

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

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A bound pronoun in the subject position of a finite embedded clause renders the clause boundary relatively transparent to relations ordinarily confined to monoclausal, control, and raising configurations. For example, *too/enough*-movement structures involving a finite clause boundary are degraded in sentences like **This book is too long [for John to claim [that Bill read ___ in a day]]* but improved when the finite clause has a bound pronominal subject as in ?*This book is too long [for John₁ to claim [that he₁ read ___ in a day]]*. This bound pronoun effect holds across a wide range of phenomena including *too/enough*-movement, *tough*-movement, gapping, comparative deletion, antecedent-contained deletion, quantifier scope interaction, multiple questions, pseudogapping, reciprocal binding, and multiple sluicing; we confirm the effect via a sentence acceptability experiment targeting some of these phenomena. Our account has two crucial ingredients: (a) bound pronouns optionally enter the derivation with unvalued ϕ -features and (b) phases are defined in part by convergence, so that under certain conditions, unvalued features void the phasal status of CP and extend the locality domain for syntactic operations.

Keywords: bound pronouns, phase theory, clause-mate conditions

1 Introduction

English exhibits a number of well-studied syntactic phenomena all involving some kind of operation or relation that can be characterized to a very rough first approximation as *clause-bound*, that is, unable to span a clause boundary. These phenomena include but are not limited to *too/enough*-movement, gapping, comparative deletion, antecedent-contained deletion (ACD), quantifier scope interaction, and multiple questions. Thus, the sentences in (1) are all perfectly accept-

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able, whereas the minimal variants in (2) are all degraded in virtue of the clause boundary found in the bracketed portion of each sentence.¹

- (1) a. *Too/Enough-movement*
This magazine is too lowbrow [for John to read ____].
- b. *Gapping*
Mary likes apples and [Ann ~~(likes)~~ oranges].
- c. *Comparative deletion*
More people like apples than [~~(like)~~ oranges].
- d. *Antecedent-contained deletion*
John reads everything [Bill does ~~(read)~~].
- e. *Quantifier scope interaction*
[**At least one professor** reads **every journal**]. ($\forall > \exists$)
- f. *Multiple questions*
Tell me [**who** reads **which journal**].
- (2) a. *This magazine is too lowbrow [for John to claim that Bill reads ____].
- b. *Mary claims that Jill likes apples and [Ann ~~(claims that Jill likes)~~ oranges].
- c. *More people claim that Bill likes apples [than ~~(claim that Bill likes)~~ oranges].
- d. *John claims that Mark reads everything [Bill does ~~(claim that Mark reads)~~].
- e. * [**At least one professor** claims that Ann reads **every journal**]. ($\forall > \exists$)
- f. *Tell me [**who** claims that Mary reads **which journal**].

One well-known exception to the clause-boundedness witnessed in (1)–(2) is that *nonfinite* control and raising clause boundaries do not have the same deleterious effect as do finite clause boundaries. Thus, if we compare the examples in (2) to the minimal variants in (3) in which the finite clause boundary is replaced by a nonfinite clause introduced by control verb *claim* or raising verb *tend*, we find that the examples become acceptable once again.²

¹ Regarding the multiple question in (2f), it bears noting that there is one strand in the literature that takes the position that the *wh*-elements in a multiple question can in fact be separated by a finite clause boundary and that the in-situ *wh*-element can even be embedded in an island (see, e.g., Huang 1982a, Lasnik and Saito 1984, Fiengo et al. 1988). Here we depart from this view and instead follow Kuno and Robinson (1972) and Postal (1974) in treating examples like (2f) as ungrammatical. For relevant experimental findings on the relative acceptability of multiple questions that span a finite clause boundary, see section 3.4 and the online appendix (http://mitpressjournals.org/doi/suppl/10.1162/LING_a_00279).

² See Postal 1974 for an early version of this observation in connection with *tough*-movement, comparative deletion, and multiple questions (on the latter, see also Kuno and Robinson 1972). The gapping facts are discussed by Johnson (1996) and Lechner (2001). And the sizeable literature on locality domains for quantifier scope and ACD is too vast to do justice to here, but includes May 1977, 1985, Larson and May 1990, Hornstein 1994, Farkas and Giannakidou 1996, Kennedy 1997, Wilder 1997, Kayne 1998, Fox 2000, Cecchetto 2004, Moulton 2008, Hackl, Koster-Hale, and Varvoutis 2012, and Wurmbrand 2013, 2015a.

Incidentally, it is worth asking whether the crucial distinction between (2) and (3) is the (non)finiteness of the embedded clause or the nullness/overtness of the embedded subject. In principle, it should be possible to adjudicate this matter by considering minimal variants in which the embedded clause is nonfinite but has an overt subject, as in (i). In practice, though, the judgments concerning (ia–f) are not crystal-clear and so we refrain from taking a stance on whether

- (3) a. This magazine is too lowbrow [for John to claim/tend to read ____].
 b. Mary claims/tends to like apples and [Ann ~~(claims/tends to like)~~ oranges].
 c. More people claim/tend to like apples [than ~~(claim/tend to like)~~ oranges].
 d. John claims/tends to read everything [Bill does ~~(claim/tend to read)~~].
 e. [**At least one professor** claims/tends to read **every journal**.] ($\forall > \exists$)
 f. Tell me [**who** claims/tends to read **which journal**].

A less widely recognized exception to clause-boundedness—and the focus of this article—is the observation that even finite clause boundaries can be rendered relatively innocuous in the phenomena in question, provided that the subject of the embedded finite clause is a bound pronoun. We call this the *bound pronoun effect*. It is illustrated in (4).³

- (4) a. ?This magazine is too lowbrow [for John₁ to claim that **he**₁ reads ____].
 b. ?Mary₁ claims that **she**₁ likes apples and [Ann₂ ~~(claims that she₂ likes)~~ oranges].
 c. ?More people₁ claim that **they**₁ like apples [than ~~(claim that they₁ like)~~ oranges].
 d. ?John₁ claims that **he**₁ reads everything [Bill₂ does ~~(claims that he₂ reads)~~].
 e. ?[**At least one professor**₁ claims that **she**₁ reads **every journal**]. ($\forall > \exists$)
 f. ?Tell me [**who**₁ claims that **he**₁ reads **which journal**].

In this article, we present what is to our knowledge the first experimental documentation of the bound pronoun effect—in the form of a sentence acceptability experiment designed using the tools described in Erlewine and Kotek 2016 and conducted via Amazon's Mechanical Turk—as well as the first attempt at an account of it. The account has two crucial ingredients. First, bound pronouns optionally enter the derivation with unvalued ϕ -features (see Kratzer 1998a, 2009, Rullmann 2004, Heim 2008, Landau 2016). Second, phases are defined in part by convergence, so that under certain conditions, an unvalued feature voids the otherwise phasal status of CP (cf. Chomsky 2000:107, Felser 2004) and thereby extends the locality domain for syntactic relations.

The article is organized as follows. In section 2, we provide some background, situating the bound pronoun effect with respect to previous literature and to the broader landscape of clause-

the grammar should rule them out. The theory we end up proposing predicts that (ia–f) should be ungrammatical if the nonfinite complement to *want* is a phasal category, a question we leave open for future research.

- (i) a. ?This magazine is too lowbrow [for Mary to want Fred to read ____].
 b. ?Mary wants Fred to like apples and [Ann ~~(wants Fred to like)~~ oranges].
 c. ?More people want Fred to like apples [than ~~(want Fred to like)~~ oranges].
 d. ?Mary wants Fred to read everything [Bill does ~~(want Fred to read)~~].
 e. ?[**At least one professor** wants Fred to read **every journal**]. ($\forall > \exists$)
 f. ?Tell me [**who** wants Fred to read **which journal**].

³ This observation and many of the relevant facts are laid out by Lasnik (2006), who reports on material based in substantial part on unpublished joint research with Tomohiro Fujii and Norbert Hornstein. Versions of the observation as it relates to particular phenomena are found in scattered places throughout the literature. These include Sloan 1991 (on family of questions), Nishigauchi 1998 (on multiple questions, multiple sluicing, and gapping), Merchant 2001: 113n4 (on gapping and multiple sluicing), Syrett and Lidz 2011 (on ACD), and Lasnik 2014 (on multiple sluicing and extraposition).

boundedness and related phenomena. In section 3, we lay out the core data that motivate our theoretical proposals and describe our experimental findings. In section 4, we present our phase-theoretic account of the bound pronoun effect and show how it can be embedded into existing formulations of the Phase Impenetrability Condition so as to derive the crucial facts. In section 5, we offer some preliminary remarks on the bound pronoun effect as it relates to island phenomena. Finally, we conclude in section 6. An online appendix lays out in greater detail the statistical analysis that we performed on our experimental results (see http://mitpressjournals.org/doi/suppl/10.1162/ling_a_00279).

2 Some Historical and Empirical Context

2.1 *Clause-Boundedness and the Finite/Nonfinite Distinction*

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 2002a 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 David 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 including complex NP shift (extraposition), comparative deletion, *tough*-movement, multiple questions (see also Kuno and Robinson 1972), and double negation (the latter obeying an "anti-clause-mate" condition).

Other phenomena for which clause-boundedness and the finite/nonfinite distinction have since been found to be relevant include reciprocal binding (Higginbotham 1981), slang NPI (negative polarity item) licensing (Lasnik 2002a), multiple sluicing (Nishigauchi 1998, Merchant 2001, Barrie 2008, Lasnik 2014), so-called family-of-questions readings of interrogative sentences that contain a universal quantifier (May 1977, 1985, Williams 1986, Sloan and Uriagereka 1988, Sloan 1991, Lasnik 2006, Agüero-Bautista 2007), and ACD and quantifier scope interaction (May 1985, Larson and May 1990, Hornstein 1994, Farkas and Giannakidou 1996, Kennedy 1997, Wilder 1997, Kayne 1998, Fox 2000, Cecchetto 2004, Moulton 2008, Hackl, Koster-Hale, and Varvoutis 2012, Wurmbrand 2013, 2015a).

2.2 *Complication 1: Restructuring*

For some 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 shows 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.⁴ There is now a sizeable literature on restructuring that corroborates versions of this claim for analogous effects in Spanish (Aissen and Perlmutter 1983), German (Wurmbrand 2001, Lee-Schoenfeld 2007), and potentially a much wider range of languages as well (Cinque 2004, Grano 2015, Wurmbrand 2015b).

Drawing on this tradition and building also on work by Johnson (1996), Lechner (2001) claims that gapping and comparative deletion in English apply across nonfinite clause boundaries only if the embedding verb is a restructuring verb. Hornstein (1994) makes the same claim for quantifier scope interaction and ACD, although 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 1991.⁵

2.3 Complication 2: The Bound Pronoun Effect

The bound pronoun effect investigated in this article 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 clauses are created equal, so too the bound pronoun effect shows that not all finite clauses are created equal. As mentioned in footnote 3, various scholars have observed the bound pronoun effect as it pertains to particular phenomena (Sloan 1991, Nishigauchi 1998, Merchant 2001, Lasnik 2006, 2014, Syrett and Lidz 2011), but the full range of data bearing on the effect has yet to be systematically documented and accounted for. We now turn our attention to this.

3 The Data

In this section, we lay out the data that will inform our analysis in section 4. We begin by documenting the range of phenomena that exhibit the bound pronoun effect (section 3.1). We then show that the effect is subject-oriented (only bound pronouns that are in subject position induce the effect) (section 3.2) and that nonbound pronouns do not induce the effect (section 3.3). We then present our experimental findings that confirm these observations (section 3.4) and make explicit our hypothesis about how the observed contrasts in acceptability map onto the grammaticality cuts made by the account we pursue (section 3.5).

⁴ In this connection, it is noteworthy that there is no bound pronoun effect for clitic climbing; in other words, clitic climbing in languages like Spanish and Italian is always banned across a finite clause boundary, even when the subject of the embedded finite clause is a bound pronoun. Presumably this is related to the fact that unlike the clausemate phenomena under investigation here, not even all nonfinite clauses support clitic climbing; whatever is responsible for this more severe restriction would then also account for the absence of the bound pronoun effect. We hope to address this issue further in future work.

⁵ Aside from restructuring, other potential situations in which “nonfiniteness” may be too coarse-grained a notion in characterizing 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 and Storoshenko 2015) and asymmetries between control and raising complements on the one hand and ECM (exceptional-case-marking) or raising-to-object complements on the other hand.

3.1 *The Range of Phenomena That Exhibit the Bound Pronoun Effect*

In (1)–(4), we illustrated the bound pronoun effect for six phenomena: *too/enough*-movement, gapping, comparative deletion, ACD, quantifier scope interaction, and multiple questions. Here we illustrate the effect for six additional phenomena: pseudogapping, reciprocal binding, multiple sluicing, family-of-questions readings, extraposition, and *tough*-movement. Baseline monoclausal examples are illustrated in the bracketed portions of (5a–f), respectively. As with the other six phenomena, we see degraded acceptability when the bracketed portion of the sentence includes a finite clause boundary (6), substantial improvement when the embedded clause is a nonfinite clause introduced by a control or raising verb (7), and moderate improvement when the embedded finite clause has a bound pronominal subject (8).

- (5) a. *Pseudogapping*
 John likes apples and [Bill does ~~(like)~~ oranges].
- b. *Reciprocal binding*
 [Mary and Ann like each other.]
- c. *Multiple sluicing*
 Someone is worried about something but I don't know [who ~~(is worried)~~ about what].
- d. *Family-of-questions reading*
 [Which journal does everyone read ___?]
Anticipated answer type: John reads *LI*, Bill reads *NLLT*, etc.
- e. *Extraposition*
 [Mary reads ___ very carefully] — all the major linguistics journals.
- f. *Tough-movement*
 This book is easy [for John to read ___].
- (6) a. *John claims that Mark likes apples and [Bill does ~~(claim that Mark likes)~~ oranges].
- b. *[Mary and Ann claim that Jill likes each other.]
Intended reading: Mary claims that Jill likes Ann and Ann claims that Jill likes Mary.
- c. *Someone claims that John is worried about something but I don't know [who ~~(claims that John is worried)~~ about what].
- d. *[Which journal does everyone claim that John reads ___]?
Anticipated answer type: Bill claims that John reads *LI*, Tim claims that John reads *NLLT*, etc.
- e. *[Mary claims that Ann reads ___ every time I ask about it] — all the major linguistics journals.
- f. *This book is easy [for John to claim that Bill read ___].
- (7) a. John claims/tends to like apples and [Bill does ~~(claim/tend to like)~~ oranges].
- b. [Mary and Ann claim/tend to like each other.]
Intended reading: Mary claims/tends to like Ann and Ann claims/tends to like Mary.

- c. Someone claims/tends to be worried about something but I don't know [who ~~(claims/tends to be worried)~~ about what].
- d. [Which journal does everyone claim/tend to read ___]?
Anticipated answer type: John claims/tends to read *LI*, Bill claims/tends to read *NLLT*, etc.
- e. [Mary claims/tends to read ___ every time I ask about it] — all the major linguistics journals.
- f. This book is easy [for John to {claim to have read ___ / tend to read ___}].
- (8) a. ?John₁ claims that **he**₁ likes apples and [Bill₂ does ~~(claim that he₂ likes)~~ oranges].
- b. ?[[**Mary and Ann**]₁ claim that **they**₁ like **each other**].
Intended reading: Mary₁ claims that she₁ likes Ann and Ann₂ claims that she₂ likes Mary.
- c. ?Someone₁ claims that **they**₁ are worried about something but I don't know [who₂ ~~(claims that they₂ are worried)~~ about what].
- d. ?[Which journal does everyone₁ claim that **they**₁ read ___?]
- e. ?[Mary₁ claims that **she**₁ reads ___ every time I ask about it] — all the major linguistics journals.
- f. ?This book is easy [for John₁ to claim that **he**₁ read ___].

The twelve phenomena exemplified in (1)–(8) constitute what we consider the core cases of the bound pronoun effect for the purpose of this article, but see also section 5 for a preliminary discussion of the effect as it pertains to island phenomena.⁶

3.2 Subject Orientation

In this section and the next, we discuss in turn two dimensions of the bound pronoun effect that we take to be crucial in developing our account of it: the subject orientation of the effect and the fact that there is no comparable “nonbound pronoun effect.”

By *subject orientation*, we mean that only bound pronouns that are in subject position give rise to the bound pronoun effect. This is illustrated in (9)–(13) for *too/enough*-movement, multiple questions, and comparative deletion. (Although we believe subject orientation holds for all the relevant phenomena, we restrict our attention here just to these three cases for reasons of space.) (9) shows the baseline monoclausal examples, (10) shows the minimal variants with finite clause

⁶ For the sake of completeness, we document one other potential manifestation of the bound pronoun effect. Following Ruys (1992), Kratzer (1998b:5) observes that bound pronouns facilitate intermediate scope readings for indefinites in sentences like (i) (cf. (ii) for the variant without the bound pronoun). That is, it is easier in (i) than in (ii) to understand *some student* as varying from one professor to the next but not varying, for each professor, from one class session to the next.

(i) [Every professor]₁ got a headache whenever some student **he**₁ hated was in class.

(ii) [Every professor] got a headache whenever some student **Mary** hated was in class.

Whether or not the contrast in (i)–(ii) can be subsumed under the same kind of phase-theoretic account that we advance for the core cases of the bound pronoun effect is unfortunately not something that we will be able to establish here, but it may be an interesting topic for future investigation.

boundaries and no bound pronoun, and (11) shows the bound pronoun effect for subject-position bound pronouns. Crucially, (12) shows that a bound pronoun in a position lower in the clause than subject position does not have the same acceptability-boosting effect as does a bound pronoun in subject position. In a similar vein, (13) shows that the bound pronoun effect is also not operative for subject-internal bound possessors; from this we conclude that the bound pronoun has to be the *entire* subject of the relevant clause in order for the effect to be operative. See section 3.4 for experimental documentation of the cline of acceptability implied by the judgment marks we use in (9)–(13): sentences like (9a–c) are more acceptable than sentences like (11a–c), which are in turn more acceptable than sentences like (10a–c), (12a–c), and (13a–c).⁷

- (9) a. This book is too valuable [for James to lend ___ to Bill].
 b. Sandy wondered [**which man** bought Jill **which T-shirt**].
 c. More teachers gave the students pencils than [~~gave the students pens~~].
- (10) a. *This book is too valuable [for James to claim that Mark lent ___ to Bill].
 b. *Sandy wondered [**which man** claimed that James bought Jill **which T-shirt**].
 c. *More teachers claimed that the principal gave the students pencils than [~~claimed that the principal gave the students pens~~].
- (11) a. ?This book is too valuable [for James₁ to claim that **he**₁ lent ___ to Bill].
 b. ?Sandy wondered [**which man**₁ claimed that **he**₁ bought Jill **which T-shirt**].
 c. ?More teachers₁ claimed that **they**₁ gave the students pencils than [~~claimed that **they**₁ gave the students pens~~].
- (12) a. *This book is too valuable [for James₁ to claim that Bill lent ___ to **him**₁].
 b. *Sandy wondered [**which man**₁ claimed that Bill bought **him**₁ **which shirt**].
 c. *More teachers₁ claimed that the principal gave **them**₁ pencils than [~~claimed that the principal gave **them**₁ pens~~].

⁷ Another potential subject orientation effect concerns the antecedent. In addition to the bound pronoun having to be in subject position in order for the bound pronoun effect to hold, data like (ia–b) suggest that the antecedent has to be in subject position as well.

- (i) a. *Joe₁ persuaded Bill₂ that he₂ should read *Pride and Prejudice* and Tim₃ (~~persuaded-Bill₂ that he₂ should read~~) *Sense and Sensibility*.
 b. *Joe₁ promised Bill₂ that he₂ had already read *Pride and Prejudice* and Tim₃ (~~promised-Bill₂ that he₂ had already read~~) *Sense and Sensibility*.

Anticipating our phase-theoretic account of the bound pronoun effect in section 4, an initially attractive way of making sense of this constraint on the antecedent would be to propose that transfer of a candidate phase head's complement occurs as soon as the bound pronoun is valued by its antecedent, so that valuation of the bound pronoun by something lower than the subject would not delay transfer long enough to extend locality. Unfortunately, however, this approach faces difficulty given that some of the clause-mate phenomena that trigger the bound pronoun effect (including for example *tough*-movement, which also raises a number of other well-known problems) involve dependencies that span across the valuing antecedent subject. In these cases, then, transfer must continue to be delayed even after the bound pronoun is valued. Consequently, this is not something that we will be able to account for here, though we hope to address it in future work.

- (13) a. *This book is too valuable [for James₁ to claim that **his**₁ father lent ___ to Maria].
 b. *Sandy wondered [**which man**₁ claimed that **his**₁ father bought Jill **which T-shirt**].
 c. *More teachers₁ claimed that **their**₁ assistants gave the students pencils than
 [~~claimed that **their**₁ assistants gave the students pens~~].

3.3 Nonbound Pronouns

In (14)–(16), we see that the bound pronoun effect goes away if the relevant pronoun is not bound, that is, if the pronoun is a free third person pronoun (14), a first person pronoun (15), or a second person pronoun (16). Although our experimental investigation discussed in section 3.4 does not include sentences with free third person pronouns like (14a–c), it does include sentences with first and second person pronouns like (15a–c) and (16a–c), and the results are consistent with the view that sentences like (15a–c) and (16a–c) are indeed no more acceptable than the corresponding variants in (10) that have full lexical subjects.

- (14) a. *This book is too valuable [for James₁ to claim that **she**₂ lent ___ to Bill].
 b. *Sandy wondered [**which man**₁ claimed that **she**₂ bought Jill **which T-shirt**].
 c. *More teachers₁ claimed that **she**₂ gave the students pencils than [~~claimed that **she**₂ gave the students pens~~].
- (15) a. *This book is too valuable [for James to claim that **I** lent ___ to Bill].
 b. *Sandy wondered [**which man** claimed that **I** bought Jill **which T-shirt**].
 c. *More teachers claimed that **I** gave the students pencils than [~~claimed that **I** gave the students pens~~].
- (16) a. *This book is too valuable [for James to claim that **you** lent ___ to Bill].
 b. *Sandy wondered [**which man** claimed that **you** bought Jill **which T-shirt**].
 c. *More teachers claimed that **you** gave the students pencils than [~~claimed that **you** gave the students pens~~].

The absence of the effect for first and second person pronouns as seen in (15)–(16) is particularly important because it speaks against an alternative characterization of the bound pronoun effect that would lend itself to an account substantially different from what we propose below. In particular, Syrett and Lidz (2011), noting the degraded status of ACD across a finite clause boundary and the ameliorating effect of a bound pronoun, speculate that the facts could be due to “the extra processing load introduced by the interpretation of Tense and a new discourse referent in the subject of the embedded clause” (p. 330). In other words, on this view, what is crucial about bound pronouns is that they do not introduce a new discourse referent and hence lead to easier processing of dependencies that span them. Similarly, Jason Merchant (pers. comm.), reporting on discussion with Ivan Sag, suggests the possibility that the bound pronoun effect is not really about the bound status of the pronoun per se but rather about accessibility in the sense of Ariel (1988): roughly, the easier it is to resolve the understood referent of the pronoun, the more innocuous the clause boundary is to the phenomena in question. Consistent with this suggestion, Merchant reports that Sag’s linguistic intuition was that first and second person pronouns were

just as effective as bound pronouns in ameliorating finite clause boundaries in phenomena such as gapping. In yet another related vein, an anonymous reviewer claims that speakers find gapping across a finite clause boundary to be just as acceptable with a free pronoun as it is with a bound pronoun in examples like (17b). Crucially, in (17) there is a discourse-salient antecedent for the relevant pronoun and hence (17b) is consistent with the Syrett-Lidz-Sag-Merchant line of reasoning.

- (17) a. What did they say about Bill's preferences?
 b. ?Joe claims that he likes apples better, and Tim ~~(claims that he likes)~~ oranges.

Insofar as discourse participants are always salient or accessible in the relevant sense, we take our experimental findings concerning first and second person pronominal subjects as evidence against the view that the bound pronoun effect is subsumed under a more general accessibility or discourse-salience effect. That being said, we do not mean to deny the possibility that accessibility or something like it could exist as an independent factor that affects acceptability ratings for the kinds of sentences in question. We leave a full investigation of this issue to future work.

3.4 An Experimental Investigation of the Bound Pronoun Effect

Here, we report on two sentence acceptability experiments designed using the tools described in Erlewine and Kotek 2016 and conducted via Amazon's Mechanical Turk.⁸ In what follows, we discuss the construction of stimuli (section 3.4.1), recruitment of participants and experimental apparatus (section 3.4.2), results (section 3.4.3), and summary of the statistical analysis (section 3.4.4). The complete details associated with the statistical analysis are supplied in the online appendix.

3.4.1 Construction of Stimuli We targeted three phenomena for investigation: multiple questions, *too/enough*-movement, and comparative deletion. One reason for choosing these three phenomena is that, unlike what happens with some of the other phenomena, there is no need to control for the availability of uncontroversially grammatical but irrelevant parses of some of the target sentences. For example, the degraded instances of inverse scope, ACD, and gapping in (18) are surface-string-identical to the respective grammatical parses in (19). By contrast, the strings associated with the degraded instances of multiple questions, *too/enough*-movement, and comparative deletion in (20) have no alternative uncontroversially grammatical parse.

- (18) a. *[**At least one professor** claims that Bill reads **every journal**.] ($\forall > \exists$)
 b. *John claims that Mark reads everything [Bill does ~~(claims that Mark reads)~~].
 c. *John claims that Mark likes apples and [Bill ~~(claims that Mark likes)~~ oranges].

⁸ The protocol for the experiments described here was granted Exempt status by the Indiana University Human Subjects Office on 9 June 2016 (Protocol #1605885354, "An experimental investigation of the bound pronoun effect," Thomas Grano, PI).

- (19) a. [At least one professor claims that Bill reads every journal.] ($\exists > \forall$)
 b. John claims that Mark reads everything [Bill does (~~read~~)].
 c. John claims that Mark likes apples and [Bill (~~likes~~) oranges].
- (20) a. *Sandy wondered [which man claimed that James bought George which shirt].
 b. *This book is too valuable [for James to claim that Mark lent ___ to Bill].
 c. *More teachers claimed that the principal gave the students pencils than [~~claimed that the principal gave the students pens~~].

For each of the 3 targeted phenomena, we constructed 5 baseline sentences in which the relevant dependency occurs in a monoclausal frame, yielding a total of 15 sentences, shown in (21)–(23).

- (21) *BaseLine (Multiple questions)*
 a. Sandy wondered which man bought George which shirt.
 b. Kim doesn't remember which man lent Jill which magazine.
 c. Abby found out which man told Barry which joke.
 d. Mary asked which man sent Fred which letter.
 e. Mark discovered which man threw Bobby which ball.
- (22) *BaseLine (Too/Enough-movement)*
 a. This book is too valuable for James to lend to Maria.
 b. This ball is too heavy for Linda to throw at Brian.
 c. This joke is too inappropriate for Paul to tell to Steve.
 d. This shirt is too expensive for Barbara to buy for Mike.
 e. This letter is too outrageous for Jennifer to send to Susie.
- (23) *BaseLine (Comparative deletion)*
 a. More teachers gave the students pencils than pens.
 b. More politicians sent the voters postcards than letters.
 c. More employees told the boss stories than jokes.
 d. More authors sent the publisher novels than short stories.
 e. More people bought Jake shoes than socks.

For each of these 15 baseline sentences, we constructed 10 variants that involve a biclausal configuration at the crucial site. Of the 10 variants, 5 use *claim* as the embedding verb and 5 use *promise*. Each group of 5 represents the 5 crucial conditions tested in Experiment 1: a nonfinite clause boundary, a finite clause boundary with a bound subject, a finite clause boundary with a bound (prepositional) object, a finite clause boundary with a bound subject-internal possessor, and a finite clause boundary with no bound pronoun. For example, the 10 variants constructed around the baseline sentence in (22a) are as given in (24)–(25).⁹

⁹ A notable limitation of this design is that the sentences that instantiate the various bound pronoun conditions ((24b–d), (25b–d)) can also be read in such a way that the relevant pronoun is free rather than bound. Since we did not ask experimental participants to rate sentences relative to any particular interpretation, there is no guarantee that their judgments reflect the bound reading. But the expectation is that since each sentence is judged in isolation without a context that could supply a referent for a free pronoun, the only salient reading is the bound reading.

- (24) *Embedding verb* = claim
- a. *NonFinite*
This book is too valuable for James to claim to have lent to Maria.
 - b. *BoundSubj*
This book is too valuable for James to claim that he lent to Maria.
 - c. *BoundObj*
This book is too valuable for James to claim that Maria lent to him.
 - d. *BoundPoss*
This book is too valuable for James to claim that his father lent to Maria.
 - e. *NoBinding*
This book is too valuable for James to claim that Karen lent to Maria.
- (25) *Embedding verb* = promise
- a. *NonFinite*
This book is too valuable for James to promise to lend to Maria.
 - b. *BoundSubj*
This book is too valuable for James to promise that he will lend to Maria.
 - c. *BoundObj*
This book is too valuable for James to promise that Maria will lend to him.
 - d. *BoundPoss*
This book is too valuable for James to promise that his father will lend to Maria.
 - e. *NoBinding*
This book is too valuable for James to promise that Bill will lend to Maria.

Combining these elements (3 phenomena \times 5 sentence frames \times (1 baseline condition + [5 nonbaseline conditions \times 2 embedding verbs])) yields a total of 165 test sentences. We used these 165 sentences to create 75 lists in such a way that each list contained 33 test sentences, each test sentence appeared on 15 lists, and no list contained 2 nonbaseline test sentences that instantiated the same phenomenon and that varied along only one factor (the relevant factors being sentence frame, condition, and embedding verb). Using Erlewine and Kotek's (2016) Turktools software (available at <http://turktools.net>), we separately randomized each list and interspersed it with 33 filler sentences of varying degrees of acceptability and of complexity similar to that of the test sentences.

For Experiment 2, the construction of stimuli and lists was identical to that for Experiment 1, except that the BoundObj and BoundPoss conditions were replaced by conditions in which the finite embedded clause contained no bound pronoun but instead contained a first person singular pronominal subject and a second person pronominal subject, respectively. For example, (24c–d) and (25c–d) were replaced with (26a–b) and (27a–b), respectively.

- (26) a. *1pSubj*
This book is too valuable for James to claim that **I** lent to Maria.
- b. *2pSubj*
This book is too valuable for James to claim that **you** lent to Maria.

(27) a. *1pSubj*

This book is too valuable for James to promise that **I** will lend to Maria.

b. *2pSubj*

This book is too valuable for James to promise that **you** will lend to Maria.

3.4.2 Recruitment of Participants and Experimental Apparatus Seventy-five experimental participants were recruited via Amazon's Mechanical Turk, so that each of the 75 lists was seen by one participant. Participants were required to be native speakers of American English at least 18 years of age and residing in the United States. Participants were asked to rate each sentence on a scale of 1 (least acceptable) to 7 (most acceptable), where an "acceptable" sentence was defined in the instructions as "something that a native speaker of English would say, even if the situation the sentence describes sounds implausible."¹⁰

Seventy-five participants who had not participated in Experiment 1 were recruited to participate in Experiment 2. Recruitment and instructions were otherwise identical to those for Experiment 1.

3.4.3 Results The results of Experiment 1 are shown in table 1, which indicates the raw distribution of each rating for each of the crucial conditions as instantiated by each of the three phenomena tested. The results of Experiment 2 are shown in table 2.¹¹

Table 1

Experiment 1 results. (BL = BaseLine; NF = NonFinite; BS = BoundSubj; BO = BoundObj; BP = BoundPoss; NB = NoBinding)

Rating	Comparative deletion						Multiple questions						<i>Too/Enough</i> -movement					
	BL	NF	BS	BO	BP	NB	BL	NF	BS	BO	BP	NB	BL	NF	BS	BO	BP	NB
1	1	7	6	12	12	10	3	8	21	24	25	22	1	5	8	18	27	20
2	2	10	12	23	19	14	3	14	32	30	30	32	0	12	17	30	17	30
3	3	12	21	16	26	34	7	14	33	31	35	30	3	15	22	32	40	35
4	7	15	14	22	25	21	4	28	19	25	20	19	1	19	21	19	25	15
5	10	24	28	27	17	34	18	39	20	23	22	23	7	33	32	28	24	27
6	20	35	42	25	37	25	29	36	19	15	13	21	16	42	33	15	11	18
7	32	47	27	25	14	12	11	11	6	2	5	3	47	24	17	8	6	5
Total	75	150	150	150	150	150	75	150	150	150	150	150	75	150	150	150	150	150

¹⁰ This wording in the instructions is borrowed from White and Grano's (2014) experimental investigation of partial control, whose materials are available at <https://github.com/aaronstevenwhite/PartialControlExperiments>.

¹¹ Totals for comparative deletion conditions 1P and 2P in table 2 are slightly lower than they should be (149 and 148 instead of 150 and 150, respectively) because one of the participants in Experiment 2 neglected to supply a rating for 3 of the target items. But the ratings for the other 30 target items that this participant did rate are included in the table and in the statistical analysis.

Table 2

Experiment 2 results. (BL = BaseLine; NF = NonFinite; BS = BoundSubj; 1P = 1pSubj; 2P = 2pSubj; NB = NoBinding)

Rating	Comparative deletion						Multiple questions						<i>Too/Enough</i> -movement					
	BL	NF	BS	1P	2P	NB	BL	NF	BS	1P	2P	NB	BL	NF	BS	1P	2P	NB
1	3	5	5	15	17	10	2	6	18	29	30	24	0	7	9	20	23	22
2	4	6	6	26	26	24	7	9	23	32	38	30	2	11	25	34	28	28
3	5	16	21	29	22	29	8	30	38	27	32	30	2	18	23	26	25	33
4	7	25	28	20	34	22	12	29	29	28	22	25	2	17	23	25	23	23
5	11	23	26	22	16	38	15	33	28	23	21	25	11	32	30	20	32	27
6	14	39	44	26	24	18	17	30	10	9	5	14	8	35	27	17	15	13
7	31	36	20	11	9	9	14	13	4	2	2	2	50	30	13	8	4	4
Total	75	150	150	149	148	150	75	150	150	150	150	150	75	150	150	150	150	150

3.4.4 Summary of Statistical Analysis Statistical analysis was performed in IBM SPSS Statistics Version 24. As described in greater detail in the online appendix, an Independent-Samples Kruskal-Wallis Test, when applied to the results of Experiment 1, indicates that the distribution of ratings is *not* the same across the different conditions ($\chi^2(5) = 325.701, p < .01$). More specifically, pairwise comparisons show that each condition gives rise to a rating profile that is significantly different from that of each other condition ($p < .01$), except for the BoundPoss, BoundObj, and NoBinding conditions, which are not significantly different from one another ($p = 1$). As schematized in (28), BaseLine sentences were rated as most acceptable (Mean Rank = 1841.69), followed by sentences with a nonfinite embedded clause (Mean Rank = 1494.58), followed by sentences with a finite embedded clause containing a bound pronominal subject (Mean Rank = 1258.58). At the low end of the acceptability scale are sentences with an embedded finite clause containing a bound pronominal object (Mean Rank = 1064.88), a bound subject-internal possessor (Mean Rank = 1024.02), or no bound pronoun at all (Mean Rank = 1046.09). The latter three conditions give rise to ratings that are not significantly different from one another.

(28) BaseLine > NonFinite > BoundSubj > {BoundObj = BoundPoss = NoBinding}

Applied to the results of Experiment 2, the Independent-Samples Kruskal-Wallis Test similarly shows that the distribution of ratings is *not* the same across the different conditions ($\chi^2(5) = 349.406, p < .01$). Pairwise comparisons show that each condition gives rise to a rating profile that is significantly different from that of each other condition ($p < .01$), except for the 1pSubj, 2pSubj, and NoBinding conditions, which are not significantly different from one another ($p = 1$). As schematized in (29), BaseLine sentences were rated as most acceptable (Mean Rank = 1802.87), followed by sentences with a nonfinite embedded clause (Mean Rank = 1534.98), followed by sentences with a finite embedded clause containing a bound pronominal subject (Mean Rank = 1285.35). At the low end of the acceptability scale are sentences with an embedded finite clause containing a first person pronominal subject (Mean Rank = 1030.64), a second

person pronominal subject (Mean Rank = 992.41), or no pronoun at all (Mean Rank = 1054.39). The latter three conditions give rise to ratings that are not significantly different from one another.

(29) BaseLine > NonFinite > BoundSubj > {1pSubj = 2pSubj = NoBinding}

Taken together, the two experiments support the conclusion that the bound pronoun effect is real (Experiments 1 and 2), that it is subject-oriented (Experiment 1), and that no comparable effect holds for first or second person pronominal subjects (Experiment 2). For more details concerning the results of the Kruskal-Wallis Test, as well as independent confirmation of the core results using a more powerful statistical technique (in particular, a Generalized Estimating Equations analysis), see the online appendix.

3.5 *The Relationship between the Data We Observe and the Theory We Pursue*

The goal for the rest of this article is to develop a theory that treats the BaseLine, NonFinite, and BoundSubj sentences as grammatical to the exclusion of the BoundObj, BoundPoss, 1pSubj, 2pSubj, and NoBinding sentences, as summarized in (30).

(30) *Summary of the grammaticality cuts made by the theory we pursue*

- a. Grammatical: BaseLine, NonFinite, BoundSubj
- b. Ungrammatical: BoundObj, BoundPoss, 1pSubj, 2pSubj, NoBinding

We pursue a theory that makes these particular cuts in grammaticality not because we think that these cuts can be read directly off the data (obviously, data cannot tell us what is grammatical, only what is more or less acceptable) but because these cuts are consistent both with the observed cline of acceptability and with an independently plausible theory of phases and of ϕ -feature valuation on bound pronouns.

To be sure, (30) is only one of many conceivable ways of constructing a theory that is consistent with the observed data, and we leave it to future work to pursue other possibilities.¹² One matter in particular that our theory will not have anything to say about is why, among those sentence types that our theory treats as grammatical, there is a cline of acceptability that can be characterized as BaseLine > NonFinite > BoundSubj. But we would like to say a few words about this cline, before confining ourselves in the remainder of the article to building a theory that derives (30). In particular, we think it is plausible that the BaseLine > NonFinite > BoundSubj cline reflects differences in processing cost. There is some precedent for the idea that acceptability judgments are affected by factors concerning the material between two elements involved in a dependency, even when the hypothesized grammaticality of the dependency is held constant. For

¹² See, for example, Wurmbrand 2015a on quantifier scope interaction. Wurmbrand proposes that quantifier raising is not clause-bound and that instead, quantifier raising across multiple finite clause boundaries incurs a processing cost that accounts for its degraded acceptability. On this kind of approach, the bound pronoun effect would have to be understood as some kind of processing facilitation on grammatical sentences rather than as something that makes the difference between a grammatical sentence and an ungrammatical sentence. It remains to be seen how such a processing account would fare in comparison with the grammatical account we propose below.

example, Pickering and Barry (1991) argue that the distance between a gap and its filler affects acceptability. In a similar vein, Kluender and Kutas (1993) argue that *wh*-movement across a clause boundary incurs a processing cost, and Sprouse, Wagers, and Phillips (2012) show that *wh*-dependencies that cross a finite clause boundary are indeed somewhat less acceptable than ones that do not. Finally, McElree, Foraker, and Dyer (2003) show that accuracy in rejecting ungrammatical dependencies decreases with the number of intervening clauses. There are still many open questions here: it is not clear whether the effects documented in these works reflect processing costs associated with clause boundaries in particular or with more general factors such as length or time. But in any event, we take these works to reinforce the plausibility of viewing the BaseLine > NonFinite > BoundSubj cline as reflecting differing processing costs among grammatical sentences rather than reflecting cuts in grammaticality.

4 A Phase-Theoretic Account of the Bound Pronoun Effect

4.1 *The Account in a Nutshell*

An attractive first approximation of an account of the bound pronoun effect would take the basic shape in (31). If the locality domain for the phenomena of interest is the phase, and bound pronouns enter the derivation in a way that voids the otherwise phasal status of the complement clause, then the bound pronoun effect falls out.

- (31) *Account of the bound pronoun effect (version 1 of 3)*
- a. Unvalued ϕ -features void phasehood.
 - b. The locality domain for the phenomena that give rise to the bound pronoun effect is the phase.
 - c. Bound pronouns enter the derivation with unvalued ϕ -features.¹³

But as it stands, (31) overgenerates. As schematized informally in (32), although it accurately predicts the cut between finite clauses with no bound pronoun (32a) and finite clauses with a bound pronominal subject (32b), it also incorrectly rules in cases where the relevant finite clause has a bound pronoun somewhere other than subject position (32c–d).

- (32) *Predictions of the account in (31)*
- a. The book is too dear [for Jim to claim [_{Phase} that Mary lent ____ to Ann]].
→ *correctly ruled out*

¹³ The way (31c) is formulated presupposes (possibly problematically) that bound pronouns are distinguished from free pronouns in the lexicon (i.e., it is determined as soon as the pronoun is merged into the derivation whether it will be bound or not; also see footnote 23). We present things this way for expository convenience, and simply wish to note here that the final version of our account, stated in (36c) and further elaborated in section 4.4, does not require such an assumption. By way of preview, what we will ultimately say is that pronouns (irrespective of any free/bound distinction) optionally enter the derivation with unvalued ϕ -features. If a pronoun enters the derivation with unvalued ϕ -features and ends up being free, the derivation crashes, since ϕ -feature valuation piggybacks on binding. By contrast, if the pronoun ends up being bound, its unvalued features will be determined by the binder.

- b. The book is too dear [for Jim₁ to claim [_{Nonphase} that **he**₁ lent ____ to Ann]].
→ *correctly ruled in*
- c. The book is too dear [for Jim₁ to claim [_{Nonphase} that Ann lent ____ to **him**₁]].
→ *incorrectly ruled in*
- d. The book is too dear [for Jim₁ to claim [_{Nonphase} that **his**₁ dad lent ____ to Ann]].
→ *incorrectly ruled in*

To remedy this, we propose the following modification to (31) (and we are grateful to Hisa Kitahara for suggesting this approach to us):

(33) *Account of the bound pronoun effect (version 2 of 3)*

- a. Unvalued features *on the head of the complement to the phase head* keep the phase open.
- b. The locality domain for the phenomena that give rise to the bound pronoun effect is the phase.
- c. Bound pronouns enter the derivation with unvalued ϕ -features.

By (33), it will not do to have an unvalued feature just anywhere in the candidate phase; rather, the unvalued feature must be sufficiently close to the edge of the phase, more specifically, on the head of the complement to the phase head. The crucial property of the subject position, on this view, is that the ϕ -features of the subject value the ϕ -features on T (subject-verb agreement). So if the subject's ϕ -features are unvalued, then the agreeing ϕ -features on T are necessarily also unvalued. And T is the head of the complement to the phase head C. As schematized in (34), this revised account makes all the right cuts.

(34) *Predictions of the account in (33)*

- a. The book is too dear [for Jim to claim [_{Phase} that Mary lent ____ to Ann]].
→ *correctly ruled out*
- b. The book is too dear [for Jim₁ to claim [_{Nonphase} that **he**₁ lent ____ to Ann]].
→ *correctly ruled in*
- c. The book is too dear [for Jim₁ to claim [_{Phase} that Ann lent ____ to **him**₁]].
→ *correctly ruled out*
- d. The book is too dear [for Jim₁ to claim [_{Phase} that **his**₁ dad lent ____ to Ann]].
→ *correctly ruled out*

But we are still not quite done, because although (33) makes the right predictions for the sentences of interest, it also severely undergenerates when it comes to more basic sentences. In particular, we want to make sure that in principle (when no phase-bound dependencies are at stake), a bound pronoun can be arbitrarily distant from its antecedent, as in (35). But if bound pronouns obligatorily enter the derivation with unvalued ϕ -features and if these ϕ -features are eventually valued when the antecedent is merged, the simplest view would be that this valuation procedure is itself phase-bound. And then we incorrectly rule out (35).

(35) John₁ said [_{Phase} that Mary thought [_{Phase} that Kim saw him₁]].

So we propose one final revision to our account, as follows:

- (36) *Account of the bound pronoun effect (version 3 of 3)*
- a. Unvalued features on the head of the complement to the phase head keep the phase open.
 - b. The locality domain for the phenomena that give rise to the bound pronoun effect is the phase.
 - c. Bound pronouns *optionally* enter the derivation with unvalued ϕ -features.

If bound pronouns have the option of entering the derivation with valued ϕ -features, then sentences like (35) have a licit derivation.

Having sketched the basic gist of our account, we now discuss each of the three ingredients in (36) in greater formal detail. In particular, we want to relate them to previous ideas in the literature, and we want to show that they can be successfully combined both with existing formulations of the Phase Impenetrability Condition and with more concrete assumptions about the syntax of the relevant phenomena.

4.2 Phasehood and Feature Valuation

Chomsky (2000:107) entertains two potential ways of defining phases.

- (37) a. Phases are propositional.
 b. Phases are convergent.

For Chomsky, propositional objects are defined disjunctively as either “a verb phrase in which all θ -roles are assigned” (p. 106) (i.e., a vP) or “a full clause including tense and force” (p. 106) (i.e., a CP).¹⁴ By contrast, a convergent object is one that is legible at all interfaces (p. 95). So, one way in which an object could fail to be convergent would be to contain unvalued ϕ -features. The presence of unvalued ϕ -features would make the object illegible to the PF interface, since these ϕ -features are needed to determine the morphological shape of the output form.

Theoretical parsimony favors the view that if either of these approaches to phasehood is correct, then it is complete in itself; that is, a phrase XP is a phase *if and only if* it is propositional (on (37a)) or *if and only if* it is convergent (on (37b)). And indeed, Chomsky ultimately argues in favor of (37a) and against (37b). But the bound pronoun effect and its subject orientation lead us to entertain the view that propositionality and convergence *both* need to play a role in defining

¹⁴ It is not entirely clear to us how to understand *propositional* in such a way that it picks out CP and vP as a natural class to the exclusion of other categories such as TP. This leaves us with a “list problem”: the set of phasal categories has to be stipulated rather than following from something more general. It is interesting to note that versions of the “list problem” 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). Yet another example of the list problem is the definition of *cyclic nodes* as NP and S in classic Subadjacency, something Chomsky attempts to remedy in *Barriers* (Chomsky 1986). In any case, the phasal status of vP has not gone unquestioned (Den Dikken 2006), and the analysis we pursue here in fact seems to be a better fit with the view that CPs are phases (under some conditions) whereas vPs are not. See section 4.3 for further discussion.

what a phase is.¹⁵ In particular, we hypothesize that the locality domain for dependencies such as *too/enough*-movement in (38) is violated *in virtue of* the CP status of the bracketed constituent *even though* that CP contains unvalued features (on the bound pronoun *him*), whereas the locality domain for *too/enough*-movement is satisfied in (39) because *even though* the bracketed constituent is a CP, that CP contains unvalued features (on the bound pronoun *he*) that are in a sufficiently local configuration with the edge of the phase so as to keep the phase open.

(38) *This book is too valuable for James₁ to claim [that Bill lent ___ to him₁].

(39) ?This book is too valuable for James₁ to claim [that he₁ lent ___ to Bill].

What counts as “sufficiently local”? Suppose that a candidate phase does not count as a phase if the head of the complement to the head of the candidate phase contains unvalued features. Then, the contrast between (38) and (39) follows in virtue of the fact that T is merged into the derivation with unvalued ϕ -features that are valued in agreement with the subject. In (38), the relevant T is valued by *Bill*, so the CP counts as a phase. In (39), by contrast, adopting the hypothesis that *he* enters the derivation with unvalued ϕ -features, the relevant T remains unvalued, so the CP does not count as a phase.

In section 4.3, we embed this idea into more concrete assumptions about how and why phases matter for the phenomena in question. Before doing this, though, we would like to briefly consider Chomsky’s (2000) empirical argument against defining phases in terms of convergence and explain why it does not undermine the hybrid approach to phasehood that we propose. Chomsky’s argument against the convergence approach goes as follows. First, Chomsky considers the contrast in acceptability between (40a) and (40b) and appeals to a “Merge over Move” principle to explain it: at the point in the derivation when embedded Spec,TP is built, the naïve expectation would be that the grammar can fill it either by raising *many linguists* or by merging expletive *there* from the lexical array. But apparently, only the latter option yields a grammatical derivation, which follows if Merge over Move exists as a general principle.

(40) 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].

But now consider (41). Here, at the point in the derivation when embedded Spec,TP is built, raising *many linguists* instead of merging *there* yields a grammatical derivation, against the expectations of Merge over Move. This is not a problem, however, if we further assume that Merge over Move applies only over lexical subarrays, and lexical subarrays are organized into phases. If we further suppose that the embedded CP in (41) is a phase, then *there* is in a separate lexical subarray and is not eligible to be merged at the relevant point in the derivation. Consequently, Move does not compete with it and the derivation goes through.

¹⁵ Predecessors of this idea include Felser’s (2004) proposal that “phases should best be defined in terms of convergence, with the ‘propositional’ categories CP and vP being potential *candidates* for local Spellout only” (p. 572); Wurmbrand’s (2011) proposal that “only interpretationally *complete* units can be transferred . . . iF:___ in a potential *phase* projection postpones *transfer*” (where “iF:___” is an unvalued interpretable feature) (p. 69); and Juan Uriagereka’s (pers. comm.) suggestion, building on proposals in Lasnik and Uriagereka 2005, that “transfer is suspended when an anaphoric dependency is at stake (until the antecedent enters the picture).”

- (41) There is some likelihood [_{CP} that [_{TP} many linguists will be ~~many linguists~~ at this conference]].

But if this is right, then (42) is underivable on a convergence-based approach to phasehood, provided that *wh*-phrases enter the derivation with uninterpretable features: the uninterpretable feature on *which* should void the phasal status of the embedded CP. Consequently, given Merge over Move, *there* should be forced to merge at Spec,TP of *will*. But evidently it is not so forced because this does not happen in (42) and yet (42) is grammatical. On the view that phases are defined as vP and CP, on the other hand, there is no problem deriving (42), since the embedded CP is phasal despite its uninterpretable feature, thereby preventing a situation wherein Merge over Move applies and forces premature merging of *there*.

- (42) Which conference is there some likelihood [_{CP} that many linguists will be at ~~which conference~~]?

We have two things to say in response to Chomsky's argument. First, as Felser (2004) points out, the argument relies on the view that movement competes with merging of *there*. But, Felser notes, it could be that *there* is not a true expletive and hence that its merger site is constrained thematically by the choice of the predicate. In this case, it does not compete with movement, and so the argument does not go through. Second, even if we assume for the sake of argument that *there* is a true expletive, our hybrid approach to phases is immune to Chomsky's argument, because in (42), the uninterpretable feature on *which* has no bearing on the status of T. The T head of the embedded CP is fully valued, thereby ensuring the phasal status of CP. Consequently, *there* is not in the relevant lexical subarray, so Merge over Move does not prevent raising of *many linguists*, and the derivation is successful.

4.3 Phases as Locality Domains

In (43), we list all of the phenomena that were shown in sections 1 and 2 to give rise to the bound pronoun effect.

- (43) a. *Too/Enough*-movement
 b. Gapping
 c. Comparative deletion
 d. ACD
 e. Quantifier scope interaction
 f. Multiple questions
 g. Pseudogapping
 h. Reciprocal binding
 i. Multiple sluicing
 j. Family of questions
 k. Extraposition
 l. *Tough*-movement

Each of these phenomena has inspired a literature much too vast to do justice to here. But one consistent theme emerges: all of these phenomena have been argued to involve some kind of movement dependency. See, among many, many others: Chomsky 1977 on *too/enough*-movement and *tough*-movement; Pesetsky 1982 on gapping; Kennedy 2002 on comparative deletion; May 1985, Hornstein 1994, and Kennedy 1997 on ACD and quantifier scope interaction; Saito 1994 and Kotek 2014 on multiple questions; Lasnik 2002b and Gengel 2013 on pseudogapping; Heim, Lasnik, and May 1991 on reciprocal binding; Lasnik 2014 on multiple sluicing and extraposition; and Lasnik and Saito 1992 on family of questions.

We take it that the movement dependencies involved in the phenomena in (43) are subject to phase-theoretic locality constraints; more specifically, for concreteness, we assume that some version of Chomsky's (2000, 2001) Phase Impenetrability Condition (PIC) as depicted in (44) holds. Chomsky (2001) entertains two variants of the PIC, one wherein the complement to a phase head H becomes inaccessible to subsequent syntactic operations as soon as HP is built (the so-called strong PIC) and one wherein the complement to H becomes inaccessible once the phrase headed by the next highest phase head is built (the so-called weak PIC). For an overview of many of the issues at stake in deciding between the two variants, see Citko 2014; we will ultimately conclude that the strong PIC makes for the best overall fit with our theoretical aims.

(44) *Phase Impenetrability Condition*

The complement to a phase head H is not accessible to operations

- a. outside HP. (strong PIC)
- b. at ZP (where ZP is headed by the next highest phase head). (weak PIC)¹⁶

(adapted from Chomsky 2001:13–14)

What counts as a phase head? In line with the proposal from section 4.2, we define *phase head* as in (45).

(45) A head X is a *phase head* if and only if

- a. X is a candidate phase head, and
- b. the head of the complement to X has no unvalued features.

What counts as a *candidate* phase head? We contrast two possibilities, stated in (46). On one view, candidate phase heads include at least C and v , whereas on the other view, candidate phase heads include at least C but not v . See Legate 2003 for arguments in favor of the phasal status of v and Den Dikken 2006 for a reply. The view that v is not a (candidate) phase head is admittedly nonstandard, but as it turns out, we will show that this view fits the best with the rest of our assumptions to derive the bound pronoun effect. It will be beyond the scope of this article to

¹⁶ An anonymous reviewer points out that *at ZP* in (44b) can be interpreted in more than one way: does inaccessibility arise as soon as Z is merged, or not until ZP is complete? In what follows, we adopt Citko's (2014) interpretation: "The two definitions [i.e., strong PIC and weak PIC] differ with respect to when the domain of the phase head H becomes inaccessible: as soon as HP is complete versus at the point the next phase head (Z) is merged" (p. 33). In other words, on the strong PIC, inaccessibility arises when the phrase associated with the phase head is complete, whereas on the weak PIC, inaccessibility arises as soon as the next highest phase head is merged.

It is also important to verify that our analysis correctly predicts that control and raising clauses extend locality. For control clauses, two analytical options are available. The first is to take the position that controlled subjects are instantiated by PRO and PRO is an unvalued pronoun, as in Kratzer 2009 and Landau 2015; see (60). Then, even if control clauses have all the same phasal properties as finite clauses, locality is extended in virtue of the same proposals that supported our analysis of the bound pronoun effect.

- (60) [_{CP} C₁ for [_{TP} Mary [T to [_{VP} v₁ [_{VP} promise [_{CP} C₂ [_{TP} PRO[ϕ :—] T to [_{VP} v₂ [_{VP} buy Op]]]]]]]]]]]

The other option for control clauses is to adopt the movement theory of control (see, e.g., Hornstein 1999) whereby controlled subjects do not harbor unvalued features but rather are the residue of movement. In that situation, it would have to be the case that control clauses either lack C or have a nonphasal C in order to ensure that locality is extended. This is sketched in (61). On this view, there is no candidate phase head between Op and C₁, so we accurately predict that the relevant movement dependency can be established.

- (61) [_{CP} C₁ for [_{TP} Mary [T to [_{VP} v₁ [_{VP} promise ((C₂)[_{TP} ~~Mary~~ T to [_{VP} v₂ [_{VP} buy Op]]]]]]]]]]]

As for raising clauses, we adopt the standard view that they project only TP, as in (62). As with the second of the two approaches to control clauses, this means that there is no candidate phase head between Op and C₁, so we again accurately predict that the relevant movement dependency can be established.

- (62) [_{CP} C₁ for [_{TP} Mary [T to [_{VP} v₁ [_{VP} tend [_{TP} ~~Mary~~ T to [_{VP} v₂ [_{VP} buy Op]]]]]]]]]]]

The next question to address is, will the analysis sketched above for *tool/enough*-movement extend straightforwardly to the other eleven phenomena that we have identified as giving rise to the bound pronoun effect? Since these other phenomena seem to pattern in exactly the same way with respect to the bound pronoun effect, it is very tempting to try to account for them in the same way. At least some of the phenomena fall in line straightforwardly with *tool/enough*-movement since they also involve a movement operation that targets Spec,CP; these include *tough*-movement and possibly also comparative deletion. As an anonymous reviewer points out to us, however, some of the other phenomena have been analyzed as involving a movement operation that targets some position below CP. Gengel (2013), for example, analyzes pseudogapping as movement of the remnant to a Spec,FocP position between TP and vP, so that the bracketed portion of (63) has a structure like (64).

- (63) John likes apples and [Bill does ~~like~~ oranges].

- (64) [_{TP} Bill T does [_{FocP} oranges₁ [_{VP} v [_{VP} ~~like~~ t₁]]]]]

If this is right, then the success of the analysis we have just sketched in accurately predicting that (65) cannot be generated but (66) can depends on ensuring that in (67), *oranges* cannot target Spec,FocP whereas in (68) it can. Continuing to assume that v is not a (candidate) phase head, the weak PIC enables *oranges* to target Spec,FocP in (67); *oranges* is embedded in a CP that will not become inaccessible until the next phase head is merged. The strong PIC, on the other

hand, accurately rules out the movement in (67), since the CP that embeds *oranges* will become inaccessible as soon as CP is built, before FocP enters the derivation. Meanwhile, in (68), the bound pronoun voids the phasal status of C so that there are no phase heads between *oranges* and FocP, enabling movement.

(65) *John claims that Mary likes apples and [Bill does ~~<claim that Mary likes>~~ oranges].

(66) ?John₁ claims that he₁ likes apples and [Bill₂ does ~~<claim that he₂ likes>~~ oranges].

(67) [_{TP} Bill T does [_{FocP} [_{VP} v [_{VP} claim [_{CP} that [_{TP} **Mary** [_{VP} [_{VP} likes oranges]]]]]]]]]]]

(68) [_{TP} Bill T does [_{FocP} [_{VP} v [_{VP} claim [_{CP} that [_{TP} **pro**[ϕ : ____] [_{VP} [_{VP} likes oranges]]]]]]]]]]]

We therefore conclude that the phase-theoretic account sketched above for *too/enough*-movement structures can be successfully extended to those phenomena that involve movement to a position lower than Spec,CP, provided we adopt the strong rather than the weak variant of the PIC.

Finally, before we move on, an important question that we alluded to above and that still needs to be addressed is this: since most, if not all, of the phenomena that instantiate the bound pronoun effect involve \bar{A} -movement, why can't a long-distance dependency be established in accordance with the PIC via successive-cyclic \bar{A} -movement through intermediate Spec,CP positions, as is the case for ordinary *wh*-movement?¹⁸ In fact, this is the opposite of what Felser (2004:547) calls the *triggering problem* for *wh*-movement.

(69) *The triggering problem*

On the assumption that agreement (and hence, movement) is triggered by matching but uninterpretable features of the probe, what triggers movement of a *wh*-expression to the specifier of intermediate non-interrogative heads?

(Felser 2004:547)

Seen from this perspective, the real puzzle is not why *too/enough*-movement and the other phenomena that instantiate the bound pronoun effect disallow successive cyclicity but rather why ordinary *wh*-movement as found in structures such as interrogative and relative clauses *does* allow it. And this far-reaching puzzle is well beyond the scope of this article. Here is one potentially fruitful possibility to explore, however. Suppose intermediate noninterrogative C heads have an optional *wh*-feature that attracts *wh*-elements to Spec,CP. This is similar to Chomsky's (2000) proposal that phase heads have an optional EPP feature. But if we instead treat the relevant optional feature as a *wh*-feature, this provides a basis for distinguishing *wh*-movement in the strict sense from other kinds of \bar{A} -movement: successive cyclicity is available for those elements undergoing \bar{A} -movement that themselves have matching *wh*-features, but it is not available for

¹⁸ We also assume in the foregoing that Op cannot target intermediate Spec,vP positions. We make this simplifying assumption primarily for three reasons. First, if Op cannot target intermediate Spec,CP positions, then it seems reasonable to hypothesize that it also cannot target intermediate Spec,vP positions. Second, if successive-cyclic movement via Spec,vP depends on the status of v as a (candidate) phase head, then our tentative conclusion that v is not a (candidate) phase head also constitutes a reason not to consider intermediate Spec,vP positions. Finally, the third reason is practical: entertaining intermediate Spec,vP landing sites would excessively multiply the number of analytical options to be assessed. And since our goal here is a "proof of concept" of a phase-theoretic account of the bound pronoun effect, we need not consider every conceivable way things could be.

the kinds of operators and phrases that undergo movement in the phenomena that trigger the bound pronoun effect. This strikes us as a plausible avenue to pursue, though it remains to be seen whether it is ultimately workable. One issue that would need to be worked out is how it is determined whether a moved element has *wh*-features. The existence of *wh*-features on the moved element in a *wh*-question is straightforward, as is the existence of such features on relative operators, given that they sometimes involve an overt *wh*-constituent. But topicalization seems to pattern like *wh*-questions and relative clause formation in being unbounded, despite the apparent absence of any independent evidence for *wh*-features on the moved element in topicalization. Another relevant consideration has to do with Quantifier Raising (QR), which has been argued to allow for successive-cyclic movement, albeit only when each step in the movement is semantically motivated (Fox 2000, Cecchetto 2004). Hence, we leave this as an area for further investigation.¹⁹

4.4 ϕ -Features on Bound Pronouns

Finally, we revisit the last crucial piece of our proposal: namely, that bound pronouns have the option of entering the derivation with unvalued ϕ -features. By way of background, consider a sentence like (70) on its bound variable interpretation. By what principle is (70) ruled in but the gender-mismatched variant in (71) ruled out?

(70) Every man₁ thinks that he₁ is a genius.

(71) *Every man₁ thinks that she₁ is a genius.

In general, there are two kinds of approaches that can be entertained. On one view, schematized in (72), a bound pronoun enters the derivation with unvalued ϕ -features (72a) and acquires those features via transmission from its binder at a later stage in the derivation (72b).²⁰ Since the binder

¹⁹ There is also more to be said about multiple questions. Here, the (covertly) moved phrase clearly has *wh*-features, reopening the puzzle about why it cannot move in successive-cyclic fashion. But regardless of *why* successive cyclicity is blocked in multiple questions, *that* it is blocked is a conclusion convergent with recent work on multiple questions. Kotek (2014), examining data very different from those that concern us here, concludes that “the covert movement of the in-situ *wh* in superiority-obeying questions is not an unbounded long-distance movement, as often assumed, but instead a short QR-like movement, which is only extended in extraordinary cases” (p. 209). Similarly, Saito (1994) proposes that the lower *wh*-element in a multiple question adjoins to the higher *wh*-element at LF rather than moving to a Spec,CP position.

In a similar vein, an anonymous reviewer asks why successive-cyclic movement fails for family of questions and for multiple sluicing as exemplified in (i) and (ii), respectively.

(i) *[Which journal does everyone claim that John reads ___]?

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

(ii) *Someone claims that John is worried about something but I don't know [who ~~claims that John is worried~~ about what].

For family of questions, we assume following Sloan (1991) and Lasnik and Saito (1992) that the crucial factor is the structural relationship between the quantifier and the trace of the *wh*-movement. Consequently, (i) is ruled out because although the *wh*-phrase can move successive-cyclically, its trace is not in a sufficiently local configuration with the quantifier. For multiple sluicing, we assume following Lasnik (2014) that the second *wh*-expression undergoes rightward movement (extraposition). Plausibly, such movement is not subject to successive cyclicity even when the moved phrase happens to have *wh*-features, though we leave a full investigation of this question to future research. See Lasnik 2014 for some speculation about why extraposition cannot be successive-cyclic.

²⁰ We assume here for concreteness that bound pronouns are bound and valued by their DP antecedents. But see Kratzer 2009 for the alternative view that bound pronouns are bound by clause-local verbal functional heads C and v. As far as we can tell, this choice point is in principle orthogonal to present concerns, although Kratzer's particular

Following Heim (2008:39) in assuming that *every* comes with its own presupposition—namely, that the set associated with its NP argument is a subset of the domain associated with its VP argument, as in (75)—the sentence in (71) ends up presupposing that all men are female, as in (76). This faulty presupposition then accounts for the perceived deviance of the sentence.

(75) $\llbracket \text{every} \rrbracket = \lambda P \lambda Q: \{x: P(x) = 1\} \subseteq \text{dom}(Q). \{x: P(x) = 1\} \subseteq \{x: Q(x) = 1\}$
(Heim 2008:39)

(76) $\llbracket \text{Every man } t_1 \text{ thinks that she}_1 \text{ is a genius} \rrbracket^{\text{E}}$ is defined only if the set of men is a subset of the set of females. Where defined, . . .

As was the case for the two potential definitions of phases entertained in section 4.2 (phases as propositional objects vs. phases as convergent objects), theoretical parsimony favors the view that if either of these approaches to bound pronouns is correct, it is correct in all cases and the other one is always incorrect. But as was the case with phases, we think that the bound pronoun effect points toward the view that both of these approaches are correct: in principle, pronouns have the option of entering the derivation either with or without ϕ -features.²³ If they enter the derivation without ϕ -features, then they have to be bound so that their features can be determined (cf. Kratzer's (2009:195) Feature Transmission under Binding). But crucially, binding is also consistent with a configuration in which the pronoun enters the derivation with its ϕ -features already valued and the appearance of ϕ -feature agreement is achieved via the workings of presupposition projection. We need the former option as part of our account of the bound pronoun effect, and we need the latter option in order to ensure that structures like (77) can be built. In (77), the bound pronoun is separated from its antecedent by at least two phase heads, and so should not be accessible for feature transmission.²⁴ Instead, we get what looks like long-distance ϕ -feature "agreement" as a consequence of the fact that presupposition projection is not subject to the PIC.

(77) Every man₁ thinks [_{CP} that Ann said [_{CP} that Mary saw him₁]].

²³ Essentially the same idea is proposed by Kratzer (2009), on the basis of a very different set of data. This hybrid approach to pronouns is also reminiscent of Chomsky's (1975:519–524) proposal that there are "two elements *he* and *he**, with *he** a proper noun, and *he* a pronoun just like *I*, *you*" (1975:524). For Chomsky, though, the distinction correlates with whether the pronoun has a (sentence-local) antecedent, whereas for us, as well as for Kratzer (2009), the suggestion is that having an antecedent is a necessary but not a sufficient condition for having entered the derivation with unvalued ϕ -features.

²⁴ It is also conceivable that there are other structural constraints aside from the PIC that limit the application of feature transmission. For example, it could be that feature transmission is subject to intervention. Consider the minimal pair in (i)–(ii). To our ears, (ii) sounds rather degraded in comparison with (i), and one possible reason is that the DP *Mary* in (ii) intervenes and thereby disables feature transmission between the bound pronoun and its antecedent.

(i) ?This book is too expensive [for John₁ to promise that he₁ will buy Op].

(ii) *This book is too expensive [for John₁ to promise **Mary** that he₁ will buy Op].

That being said, we discuss below some examples from Ross 1967 that suggest that the bound pronoun effect may be operative for some island phenomena, and some of the relevant examples ((71e), (72a–c)) are not as degraded as we might have expected them to be if feature transmission is subject to intervention. We leave to future work a more thorough investigation of this issue.

5 Islands

Before concluding, we offer some preliminary remarks on the relevance of the bound pronoun effect to island phenomena. In particular, for at least some island types including adjunct islands and *wh*-islands, we see the same cline of acceptability familiar from the phenomena we focused on in this article: extraction out of a nonfinite clause is fairly acceptable ((78a)/(79a)), extraction out of a finite clause with a bound pronominal subject is somewhat degraded ((78b)/(79b)), and extraction out of a finite clause with no bound pronominal subject is the most degraded ((78c)/(79c)).²⁵

- (78) a. What₂ did Ann₁ go home [after PRO₁ reading t₂]?
 b. ?What₂ did Ann₁ go home [after she₁ read t₂]?
 c. *What₂ did Ann go home [after Mary read t₂]?
 (79) a. What₂ did Ann₁ wonder [whether PRO₁ to read t₂]?
 b. ?What₂ did Ann₁ wonder [whether she₁ should read t₂]?
 c. *What₂ did Ann wonder [whether Bill should read t₂]?

In this connection, it is interesting to note that Ross (1967) questions Chomsky's (1964) *Wh*-Island Constraint on the basis that it is too strong, and the data Ross offers to support this position involves controlled infinitival embedded questions (see (80a–d)) as well as six examples of embedded finite questions with bound pronominal subjects ((80e–g), (81a–c)). (Although Ross does not actually say that these pronouns are bound, this is surely the intended interpretation, since there is no context to support a free reading.) The data in (80)–(81) are taken from Ross 1967:27 with the judgment marks as they appear in the original.

- (80) 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.
 (81) Which books did he tell you
 a. why he wanted to read?
 b. ?whether he wanted to read?
 c. ??when he wanted to read?

²⁵ In a related vein, parasitic gaps are well-known to be better in nonfinite adjuncts (ia) than in finite adjuncts (ic), and it seems to us that finite adjuncts with bound pronominal subjects pattern with nonfinite adjuncts in being acceptable with a parasitic gap (ib). So this appears to be yet another manifestation of the bound pronoun effect.

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

Ross notes that extraction out of infinitival embedded questions seems to be more acceptable than extraction out of finite embedded questions. He also notes regarding his examples of extraction out of a finite embedded question that “there are many sentences which differ in no way which I can discern from those in [(80e–g), (81)] but which I find totally unacceptable. (Chomsky’s example, “*what did he wonder where John put?” is a good case in point)” (p. 27). The bound pronoun effect suggests a solution to Ross’s puzzle: ((80e–g), (81)) all contain a bound pronominal subject.

We hypothesize that the bound pronoun effect as manifest in islands is amenable to the same kind of phase-theoretic proposal we advanced for the core cases considered in this article. In particular, suppose that what makes a clause an island for extraction is that it has some property that disables movement to its edge. This is of course the classic treatment of *wh*-islands, and it may also extend to at least some adjunct islands if we adopt Larson’s (1990) proposal that some adjunct-introducing prepositions like *before* and *after* combine with CP complements whose Spec position is filled by an operator. If Spec,CP is already filled, then it is not available as an intermediate landing site. Consequently, if the CP is a phase, then extraction will incur a PIC violation. But if a bound pronominal subject voids the phasal status of CP, as we have proposed, then extraction can proceed without the need for an intermediate landing site.

That being said, as David Pesetsky (pers. comm.) 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 (82). Consequently, we leave for future work a more complete investigation of bound pronouns in islands.²⁶

- (82) a. *How₂ did John₁ go home [after PRO₁ solving the problem t₂]?
 b. *How₂ did John₁ go home [after he₁ solved the problem t₂]?
 c. *How₂ did John go home [after Mary solved the problem t₂]?

6 Conclusions

This article began with the observation that a bound pronoun in the subject position of a finite embedded clause renders the clause boundary relatively transparent to syntactic processes and relations ordinarily confined to monoclausal, control, and raising configurations. We showed that this effect holds for a wide range of “quasi-clause-bound” phenomena including *too/enough*-movement, gapping, comparative deletion, ACD, quantifier scope interaction, multiple questions, pseudogapping, reciprocal binding, multiple sluicing, family of questions, extraposition, and *tough*-movement. And we documented the effect experimentally for *too/enough*-movement, comparative deletion, and multiple questions.

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

²⁶ Classically, it was proposed that movement of arguments is subject only to Subjacency while movement of adjuncts is subject both to Subjacency and to the ECP (Empty Category Principle) (Huang 1982b, Lasnik and Saito 1984). While it is a reasonable hypothesis that what counts as a “barrier” for Subjacency is the same as what counts for the ECP, it is not a logically necessary one. So one way of interpreting the facts in (73) is that whatever principle is responsible for ECP effects is not subject to the kind of phase-theoretic constraints that give rise to the bound pronoun effect; rather, it obeys some other set of constraints.

unvalued ϕ -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 in response to this we entertained the view that only unvalued features that stand in a sufficiently local relationship to the phase head (in particular, a head-to-head relationship) void phasehood.

This account has two primary theoretical implications. The first is that not all bound pronouns are created equal: bound pronouns can either enter the derivation ϕ -complete or enter the derivation unvalued and thereby interact with core grammatical processes. This conclusion echoes Chomsky's (1975) treatment of third person pronouns as well as more recent work on bound pronouns by Kratzer (2009) (see footnote 23). The second theoretical implication is that not all finite CPs are created equal, specifically with respect to their phasal status. The bound pronoun effect offers novel evidence for the view that feature valuation has a role to play in phase theory.

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