

REGULAR ARTICLE

Concealed pied-piping in Russian: On left-branch extraction, parasitic gaps, and the nature of discontinuous nominal phrases

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Abstract

We use parasitic gaps to examine left-branch extraction from nominal phrases in Russian. We observe that the interpretation of a parasitic gap in a context with left-branch extraction is the same as the interpretation assigned when an entire nominal phrase is moved. Thus we argue that Russian left-branch extraction involves concealed pied-piping of an entire nominal phrase, rather than true extraction of a left branch. We go on to explore the consequences of this analysis for several other topics.

KEYWORDS

late merge, left-branch extraction, parasitic gaps, pied-piping, Russian, weak crossover

1 | INTRODUCTION

1.1 | Overview

In this article, we examine left-branch extraction (LBE) in Russian, which we argue involves a different syntactic derivation than one might expect at first glance.¹ LBE is displacement of an element originating at the left edge of a nominal phrase:

¹The authors of this article are listed alphabetically. The article uses the following glossing conventions: ACC = accusative, ADJ = adjective, CNV = converb, DAT = dative, GEN = genitive, NEG = negation, NOM = nominative, PL = plural, PTCL = particle, SBJV = subjunctive, SG = singular.

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(1) LBE in Russian

Miluju₁/ètu₁/každuju₁ ty uvidel [_{NP} *t₁* košku].
 cute/this/every you saw cat
 ‘You saw a cute cat/this cat/every cat.’

LBE is found in many languages of the Slavic family and beyond (Ross 1967, Corver 1990, and Corver 2007, among others). In Russian, LBE signals contrastive focus or topicalization on the displaced element (Pereltsvaig 2008), and provided that an appropriate context is salient, LBE of any left-branch constituent (adjective, numeral, possessor, quantifier, demonstrative, etc.) is possible.²

It is a puzzle for linguistic theory that while some languages like Russian permit LBE, many others do not. In English, for instance, targeting a left-branch element for extraction forces pied-piping of the entire containing DP, which precludes the possibility of LBE:

(2) Pied-piping rather than LBE required in English

- a. ***Which₁** did you see [*t₁* cats]?
- b. [**Which cats**]₁ did you see *t₁*?
- c. ***Those₁** I’ve seen [*t₁* cats] before.
- d. [**Those cats**]₁ I’ve seen *t₁* before.

Among the first works to examine LBE was Ross 1967, which hypothesized that a syntactic constraint, the Left-Branch Condition, is responsible for banning LBE in some languages. Many subsequent works (Szabolcsi 1984, Corver 1990, 1992, Gavrusseva 2000, Rappaport 2001, and Bošković 2005, among others) have explored how the presence or absence of LBE might be derived from the independent syntactic properties of a given language. In this article, we argue that the difference between Russian and languages without LBE does not stem from a constraint like the Left-Branch Condition because Russian LBE does not, in fact, involve extraction of a left branch. Rather, we argue that LBE in Russian actually involves concealed pied-piping of the entire nominal phrase that LBE appears to have exited. In other words, we argue that the structure of Russian examples like (1) above is fundamentally the same as that of the English (2b,d) above, where the pied-piping is overt.

Our main evidence for this proposal about Russian LBE comes from parasitic gaps (PGs; Engdahl 1983, Nissenbaum 2000, and Culicover & Postal 2001, among others). As we discuss in section 1.3, a PG is a gap (usually in an island) that is coreferent with a phrase that A’ moves structurally across the constituent that contains that gap. For Russian, our key finding is that LBE and A’ movement of a full nominal phrase have the same result for PG interpretation. This is previewed in (3). Here we see PGs in adjunct islands, which presumably attach to a clause-medial position (the VP/vP edge). The interpretation of such PGs is the same whether the entire direct object undergoes *wh* movement, as in (3a), or LBE from it occurs, moving only its *wh* determiner, as in (3b). In both contexts, the PG is coreferent with the entire object nominal phrase, as the indices show.^{3,4}

²For some Russian speakers LBE is not highly productive. Such speakers have been excluded from this study. The Russian sentences reported here are the aggregate of interviews with eight native Russian speakers, mostly from the Moscow area, during 2018–2020. These interviews consisted of both in-person and online meetings, in which consultants were asked to rate the acceptability of a set of prepared diagnostic sentences. The contrasts reported here are sharper for some speakers than others, but the distribution of these contrasts is consistently as we describe.

³Throughout this article we mark true gaps as *t* and parasitic gaps as *PG*.

⁴Many of our Russian examples mention the ‘New Year tree’. This is the secular equivalent of the Christmas tree that is traditional in many nations that were members of the Soviet Union.

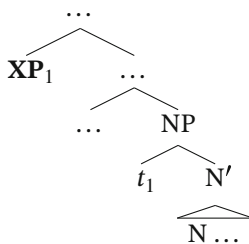
- (3) a. PG becomes coreferent with overtly moved nominal phrase
 [Kakoj podarok]₁ Vasja [voznenaivel t₁, [ne obnaruživ PG₁ pod
 what present Vasya came.to.hate NEG discover.CNV under
 ělkoj]]?
 pine.tree
 ‘What present did Vasya come to hate, not finding (it) under the New Year tree?’
- b. PG becomes coreferent with nominal phrase seemingly exited by LBE
 Kakoj₂ Vasja [voznenaivel [t₂ podarok]₁, [ne obnaruživ PG₁ pod
 what Vasya came.to.hate present NEG discover.CNV under
 ělkoj]]?
 pine.tree
 ‘What present did Vasya come to hate, not finding (it) under the New Year tree?’

Based on this line of evidence and several related ones, we argue that Russian LBE in fact involves pied-piping of the entire nominal phrase in the underlying syntactic structure.

1.2 | Background on theories of LBE

Previous studies of LBE, using data from a variety of languages, have proposed several different analyses for it. In one analysis, which we will term *true extraction*, LBE involves straightforward extraction of a left-branch constituent from the containing NP (Ross 1967, Borsley & Jaworska 1988, Uriagereka 1988, Corver 1990, 1992, Bošković 2005, Stjepanović 2010, Wiland 2010, and Bošković 2016, among others).⁵ This analysis is illustrated in (4), where XP represents the extracted left branch.

- (4) True-extraction analysis of LBE



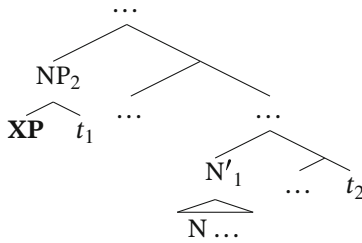
Another variety of analysis, which we term *concealed pied-piping*, argues that LBE does not involve extraction of a left branch. Two versions of this analysis have been proposed in previous literature.

One is the *remnant-movement* approach (Franks & Progovac 1994, Starke 2001, Kayne 2002, Abels 2003, Bašić 2008, 2009, and Abels 2012, among others), on which LBE is derived by

⁵In what follows, for convenience we refer to and diagram Russian nominal phrases as NPs. However, unlike works such as Bošković 2005, Despić 2013, Despić 2015, Bošković 2016, and references therein, we do not commit to the absence of D in articleless Slavic languages like Russian. In section 5 we suggest that the facts analyzed here may actually indicate that D is present in Russian.

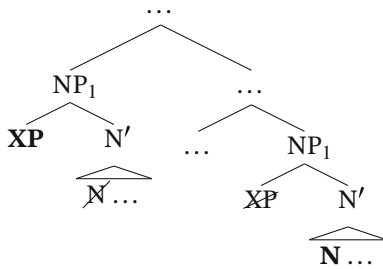
movement of a remnant phrase that has been vacated by everything but the relevant left branch:

(5) Remnant-movement analysis of LBE



The other variant of the concealed-pied-piping analysis is *distributed deletion* (Bošković 2001, Fanselow & Ćavar 2002, Pereltsvaig 2008, Fanselow & Féry 2013, and Bošković 2015, among others). On this approach, LBE involves no extraction of a left branch. Rather, the NP dominating the left branch moves, and a PF mechanism causes all material in that NP to be pronounced in the tail of its movement chain, except for the relevant left branch, which is pronounced in the head of the movement chain. This is shown in (6), in which the deleted nodes are crossed out.

(6) Distributed-deletion analysis of LBE



This analysis is most intuitive given a theory in which movement leaves full-fledged copies rather than traces (Chomsky 1993 and Chomsky 1995, among others).

While languages that allow LBE may differ in how they derive it, in this article we argue that for Russian a concealed-pied-piping analysis is correct. Specifically, we argue in favor of the distributed-deletion analysis for Russian, in accord with Pereltsvaig 2008 and Fanselow & Féry 2013.

1.3 | PGs as a diagnostic for what moves

As mentioned in section 1.1, PGs are gaps that are licensed by A' movement that structurally crosses the constituent containing them. For diagnostic purposes, that a given gap is a PG (rather than a true gap formed by movement in the usual way) is clearest when it is in an island. The phrase that A' moves across the PG-hosting constituent binds the PG, which makes that moved phrase and the PG coreferent. This is exemplified in (7). Here an object A' moves from the complement of V, structurally crossing over a sentential adjunct and licensing a coreferent PG within that adjunct.

(7) PGs in sentential adjuncts in English

- a. [What movies]₁ did Mary [claim she liked *t*₁ [in order to get you to see PG₁]]?
- b. John's the guy $\emptyset_1$ that they said they'll [hire *t*₁ [if I criticize PG₁ publicly]].

(Nissenbaum 2000: 30, (3a))

Such sentential adjuncts are indeed generally islands for movement:

(8) Adjunct-island condition

- a. ??[What movies]₁ did Mary [claim she liked *The Godfather* [in order to get you to see *t*₁]]?
- b. *John's the guy $\emptyset_1$ that they said they'll [hire me [if I criticize *t*₁ publicly]].

(Nissenbaum 2000: 30, (3a))

Therefore the gaps in the adjuncts in (7) must truly be “parasitic” on movement in the matrix clause, rather than derived by some form of typical extraction from these adjuncts.

The works on PGs cited in section 1.1 (Engdahl 1983, Nissenbaum 2000, and Culicover & Postal 2001, among others) show that a licensed PG is coreferent with the phrase whose A' movement has crossed over the constituent containing that PG, as we saw in (7). This fact makes salient two predictions about the interaction between Russian LBE and PGs, given our proposal that Russian LBE involves concealed pied-piping of the NP that appears to have been exited by LBE. First, we expect LBE in a context with a PG to result in that PG becoming coreferent with the NP that the seemingly displaced left branch has exited, since in concealed pied-piping it is the whole NP that actually moves. In other words, we expect LBE from a given NP and fully overt movement of that NP to yield identical interpretations for a PG. We will see that this is true, as previewed in (3). Second, we predict that it should not be possible for a left branch that seems to have been displaced by LBE to bind a PG. Rather, we should find that the NP that originally contained the seemingly displaced left branch is always the only available PG licenser, since under our analysis LBE does not involve extraction of a left branch.

We will show that these and more predictions of the concealed-pied-piping analysis of Russian LBE are correct. The core data of this article is compatible with either a remnant-movement or distributed-deletion analysis of LBE. However, we will argue that the latter analysis is better equipped to explain facts about the types of material that Russian LBE can displace, as well as its scopal properties.

1.4 | Contents of the article

Next, section 2 examines Russian PGs in detail and analyzes their interaction with LBE. This section also provides supporting evidence from the interaction of LBE with weak crossover and discusses some relevant previous research. Section 3 provides further evidence for our proposals from late-merge effects (Lebeaux 1988, among others) involving Principle C. Section 4 argues in favor of a distributed-deletion analysis of Russian LBE. Section 5 connects this article's results to the debate about the relationship between LBE and the presence/absence of D. Section 6 relates our findings to additional facts about constraints on multiple LBE. Section 7 situates our proposals in the context of an explicit syntactic/semantic theory of PGs, building on Nissenbaum 2000. Section 8 concludes.

2 | THE FACTS ABOUT THE INTERACTION BETWEEN PGS AND LBE IN RUSSIAN

In this section, we first establish the existence of PGs in Russian and then go on to show how LBE and PGs interact in this language.

2.1 | PGs in Russian

PGs in Russian have been reported by at least Franks 1992, Ivlieva 2007, and Polinsky & Potsdam 2014. While in English diagnosing the presence of a PG is relatively straightforward, the fact that argument drop is sometimes available in Russian, as (9) shows, makes it less obvious that a given gap is indeed a PG rather than a dropped NP.

(9) Russian object drop (most natural for NPs salient in the discourse)

- A: Ty kupila tort?
you bought cake
'Did you buy a cake?'
- B: Da, ja kupila (**tort**).
yes I bought cake
'Yes, I bought (a cake).'

Since in this article we will pay special attention to PGs in object positions, we must establish what distinguishes PGs from dropped objects before we can safely use PGs to examine Russian LBE.

Ivlieva 2007 notes that Russian PGs are most natural in perfective contexts. We observe that both perfectivity and negation (seen in many of Ivlieva's PG examples) degrade object drop, as do certain verbs like *obnaružit* 'discover' and *vzyat* 'take'. These factors are combined in (10) to create sentential adjuncts that require overt objects. (We mark attempted object drop with __.)

(10) Adjunct clauses with undroppable objects in Russian

- a. Vasja voznenavidel [ètot podarok]₁, [ne obnaruživ **ego**₁/*__₁ pod Vasya came.to.hate this present NEG discover.CNV it under
ëlkoj].
pine.tree
'Vasya came to hate this present, not finding it under the New Year tree.'
- b. Lena zabyła prinesti [rovno odin dogovor]₁, [ne vzyav **ego**₁/*__₁ u Lena forgot to.bring exactly one contract NEG take.CNV it from
buxgaltera].
accountant
'Lena forgot to bring exactly one contract, not having taken it from the accountant.'
- c. Vera ne nadela [mamino plat'e]₁, [ne obnaruživ **ego**₁/*__₁ v škafu].
Vera NEG put.on mother's dress NEG discover.CNV it in wardrobe
'Vera did not put on her mother's dress, not having found it in the wardrobe.'

Since object drop in such sentences is unavailable and since, as (11) shows, movement from the sentential adjuncts in question is degraded, we have therefore identified an appropriate environment in which to diagnose the possibility of Russian PGs.

(11) Adjunct island in Russian

- a. ***[Kakoj podarok]₁** Vasja voznenavidel Mašu, [ne obnaruživ *t₁* pod
what present Vasya came.to.hate Masha NEG discover.CNV under
ëlkoj]?
pine.tree
Intended: ‘What present did Vasya come to hate Masha, not finding under the New
Year tree?’
- b. ***[Čë plat’e]₁** Vera nadela svojë plat’je, [ne obnaruživ *t₁* v škaful]?
whose dress Vera put.on self’s dress NEG discover.CNV in wardrobe
Intended: ‘Whose dress did Vera not find in the wardrobe and (thus) put on her own
dress?’

Importantly, as we see in (12), A’ movement in the matrix clause of such examples licenses an extra gap in the adjunct, in precisely the fashion that is characteristic of a PG. This PG licensing is achieved by interrogative *wh* movement in (12a,b), scrambling in (12c),⁶ and relativization in (12d).

(12) Successful PG licensing in Russian

- a. [Kakoj podarok]₁ Vasja voznenavidel *t₁*, [ne obnaruživ PG₁ pod ëlkoj]?
what present Vasya came.to.hate NEG discover.CNV under pine.tree
‘What present did Vasya come to hate, not finding (it) under the New Year tree?’
- b. [Čë plat’e]₁ Vera ne nadela *t₁*, [ne obnaruživ PG₁ v škaful]?
whose dress Vera NEG put.on NEG discover.CNV in wardrobe
‘Whose dress did Vera not put on, not having found (it) in the wardrobe?’
- c. [Ravno odin dogovor]₁ Lena zabyła prinesti *t₁*, [ne vzyav PG₁ u
exactly one contract Lena forgot to.bring NEG take.CNV from
buxgaltera].
accountant
‘Lena forgot to bring exactly one contract, not having taken (it) from the account-
tant.’
- d. Vasja našël podarok, [kotoryj]₁ ja voznenavidel *t₁*, [ne obnaruživ PG₁
Vasya found present which I came.to.hate NEG discover.CNV
pod ëlkoj]]
under pine.tree
‘Vasya found the present that I came to hate, not having found (it) under the New
Year tree.’

⁶A reviewer asks whether the scrambling in (12c) might be A movement. In all the PG examples we have elicited, the PG-licensing movement targets a position preceding the subject, a position that Bailyn 2004 and 2012 show has A’ properties in Russian. This contrasts with movement to a position below the subject, which Bailyn shows has A properties. This suggests that in our examples, including the scrambling example in (12c), the movement in question is A’ movement.

We have not had the opportunity to test whether more local movements can license PGs in Russian. Given the generalization in the literature that only A’ movement can license PGs, we would not expect this to be possible. If it turns out that it is, however, this would not be an unprecedented finding: a few works have argued that A movement can sometimes license PGs, such as Pykkänen 2008, Ershova 2019, and Ershova 2021. Additionally, Nissenbaum 2000: 31 reports examples of local scrambling licensing PGs in German, Hindi, and Icelandic. Whether a given PG-licensing movement is A or A’ is not fundamental to this article’s arguments, since our core concern is the constituency of what moves when LBE occurs.

Since PG licensing is a general trait of A' movements (Culicover & Postal 2001, among others), the possibility of PG licensing in all of these contexts is precisely what we expect.

We have thus established the existence of PGs in Russian. Next, we examine the interaction between PGs and LBE, which we argue reveals that Russian LBE involves concealed pied-piping.⁷

2.2 | Russian LBE interacts with PGs like movement of a full NP

Next, consider the examples in (13). These are the same as those in (12a–c), except that LBE from direct objects occurs rather than overt movement of entire object NPs. We see the same result for PG interpretation as we saw in (12): the object NP is coreferent with the licensed PG.

- (13) LBE from object licenses PG with same interpretation as full object movement
- Kakoj**₂ Vasja voznenavidel [_{t₂} **podarok**]₁, [ne obnaruživ PG₁ pod what Vasya came.to.hate present NEG discover.CNV under jolkoi]?
pine.tree
'What present did Vasya come to hate, not finding (it) under the New Year tree?'
 - Č'ë**₂ Vera ne nadela [_{t₂} **plat'e**]₁, [ne obnaruživ PG₁ v škafu]?
whose Vera NEG put.on dress NEG discover.CNV in wardrobe
'Whose dress did Vera not put on, not having found (it) in the wardrobe?'
 - [**Rovno odin**]₂ Lena zabyla prinesti [_{t₂} **dogovor**]₁, [ne vzyav PG₁ u exactly one Lena forgot to.bring contract NEG take.CNV from buxgaltera].
accountant
'Lena forgot to bring exactly one contract, not having taken (it) from the accountant.'

The only interpretive difference between these two sets of examples is a change in information structure: LBE in Russian signals contrastive focus or topicalization on the element to which it applies (Pereltsvaig 2008). But there is no truth-conditional difference between the

⁷A reviewer asks whether we can tell if the PGs we are concerned with are not in fact gaps formed by V-stranding VP ellipsis (Bailyn 2011, Gribanova 2013, Bailyn 2017). We argue that Russian V-stranding VP ellipsis and PGs are indeed distinct. First, Gribanova 2013 shows that Russian V-stranding VP ellipsis requires a linguistic antecedent (as usual for ellipsis), but this is not so for PG configurations:

- (i) Context: The speaker comes in and sighs, saying out of the blue ...
[Rovno odin dogovor]₁ Lena zabyla prinesti *t₁*, [ne vzyav PG₁ u buxgaltera].
exactly one contract Lena forgot to.bring NEG take.CNV from accountant
'Lena forgot to bring exactly one contract, not having taken (it) from the accountant.'

Second, Gribanova shows that Russian V-stranding VP ellipsis can occur in islands. We saw above that the gaps we are concerned with here are not possible in islands (11), unless an A' movement crosses over the island (12). This is precisely the configuration that is characteristic of PGs. Third, Gribanova shows that V-stranding VP ellipsis in a ditransitive must elide both internal arguments. This is not so for a PG configuration, which allows, for instance, an overt indirect object along with a direct-object PG:

- (ii) [Č'ë plat'e]₁ Vera nadela *t₁*, [ne otдав PG₁ **Maše** na večerinke]?
whose dress Vera put.on NEG give.CNV Masha.DAT at party
'Whose dress did Vera put on, after not giving (it) to Masha at the party?'

configurations in (12) and (13). The examples in (14) provide additional illustration of the same pattern.

- (14) a. PG with adjective LBE
 Doroguščij₂ Vasja voznenavidel [_{t₂} podarok]₁, [ne obnaruživ PG₁ pod
 very.expensive Vasya came.to.hate present NEG discover.CNV under
 ělkoj].
 pine.tree
 ‘Vasya came to hate the expensive present, not finding (it) under the New Year tree.’
- b. PG with ‘how many’ LBE
 Skol’ko₂ Vasja voznenavidel [_{t₂} podarkov]₁, [ne obnaruživ PG₁ pod
 how.many Vasya came.to.hate presents NEG discover.CNV under
 ělkoj]?
 pine.tree
 ‘How many presents did Vasya come to hate, not finding (them) under the New Year tree?’
- c. PG with quantifier LBE
 ?Každyj₂ Vasja voznenavidel [_{t₂} podarok]₁, [ne obnaruživ PG₁ pod
 each Vasya came.to.hate present NEG discover.CNV under
 ělkoj].
 pine.tree
 ‘Vasya came to hate every present, not finding (it) under the New Year tree.’
- d. PG with demonstrative LBE
 ?Ėtot₂ Vasja voznenavidel [_{t₂} podarok]₁, [ne obnaruživ PG₁ pod ělkoj].
 this Vasya came.to.hate present NEG discover.CNV under pine.tree
 ‘Vasya came to hate this present, not finding (it) under the New Year tree.’

Recall that a licensed PG is normally coreferent with the phrase whose A’ movement has crossed over the constituent containing that PG. Further, notice that the PGs in (13) and (14) are all coreferent with the object NP that LBE has exited. We argue that this indicates that Russian LBE in fact involves pied-piping of the entire NP that LBE seems to exit, contrary to its surface appearance.

One alternative hypothesis about these examples is that there is no concealed pied-piping but rather the PG is licensed by string-vacuous movement of the object NP, either before or after it is exited by LBE, the latter being true extraction.⁸ However, this analysis does not explain the fact that in sentences like those in (10), we see PGs that are unlicensed in the absence of A’ movement:

- (15) Adjunct clause with undroppable object in Russian
 Vasja voznenavidel [Ėtot podarok]₁, [ne obnaruživ ego₁/*PG₁ pod ělkoj].
 Vasya came.to.hate this present NEG discover.CNV it under pine.tree
 ‘Vasya came to hate this present, not finding it under the New Year tree.’
 (String identical to (10a))

⁸Short movement of the object to license the PG followed by LBE would have the following form.

(i) [_{CP} XP₂ S T [_{VP} V-V [_{NP} t₂ N]₁ [_{t₁} [_{AdjunctP} ... PG₁]]]]]

If string-vacuous movement of an object were generally available to license a PG, such movement should be available to license the PG in examples like this one.⁹

Furthermore, the fact that string-vacuous movement of the NP is not responsible for PG licensing when LBE occurs is clearer in cases where (apparent) LBE strands the object NP in an embedded clause but licenses a PG interpreted in a higher clause. The sentence in (16a) shows an unlicensed PG, which in (16b) is licensed by long-distance LBE.¹⁰

- (16) Scenario: Vasya thinks that Masha took the present from under the New Year tree.
- a. *Vasja [xotel, [ne obnaruživ PG₁ pod ělkoj], [čtoby Maša Vasya wanted NEG discover.CNV under pine.tree that.SBJV Masha vernula [ětot/Petin podarok]₁]].
returned this/Peter's present
Intended: 'Vasya wanted that Masha would return this present, not having found (it) under the New Year tree.'
- b. Kako₂/čej₂ Vasja [xotel, [ne obnaruživ PG₁ pod ělkoj], [čtoby what/whose Vasya wanted NEG discover.CNV under pine.tree that.SBJV Maša vernula [_{t₂} podarok]₁]]?
Masha returned present
'What/whose present did Vasya want that Masha would return, not having found (it) under the New Year tree?'

We thus conclude that the movement step responsible for deriving LBE (involving concealed pied-piping) is what achieves PG licensing in the above examples.

2.3 | Convergent evidence from weak crossover

Here we provide additional evidence for concealed pied-piping in Russian from the interaction between LBE and *weak crossover*, an effect whereby movement of a phrase across a coindexed pronoun to its left results in degradation (Postal 1971, Lasnik & Stowell 1991, and Safir 2017, among others).¹¹ Weak crossover is relevant to our analysis because it is interestingly in complementary distribution with PGs, as previous literature has observed. That is, when a pronoun that triggers a weak-crossover effect is replaced with a PG, the result is acceptable, as (17) shows for English.

⁹A reviewer suggests that it is possible that such movement is disallowed unless LBE will later occur, analogous to the *smuggling* analysis of the passive (Collins 2005), in which the subpart of the vP that contains the theme DP only moves in situations where that DP will later be moved out of it to reach the surface subject position. However, as the reviewer notes, our concealed-pied-piping analysis offers a simpler account of the PG facts.

¹⁰The example in (16) uses a subjunctive embedded clause because these are most transparent for extraction in Russian (Bailyn 2012). We can tell that, in the acceptable sentence (16b), the PG-hosting adjunct is interpreted in the matrix clause rather than the embedded one because the adjunct contains a PRO (not glossed here) that is controlled by the matrix subject.

¹¹More precisely, the term *weak crossover* describes a scenario where the pronoun does not c-command the base position of the moved phrase. If the pronoun does c-command the base position of the moved phrase, this is classified as *strong crossover*, a phenomenon we do not examine here.

- (17) Complementary distribution of pronouns subject to weak crossover and PGs
- That's the book that₁, [before returning PG₁/*it₁ to the library], I scribbled profanities in *t*₁.
 - Tell me [which girl]₁ you sent [every relative of PG₁/*her₁] [a cool picture of *t*₁].

In order to examine weak crossover in the Russian PG contexts we have been looking at, it is necessary, given the definition of weak crossover, for the PG-hosting sentential adjunct to be linearly leftward of the origination position of the relevant moving element. However, something we observe is that left-linearized adjuncts of this variety are more tolerant of dropped objects than their right-linearized counterparts, which we used in the examples in sections 2.1 and 2.2.¹² The adjunct in (18) did not tolerate object drop when linearized rightward in (10a) but does here.

- (18) Dropped object in left-adjoined sentential adjunct
 Vasja [ne obnaruživ __₁ pod ělkoj] voznenavidel [ètot podarok]₁.
 Vasya NEG discover.CNV under pine.tree came.to.hate this present
 'Vasya came to hate this present, not having found it under the New Year tree.'

Ivlieva 2007 points out that in such configurations in Russian, movement yields a weak-crossover effect when an overt pronoun is present, unlike when a gap is used instead:

- (19) Gap versus pronoun in left-adjoined sentential adjunct
 [Kakuju knigu]₁ ty, [ne čitaja __₁/*ëĭ₁], vybrosil *t*₁?
 which book you NEG read it threw.away
 'Which book did you throw away without reading (*it)?'
 (Ivlieva 2007: 133, (5))

Ivlieva argues that the acceptable variant of (19) contains a PG and not a null pronoun, for the following reason. As we can see in this example, an overt pronoun in object position is degraded due to weak crossover. If the variant of this example with no overt material in object position involved a null pronoun, we would expect that pronoun to be subject to weak crossover as well, despite its covertness. The fact that (19) is acceptable with no overt object suggests that in this case, it contains a PG, which is independently known to be immune to weak crossover (17).

Importantly, if Russian LBE in fact involves concealed pied-piping rather than true extraction, then LBE from an NP that is coindexed with a pronoun to its left should result in unacceptability due to weak crossover. As we see in (20), this is indeed so. The examples in (20a) and (20b) form a minimal pair. The first example shows a configuration analogous to (19) in which movement of a full NP across a coindexed pronoun results in degradation, though use of a PG instead is acceptable here. The example in (20b) differs from (20a) only in exhibiting LBE rather than overt movement of the full NP, but in (20b) as well, the pronoun is unacceptable.

¹²A reviewer notes that this left-right difference in object drop is reminiscent of patterns in Kwa languages (see for instance Saah 2003 on Akan). Another reviewer notes that it is reminiscent of binding asymmetries for null versus overt pronouns observed in Despić 2011. This parallel is interesting for theories about when object drop is possible and not possible. We will not analyze this fact here, however, since for the purposes of this article we only require a descriptive level of understanding of object drop, in order to prevent it from confounding our investigation of Russian PGs.

(20) Movement of full NP versus LBE: same results for PGs and weak crossover

- a. [**Kakuju knigu**]₁ ty, ne pročítav PG₁/*eĕ₁, vybrosila t₁?
 which book you NEG read.CNV it threw.out
 ‘Which book did you throw out, without having read (*it)?’
- b. **Kakuju**₂ ty, ne pročítav PG₁/*eĕ₁, vybrosila [_{t₂} **knigu**]₁?
 which you NEG read.CNV it threw.out book
 ‘Which book did you throw out, without having read (*it)?’

This is precisely what we expect under the concealed-pied-piping analysis: when LBE occurs, the entire NP that LBE has appeared to exit moves in the corresponding syntactic structure, and if that NP’s movement crosses over a coindexed pronoun, a weak-crossover effect occurs. The examples in (21)–(23) provide additional evidence that Russian LBE triggers weak crossover in the predicted way.

- (21) a. [Novuju knigu]₁ on, ne pročítav PG₁/*eĕ₁, vybrosil t₁.
 new book he NEG read.CNV it threw.out
 ‘He threw out a new book, without having read (*it).’
- b. Novuju₂ on, ne pročítav PG₁/*eĕ₁, vybrosil [_{t₂} knigu]₁.
 new he NEG read.CNV it threw.out book
 ‘He threw out a new book, without having read (*it).’
- (22) a. [Kotoruju kružku]₁ Mitja, ne otodvinuv PG₁/??eĕ₁ ot kraja,
 which cup Mitya NEG move.away.CNV it from edge
 oprokinul t₁?
 knocked.down
 ‘Which cup did Mitya knock down, not having moved (??it) away from the edge?’
- b. Kotoruju₂ Mitja, ne otodvinuv PG₁/??eĕ₁ ot kraja, oprokinul [_{t₂}
 which Mitya NEG move.away.CNV it from edge knocked.down
 kružku]₁?
 cup
 ‘Which cup did Mitya knock down, not having moved (??it) away from the edge?’
- (23) a. [Č’ë plat’e]₁ Vera, ne obnaruživ PG₁/*ego₁ v škafu, ne nadela t₁?
 whose dress Vera NEG discover.CNV it in wardrobe NEG put.on
 ‘Whose dress did Vera not put on, not having found (*it) in the wardrobe?’
- b. Č’ë₂ Vera, ne obnaruživ PG₁/*ego₁ v škafu, ne nadela [_{t₂} plat’e]₁?
 whose Vera NEG discover.CNV it in wardrobe NEG put.on dress
 ‘Whose dress did Vera not put on, not having found (*it) in the wardrobe?’

We have seen, in this section and the last, that Russian LBE yields a reading for a co-occurring object PG that is the same as when the relevant NP overtly moves in its entirety. We argued that this fact is evidence for a concealed-pied-piping derivation of LBE in this language. By itself, this evidence is compatible with a theory in which Russian grammar permits both “apparent” LBE via concealed pied-piping and true LBE via actual extraction. A view of this sort is taken by Bošković 2001 and 2015, for instance. Bošković argues that concealed pied-piping, which he analyzes specifically as distributed deletion, is available but legal only as a repair strategy at PF (though he does not focus on Russian). Analogously, one might claim that Russian LBE is typically true extraction but that a concealed-pied-piping derivation can be selected when PG licensing requires it.

However, the proposal that concealed pied-piping is a marked, nondefault way of accomplishing LBE in Russian is incompatible with the evidence from weak crossover shown in section 2.2: if LBE as true extraction were an option, the weak-crossover effects in (20)–(23) should be avoidable by selecting that option instead of concealed pied-piping. The fact that the weak-crossover effect does arise in these examples indicates that concealed pied-piping is the only option for Russian LBE.¹³

2.4 | Left branches cannot license PGs

If LBE in the form of true extraction were indeed an option in Russian, we would expect to find configurations where an element displaced by LBE serves as the licenser of a PG that is coindexed with it. In this section, we will see that this is impossible. We will focus on PGs in left-branch positions, but we will also see that a displaced left branch cannot license a PG in an argument position. The inability of an element displaced by LBE to serve as the antecedent for a PG is what we expect, if such elements are not in fact extracted but remain within the NP due to concealed pied-piping.

2.4.1 | PGs and numeral LBE

Here we will use numerals to test for the possibility of PGs in left-branch positions. Numerals are convenient for this, since they (unlike the majority of left branches in Russian) affect the form of the NP they merge to. For this reason an intended numeral PG can be clearly inferred, due to the form of the NP containing the intended gap. As we see in the object in (24), for instance, the numeral *tri* ‘three’ triggers genitive singular marking on the NP to which it merges. This is a baseline example in which a PG in the object position of the sentential adjunct is impossible due to the absence of A’ movement.

(24) Genitive singular NP with numeral ‘three’: no movement or PG

Ja dostal [**tri pončika**]₁ s verxnej polki, [ne obnaruživ ix₁/*PG₁ na
I got three doughnut.GEN.SG from higher shelf NEG discover.CNV them on
nižnej].
lower

‘I got three doughnuts from a higher shelf, not having found them on the lower shelf.’

The example in (25) forms a minimal pair with (24): here LBE of the numeral occurs. The PG in the object position of the adjunct becomes coreferent with the NP that LBE appears to exit, in the manner characteristic of concealed pied-piping.

¹³A reviewer asks whether there are cases of true extraction from an NP that do not cause a weak-crossover effect, unlike what we have shown for LBE. We suspect that extraction from the complement of an NP is such a case. Such extraction does not cause a weak-crossover effect for the NP that the complement was extracted from:

- (i) [Kakoj teorij]₁ ty, [ne produmav eë₂], obsudil [gipotezu t₁]₂.
what.kind theory you NEG think.through.CNV it discussed hypothesis
‘What kind of theory did you discuss a hypothesis₂ of without thinking it₂ through?’

This is what we expect if complement extraction involves actual extraction, unlike LBE, which must involve concealed pied-piping.

- (25) Numeral LBE can license an object PG via concealed pied-piping
Tri₂ ja dostal [*t*₂ **pončika**]₁ s verxnej polki, [ne obnaruživ PG₁ na
 three I got doughnut.GEN.SG from higher shelf NEG discover.CNV on
 nižnej].
 lower
 ‘I got three doughnuts from a higher shelf, not having found (them) on the lower shelf.’

The example in (26) is the same as (25) except for the fact that (26) attempts a numeral PG in a left-branch position of the object NP *keksa* ‘muffin’ in the adjunct. The presence of the intended PG is made clear by the fact that the NP *keksa* in the adjunct bears the same genitive singular marking that the numeral *tri* would typically assign to it. Nevertheless, (26) cannot have a reading indicative of numeral LBE licensing a corresponding numeral left-branch PG.

- (26) Numeral LBE cannot license a numeral PG
Tri₂ ja dostal [*t*₂ **pončika**]₁ s verxnej polki, [ne obnaruživ [***PG**₂
 three I got doughnut.GEN.SG from higher shelf NEG discover.CNV
keksa] na nižnej.
 muffin.GEN.SG on lower
 * Reading with PG: ‘I got three doughnuts from a higher shelf, not having found three
 muffins on the lower shelf.’
 ✓ Reading with no PG: ‘I got three doughnuts from a higher shelf, not having found a
 muffin on the lower shelf.’

Notice that (26) is acceptable on an interpretation where there is no PG. In this case, the genitive marking on the object NP in the adjunct is licensed by the presence of negation, via the Slavic phenomenon known as the *genitive of negation*. This term refers to genitive case marking that can be assigned to an object instead of the expected accusative case when sentential negation is present. Use of the genitive of negation is superficially optional, though it has some semantic correlates. See Harves 2013 and citations therein for more information. What matters for our purposes is that the absence of negation in an example like (26) removes the possibility of genitive case marking on the object of the adjunct, rendering the sentence totally unacceptable:¹⁴

¹⁴Similarly, the *wh* numeral *skol’ko* ‘how many’ is incapable of licensing a numeral PG, as we see in (i). The intended PG is clear here due to the fact that *skol’ko* assigns genitive plural morphology to its associated NP.

- (i) ***Skol’ko**₁ Sabina zagruzila [*t*₁ fajlov], ne obnaruživ [PG₁ statej pro
 how.many Sabine uploaded files NEG discover.CNV paper.GEN.PL about
 svjazyvanie]?
 binding
 Intended: ‘What number of files did Sabina upload, after not having found that number of
 papers on binding?’
 (Grammatical on an interpretation with no PG)

In contrast, such LBE is acceptable with an object PG on a reading indicative of concealed pied-piping, just like in (25):

- (ii) **Skol’ko**₁ Sabina zagruzila [*t*₁ fajlov]₂, ne obnaruživ PG₂ na sajte?
 how.many Sabine uploaded files NEG discover.CNV on website
 ‘What number of files did Sabine upload, after not having found them on the website?’

- (27) Numeral LBE cannot license a numeral PG in an NP (genitive of negation unavailable)
- *Tri₂ ja dostal [t₂ pončika]₁ s verxnej polki, [obnaruživ [PG₂
 three I got doughnut.GEN.SG from higher shelf discover.CNV
 keksa] na nižnej].
 muffin.GEN.SG on lower
 Intended: ‘I got three doughnuts from a higher shelf, having found three muffins on the lower shelf.’

If it were possible for numeral LBE to license a numeral PG, this example ought to be acceptable. The fact that it is not supports our argument that Russian LBE involves concealed pied-piping, not extraction from an NP. On this analysis, since left branches do not in fact move in isolation in Russian, we accurately predict that they will be unable to serve as PG licensors.

2.4.2 | PGs and possessor LBE

Previous literature has argued that PGs must occur in NP positions (see Culicover & Postal 2001), though exceptions to this ostensible rule are reported.¹⁵ If Russian is also a language in which PGs occur only in NP positions, then even if it allows true extraction of numerals, licensing of a numeral PG will always fail. If numeral PGs are thus always banned due to an independent constraint, then they cannot be used as a test for the nature of LBE.

We can avoid this confound by instead examining possessor LBE. Since possessors are NPs, if true extraction of left branches is possible, then when LBE applies to a possessor it should be capable of licensing a PG either in a possessor position or in an argument position as usual. As we will see next, this is not possible: the PG facts for possessor LBE are instead precisely what the concealed-pied-piping analysis predicts.

Russian prenominal possessors capable of LBE for the most part bear agreement morphology resembling that seen on adjectives, which suggests that they may in fact be adjectives, as Lyutikova 2012 claims. Rappaport 2000 provides evidence that these prenominal possessors are in fact typical referential case-bearing NPs, unlike similar-looking denominal adjectives. Rappaport shows, for instance, that such possessors participate in binding just as typical NPs do, as we see in (28). Here the first-person possessor in (28a) is able to bind an anaphor, whereas the same is not possible for the denominal adjective of ‘author’ shown in (28b).

- (28) Unlike denominal adjectives, prenominal possessors can bind anaphors
- a. On čital **moju**₁ stat’ju pro **sebjja**₁.
 he read my article about self.ACC
 ‘He read my₁ article about myself₁.’
 (Rappaport 2000: (14b))

However, Pesetsky 1982 notes an example resembling an NP-internal PG licensed by *skol’ko* itself—though this example (which involves a very different structure) is quite degraded:

- (iii) ??[Stol’ko že devušek] čitajut knigi, **skol’ko**₁ ja xoču, što by [PG₁ mal’čikov] smotrel
 as.many PTCL girls read books as.many I want that boys watch
 [t₁ fil’mov].
 films
 Intended: ‘As many girls read books as I want boys to watch films.’
 (Pesetsky 1982: 405, (54b))

¹⁵For instance, Engdahl 1983 reports that Scandinavian languages allow PP and adjective PGs.

- b. On₁ kupil **avtorskij**₂ èkzempljar u **sebja**_{1/*2}.
 he bought author.ADJ copy from self.ACC
 'He₁ bought an author₂'s copy at his_{1/*2} own place.'
 (Rappaport 2000: (14d))

Rappaport also argues that such possessors bear genitive case, which is expected for possessor NPs and not for adjectives. One piece of evidence he provides for this proposal is that such possessors can be coordinated with clearly genitive lexical possessors. A more direct piece of evidence comes from expressions introducing an NP with *kak* 'like, as', which require that NP to match the case of the standard of comparison. In (29a) we see the *kak* construction exemplified in an accusative context, while (29b) shows a genitive one, in which the NP *Evropejcev* introduced by *kak* bears genitive case due to its standard of comparison being a pronominal possessor.

- (29) Case matching in *kak* comparisons
- a. On **menja** ub'ët kak **muxu**.
 He me.ACC will.kill like fly.ACC
 'He will kill me like a fly.'
- b. **Vaša** pervaja zadača, kak **Evropejcev**, budet ...
 you.GEN.PL first task.NOM as European.GEN.PL will.be
 'Your first task, as Europeans, will be ...'
 (Rappaport 2000: (15))

If we accept Rappaport's arguments that Russian pronominal possessors are typical referential case-assigned NPs, then we expect such elements to potentially act as PG licensors when extracted.

Before examining the interaction of possessor LBE and PGs we must note that, as first observed by Franks 1992, Russian PGs require the case of the licensing phrase to match the case that would be assigned in the position of the PG (though Franks shows that the two cases may be syntactically distinct as long as they are morphologically syncretic). If possessors bear genitive case, as Rappaport argues, then we must ensure that a PG potentially licensed by LBE of a possessor is in a position for genitive-case assignment. We can guarantee that this is so by including negation with the predicate whose object is the PG, since, as mentioned with reference to (26), the presence of negation allows the genitive of negation to be assigned to the object.

With these considerations in mind, first examine (30). This is a baseline sentence showing an object PG in an adjunct with a negated verb. Here the object of the matrix clause contains a genitive third-person pronominal possessor. The entire matrix object is scrambled, which licenses the PG in the adjunct.

- (30) Movement of full NP licensing PG
 [Èë/ego otkrytku]₁ Lena ne vzjala s soboj t₁, [ne obnaruživ PG₁ v
 her/his card Lena NEG took with self NEG discover.CNV in
 komnate].
 room
 'Lena did not take [her/his card]₁ with her, not having found (it₁) in the room.'

The matrix object is not genitive, but since the genitive of negation is merely optional, case matching between the matrix object and the PG succeeds here.

The example in (31) forms a minimal pair with (30): instead of movement of the object NP, LBE of its possessor occurs. We see here that the possessor cannot bind the object PG. Rather, the

PG is interpreted with a reading indicative of concealed pied-piping. That is, (30) and (31) have the same PG interpretation.

- (31) Possessor LBE does not license object PG (unless via concealed pied-piping)
 Eë₂/ego₂ Lena ne vzjala s soboj [*t*₂ otkrytku]₁, [ne obnaruživ PG₁/_{*2} v
 her/his Lena NEG took with self card NEG discover.CNV in
 komnate].
 room
 ‘Lena did not take [her₂/his₂ card]₁ with her, not having found (it₁/*her₂/*him₂) in the room.’

Since the verb in the adjunct of (31) is negated, this PG is in a position compatible with genitive case and thus can match the possessor’s case. Thus it should be possible for a genitive possessor to license the PG in (31), if that possessor had truly been extracted.

Finally, (32) modifies the structure to place the PG in the possessor position of the adjunct’s object. Here LBE of the possessor from the matrix object occurs as in (31), but this process fails to result in a sentence where the displaced possessor is coindexed with the possessor PG. The resulting string is acceptable under a reading in which there is no PG, however.

- (32) Possessor LBE cannot license possessor PG
 Eë₂/ego₂ Lena otrugala [*t*₂ sestru], [ne obnaruživ [*PG₂ otkrytku] v komnate].
 her/his Lena scolded sister NEG discover.CNV card in room
 * ‘Lena scolded her₂/his₂ sister, not having found her₂/his₂ card in the room.’
 ✓ ‘Lena scolded her/his sister, not having found the card in the room.’

The fact that the displaced possessor cannot serve as the licenser of a PG in a potential genitive object position (31) or in possessor position (32) is what the concealed-pied-piping analysis of Russian LBE predicts. If concealed pied-piping is the only option, a possessor (or any other left branch) always remains inside the NP where it originates and thus will never be able to license a PG.

Note that the pronouns used as possessors in (31) and (32) have precisely the same case morphology whether used as possessors or as objects of negated verbs:

- (33) a. Lena obnaružila [eë/ego sestru] tam.
 Lena discover her/his sister there
 ‘Lena found her/his sister there.’
 b. Lena ne obnaružila eë/ego tam.
 Lena NEG find her.GEN/him.GEN there
 ‘Lena did not find her/him there.’

For this reason, it is clear that the failure of PG licensing by a displaced possessor in (31) and (32) is not due to a case-matching violation or something like a morphological mismatch.

Franks 1992 observes that a PG and its licensing phrase must be parallel in their theta roles in Russian. While a configuration like (31) that attempts PG licensing in an object position by LBE of a possessor could be unacceptable for this reason, the example attempting to license a possessor PG with possessor LBE (32) is not subject to this confound and is nevertheless unacceptable.

2.5 | Other research combining PGs and extraction from NPs

We argue that the above facts indicate that Russian LBE is formed by concealed piped-piping. Shortly we will elaborate on this analysis and consider it in the context of several other topics. Before that, though, we note that we are not the first to examine extraction from NPs in the context of PGs. Corver 1990, for instance, examines LBE of *wat* ‘what’ in the Dutch *wat–voor* construction, exemplified in (34a). Corver shows that this LBE cannot license a left-branch PG in another DP, as in (34b), in contrast to movement of *wat* from argument position, which can license an argument PG, as in (34c).

(34) Dutch

- a. Wat₁ heeft Jo [_{DP} t₁ voor boeken] gekocht?
 what has Joe for books bought
 ‘What sort of books has Joe bought?’
 (Corver 1990: 138, (34a))
- b. *Wat₁ heeft Jo [zonder [_{DP} PG₁ voor tijdschriften] te lezen] [t₁ voor boeken]
 what has Joe without for magazines to read for books
 weggegooid?
 thrown.away
 (Corver 1990: 139, (36))
- c. Wat₁ heeft Jo [zonder [PG₁ te lezen]] t₁ weggegooid?
 what has Joe without to read thrown.away
 ‘What did Joe throw away without reading?’
 (Corver 1990: 139, (37))

The only other work we know to have examined LBE and PGs together is Davis 2019, 2020, and 2021. This work studies a form of possessor extraction in colloquial English. English is typically regarded as an example of a non-LBE language; Bošković 2005, Bošković 2016, and related work argue that LBE in English and in comparable languages is blocked by the presence of D (for reasons we will describe in section 5). Davis points out that if English possessors are generated in the specifier of the possessive D ’s (Corver 1992, Chomsky 1995, Munn 1995), in principle nothing should block their extraction, provided that the need for ’s to cliticize to the possessor can be circumvented. Davis argues that this is indeed what some English speakers permit. He proposes that this English possessor extraction is a genuine case of subextraction, not a case of concealed pied-piping, and reports that this extraction can license PGs:

(35) PG licensing by possessor LBE in colloquial English

- a. Who₁ do you think [t₁’s research] is good, [despite not thinking PG₁’s paintings are nice]?
 - b. This is the guy [who₁ I said [t₁’s shoes] I liked [after talking to PG₁ today]].
- (Davis 2019: 205, (22))

Importantly, (35) instantiates precisely what Russian cannot do. In Russian we have seen that an element displaced by LBE fails to license a PG on its own, as expected if Russian LBE is not true extraction. In the sentences in (35), by contrast, the extracted possessor itself licenses a possessor PG (35a) and a direct-object PG (35b), neither of which is possible for Russian LBE ((31) and (32)).

2.6 | Typological predictions

We will leave the exploration of PGs and LBE in other languages to future work. However, before moving on, we note that the core proposal of this article makes straightforward typological predictions about how LBE and PGs should interact crosslinguistically:

- (36) Predicted crosslinguistic typology of LBE and PGs
- a. Type 1
No LBE whatsoever and thus no interaction with PGs.
 - b. Type 2
The LBE available in the language is genuine extraction from an NP/DP; thus an element displaced by LBE should be able to license a PG on its own.
 - c. Type 3
The LBE available in the language always involves concealed pied-piping; thus only the NP/DP that LBE appears to exit should be able to license a PG.
 - d. Type 4
A hybrid of types 2 and 3, in which some instances of LBE are true extraction and others involve concealed pied-piping (each with its characteristic PG interaction).

Standard English, like all languages that wholly lack LBE, is of type 1. The colloquial English variety studied in Davis 2019, 2020, and 2021 fits into type 2. Russian, as we have analyzed it, is of type 3. Given the existence of types 2 and 3, hybrid languages of type 4 are also probably to be expected, though we are not currently aware of one.¹⁶ The type that any given language should be assigned to must be decided on a case-by-case basis. This topic has received little attention in the literature, but the above typology sets the stage for further crosslinguistic work.

3 | CONVERGENT EVIDENCE FROM LATE MERGE AND PRINCIPLE C CIRCUMVENTION

In this section, we provide additional evidence for the concealed-pied-piping analysis of Russian LBE. The evidence comes from certain Principle C–avoidance effects, which have been attributed to *late merge* (Lebeaux 1988, Stepanov 2001, and Takahashi & Hulsey 2009, among others). The facts presented will show us yet another way in which Russian LBE behaves like full pied-piping movement of a nominal phrase.

Lebeaux 1988 originally argued that adjuncts—but not arguments or complements—can be externally merged late, to a phrase that has already been constructed and moved. Some of

¹⁶If in a hypothetical type 4 language we find a given instance of LBE that is capable of licensing either left-branch PGs or full argument PGs, the proposals of this article predict that the first sort of PG licensing occurs when that LBE is formed by true extraction and the second sort of PG licensing occurs when that LBE is only apparent due to concealed pied-piping. However, a reviewer points out that in such a context where both sorts of PGs are possible, it is conceivable (unless independent diagnostics show otherwise) that the language in question is simply more flexible about PG licensing and does not actually have two separate LBE derivations. For this reason, if such a language were identified, it would be necessary to carefully examine both its independent prerequisites for PG licensing and the traits of its LBE constructions before drawing a concrete conclusion about its LBE–PG interactions. Since for the moment such a language remains hypothetical, we will leave further discussion of this possibility to future research.

Lebeaux's evidence for this proposal comes from the interaction of A' movement and Principle C, for which contrasts like that in (37) hold. Notice that in the unacceptable (37a), the *wh*-moved phrase contains a complement CP, which in turn contains an R expression that is coreferential with the matrix subject. In contrast, as (37b) shows, a comparable sentence where the relevant R expression is in a relative clause of the moved *wh* phrase is acceptable.

- (37) Principle C in complement versus adjunct of A'-moved phrase
- Principle C applies in complement of moved phrase
*[Which rumor [**that John₂ ate all the cakes**]]₁ did he₂ deny t₁?
 - No Principle C violation in adjunct of moved phrase
[Which cakes [**that John₂ ate**]]₁ did he₂ find t₁ very tasty?

For Lebeaux, in (37a) the CP in the complement of N is merged before the containing DP moves. Consequently, there is a stage of the derivation where this complement is c-commanded by the matrix subject, and therefore the R expression it contains incurs a Principle C violation. In contrast, because relative clauses are adjuncts, the relative clause in (37b) can be externally merged after its host DP moves over the subject. In this situation the R expression in the relative clause was never c-commanded by the coreferential matrix subject, and thus there is no Principle C violation.

In Russian, like English, Principle C normally applies:

- (38) Principle C in Russian
- Nadja₁ privezla mne škatulku, kotoruju ona₁ sdelala sama.
Nadya brought me jewelry.box which she made herself
'Nadya₁ brought me a jewelry box, which she₁ made herself.'
 - *Ona₁ privezla mne škatulku, kotoruju Nadja₁ sdelala sama.
she brought me jewelry.box which Nadya made herself
Intended: 'She₁ brought me a jewelry box, which Nadya₁ made herself.'

Furthermore, a complement containing an R expression coindexed with the subject does not avoid a Principle C violation if the containing NP moves over the subject:

- (39) No Principle C avoidance for complement of A'-moved phrase in Russian
*[Kotoruju fotografiju **Vasi₁**]₂ on₁ kupil t₂?
which photo.ACC Vasya.GEN he bought
Intended: 'Which photo [of Vasya₁] did he₁ buy?'

In contrast, an R expression in a relative clause of the moved phrase does not incur a Principle C violation, as we see in (40). Here the R expression that is the subject of the relative clause is coreferential with the matrix subject, and yet there is no violation.

- (40) Principle C avoided by relative clause of A'-moved phrase in Russian
- ?[Škatulku, [**kotoruju Nadja₁ sdelala sama**]]₂, ona₁ privezla mne t₂.
jewelry.box which Nadya made herself she brought me
'A jewelry box, which Nadya₁ made herself, she₁ brought me.'

- b. ?[Č'ju kartinu [kotoruju Vasja₁ kupil]]₂ on₁ voznenavidel t₂?
 whose picture that Vasya bought he came.to.hate
 'Whose picture that Vasya₁ bought did he₁ come to hate?'

This indicates that in Russian, too, adjuncts can merge late.¹⁷

According to Lebeaux 1988 and related work, this pattern of Principle C avoidance depends on movement creating a high position to which late merge of an adjunct can apply. Thus, if Russian LBE in fact involves concealed pied-piping of the entire relevant NP, it should produce a position to which a relative clause can be late merged and thus escape Principle C. As we see in (41), this is indeed possible. LBE in (41) facilitates the inclusion of a relative clause containing an NP coindexed with the matrix subject, with no Principle C violation occurring.

(41) LBE with Principle C–avoiding relative clause in Russian

- a. ?Kakuju₂, [kotoruju Nadja₁ sdelala sama], ona₁ privezla mne [t₂ škatulku]?
 what.kind which Nadya made herself she brought me jewelry.box
 'What jewelry box, which Nadya₁ made herself, did she₁ bring me?'
- b. ?Doroguščuju₂, [kotoruju Nadja₁ sdelala sama], ona₁ privezla mne [t₂
 very.expensive which Nadya made herself she brought me
 škatulku].
 jewelry.box
 'The very expensive jewelry box, which Nadya₁ made herself, she₁ brought me.'
- c. ?Ėtu₂ [kotoruju Vasja₁ kupil] on₁ voznenavidel [t₂ kartinu].
 this that Vasya bought he came.to.hate picture
 'This picture that Vasya₁ bought he₁ came to hate.'
- d. ?Č'ju₂ [kotoruju Vasja₁ kupil] on₁ voznenavidel [t₂ kartinu]?
 whose that Vasya bought he came.to.hate picture
 'Whose picture [that Vasya₁ bought] did he₁ come to hate?'

As expected, such configurations can include a PG-hosting adjunct clause, as in (42). The PG here is interpreted in the way we predict given the concealed-pied-piping analysis of LBE.

(42) LBE plus late merge plus PG

- ?Kakuju₂, [kotoruju Nadja₁ sdelala sama], ona₁ privezla mne [t₂ škatulku]₃, [ne
 what.kind which Nadya made herself she brought me jewelry.box NEG
 poterjav PG₃ v doroge]?
 lose.CNV in road
 'What jewelry box, which Nadya₁ made herself, did she₁ bring me without losing (it) on
 the way?'

The fact that overt movement of an NP (40) and LBE ((41) and (42)) both allow late merge of a relative clause is predicted, given our proposal that the syntax of these scenarios is in essence the same.

¹⁷Lebeaux's asymmetry—Principle C avoidance with adjuncts but not with arguments/complements—has been independently observed in Russian by Bailyn 2001 and 2012. A reviewer points out that Lebeaux's asymmetry has been challenged by works such as Adger et al. 2017, Bruening & Al Khalaf 2019, and Wierzbica et al. 2021. As the reviewer notes, if a larger-scale study were to reveal that this asymmetry does not hold universally for Russian speakers, it would not falsify the results of this article: it would simply show that the diagnostic applied in this section is inapplicable to the grammar of some Russian speakers.

We do not expect such patterns to emerge from true extraction of a left branch combined with extraction of a relative clause from the same NP: if the relative clauses in (41) and (42) reached the high position they inhabit by simply moving there, they should be subject to Principle C. For Principle C to be avoided, it is vital that the relative clauses be externally merged to a position above the matrix subject. Late external merge would be impossible if there were not an NP there to merge to.¹⁸

A reviewer points out that a relative clause can be displaced on its own and still avoid Principle C. An additional survey with our consultants confirmed that many speakers do indeed have this judgment. Furthermore, we observe that such relative-clause fronting also facilitates PG licensing, with the PG being interpreted as coreferent with the NP that the displaced relative clause is construed as modifying:

- (43) Principle C–avoiding relative-clause displacement with PG
 ?[Kotoruju Nadja₃ sdelala sama]₂, ona₃ privezla mne [škatulku t₂]₁, ne poterjav
 which Nadya made herself she brought me jewelry.box NEG lose.CNV
 PG₁ v doroge.
 in road
 ‘Nadya₃ brought me a jewelry box, which she₃ made herself, without losing (it) on her way.’

This fact is a challenge for our proposal. If Principle C avoidance stems from late merge, then we must ask what the relative clause in (43) late merges to.

Based on the fact that the object NP in (43) that the relative clause is construed as modifying also licenses a PG, we suggest that late merge of the relative clause applies after covert movement of the object NP. Such covert movement both licenses the PG and creates a position to which the relative clause can be late merged.

Such PG licensing via covert movement must somehow be restricted. If covert movement could generally license PGs in Russian, then such a process should be able to license PGs in many environments. However, we saw in section 2 that typically PG licensing fails unless an overt A' movement occurs. While there is precedent for PG licensing by covert movement in Russian (Ivlieva 2007) and other languages,¹⁹ we do not have a concrete proposal about what is responsible for restricting it. Ivlieva 2007 argues that NPs construed as topics covertly move in Russian and thus can license PGs. This proposal raises the possibility that the relevant NP in (43) has been covertly topicalized, but further work is necessary to test this hypothesis. It is also conceivable that covert movement applies in (43) as a last-resort mechanism to achieve PG licensing, but this proposal would still need to be appropriately restricted to prevent overgeneration. Further research on this puzzle will be necessary.

This concludes our arguments for the proposal that LBE in Russian is derived by concealed pied-piping. In the next section, we discuss the mechanism by which concealed pied-piping is achieved, and then the remainder of the article explores some additional consequences and related topics.

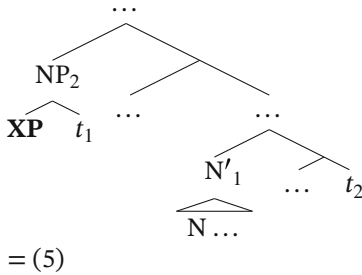
¹⁸Given that the relative clauses in (41) and (42) must not have undergone movement, it would also be unclear how these examples could be interpreted if the relative clauses were not late merged to an NP: relative clauses are adjuncts interpreted with the NP by Predicate Modification (both being of type $\langle e, t \rangle$: Heim & Kratzer 1998), but this interpretive rule could not apply if the relative clauses in (41) and (42) were not in fact attached to an NP.

¹⁹Beyond Russian, Nissenbaum 2000 shows that covert *wh* movement in English can license PGs in specific circumstances, and Branen & Sulemana 2019 argues for the existence of PG licensing by covert *wh* movement in Bùli.

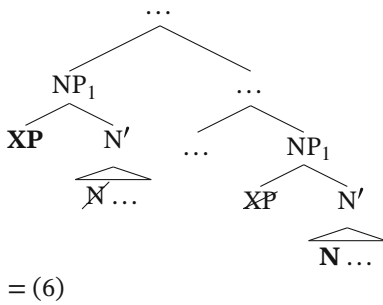
4 | DISTRIBUTED DELETION RATHER THAN REMNANT MOVEMENT

In the introduction, we described two variants of the concealed-pied-piping analysis argued for in the literature, remnant movement and distributed deletion. These are schematized once more here.

(44) a. LBE as remnant movement



b. LBE as distributed deletion



The facts established so far in this article are compatible with either theory, since both result in a configuration where a seemingly displaced left branch continues to be covertly contained by the NP it originated in. In this section, we will consider additional facts in order to distinguish between these proposals, ultimately favoring the distributed-deletion approach.

4.1 | Syntactic evidence for distributed deletion

The distributed-deletion analysis of split phrases in Russian has precedent in at least Pereltsvaig 2008 and Fanselow & Féry 2013. Fanselow & Féry argue that the prosodic character of LBE and its interaction with intervention effects in certain Slavic languages, including Russian, suggests the possibility of distributed deletion. Pereltsvaig argues that LBE and split phrases in general in Russian should be analyzed as the result of distributed deletion and not remnant movement, basing this argument on a variety of syntactic diagnostics. We will mention a few of these here.

One well-known fact about LBE in Slavic is that it can displace material that is not obviously a constituent, such as a preposition and adjective:

(45) Nonconstituent LBE

Protiv sovetskoj on vystupal **vlasti**.
 against Soviet he demonstrated regime
 ‘It is against the Soviet regime that he demonstrated.’
 (Pereltsvaig 2008: 9, (4a))

This fact is directly predicted by either distributed deletion or remnant movement. Since the former analysis relies on a PF operation, sensitivity to syntactic constituency is not expected. Since the latter analysis does not involve extraction of the seemingly displaced material, we do not expect the pronounced material in the moved remnant NP to necessarily be a constituent either, since that material occupies what is itself a well-formed constituent (containing a trace of prior extraction). However, we do expect the “in-situ” material in an LBE scenario to necessarily be a constituent under the remnant-movement analysis. This is because, for this analysis, such material is extracted by typical syntactic movement prior to later movement of the resulting remnant. As Pereltsvaig points out, this “stranded” material need not be a constituent at all:

(46) LBE stranding nonconstituent material in Russian

- a. **Nezlobivj** u nego **soveršenno** **xarakter**.
 kindhearted to him absolutely disposition
 ‘He has an [[absolutely kindhearted] disposition].’
 (Pereltsvaig 2008: 13, (12a))
- b. **Odna očēn’** est’ **èlegantnaja** **rubáška** u Peti.
 one very there.is elegant shirt to Petja
 ‘Petya has [one [very elegant] shirt].’
 (Pereltsvaig 2008: 13, (12b))

This is a challenge for the remnant-movement approach but not for the distributed-deletion analysis. A reviewer points out that sentences like (45) above can be captured under a true-extraction analysis by the proposal of Talić 2019 that the preposition cliticizes to the left branch before LBE occurs, but as far as we can see, this proposal cannot extend to an account for the examples in (46).

Since under the remnant-movement analysis LBE is derived by interleaved applications of typical movement, we expect LBE derived in this way to be sensitive to usual island constraints. Pereltsvaig shows that Russian LBE is, however, possible in some contexts where extraction is not usually permitted. For instance, LBE from coordinations in non-across-the-board fashion is allowed, as in (47a). This example shows LBE from only the first of two conjuncts. This result can be derived under the distributed-deletion analysis via movement of the entire coordinated NP followed by realization of only the relevant left branch in the head of this movement chain, as shown in (47b).

(47) Non-across-the-board LBE in Russian

- a. **Ja tvoi** vystirala [čulki i rubášku].
 I your washed stockings and shirt
 Can mean: ‘I washed your stockings and a shirt.’
 - b. **Ja [[tvoi čulki] i [rubášku]]** vystirala [[tvoi čulki] i [rubášku]].
 I your washed stockings and shirt
- (Adapted from Pereltsvaig 2008: 10, (6))

Pereltsvaig also shows that Russian LBE can break apart lexical compounds and is insensitive to weak islands, which block nonargument movement and thus also LBE in many languages (Szabolcsi & Lohndal 2017). Such facts all fit an analysis in which LBE is not extraction but rather movement of a larger constituent followed by distributed deletion.²⁰

4.2 | Scope

Under the distributed-deletion analysis, we expect it to be possible for LBE from a quantifier phrase (QP) to result in that QP taking high scope. For instance, since overt scrambling of an entire QP over negation results in scope ambiguity in Russian, as in (48), we expect LBE of a quantifier from QP over negation to yield the same possible readings.

- (48) QP scrambling over negation
 [Dvux kommentatorov]₁ Maša ne ljubit *t*₁.
 two commentators Masha NEG loves
 ✓ ‘two commentators’ > ¬: ‘There are two commentators that Masha does not like.’
 ✓ ¬ > ‘two commentators’: ‘It is not the case that Masha likes two commentators.’

This is because, under our analysis, overt scrambling of a full QP and quantifier LBE should be syntactically identical.

As expected, quantifier LBE over negation allows the QP to take scope over negation:

- (49) LBE of quantifier over negation facilitates high scope of QP
 Dvux₁ Maša ne ljubit [*t*₁ kommentatorov].
 two Masha NEG loves commentators
 Same readings as (48): ✓ ‘two commentators’ > ¬, ✓ ¬ > ‘two commentators’

Notice that under the remnant-movement analysis, LBE of a quantifier would involve extraction of the NP restrictor of the quantifier prior to later movement of the resulting remnant QP:

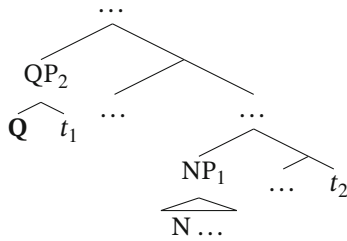
²⁰ A further fact of interest is that LBE from a PP can pied-pipe P while simultaneously leaving it pronounced in situ as well:

- (i) Iz krasnoj ja pila [iz čaški].
 from red I drank from cup
 ‘I drank from a red cup.’

See Pereltsvaig 2008, Goncharov 2015, and Gouskova 2019 for further discussion of P doubling in Slavic. This possibility sits well with either a distributed-deletion or remnant-movement analysis of LBE but does not clearly adjudicate between the two: under a copy theory of movement (Chomsky 1993 and 1995, among others), both of these analyses involve formation of two full copies of the phrase containing the relevant left branch, in which case it is conceivable that some material might be able to be realized in both copies.

A reviewer observes that the fact illustrated in (i) is also compatible with a true-extraction analysis of LBE if Talić 2019 is correct in claiming that P cliticizes to the left branch before it extracts: in that case (i) could be derived by realizing both copies of P (assuming that such cliticization involves syntactic movement). We note, however, that some Russian prepositions, like *protiv* ‘against’ in (45) above, can be pied-piped in LBE despite being independent phonological words, not clitics. Thus the account in Talić 2019 may not capture the full range of Russian facts.

(50) LBE of quantifier as remnant movement



For this structure to be interpreted, it is necessary for Q (type $\langle\langle e, t \rangle, \langle\langle e, t \rangle, t \rangle\rangle$) to be reunited with its NP restrictor (type $\langle e, t \rangle$) either at or before LF, in order for a type mismatch to be avoided.²¹ In this situation, in order for the QP to take scope in its moved position, it would be necessary to reconstruct both the remnant movement and the initial extraction of the restrictor, prior to subjecting the reconstructed constituent to Quantifier Raising. A grammar that could achieve such a result would have to be able to interleave reconstruction with Quantifier Raising. Under the distributed-deletion analysis, however, these additional proposals are not necessary.²²

While LBE can result in a QP taking scope over negation, we must note that there are circumstances where LBE cannot result in wide scope in Russian, as we see in (51). Despić 2015 observes similar facts in Serbo-Croatian and takes them to be an argument against distributed deletion. In (51a), we see that scrambling of a full QP over another yields scope ambiguity, while (51b) shows

²¹The reconstruction required here would violate *Barss's Generalization* (Barss 1986, Sauerland & Elbourne 2002), which prevents reconstruction of an element into a position that it does not c-command in the surface string: the NP in (50) ultimately needs to be reconstructed into QP, but QP c-commands NP in the surface structure.

²²There is evidence suggesting that such interleaving is impossible. Consider (i). Here a scrambled QP may have either surface scope or inverse scope with respect to the subject QP.

- (i) [Každuju fotografiju]₂ dva mal'čika pokazali Lene i Maše t₂.
 every photo two boys showed Lena and Masha
 'Two boys showed Lena and Masha every picture.'
 ∀ > 'two': 'For every photo there were two (different) boys that showed Lena and Masha that photo.'
 'two' > ∀: 'There exist two boys, such that they showed Lena and Masha every picture.'

When a reciprocal is added to the scrambled object QP here, only one reading is available—one where the subject takes wide scope with respect to the object:

- (ii) [Každuju fotografiju [drug druga]₁]₂ dva mal'čika pokazali [Lene i Maše]₁ t₂.
 every photo each.other two boys showed Lena and Masha
 'Two boys showed [Lena and Masha]₁ every picture of [each other]₁.'
 *∀ > 'two': 'For every photo of Lena and Masha there were two potentially different boys that showed Lena or Masha that photo.'
 ✓ 'two' > ∀: 'There exist two boys, such that they showed [Lena and Masha] every picture of [each other]₁.'

Evidently the reciprocal forces reconstruction of the object to a position below the subject QP. If following this reconstruction Quantifier Raising were available, then surface scope should be possible in (ii). We have to note, though, that postreconstruction Quantifier Raising might be unavailable in (ii) due to a need for Principle A to be evaluated at the final output of LF. In other words, this argument relies on an assumption that Principle A only has to hold at some point during LF.

that LBE from the lower QP across the higher one cannot yield a wide-scope reading for the lower QP.

- (51) a. Lower QP scrambled over higher QP: scope ambiguity
 [Dva podarka]₁ [každyj mal'čik] uvidel *t*₁.
 two gifts every boy saw
 ✓ 'two gifts' > 'every boy': 'There are two gifts that were seen by every boy.'
 ✓ 'every boy' > 'two gifts': 'For every boy, there were two gifts that he saw.'
- b. Quantifier LBE across higher QP: rigid scope
 Dva₁ [každyj mal'čik] uvidel [*t*₁ podarka].
 two every boy saw gifts
 * 'two gifts' > 'every boy': 'There are two gifts that were seen by every boy.'
 ✓ 'every boy' > 'two gifts': 'For every boy, there were two gifts that he saw.'

The different scope possibilities in (51a) and (51b) are a challenge for our account: if concealed pied-piping is the right analysis of Russian LBE, we must explain what forces it to generally reconstruct.

We propose that the answer to this question has to do with LBE signaling contrastive focus/topicalization on the displaced element. Previous literature has argued that there is a connection between contrastive focus and reconstruction in Russian (Ionin 2003, Ionin & Luchkina 2018). If this is the case, reconstruction effects in LBE contexts could be unrelated to LBE per se but rather stem from contrast. This understanding accurately predicts the fact that we also see obligatory reconstruction for a scrambled NP containing a contrastively focused numeral:

- (52) Lower QP with contrastively focused numeral scrambled over higher QP
- a. [Dva podarka]₁ [každyj mal'čik] uvidel *t*₁, ne tri!
 two gifts every boy saw NEG three
 ?? 'two gifts' > 'every boy': 'There are two gifts that were seen by every boy, not three.'
 ✓ 'every boy' > 'two gifts': 'For every boy, there were two gifts that he saw, not three.'
- b. [Ravno odin podarok]₁ [každyj mal'čik] uvidel *t*₁, ne dva!
 exactly one gift every boy saw NEG two
 * 'exactly one gift' > 'every boy': 'There is exactly one gift that was seen by every boy, not two.'
 ✓ 'every boy' > 'exactly one gift': 'For every boy, there is exactly one gift that he saw, not two.'

A problem with this analysis is that it does not explain the fact that reconstruction beneath negation was not required after assumed concealed pied-piping in the LBE context in (49) above. Thus if it is correct that topicalization/focus tends to trigger reconstruction in LBE contexts, the goal for further research will be to understand what factors allow such reconstruction to be circumvented. We would like to propose, however, that the possibility of wide scope with LBE in at least some circumstances, including (49), is consistent with the distributed-deletion approach.

4.3 | Formalizing distributed deletion

The distributed-deletion hypothesis sits well with the copy theory of movement (Chomsky 1993 and 1995, among others). In this theory, overt movement is the result of all but the highest in a

chain of copies produced by internal merge being silenced at PF (perhaps via *Chain Reduction*: Nunes 2004), whereas covert movement results from all but the lowest copy in a chain being silenced. Nunes 2004 argues that distributed deletion is permitted by the copy theory, under which it would be a hybrid process that applies the covert-movement rule to some nodes in a chain and the overt-movement rule to others. Since Russian LBE involves contrastive focus or topicalization of the displaced element (Pereltsvaig 2008), we can state the PF rule for distributed deletion in Russian as in (53a). The schema in (53b) illustrates the rule graphically. We have seen that distributed deletion can apply to both NPs and PPs, as stated in (53a), but for convenience (53b) shows only distributed deletion of an NP.

(53) PF rule for distributed deletion

- a. When a moved NP or PP contains an element bearing a feature *F* that encodes contrastive focus/topicalization, realize only the element bearing *F* in the highest copy of the movement chain and all other nodes in the lowest copy of the movement chain.
- b. $[_{NP} XP_F YP N]_1 \dots [_{NP} \cancel{XP_F} YP N]_1$

It is also possible to overtly move an entire NP and contrastively focus a subpart of it, as in the sentences in (52), for instance. This fact indicates that distributed deletion is, in principle, in free variation with overt movement. That is, focus on a subpart of an NP or PP creates the conditions for the rule in (53) to apply, but it is not obligatory for this PF process to be triggered in such contexts. The proposal that distributed deletion applies optionally when the conditions for it are met facilitates an understanding of configurations in Russian where a given noun phrase is split more than once. Pereltsvaig 2008 shows several examples of this kind, such as the following.

(54) An NP split multiple times

- Ox **kakix** ja sebe **blinov** segodnja nadelala **vkusnyx**.
 oh what I to.self pancakes today made tasty
 ‘Oh, what tasty pancakes I made for myself today.’
 (Pereltsvaig 2008: 13, (12d))

Such an example can be derived by multiple applications of distributed deletion triggered at different points in the derivation. If distributed deletion applied obligatorily when the conditions in (53) were met, presumably it would apply as soon as possible and thus not allow the possibility of splitting some material first and splitting other material later on in the derivation.

5 | ON THE RELATIONSHIP BETWEEN LBE AND THE PRESENCE OR ABSENCE OF D

We have now seen several sources of evidence for the proposal that LBE in Russian is derived by concealed pied-piping of the entire NP that the displaced left-branch constituent appears to have exited. If correct, this finding indicates that in Russian, something like the Left-Branch Condition holds in the underlying syntax. While in languages like English the influence of the Left-Branch Condition is generally evident in the surface word orders that can be created by movement (setting aside colloquial-English possessor extraction), this is not so in Russian, which is

why more intricate diagnostics have been required to detect the fact that Russian LBE is not true extraction.

The Left-Branch Condition is essentially a descriptive generalization about the fact that some languages do not permit LBE. This generalization should, ideally, be reducible to independent syntactic principles. This expectation is explored by numerous works (Szabolcsi 1984, Corver 1990, Corver 1992, Rappaport 2001, and Bošković 2005, among others). Bošković 2005 and Bošković 2016, for instance, building on previous proposals in Corver 1990 and 1992, argue that LBE is limited by the presence of D in languages that have it (an idea with precedent in Uriagereka 1988 as well). Bošković argues that D blocks LBE because of the phasehood of DP. If DP is a phase, movement from DP must pass through spec,DP. Bošković argues that while movement from the complement of an NP to spec,DP and then onward is possible, movement of an adjunct or specifier of an NP to spec,DP is banned due to being too short, given the principle of *antilocality* (Bošković 1997, Ishii 1999, Abels 2003, and Grohmann 2003, among others). The schema in (55) illustrates this hypothesis.

- (55) LBE from adjunct/specifier of NP through spec,DP violates antilocality

$$*[_{CP} \text{ XP } \dots \text{ S V } [_{DP} \text{ } t \text{ D } [_{NP} \text{ } t \text{ N } \dots]]]$$

Bošković 2005 also offers a labeling-based account for why the presence of D interferes with LBE, whereas Bošković's more recent works, like Bošković 2016, focus on the antilocality analysis.

In the context of such a theory, this article's conclusion that Russian lacks true LBE can be attributed to the presence of D, though there is debate about the existence of D in articleless Slavic languages like Russian (see Franks 1995, Engelhardt & Trugman 1998, Progovac 1998, Franks & Pereltsvaig 2004, Bošković 2005, Pereltsvaig 2006, Pereltsvaig 2007, Despić 2011, Despić 2013, Pesetsky 2013, Despić 2015, and Bošković 2016, among others). That debate deals with case morphology, agreement, referentiality, binding, adjective position, and other details about nominal syntax. For the purposes of the present article, it would be necessary to hypothesize that D is always present in Russian and that the elements that undergo (apparent) LBE are all base generated as adjuncts or specifiers of the NP.^{23,24} From this position, their movement out of the DP is impossible, in accord with Bošković. Thus when such constituents are targeted for A' movement, pied-piping (concealed or otherwise) of the entire containing DP must apply.²⁵

²³As described in section 2.5, Davis 2019, 2020, and 2021 report an instance of possessor extraction in colloquial English, which has characteristics of genuine LBE. As mentioned there, assuming that English possessors originate in the specifier of D, Bošković's account of the constraints on LBE rules this in as a possibility. In contrast, in the context of the proposals at issue in the present section, the Russian facts analyzed in this article suggest that the Russian possessor originates below D and thus cannot undergo true LBE. If Russian prenominal possessors are fundamentally adjuncts of NPs, as argued by Lyutikova 2012, this is what we expect.

²⁴It is also conceivable that some left branches are adjoined above D but are immobile due to being heads rather than phrases.

²⁵A reviewer asks why, if LBE is (at least in some languages) a matter of distributed deletion rather than extraction, there should be a correlation between LBE and the absence of articles. This is a pertinent question that would also be applicable to remnant-movement analyses of LBE, since it is unclear why the presence of articles would matter in that case either. While we cannot answer this question here, there is evidence that the correlation is not absolute. For instance, Fanselow & Féry 2013 notes that Bulgarian may have LBE, and Pankau 2021 shows that LBE in Lower Sorbian is productive, though both languages have overt articles. Nevertheless, it appears to frequently be the case that the presence of articles correlates with the absence of LBE. We must leave this issue for future study.

6 | ACCOUNTING FOR RESTRICTIONS ON MULTIPLE LBE

Many Slavic languages, including Russian, allow multiple A' movements to target the same clause edge, as we see, for instance, in multiple-*wh* questions:

- (56) Russian multiple *wh* movement
 [Kakoj aktër]₁ [kakuju mašinu]₂ *t*₁ kupil *t*₂?
 what actor what car bought
 'What actor bought what car?'

Under the distributed-deletion analysis of LBE, we predict the possibility of moving two NPs into the clause edge and then applying distributed deletion to them, thus deriving two instances of (apparent) LBE. In reality, multiple instances of LBE cannot generally co-occur, as previous works have observed (Fernández-Salgueiro 2006, Grebenyova 2008, 2012, Murphy 2018):

- (57) Ban on multiple LBE
 *[Naskol'ko bogatyj]₁ [naskol'ko doroguju]₂ [*t*₁ aktër] kupil [*t*₂ mašinu]?
 how.much rich how.much expensive actor bought car
 Intended: 'How rich an actor bought how expensive a car?'
 (Grebenyova 2008: 71, (4b))

In this section, we summarize some previous accounts of this ban and suggest that the account in Murphy 2018 can be productively united with the distributed-deletion analysis of LBE.

Grebenyova 2008 and 2012 attribute the ungrammaticality of sentences like (57) to the Head-Movement Constraint (Travis 1984), which bans head movement from skipping across a higher head. Specifically, Grebenyova proposes that LBE is head movement and that the first instance of LBE creates a configuration in which the head targeted first by LBE blocks movement of the second. Fernández-Salgueiro 2006 proposes that LBE is driven by a *wh* feature on a C head and that after that feature attracts one left branch, it cannot probe again. Murphy points out that Grebenyova's account is not sufficient since any instance of LBE will need to cross over some number of intervening heads even in the basic case in order to reach the left periphery of the clause. Additionally, Murphy notes that LBE is not only applicable to *wh* elements, meaning that the account in Fernández-Salgueiro 2006 that relies on a *wh* feature does not provide a complete solution. We agree with Murphy's criticisms of these accounts and will suggest a unification of his own account and the distributed-deletion analysis of LBE.

Murphy proposes an account of the ban on multiple LBE using Optimality-Theoretic syntax, in which syntactic derivations are governed by (violable) constraints. His account relies on two constraints: LEFTBRANCHCONDITION, a constraint that penalizes LBE (which he assumes to be true extraction), and *MULTIPLESPECIFIER, which penalizes multiple-specifier configurations. Using the framework of Serial Harmonic Grammar, Murphy assigns weights to these constraints such that they can be violated in isolation but yield too high a penalty when violated at the same time, blocking multiple LBE due to a "gang effect." Specifically, for Murphy it is the second of the two steps of LBE in a configuration like (57) above that causes the problem. The first instance of LBE does not create a multiple-specifier configuration and thus is tolerable, but the second instance of LBE creates a multiple-specifier configuration and thus violates both of the constraints just mentioned at the same time, yielding ungrammaticality. In this way Murphy's account correctly rules out configurations like (57). Murphy's account also correctly rules in sentences like those in (58),

which our research has found are acceptable to many speakers, where two instances of LBE land in separate positions and thus do not form a multiple-specifier configuration.

(58) Multiple LBE to separate positions is permitted

- a. Znamenityj₁ segodnja [_{t₁} aktër] moju₂ kupil [_{t₂} mašinu].
famous today actor my bought car
'Today a famous actor bought my car.'
- b. Ivan umnomu₁ včera [_{t₁} mal'čiku] novuju₂ podaril [_{t₂} igrušku].
Ivan smart yesterday boy.DAT new gifted toy
'Yesterday Ivan gifted a smart boy a new toy.'

We suggest that Murphy's account is not dependent on assuming that LBE is true extraction. Rather, it simply relies on the hypothesis that LBE, whatever it happens to be syntactically, is marked and thus incurs a penalty. For instance, it may be that discontinuous noun phrases are marked in general, in accord with the arguments of Sekerina 1997 that split scrambling constructions like LBE involve an extra processing load.²⁶ By reframing Murphy's LEFTBRANCHCONDITION as a constraint that penalizes noun phrases rendered discontinuous by whatever means (such as distributed deletion), we can straightforwardly incorporate his account into our proposal, which holds that Russian LBE is formed by concealed pied-piping rather than true extraction.²⁷

7 | ON THE SEMANTICS OF THE INTERACTION BETWEEN LBE AND PGS

Before concluding the article, here we relate our analysis of Russian LBE to a more explicit syntactic/semantic theory of PGs. We adopt from previous work the proposal that PGs are traces of semantically vacuous null operators, which move within (but not from) the containing island

²⁶This hypothesis raises the issue of distinguishing between unacceptability due to syntactic ungrammaticality and unacceptability due to accumulation of processing cost. See also the discussion in Pereltsvaig 2008.

²⁷There are however some additional ungrammatical cases of multiple LBE that might be problematic for Murphy's account. Consider (i), where an adverb separates two extracted left branches.

- (i) a. *Moju₂ segodnja znamenityj₁ na vystavke [_{t₁} aktër] kupil [_{t₂} mašinu].
my today famous on exhibition actor bought car
Intended: 'Today at the exhibition a famous actor bought my car.'
- b. ??Znamenityj₁ segodnja moju₂ na vystavke [_{t₁} aktër] kupil [_{t₂} mašinu].
famous today my on exhibition actor bought car
Intended: 'Today at the exhibition a famous actor bought my car.'

We are unaware of any reason to think that the adverb *segodnja* in (i) has moved: it occupies a position in the left periphery, but it usually does, as (ii) illustrates, and there is no special information structure associated with it. In (ii) we also see that this adverb normally can co-occur with LBE.

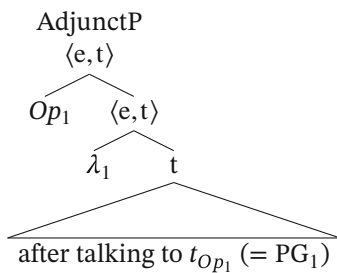
- (ii) Segodnja moju₁ na vystavke [znamenityj aktër] kupil [_{t₁} mašinu].
today my on exhibition famous actor bought car
'Today at the exhibition a famous actor bought my car.'

If *segodnja* is in its base-generation position in (i) and (ii), then the two instances of LBE in (i) likely target specifiers of different phrases. If so, then *MULTIPLESPECIFIER is not violated in the examples in (i), and they are predicted to be grammatical, contrary to fact.

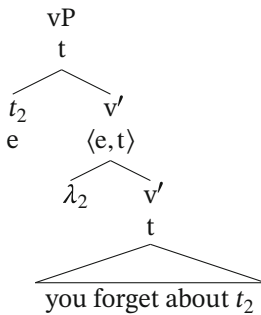
(Chomsky 1986, Browning 1987, Nissenbaum 2000, and Nissenbaum & Schwarz 2011, among others).²⁸

Nissenbaum 2000 argues that operator movement to the edge of the containing island triggers Predicate Abstraction (Heim & Kratzer 1998). For a PG-hosting sentential adjunct like those focused on in this article, this process changes the adjunct from a type-*t* expression to a derived predicate of type $\langle e, t \rangle$, as illustrated in (59a). Nissenbaum also argues that forming a successful PG is dependent upon the PG-licensing phrase undergoing successive-cyclic movement through the vP. According to Chomsky 2000 and 2001, vP is a phase, which movement must successive-cyclically pass through the edge of. Nissenbaum argues that this intermediate step of A' movement through the vP triggers an application of Predicate Abstraction there as well, creating an $\langle e, t \rangle$ node in the vP edge, as we see in the partial structure in (59b).²⁹

(59) a. Null-operator movement



b. Successive-cyclic movement in vP

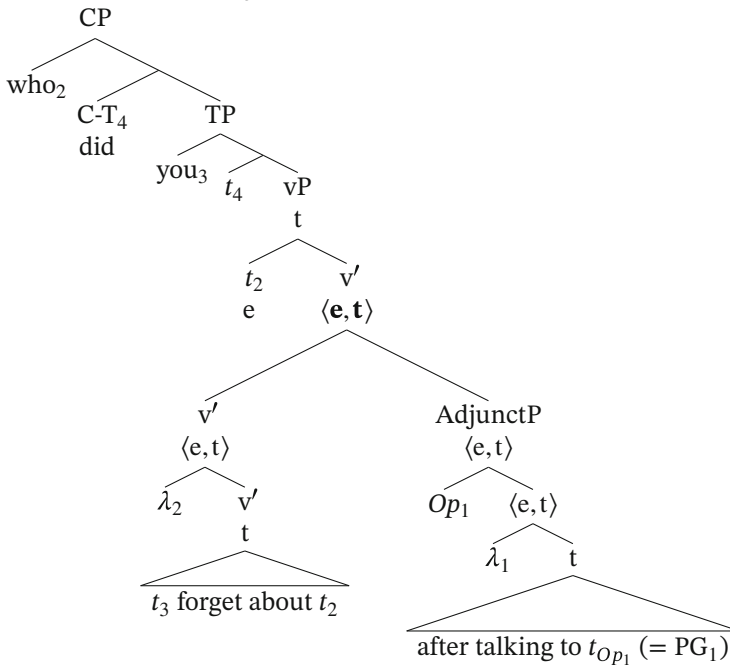


²⁸As mentioned in section 2.4.2, Franks 1992 observed that in Russian the case of the licensing phrase and of the PG must match, though distinct cases can be used as long as they are morphologically syncretic. A reviewer asks why case matching should hold under the null-operator approach to PGs taken here. This is a general issue for the null-operator analysis, which we have adopted here primarily to provide an explicit theory in which to frame our proposals, as opposed to arguing for the null-operator theory specifically. We suggest that case matching is an independent morphosyntactic constraint on multigap configurations that does not stem directly from the properties of PGs in particular. As discussed by at least Franks 1992, 1993, 1995, Asarina 2011, and Citko & Gračanin-Yuksek 2021, case-matching effects in Slavic occur with a variety of multigap configurations that are not necessarily syntactically homogeneous, such as right-node raising and across-the-board movement, in addition to PGs. This does not solve the problem, however, since we have not explained why multigap structures should require case matching. We leave this puzzle unsolved.

²⁹We adopt from Nissenbaum the simplifying assumption that vPs and vP modifiers (like sentential adjuncts) are of type *t*, modulo Predicate Abstraction. Heim & Kratzer 1998 implements Predicate Abstraction by inserting a node bearing an index that is coreferent with the variable that corresponds to the trace(s) of movement and converting this into a λ term at LF. For simplicity, we diagram the nodes inserted by Predicate Abstraction as bearing a λ with the relevant index.

Since the operator-containing adjunct in (59a) is of type $\langle e, t \rangle$ as well, it can be merged to the type- $\langle e, t \rangle$ node in (59b) and semantically united with it by Predicate Modification (Heim & Kratzer 1998). The result of merging these two together is illustrated in (60). Here the intermediate vP node (in boldface) created by merge of the adjunct to the site of successive-cyclic *wh* movement is a function of type $\langle e, t \rangle$. The intermediate type-*e* trace of the A'-moved nominal phrase saturates the individual argument of this function, "filling in" both the variable corresponding to its trace in the matrix VP and the trace of the null operator, which is the PG. A PG is thus successfully derived.

(60) Derivation of PG in adjunct of vP



If Russian LBE involves concealed pied-piping of the noun phrase that appears to have been exited by LBE, then such movement should license an argument PG in the same way as completely overt movement of a nominal phrase like in (60): in both cases, the moved nominal phrase will serve as the antecedent for the variable corresponding to its original trace and the trace of the PG-forming null operator's movement within the adjunct. This is precisely what the Russian facts that this article has examined show.

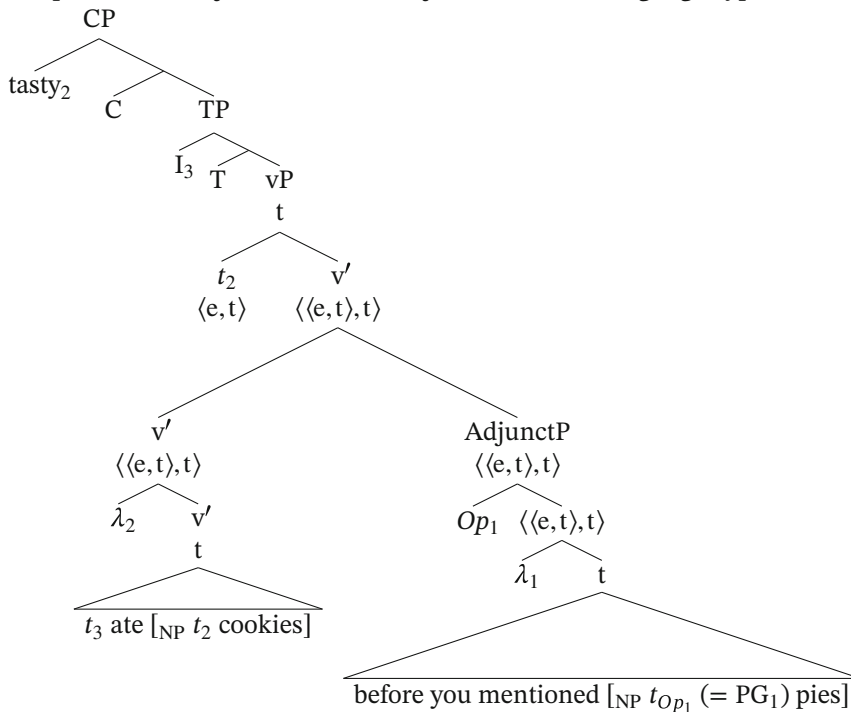
If Russian LBE involves true extraction from a nominal phrase, our expectations differ. If traces must be of type *e* (Fox 1999: 180, fn. 37 and Poole 2017, among others), then LBE of adjectives, demonstratives, quantifiers, and semantically comparable elements should cause a type mismatch: as Heim & Kratzer 1998: 212 show, a type-*e* trace left behind by LBE will combine with the $\langle e, t \rangle$ denotation of NP, yielding the type *t* for that NP, which thus cannot be interpreted with the verb (or with a determiner/demonstrative, if present).³⁰ This problem is avoided if the

³⁰A reviewer asks whether this issue could be resolved by type shifting. As far as we can tell, no standardly assumed type shifter (e.g., see Partee 1986) can make a type-*t* NP into something interpretable in this context. Chierchia 1998, for instance, argued that in articleless languages type shifting is responsible for turning NPs of type $\langle e, t \rangle$ into ones of type *e*, though this proposal does not address the issue under discussion. The type shifter that would be needed in this case

extracted left branch undergoes syntactic reconstruction to its base position in NP and is thus treated by LF as if it had not moved. However, in this situation we expect LBE not to be able to license a PG, since that movement will not have an effect on interpretation. We have seen that this expectation is not correct, since LBE does license PGs, though with an interpretation that we argue reveals concealed pied-piping.

However, it is not a foregone conclusion that traces must only be of type e . See for instance Lechner 1998 and 2019 for arguments for reconstruction via higher-type traces. If LBE could leave a trace of an appropriately high type within NP ($\langle e, t \rangle$ for adjectives, $\langle \langle e, t \rangle, e \rangle$ for demonstratives, $\langle \langle e, t \rangle, \langle \langle e, t \rangle, t \rangle \rangle$ for quantifiers, etc.), then LBE would not result in the type mismatch just described. Further, in this case LBE could license PGs of the right sort: for instance, adjective movement could license an adjective PG. In such a scenario involving high-type traces, successive-cyclic movement of the extracted left branch through vP and the co-occurring Predicate Abstraction that this movement triggers must create a vP node of type $\langle \tau, t \rangle$, where τ matches the denotation of (the trace of) the extracted element in question. For instance, adjective extraction would need to create a vP node of type $\langle \langle e, t \rangle, t \rangle$. We illustrate this in (61), which shows the hypothetical derivation of an adjectival PG. We use English words in this tree for presentational clarity. As we see in (61), an adjective PG would also require movement of an operator from adjective position in the adjunct, changing the adjunct's type to $\langle \langle e, t \rangle, t \rangle$ as well.

(61) Interpretation of adjective LBE and adjective PG assuming high-type traces



would be one that turns truth values into individuals or properties of individuals. Adding such a type shifter would create an overgeneration problem, since any constituent whose meaning is a truth value could then be shiftable to the meaning of some particular individual or property of individuals.

Provided that we grant Predicate Modification the ability to combine not just $\langle e, t \rangle$ constituents but instead any two constituents of the same semantic type (Partee & Rooth 1983, Nissenbaum 2000, Nissenbaum & Schwarz 2011), the hypothetical structure in (61) can be interpreted. Such a derivation allows the interpretation of PGs not only by adjective extraction but also by extraction of elements like quantifiers and demonstratives, though in these cases Predicate Modification will apply to, respectively, two nodes of type $\langle \langle \langle e, t \rangle, \langle \langle e, t \rangle, t \rangle \rangle, t \rangle$ and two nodes of type $\langle \langle \langle e, t \rangle, e \rangle, t \rangle$.³¹

If such a derivation were possible and if Russian LBE were true extraction, we would expect to find scenarios where an extracted left branch serves as the antecedent for a left-branch PG. We have seen that in Russian, this is not possible. Rather, the only context where LBE and PGs successfully interact is where the NP that appears to have been exited by LBE serves as the antecedent for a PG in an argument position. A related fact revealed by our examination of possessor LBE is that an extracted possessor noun phrase cannot license a PG in an argument position either. The fact that left branches never license PGs but only ever trigger PG licensing by the noun phrase that they have appeared to exit is precisely what we expect if Russian LBE involves concealed pied-piping.

8 | CONCLUSION

Using PGs as our main diagnostic, we have argued that LBE in Russian is not extraction from an NP but rather involves concealed pied-piping of the entire NP that extraction appears to exit. We provided additional evidence for this finding from facts about weak crossover and about late-merge effects with Principle C. We went on to argue that a distributed-deletion account rather than a remnant-movement account best fits the Russian facts, though either is in principle compatible with our core observations. We also addressed some consequences of this analysis for theories about the relationship between NP/DP structure and LBE, for the ban on multiple LBE, and for a more explicit syntactic/semantic theory of PG licensing. While this article has focused on Russian, what we have learned from this language clarifies what is at stake for theories about the formation of discontinuous nominal phrases and thus will serve as a useful basis for further crosslinguistic research on this complex topic.

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³¹A derivation similar to (61) involving possessor LBE with the usual abstraction over individuals would correspond to the examples of colloquial-English possessor extraction in section 2.5.

DATA-AVAILABILITY STATEMENT

The full original data generated by this study are available from the corresponding author upon reasonable request.

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