that they$_1$'re worried about something, but I don't who$_2$ <~~claims that they$_2$'re worried~~> about what.

c. *Someone$_1$ claims that Bill's worried about something, but I don't who$_2$ <~~claims that Bill's worried~~> about what.

(14) FAMILY OF QUESTIONS

a. Which journal does everyone$_1$ claim PRO$_1$ to read?

Anticipated answer type: John claims to read *LI*, Tim claims to read *NLLT, etc.*

b. ?Which journal does everyone$_1$ claim that they$_1$ read?

Anticipated answer type: John claims that he reads *LI*, Tim claims that he reads *NLLT, etc.*

c. *Which journal does everyone$_1$ claim that Bill reads?

Anticipated answer type: John claims that Bill reads *LI*, Tim claims that Bill reads *NLLT*, etc.

In what follows, we explore ways of modeling a grammar that treats the (a) and (b) sentences above as grammatical to the exclusion of the (c) sentences. While we think this basic cut is right, the somewhat degraded acceptability of the (b) sentences in comparison with the (a) sentences is unfortunately not something that we will address in this paper.

3 Toward an Analysis

3.1 Preliminaries

We begin by taking it as a plausible working hypothesis that the locality domain for gapping and the other phenomena catalogued above is the phase. Then, the contrast in grammaticality between (2a) and (2b) (repeated here in (15)) can be accounted for by the pair of proposals in (16), what we will call the *proto-analysis*.

(15) a. *Joe$_1$ claims that Bill likes apples and Tim$_2$ <~~claims that Bill likes~~> oranges.

b. ?Joe$_1$ claims that he$_1$ likes apples and Tim$_2$ <~~claims that he$_2$ likes~~> oranges.

(16) *Proto-analysis*

a. **Convergence:** Any unvalued feature anywhere in a candidate phase keeps the phase open.

b. **Transmission**: A pronoun with unvalued phi-features can be valued via feature transmission from a c-commanding binder at an arbitrary distance.

According to (16), the grammaticality of (15b) follows from the presence of the bound pronoun in the complement clause. The bound pronoun enters the derivation with unvalued phi-features that are not valued until the matrix binder is merged in. The persistence of the unvalued features through the building of the complement CP prevents that CP from being a phase, thereby allowing gapping across the finite clause boundary. In (15a), on the other hand, there is no bound pronoun in the complement clause, so the embedded CP is phasal and cannot participate in gapping with the matrix clause.

But as already previewed above, facts like (4), repeated here in (17), show that the proto-analysis as it stands overgenerates: (17a) shows that a bound pronoun in object position does not extend the domain for gapping, and (17b) shows that a subject-internal bound possessor does not either.

(17) a.*Joe$_1$ claims that Bill gave him$_1$ apples and Tim$_2$ <~~claims that Bill gave him$_2$~~> oranges.
b. *Joe$_1$ claims that his$_1$ son likes apples and Tim$_2$ <~~claims that his$_2$ son likes~~> oranges.

We take these facts to mean that either Convergence needs to be reined in so that unvalued features keep the phase open only under some conditions, or Transmission needs to be reined in so that a binder can transmit features to an unvalued pronoun only when the binder and the pronoun stand in a particular kind of configurational relationship with each other. Sections 3.2 and 3.3 below discuss each of these two possibilities in turn. First, though, we elaborate in a bit more detail on some of the nuances involved in understanding Convergence and Transmission, respectively.

3.1.1 Convergence

The convergence approach to phasehood is entertained by Chomsky (2000:107), but he ultimately favors the alternative view that phases are defined as *v*P and CP, on the grounds that the convergence view would require look-ahead.[3] Chomsky's

[3] Why *v*P and CP? Do they constitute a natural class? Chomsky (2000:106) suggests that phases should be "relatively independent in terms of interface properties". He goes onto suggest that semantically, *v*P and CP are "the closest syntactic counterpart to a proposition: either a verb phrase in which all theta-roles are assigned or a full clause including tense and force" and that phonologically, *v*P and CP share certain properties such as "fronting, extraposition, pseudoclefting, response fragments, etc." (p. 106). It is not clear, though, how to define "proposition" in such a way that it picks out *v*P and CP to the exclusion of TP, and so this leaves us with a "list problem": the set of phase types has to be stipulated rather than following from something more general. It is interesting to note that versions of the "list problem"

argument goes as follows. The contrast in acceptability between (18a) and (18b) suggests a Merge over Move Principle: what goes wrong in (18b) is that at the point in the derivation where embedded [Spec,TP] is built, the DP *many linguists* moves to fill it rather than the expletive *there* being merged in from the lexical array. But then in order to explain why there is no violation of the Merge over Move Principle in (19), we can say that Merge over Move applies over lexical subarrays, which are organized into phases. Since *there* is in a higher phase due to the intervening CP, it is not eligible to be merged in, so Move does not compete with it. But if this is right, then (20) is underivable on a convergence-based approach to phasehood, provided that *wh*-phrases have uninterpretable features: the uninterpretable feature on *which* should void the phase status of the embedded CP. Consequently, given the Merge over Move Principle, *there* should be forced to merge in at [Spec,TP] of *will*. On the view that phases are defined as *vP* and CP, on the other hand, there is no problem deriving (20), since the embedded CP is phasal despite its uninterpretible feature, thereby preventing a situation wherein the Merge over Move Principle applies and forces premature merging of *there*.

(18) a. There are likely [TP ~~there~~ to be many linguists at this conference].
b. *There are likely [TP many linguists to be ~~many linguists~~ at this conference].

(19) There is some likelihood [CP that [TP many linguists will be ~~many linguists~~ at this conference]].

(20) Which conference is there some likelihood [CP that many linguists will be at ~~which conference~~]?

Felser (2004), however, in her study of *wh*-copying, argues in favor of the convergence approach based on the following reasoning: (1) *wh*-phrases have uninterpretable features that persist until the *wh*-phrase is in its final landing site, (2) *wh*-phrases move successive-cyclically through intermediate [Spec,CP] positions, and (3) a constituent with uninterpretable features cannot be sent to Spellout. Taken together, these considerations imply that the intermediate CPs in a multiclausal *wh*-configuration cannot be phases, which would follow if the offending intermediate *wh*-copies are in fact what void phasehood due to their uninterpretable or unvalued features. (What is still left unsolved on this approach, Felser acknowledges, is what triggers movement to intermediate non-interrogative heads in the first place. In response to this, Felser ends up suggesting a distinction between LF phases, which are defined over convergence, and PF phases, which form

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are found elsewhere in Chomsky's work; for example, Chomsky's (1973) Tensed Sentence Condition and Specified Subject Condition are both subsumed under the notion of Government in Chomsky 1981, but buried in the definition of Governing Category is the term of art SUBJECT (all caps), which Chomsky defines with a list: finite AGR (supplanting the Tensed Sentence Condition) and the subject of a nonfinite clause (supplanting the Specified Subject Condition).

"relatively independent phonological or processing units" (p. 570). Then, intermediate *wh*-movement is forced so as not to impede PF-Spellout.) To defuse Chomsky's argument against convergence as sketched in the preceding paragraph, Felser suggests that *there* is not a true expletive, so that its merge site is constrained thematically by the choice of the predicate and it does not actually compete with movement.

A question raised by the convergence approach to phasehood is how the Phase Impenetrability Condition would have to be formulated (or alternatively, what would replace it). According to Chomsky (2000, 2001), the reason phases induce opacity is because at some specified point in the derivation, the complement to the phase head is sent to Spellout and consequently cannot participate in subsequent syntactic processes. The workings of this are clear if phase heads are *a priori* defined as C, *v*, etc., but if phases are defined by convergence, it is not clear what would constitute a phase head. One possible solution — implicit in our proposal in (16a) above — is to entertain a hybrid approach to phasehood determination wherein C and *v* are *candidate* phase heads whose status as phase heads is voided if their complement has one or more unvalued features in it. This possibility is in fact entertained by Felser (2004). Wurmbrand (2011) suggests a similar idea, proposing that "Only interpretationally *complete* units can be transferred … *iF:*___ in a potential *phase* projection postpones *transfer*" (p. 69). Juan Uriagareka (p.c.) has similarly offered the suggestion that "transfer is suspended when an anaphoric dependency is at stake (until the antecedent enters the picture)", an idea whose roots are also apparent in Uriagareka & Lasnik 2005. What is common to all of these suggestions is that Convergence can be viewed as something that lives on a pre-existing theory of what constitutes *candidate phases*. This is conceptually more complicated than the view that Convergence exhaustively determines phasehood: convergent objects are phases and nonconvergent objects are not phases. Anticipating our two approaches to the bound pronoun effect discussed below, the approach in section 3.2 (Reining in Convergence) makes crucial reference to phase heads and consequently entails the more complicated view. The approach in section 3.2 (Reining in Transmission), on the other hand, is compatible with the conceptually simpler view that Convergence exhaustively determines phasehood.

3.1.2 Transmission

The idea that bound pronouns can enter the derivation with unvalued phi-features goes back at least as far as Kratzer (1998a). (See also Heim, Lasnik & May 1991, who observe that bound pronouns that range over atomic individuals are nonetheless sometimes morphologically plural due to a syntactic agreement requirement with their antecedent.) Kratzer's focus was fake indexicals, i.e., first- and second-person pronouns that behave as bound variables, like *my* in *Only I finished my homework* on the reading *I am the only x such that x finished x's homework.* To account for the fact that the first-person feature on *my* seems not to be interpreted, Kratzer proposes that *my* enters the derivation without this feature and acquires it via agreement in the PF component, after LF is already fixed. See also Kratzer (2009) for an updated

treatment that takes into account, among other things, Rullmann's (2004) partial binding data that complicate the basic picture. (An alternative view in the fake indexicals literature is that the pronoun enters the derivation with the relevant features but these features get deleted prior to LF: see von Stechow 2003. See also Reuland 2010 for discussion.) One analytical choice point within this literature that is relevant to our purposes here is the question of whether bound pronouns *obligatorily* or *optionally* enter the derivation without phi-features. Heim (2008) for example argues for the obligatory view, whereas Kratzer (2009) argues for the optional view, arguing that long-distance fake indexicals enter the derivation with specified phi-features and have an interpretation that is mediated by context-shifting operators as proposed by Cable (2005). Since the bound pronoun effect under investigation in this paper is sensitive to a subject/non-subject asymmetry, it will be crucial for us that either (a) bound pronouns *optionally* enter the derivation with unvalued phi-features or (b) non-subject "bound pronouns" are not bound pronouns at all but rather have a D-type/E-type analysis (cf. Kratzer 2009:216).[4]

Another type of expression that has been argued to involve a pronoun entering the derivation with unvalued phi-features is PRO. This suggestion also goes back to Kratzer (1998a, 2009), and has been taken up more recently by Landau (2015, To appear). Given its restriction to subject position, PRO in fact bears a much closer resemblance to the bound pronoun effect than do fake indexicals. We return to this point in section 5 below.

3.2 Reining in Convergence

The first option we consider is to leave Transmission as stated above but to modify Convergence to account for the subject/non-subject asymmetry. In particular, suppose C is a candidate phase head, but that its status as a phase head is voided just in case *the head of its complement* contains one or more unvalued features. This is spelled out in (21a); (21b) is carried over unchanged from (16b) above. (We thank Hisa Kitahara for suggesting this approach to us.)

(21)

[4] The idea that third-person pronouns come in two flavors goes back at least as far as Chomsky 1955/1975: Chomsky's system had "two elements *he* and *he**, with *he** a proper noun, and *he* a pronoun just like *I*, *you"* (p. 524 of 1975 edition). For Chomsky, though, the distinction correlated with whether the pronoun had a (sentence-local) antecedent, whereas here, the suggestion is that having an antecedent is a necessary but not a sufficient condition for having entered the derivation with unvalued phi-features. Norbert Hornstein (p.c.) suggests that a complete theory may ultimately need to countenance not two but three flavors of pronouns: in particular, those pronouns that do not give rise to the bound pronoun effect can be split into two groups depending on whether they can or cannot be replaced with an anaphoric epithet.

a. **Convergence v2:** An unvalued feature on the head of a complement to a candidate phase head voids phasehood.
b. **Transmission**: An unvalued pronoun can be valued via feature transmission from a c-commanding binder at an arbitrary distance.

This analysis works by capitalizing on the fact that one property that distinguishes subjects from objects and from subject-internal constituents is that only the subject participates in phi-feature agreement with T, and T stands in a local head-to-head relationship with C. Returning to the crucial data, this proposal accurately predicts that (22) is generated since here the unvalued status of the bound pronoun prevents embedded T from being valued for phi-features, while also accurately ruling out (23) and (24) since in both cases, the bound pronoun does not sit in [Spec,TP] and hence does not prevent the embedded T from being valued.

(22) ?Joe$_1$ claims that he$_1$ likes apples and Tim$_2$ <~~claims that he$_2$ likes~~> oranges.

(23) *Joe$_1$ claims that Bill gave him$_1$ apples and Tim$_2$ <~~claims that Bill gave him$_2$~~> oranges.

(24) *Joe$_1$ claims that his$_1$ son likes apples and Tim$_2$ <~~claims that his$_2$ son likes~~> oranges.

Potentially, there is a promising variant on this analysis. Suppose Pesetsky & Torrego (2001) are correct that embedded declarative clauses always involve either T-to-C movement or movement of the subject to [Spec,CP]. Then we could entertain the idea that only unvalued features *at the candidate phase edge* (i.e., on the phase head itself or in the specifier position of the phase head) void phasehood:

(25) **Convergence v3:** An unvalued feature on the edge of a candidate phase voids phasehood.

In the scenario where T moves to C, the unvalued features on T would make their way onto C. In the scenario where the subject moves to [Spec,CP], the unvalued features on the subject pronoun itself would now be in the edge of the phase. (This proposal would, however, need to be refined to prevent unvalued features in *sub-constituents* of the element in [Spec,CP] from keeping the phase open. This would be necessary in order to account for the data involving subject-internal bound possessors, as in (24).)

This variant of the proposal in fact offers an interesting way of reinterpreting Felser's (2004) data and argumentation. As discussed above, Felser (2004) argues that unvalued *wh*-copies in intermediate [Spec,CP] positions keep the phase open, and generalizes from that to suggest that unvalued features in general keep the phase open. But since the *wh*-copies sit in [Spec,CP], which is at the edge of the phase, it would be consistent with Felser's reasoning to entertain the idea that only unvalued features at the candidate phase edge keep the phase open.

Taking this line of reasoning even further, (25) offers an interesting alternative perspective on what drives successive cyclic movement: in particular, the suggestion is that successive cyclic movement is not driven by the need to escape the Spellout domain defined as the complement to the phase head; rather, it is driven by the need to prevent premature Spellout by voiding the phase head status of the candidate phase head.

3.3 Reining in Transmission

The other analytical option to consider is to leave Convergence unrestricted but to rein in Transmission. We consider here two variants of this approach. On the first variant, transmission piggybacks on predication and predication is driven by a head that triggers A-movement so that the subject/non-subject asymmetry falls out as a superiority/minimality effect. On the second variant, transmission piggybacks on binding in a way that is mediated by functional heads and constrained to local head-to-head relations.

The first variant is inspired by Landau's (2015) approach to obligatory control, which among other things is designed to derive the subjecthood of PRO, an analytical task similar to the one at hand here. (See also Percus & Sauerland 2003 for a similar idea in a somewhat different empirical domain.) Suppose, basically following Landau (2015), that phi-feature transmission piggybacks on predication. In (26a) (Landau's (56a)), for example, phi-features are transmitted from subject to predicate, and in *pro*-drop sentences like (26b) (Landau's (56b), phi-features are transmitted from predicate to subject.

(26) a. ha-yelad-im smex-im.
The-child-PL.M happy-PL.M *Hebrew* (Landau 2015:47)

b. *pro* lleg-ó.
he.3.SG arrived-3.SG *Spanish* (Landau 2015:47)

Suppose furthermore, still following Landau (2015), that a complement clause can be turned into a predicate via a special functional head Fin that has an uninterpretable D feature. This feature attracts the closest DP to [Spec,FinP]. Once the matrix antecedent is merged in, it enters into a predication relation with FinP, enabling feature transmission to the Fin head. As long as subsequent feature transmission is constrained to a local Spec-Head relationship, then the subject/non-subject asymmetry is derived. In the licit derivation in (27) with a bound pronoun in subject position, the pronoun A-moves from [Spec,TP] to [Spec,FinP] (27a), Transmission occurs from matrix antecedent to Fin (27b), and then Transmission occurs from Fin to [Spec,FinP] (27c).

(27) a. Joe claims [CP that [FinP he Fin [TP ~~he~~ likes books]]]. (*A-movement)*
↑_____|
b. Joe claims [CP that [FinP he Fin [TP ~~he~~ likes books]]]. *(Transmission)*
|_____↑

c. Joe claims [CP that [FinP he Fin [TP ~~he~~ likes books]]]. *(Transmission)*
↑__|

Non-subject unvalued pronouns, on the other hand, will never lead to a licit derivation with this setup. The derivation in (28), for example, is ruled out since movement of *him* to [Spec,FinP] incurs a superiority/minimality violation. The derivation in (29) crashes as well, since the third step involves transmission from Fin to something other than [Spec,FinP].

(28) Joe claims [CP that [FinP him TP [Bill gave ~~him~~ books]]]. (**A-movement)*
↑_____|

(29) a. Joe claims [CP that [FinP Bill Fin TP [~~Bill~~ gave him books]]]. *(A-movement)*
↑_____|
b. Joe claims [CP that [FinP Bill Fin TP [~~Bill~~ gave him books]]]. *(Transmission)*
|_____↑
c. Joe claims [CP that [FinP Bill Fin TP [~~Bill~~ gave him books]]]. *(*Transmission)*
|_____↑

In (30), we summarize the essential features of this approach.

(30)

a. **Convergence:** Any unvalued feature anywhere in a candidate phase keeps the phase open.
b. **Transmission v2**:
    i. An unvalued pronoun can be valued via feature transmission.
    ii. Transmission of phi-features piggybacks on predication.
    iii. A complement clause can be turned into a predicate via Fin.
    iv. Transmission proceeds from antecedent to Fin and from Fin to [Spec,FinP].

The second variant of this analysis involves taking a Kratzerian view of binding and phi-feature transmission: phi-feature transmission piggybacks not on predication but rather on binding, and binding is mediated by verbal functional heads. (See Kratzer 1998, 2009, drawing on Finer 1985; Borer 1989; Hale 1992.) In particular, on this approach, a matrix binder transmits features onto embedded C, and embedded C binds and values an unvalued pronoun in its c-command domain. This view derives the subject/non-subject asymmetry, as long as we grant two additional assumptions. First, C and *v* intervene for each other in the way they transmit features. This ensures that feature transmission can proceed from C to [Spec,TP] as in (31), but it cannot proceed from C to somewhere inside *vP* as in (32) since this would involve an intervening *v*. The second needed assumption is that feature transmission obeys an A-over-A-like constraint so that feature transmission cannot target a DP embedded in a larger DP. This then accurately rules out subject-internal unvalued pronouns as in (33).

(31) Joe claims [CP that [TP he likes books]].
|_____↑|_____↑

(32) *Joe claims [CP that [TP Bill [*v*P gave him books]]].
|_____↑|_____↑

(33) *Joe claims [CP that [TP [DP [DP his] son] likes books]].
|_____↑ |_____↑

We summarize this variant of the analysis in (34).

(34)

a. **Convergence:** Any unvalued feature anywhere in a candidate phase keeps the phase open.
b. **Transmission v3**:
    i. An unvalued pronoun can be valued via feature transmission.
    ii. Transmission of phi-features piggybacks on binding.
    iii. Binding is mediated by verbal functional heads.
    iv. C and *v* intervene for each other in the way they transmit features.

4 Intervention Effects

In this section we explore the question of whether there are restrictions on the bound pronoun effect above and beyond the requirement that the bound pronoun be in subject position.

One question to ask is whether the *antecedent* to the bound pronoun also has to be a subject. The data in (35) suggest that the answer is yes: in both sentences, gapping across a finite clause boundary is ungrammatical when the subject of the complement clause is bound by the matrix object. This follows from the analysis: an object antecedent values the bound pronoun sufficiently early in the derivation so that the phase is not open long enough for cross-clausal gapping to be licit.

(35) a. *Joe$_1$ persuaded Bill$_2$ that he$_2$ should read *Pride & Prejudice* and Tim$_3$ <~~persuaded Bill$_2$ that he$_2$ should read~~> *Sense & Sensibility*.
b. *Joe$_1$ promised Bill$_2$ that he$_2$ had already read *Pride & Prejudice* and Tim$_3$ <~~promised Bill$_2$ that he$_2$ had already read~~> *Sense & Sensibility*.

Not only does the antecedent have to be a subject, the data in (36) show that if a matrix object intervenes between the subject antecedent and the bound pronoun, this also blocks the bound pronoun effect. This is also apparent in examples like (37) where the intervener is not a matrix object but rather the subject of an intermediate clause.[5]

[5] Interestingly, as shown in (i), when the subject of the intermediate clause is an expletive, the effect of the intervention seems to be diminished. This suggests that

(36) a. *Joe$_1$ persuaded Bill$_2$ that he$_1$ should read *Pride & Prejudice* and Tim$_3$ <~~persuaded Bill$_2$ that he$_3$ should read~~> *Sense & Sensibility*.
b. *Joe$_1$ promised Bill$_2$ that he$_1$ had already read *Pride & Prejudice* and Tim$_3$ <~~promised Bill$_2$ that he$_3$ had already read~~> *Sense & Sensibility*.

(37) *Joe$_1$ said that Bill claims that he$_1$ likes apples and Tim$_2$ <~~said that Joe claims that he$_2$ likes~~> oranges.

A qualification is in order with regard to the data reported here: since even the best examples of the bound pronoun effect involve degraded acceptability, it is hard to know whether to treat the examples here as categorically different in a way that should be built into the grammar or not. But suppose these intervention effects are genuine. What are we to make of them? It could be that they are simply telling us something about how phi-feature transmission works, i.e., phi-feature transmission is subject to intervention. On the other hand, they could be telling us something deeper about how to characterize the relationship between the antecedent and the bound pronoun. In particular, subject orientation and intervention, taken together, more or less characterize A-dependencies. Consequently, although we will not pursue this approach here, it is tempting to entertain an analysis in which the antecedent and the bound pronoun constitute an A-chain. Such an approach is in fact pursued for copy raising by Potsdam & Runner (2001). Another relevant phenomenon is finite control in Brazilian Portuguese (see e.g. Rodrigues 2004), which some scholars have analyzed as involving an A-chain dependency between a matrix argument and the subject of a finite complement clause.

5 Comparison with Possibly Related Phenomena

One measure of the success of a proposal ought to be the extent to which it renders transparent the theoretical relationship between seemingly related phenomena. As discussed above, unvalued pronouns have played a role in the analysis of control and fake indexicals, and so it is worth cataloguing empirical similarities and differences between these phenomena and reflecting on how well the analyses sketched above may handle these similarities and differences.

Like the bound pronoun effect, control is subject-oriented, PRO being able to appear only in subject position (38a) and not in object position (38b) or subject-

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the relevant factor in (37) is the intervening (contentful) DP introduced by the intermediate clause rather than the intermediate clause itself. This is reminiscent of the observation that under at least some conditions, an anaphor need not be locally bound if what intervenes is an expletive (see e.g. Pollard & Sag 1994:258—262).

(i) *?Joe$_1$ said that it is true that he$_1$ likes apples and Tim$_2$ <~~said that it is true that he$_2$ likes~~> oranges.

internally (38c). Also similarly to the bound pronoun effect, the controller cannot be separated from PRO by an intervening clause, as illustrated in (39).

(38) a. Joe claims [PRO to like apples].
b. *Joe claims [(for) Bill to like PRO].
c. *Joe claims[(for) PRO's son to like apples].

(39) Joe$_1$ wanted Bill$_2$ to claim PRO$_{*1/2}$ to like apples.

One empirical difference between the bound pronoun effect and control is that PRO can be either subject- or object-controlled in a way that famously correlates with the choice of the embedding predicate (40), whereas the bound pronoun effect appears to give rise to ungrammaticality when there is a matrix object, regardless of how the bound pronoun is construed, as illustrated in (41).

(40) a. Joe$_1$ persuaded Bill$_2$ [PRO$_{*1/2}$ to read a book].
b. Joe$_1$ promised Bill$_2$ [PRO$_{1/*2}$ to read a book].

(41) a. *Joe$_1$ persuaded Bill$_2$ that he$_{1/2}$ had already read *Pride & Prejudice* and Tim$_2$ <~~persuaded Bill that he$_{1/2}$ had already read~~> *Sense & Sensibility*.
b. *Joe$_1$ promised Bill$_2$ that he$_{1/2}$ had already read *Pride & Prejudice* and Tim$_2$ <~~promised Bill that he$_{1/2}$ had already read~~> *Sense & Sensibility*.

As far as we can tell, all of the potential analyses of the bound pronoun effect sketched in section 3 above offer a promising way of relating the effect to control. In essence, we entertained three kinds of explanations for deriving the subject orientation of the bound pronoun effect: it follows from either (1) the need to get (near) the phase edge, (2) the grammar of predication, or (3) the grammar of binding. Deriving properties of control from the grammar of predication and/or binding is of course a very familiar idea in the literature (see Landau 2013 for an overview). As far as we know, there has never been an attempt to derive the subjecthood of PRO via phase theory (with the partial exception of Landau 2015 whose account involves both phase theory and the grammar of predication), but we see no obvious barrier to such an analysis.

Turning to fake indexicals, here we see some properties that are quite distinct from the bound pronoun effect. Most strikingly, fake indexicals are not subject-oriented: all of the examples in (42) are grammatical with a fake indexical reading.

(42) a. Only I claimed that **I** did the homework.
Possible reading: 'I am the only *x* such that *x* claimed that *x* did the homework.'
b. Only I claimed that John helped **me**.
Possible reading: 'I am the only *x* such that *x* claimed that John helped *x*.
c. Only I claimed that **my** homework was done.

Possible reading: 'I am the only *x* such that *x* claimed that *x*'s homework was done.'

As for the intervening clause effect, here the facts are less conclusive. Kratzer (1998:212) generalizes on the basis of sentences like (43a) (repeated from her (15')) that a fake indexical cannot be separated from its antecedent by an intervening clause. (43b) also seems to support this conclusion. On the other hand, (44), fashioned after the kind of data whose German equivalent was investigated by Kratzer (2009), seems to permit a fake indexical reading across an intervening clause.

(43) a. Only I think that Mary won't come if you invite me.
*'I am the only *x* such that *x* thinks Mary won't come if you won't invite *x*.
b. Only I think that Bill said John saw me.
*'I am the only *x* such that Bill said John saw *x*.

(44) I am the only one who thinks that somebody understands my paper.
Possible reading: 'I am the only *x* such that *x* thinks that somebody understands *x*'s paper.'

On the basis of (the German equivalent of) data like (44), Kratzer (2009) proposes that there are two routes to fake indexicals: pronouns that enter the derivation unvalued and get bound and valued by verbal functional heads in a way that is subject to locality restrictions, and pronouns that enter the derivation valued but whose interpretation is mediated by Cable's (2005) context-shifting operators that are not subject to any locality requirements. If Kratzer's proposal is correct, then the empirical differences between the bound pronoun effect and fake indexicals are fully expected, since only the latter can enter the derivation phi-complete and thereby have the option of being interpreted via context-shifting operators.

6 Islands

If the basic gist of our analysis is correct — namely that subject-position bound pronouns void the phasal status of the CP — then we make the prediction that subject-position bound pronouns should ameliorate certain kinds of islands. The following minimal trios involving adjunct islands (39) and *wh*-islands (40) suggest that this prediction is on the right track: in each case, nonfinite clauses significantly ameliorate the island, and among finite clauses, a bound pronoun in subject position renders the island violation less severe.

(45) a. What$_2$ did John$_1$ go home [after PRO$_1$ reading t$_2$]?
b. ?What$_2$ did John$_1$ go home [after he$_1$ read t$_2$]?
c. *What$_2$ did John go home [after Mary read t$_2$]?

(46) a. What$_2$ did John$_1$ wonder [whether PRO$_1$ to read t$_2$]?
b. ?What$_2$ did John$_1$ wonder [whether he$_1$ should read t$_2$]?

c. *What$_2$ did John wonder [whether Bill should read t_2]?

In this connection, it is interesting to note that Ross (1967) questioned Chomsky's (1964) *wh*-island constraint on the basis that it was too strong, and the data supporting this position involved controlled infinitival embedded questions (47a-d) as well as six examples of embedded finite questions with bound-pronoun subjects (47e-g, 48).[6] The data in (47)-(48) are taken from Ross 1967:27.

(47) He told me about a book which I can't figure out
a. whether to buy or not.
b. how to read.
c. where to obtain.
d. what to do about.
e. why he read.
f. ?whether I should read.
g. ??when I should read.

(48) Which books did he tell you
a. why he wanted to read?
b. ?whether he wanted to read?
c.??when he wanted to readi?

In a related vein, parasitic gaps are well known to be better in nonfinite adjuncts (49a) than in finite adjuncts (49c), and it seems to us that finite adjuncts with bound pronominal subjects pattern with nonfinite adjuncts in being acceptable with a parasitic gap.

(49) Which papers did John read before…
a. …filing?
b. …he filed?
c. ?...Bill filed?

But as David Pesetsky (p.c.) reminds us, it remains the case that extraction of adjuncts out of islands is robustly ungrammatical, regardless of the status of the embedded subject, as illustrated in (50). Consequently, we leave for future work a more complete investigation of bound pronouns in islands.

(50) a. *How$_2$ did John$_1$ go home [after PRO$_1$ solving the problem t_2]?
b. *How$_2$ did John$_1$ go home [after he$_1$ solved the problem t_2]?
c. *How$_2$ did John go home [after Mary solved the problem t_2]?

[6] Interestingly, in (47e), the bound pronoun is structurally quite far removed from its antecedent. The antecedent is the matrix subject and the bound pronoun is buried inside the relative clause of the matrix PP. This may lend support for the approach to phasehood and feature transmission sketched in section 3.2 above, whereby transmission can apply over an arbitrary structural distance.

7 Conclusion

This paper began with the observation that a bound pronoun in the subject position of a finite complement clause renders the clause boundary relatively transparent to syntactic processes and relations ordinarily confined to monoclausal, control, and raising configurations. We showed that this phenomenon holds for a wide range of "quasi-clause-bound" effects including gapping, pseudogapping, comparative deletion, inverse scope, antecedent-contained deletion, multiple questions, tough movement, reciprocal binding, multiple sluicing, and family of questions readings.

Toward an explanation, we suggested that the relevant locality domain for all of these phenomena is the phase, and that bound pronouns have the option of entering the derivation with unvalued phi-features, thereby voiding phasehood. This basic picture is complicated by the fact that the bound pronoun must be in subject position in order to extend the locality domain, and we entertained two ways of reining in the analysis to capture this. One way involved the idea that only unvalued features that are at (or sufficiently close to) the candidate phase edge void phasehood. The other way involved entertaining the idea that the transmission mechanism by which unvalued pronouns get valued is constrained in ways that limit cross-clausal transmission to subject-position targets. We discussed ways of relating this constraint to the grammar of predication or the grammar of binding.

Regardless of these details of implementation, though, the overall gist of the analysis has two primary theoretical implications. The first is that not all bound pronouns are created equal: bound pronouns can either enter the derivation phi-complete, or enter the derivation unvalued and thereby interact with core grammatical processes. This conclusion echoes Chomsky 1955/1975 (see note 2) as well as more recent work on bound pronouns such as Kratzer 2009. The second theoretical implication is that not all CPs are created equal, specifically with respect to their phasal status. In summary, the bound pronoun effect offers compelling evidence for the view that feature valuation has a role to play in phase theory.

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