

Parasitic gaps and concealed pied-piping in Russian*

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Abstract: We use parasitic gaps (PGs) to examine the nature of left branch extraction (LBE) in Russian. We show that once the proper confounds are removed, PGs in Russian become apparent, and can serve as a diagnostic for what actually moves when LBE occurs. We observe that the interpretation for a PG in contexts with LBE is the same as the interpretation assigned when a full DP moves, which we argue reveals that Russian LBE in fact involves concealed pied-piping of the entire DP, rather than sub-extraction. We provide additional new evidence for this conclusion based on the interaction of LBE with principle C and late merge. This general result strengthens the body of evidence that discontinuous phrases in natural language can be derived by PF processes, not only syntactic ones.

1 Introduction

In this paper, we use parasitic gaps (PGs) to diagnose the nature of Russian left branch extraction (LBE), which we argue involves a different syntax than its surface appearance suggests. As (1) exemplifies, LBE involves A'-extraction of constituents originating at the left edge of the nominal phrase, namely: adjectives, quantifiers, possessors, and demonstratives.¹ Some degree of LBE is productive in most if not all Slavic languages.

- (1) *LBE in Russian*
[**Kakuju / ètu / miluju**]_k ty uvidel [_{DP} *t_k košku*]
what / this / cute you saw cat
'What cat did you see? / I saw this cat / I saw a cute cat.'

The fact that some languages permit LBE is a puzzle, given that many other languages like English don't allow it, as (2) shows.² For English, the only possibility is to pied-pipe the entire DP dominating the relevant element, rather than sub-extracting from DP:

- (2) *No LBE in English: Pied-piping of containing DP required*
a. * **Which**_k did you see [_k cats]?

*Authors listed alphabetically. Thanks to comments from Želko Bošković, Kenyon Branagan, Miloje Despić, Danny Fox, Naomi Francis, Vera Gribova, Natasha Ivlieva, Ivona Kučerová, Anton Kukhto, Jason Overfelt, David Pesetsky, Mitya Privozov, Norvin Richards, Bartosz Wiland, and audiences at MIT, FASL 27, NELS 49, and the 93rd annual LSA meeting, as well as to our Russian informants. Glossing conventions: ACC = accusative, CNV = converb, GEN = genitive, SG = singular, SUBJ = subjunctive.

¹This is the superset of elements to which LBE can apply, though we have observed that not all speakers equally accept LBE for all of them. This is a more fundamental puzzle that we won't address here. We are only concerned with how a given instance of independently acceptable LBE interacts with PG licensing.

²We often refer to nominal phrases as DPs for convenience, though we do not commit to the presence of D⁰ in Russian. The precise structure of the Russian nominal phrase is not a central concern for this paper.

- b. ✓ [**Which cats**]_k did you see *t_k*?
- c. * **Those / cute**_k I saw [*t_k* cats]
- d. ✓ [**Those cats / cute cats**]_k I saw *t_k*

Among the first to consider the distribution of LBE was Ross (1967), who hypothesized that a syntactic constraint, the Left Branch Condition (LBC), is responsible for banning LBE in some languages. Many subsequent works have explored how the presence or absence of such extractions might be derived from the syntactic properties of a given language (Szabolcsi (1984); Corver (1990, 1992); Bošković (2005); Rappaport (2001), a.o.) In this work, we present evidence from PGs that the difference between Russian and a non-LBE language like English does not necessarily stem from a difference in their syntax, but rather from a difference in how the relevant structures are pronounced. That is, we argue that LBE in Russian actually involves concealed pied-piping of the entire DP, rather than extraction from it. If this is correct, the structure of Russian examples like (1) is fundamentally the same as that of the English (2b/d) above, where the entire DP is pied-piped overtly.

PGs (Engdahl (1983); Nissenbaum (2000) a.o.) are gaps inside of islands which take on the interpretation of an A'-moved element outside of that island. Though identifying PGs in Russian takes some work, they become evident when conditions are right, as we'll see in the next section. Our key observation is that LBE and full DP movement in Russian have the same results for PG interpretation. This is previewed in (3), where we see that the interpretation assigned to the PG when the entire direct object undergoes *wh*-movement is identical to the interpretation assigned when LBE occurs, moving only the *wh*-determiner:

- (3) *LBE and full DP movement license a PG with the same interpretation*
 [**Kakoj** ⟨**podarok**⟩]_k Vasja voznenavidel [*t_j* ⟨**podarok**⟩]_k, [ne obnaruživ PG_k
 what present Vasja came.to.hate present not discover.CNV
 pod ělkoj]?
 under pine.tree
 'What present did V. come to hate, not finding (it) under the New Year tree?'

Hence we argue that when LBE occurs, the entire nominal phrase moves, despite the fact that part of it continues to be pronounced in its base position on the surface.

This unexpected result is supported by some independent research: Pereltsvaig (2008) argues that split phrases in Russian must involve movement of the entire nominal phrase followed by distributed deletion Fanselow and Ćavar (2002), which leaves part of the moved phrase pronounced in its lower copy. This conclusion is corroborated in Fanselow and Féry (2013) based on the distribution of intervention effects, and the prosodic character of LBE in Slavic languages like Russian. In essence, the present paper provides novel evidence for such a conclusion from the perspective of interpretation—our PG diagnostic reveals phrases which appear to be discontinuous on the surface despite not being so in the underlying structure, which adds support to the idea that discontinuous phrases in natural language are sometimes derived by PF manipulations like distributed deletion.

1.1 Roadmap

In section 2, we establish the existence of PGs in Russian. In section 3, we describe the syntax/semantics for PG licensing we adopt, discuss the predictions this theory makes, and consider what it leads us to expect about the interaction of LBE and PGs. In section 4, we demonstrate how LBE interacts with PG licensing, yielding the result previewed above that LBE behaves like full DP movement. In section 5, we provide convergent evidence for this conclusion from late merge effects relating to principle C (Lebeaux (1991), a.o.). Section 6 considers PG licensing by possessor LBE as a diagnostic for whether concealed pied-piping is obligatory, or merely an option. Section 7 concludes, and the following appendices expand on a few topics and issues for future work.

2 Establishing PGs in Russian

A defining property of PGs is that they are gaps inside of islands which are licensed by A'-movement that crosses over the structural position of the island, as in (4):

- (4) *PG in an adjunct island in English*
[Which person]_k did you [forget about t_k [after talking to ___k]]?

The gap in the adjunct clause here cannot obviously have been created by movement, because such adjuncts are islands:

- (5) *Adjunct island in English*
* [Which person]_k did you forget about the cakes [after talking to t_k ?]

Thus this gap in (4) must be truly somehow “parasitic” on the movement chain in the matrix clause. While PGs can be easily identified in a language like English by using gaps in contexts that are typically obligatorily transitive, the fact that object drop is sometimes possible in Russian means that more work must be done to ensure that a given gap is in fact ‘parasitic’, rather than simply derived by dropping the object.

There are a few things we can do to ensure that object drop does not interfere with the search for PGs. As far as we know the first to observe PGs in Russian is Ivlieva (2007), who shows that perfective aspect makes object drop more difficult in this language, and we observe that negation strengthens this effect, as does using a right-adjoined adjunct.³ Some Russian verbs also resist object drop, like *obnaružit'* (“discover”) in (6). This example combines all of these factors to create an adjunct clause whose object cannot be dropped:

³For example, the gap in the adjunct is much better if the adjunct is internal to the matrix clause:

- i. Vasja [ne obnaruživ ___k pod jolkoi] voznenavidel [etot podarok]_k,
Vasja not discover.CNV under pine.tree came.to.hate this present
'Vasja came to hate this present, not having found it under the New Year tree.'

(6) *Adjunct clause with undroppable object in Russian*

Vasja voznenavidel [ètot podarok]_k, [ne obnaruživ **ego**_k/*___k pod ëlkoj]
Vasja came.to.hate this present, not discover.CNV him under pine.tree
'V. came to hate this present, not finding it under the New Year tree.'

With an obligatorily transitive environment identified, we are now in the right position to test whether Russian employs PGs.

Example (7) below shows that A'-movement in the matrix clause licenses the otherwise bad gap identified in (6), thus presenting a PG. In (7) the "true" gap and the PG are co-referent, both taking the moved phrase *kakoj podarok* ("what present") as their antecedent:

(7) *Potentially bad gap in the adjunct rescued by matrix movement*

[Kakoj podarok]_k Vasja voznenavidel *t_k*, [ne obnaruživ ___k pod ëlkoj]?
what present Vasja came.to.hate not discover.CNV under pine.tree
'What present did V. come to hate, not finding (it) under the New Year tree?'

This example shows PG licensing by interrogative *wh*-movement. As we expect, PG licensing in Russian is not exclusive to this sort of movement, but is a property of A'-movement in general. For instance, in (8) and (9) below we see a PG licensed respectively by *wh*-movement in a relative clause, and by scrambling:

(8) *PG licensed by wh-movement in relative clause*

Vasja našël podarok, [kotoryj_k ja voznenavidel *t_k*, [ne obnaruživ ___k pod ëlkoj]]
Vasja found present, which I came.to.hate not discover.CNV under
ëlkoj]]
pine.tree
'Vasja found the present that I came to hate, not having found (it) under the New Year tree.'

(9) *PG licensed by scrambling*

[Ètot podarok]_k Vasja voznenavidel *t_k*, [ne obnaruživ ___k pod ëlkoj]
this present Vasja came.to.hate not discover.CNV under pine.tree
'Vasja came to hate this present, not having found (it) under the New Year tree.'

We can see that the gap being licensed in the previous three examples really is 'parasitic', and cannot have been formed by movement out of the adjunct, since this adjunct is an island in Russian just as in English:

Since our goal today is to determine empirically when object drop is impossible in order to establish the existence of PGs, we leave this and similar puzzles aside for now.

(10) *Adjunct island in Russian*

* [Kakoj podarok]_k Vasja voznenavidel Mašu, [ne obnaruživ t_k pod
what present_k Vasja came.to.hate Masha, not discover.CNV under
ëlkoj]?

pine.tree

‘What present did V. came to hate M., not finding (it) under the New Year tree?’

By controlling for the presence of object drop, we have found that Russian does indeed have PGs. With PGs identified, in the next section we go on to discuss an approach to the syntax/semantics of PGs. This theory makes certain predictions about how LBE might interact with PG licensing, which we go on to test later in the paper.

3 A theory of PGs and predictions for LBE

We’ve seen that a PG takes on the interpretation of an A’-moved phrase outside of the containing island. We follow works arguing that this interpretive result is derived by movement of a null operator within the island (Chomsky (1986); Browning (1987); Nissenbaum (2000)). What we call a PG is in fact, under this view, the trace of an operator’s movement.

Following Nissenbaum, the operator moves to the edge of the containing island, and this movement triggers the rule of λ -abstraction (Heim and Kratzer (1998)), which changes the semantic type of that island.⁴ Thus a clausal adjunct containing a PG becomes a derived predicate of type $\langle e,t \rangle$, as we see in (11) below:⁵

⁴That PGs are indeed traces of moved operators is indicated by the fact that placing an island inside of the adjunct containing the PG causes ungrammaticality (Chomsky (1986); Kayne (1993)). We show this below with a relative clause island in English, which the operator required for a PG configuration cannot cross:

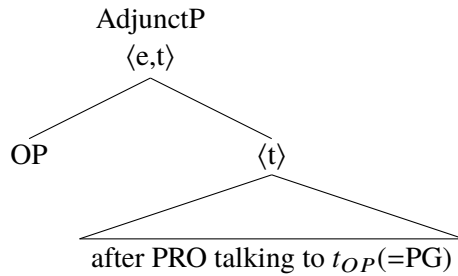
- ii. *Operator movement to form a PG blocked by island* (Nissenbaum 2000, pg. 24)
* Who_k did John visit t_k [OP_k without consulting the person [RC who’d talked to t_k?]]

We observe that the same holds for Russian, indicating that for this language as well, PGs are formed by operator movement. The following shows this fact using a relative clause island once more:

- iii. * Kogo_k Vasja uznal t_k [OP_k ne smotrev reportaž, [RC v ktorom Maša obvinjaet ____k
who.ACC Vasja recognized not watch.CNV report in which Masha accuses
v kraže kartiny]]?
in stealing picture
‘Who is x s.t. Vasja recognized x, without having watched the report in which Masha accuses x of stealing a picture?’

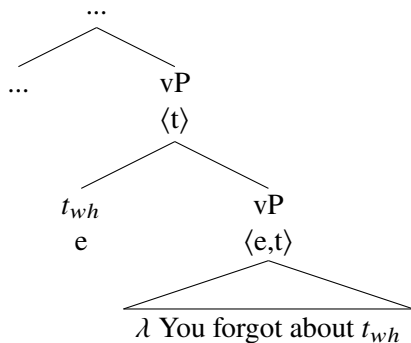
⁵PGs are possible in other islands, such as relative clauses and subjects, but we focus on adjunct islands in this paper. PGs in adjunct islands are the easiest to construct and interpret, and therefore are the safest PGs for us to examine, since the factors required to ensure the presence of a PG in Russian make the crucial sentences quite complex in the first place. The addition of LBE makes such sentences yet more complex.

- (11) *Null operator movement inside adjunct makes it into a derived predicate*



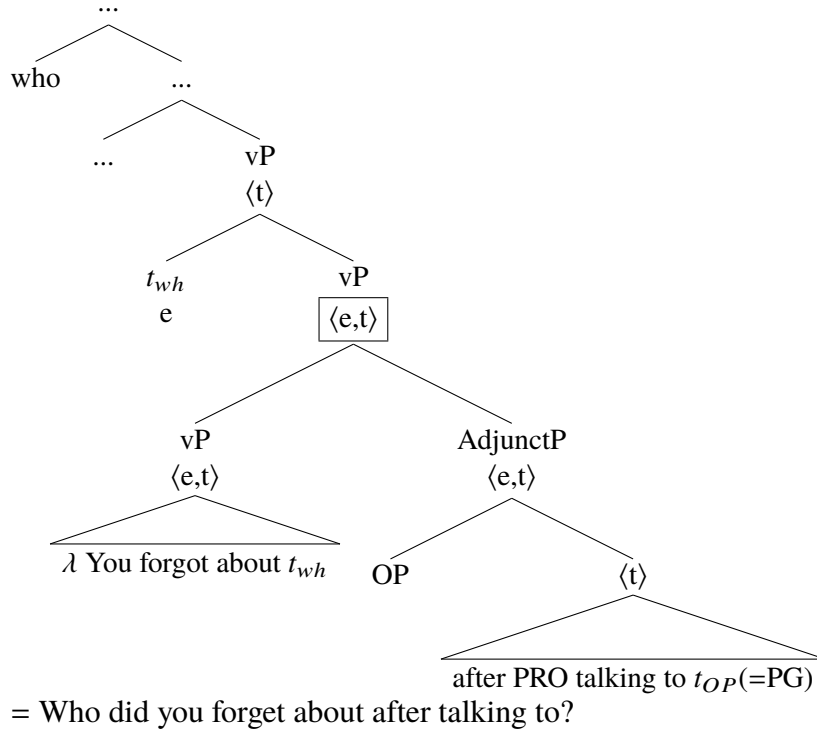
Nissenbaum argues that the PG in such an island requires the presence of A'-movement for its interpretation because this island must adjoin to a position that would not exist unless that movement occurred. In particular, Nissenbaum follows (Chomsky (2000, 2001), a.o.) in positing that A'-movement must successive-cyclically stop off in the edge of vP, since vP is a phase. This movement through the vP will trigger an application of λ -abstraction there as well, creating an $\langle e,t \rangle$ node in the vP edge, as we see in the partial structure in (12) below:

- (12) *Successive-cyclic movement leaves an $\langle e,t \rangle$ node in vP*



Notice that the PG-containing adjunct island in (11) is a constituent of type $\langle e,t \rangle$, and as we've just seen, a node of the same type exists in the vP edge after successive-cyclic A'-movement through it. Thus the adjunct can be externally merged as the sister of this part of the vP, and the resulting structure will be interpreted via Predicate Modification (Heim and Kratzer (1998)), as we see in (13) below. The tree in (13) models the initial English PG sentence introduced in (4) above. In this structure, the intermediate vP node created by adjunction (boxed) denotes a function of type $\langle e,t \rangle$, which is true of individuals that the addressee both talked to and forgot about. The A'-moved DP saturates the individual argument of this function, "filling in" both the variable that corresponds to its trace, and the trace of the null operator (which is the PG):

(13) *Predicate Modification of vP and adjunct island allows a PG to be interpreted*



With a syntax/semantics for PG licensing now made explicit, let's go on to consider what we might expect from the interaction of PGs and LBE. Considering the semantic behavior of LBE will raise several issues that must be made explicit, but in short, our conclusion will be that we do not generally expect argument PGs to be licensed by LBE.

3.1 Predictions for LBE and PGs

Our examination focuses on LBE in the context of object PGs, since there are two straightforward possibilities to consider in this situation. Examining which of the two holds in reality will help us understand when concealed pied-piping is applying.

We've already seen that typical DP movement can license an object PG in Russian examples like (7-9) above. If LBE is in fact full DP movement despite happening to be partially covert in the surface representation, it should license an object gap in precisely the same way as fully overt DP movement—in both cases, the moving DP will leave a trace of type e as we've seen, resulting in a structure where the moved DP binds the PG.

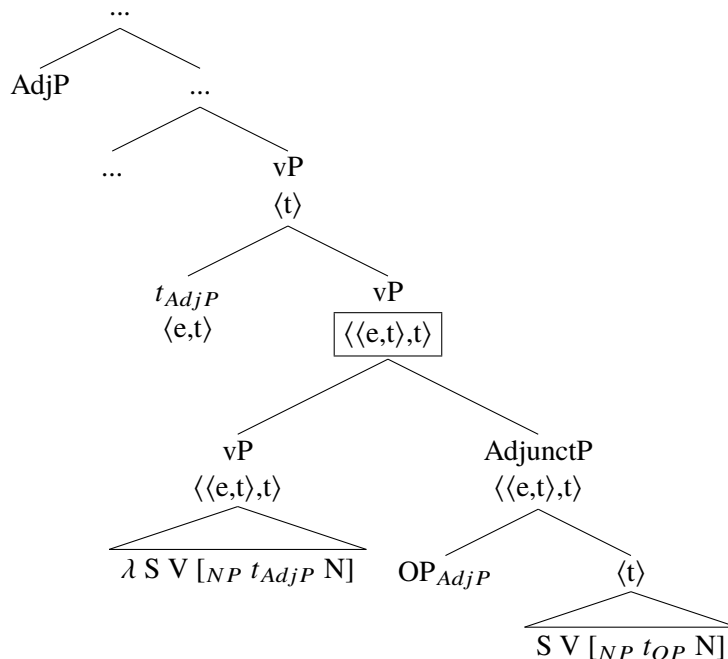
On the other hand, if LBE involves true extraction from a nominal phrase, our expectations differ. If traces must be of type e (Fox (1999) fn. 37, Poole (2017), a.o.)⁶ LBE of an adjective, demonstrative, quantifier, and the like, should generally cause a type mismatch:

⁶A similar proposal with the same effect comes from Beck (1996), who suggests that the type of a trace will be as low as it can be, while still being interpretable in the context it inhabits.

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 cannot be interpreted with the verb (or with a determiner/demonstrative, if present). This problem is avoided if the extracted element undergoes syntactic reconstruction to its base position and is treated by LF as if it had not moved. But in this case, it shouldn't be able to license a PG.

However, if such LBE could leave a trace of an appropriate corresponding high type (namely $\langle e,t \rangle$ for adjectives, $\langle \langle et \rangle, e \rangle$ for demonstratives, and $\langle \langle e,t \rangle, \langle \langle e,t \rangle, t \rangle \rangle$ for quantifiers), then this problem for the interpretability of LBE is avoided. In this case, LBE could in principle license PGs in the right contexts—for instance, adjective movement could license an adjective PG.⁷ In such a scenario where high type traces are permitted, successive-cyclic movement of the extracted element through vP , and the co-occurring λ -abstraction that this movement triggers, must create a vP node that in the basic case would need to be of type $\langle \tau, t \rangle$, where τ matches the denotation of (the trace of) the extracting element in question. For instance, adjective extraction would need to create a vP node of type $\langle \langle e,t \rangle, t \rangle$, as we see in the tree in (14) below. Here we also see corresponding movement of an operator from adjective position inside the adjunct, changing the adjunct's type to $\langle \langle e,t \rangle, t \rangle$ as well. Provided that we grant Predicate Modification the ability to combine not only $\langle e,t \rangle$ constituents, but instead two constituents of the same type more generally, this hypothetical structure can be successfully interpreted:

(14) *Interpretation of adjective LBE and an adjective PG assuming high-type traces*



⁷Though we'll show in appendix A that adjective LBE does not seem to license an adjective PG. While this could be evidence that concealed pied-piping is obligatory, this is also the result we expect if high type traces are banned, as just mentioned.

Structures of this sort will allow us to interpret PGs not only for extracted adjectives, but also for elements like quantifiers and demonstratives, though in these cases Predicate Modification will apply respectively to two nodes of type $\langle\langle\langle e,t\rangle,\langle\langle e,t\rangle,t\rangle\rangle,t\rangle$ with the former, and $\langle\langle\langle et\rangle,e\rangle,t\rangle$ with the latter. The important point, however, is that such situations are not compatible with an argument PG: The higher type of the vP in these scenarios cannot undergo Predicate Modification with an adjunct island containing an argument PG, since this will be type $\langle e,t\rangle$ as we saw in (13) above.⁸ Thus, even if there exist high-type traces that allow LBE to be interpreted, LBE should still fail to assign an interpretation to an object PG.⁹ For this reason, if we find that PGs are licensed in such LBE contexts, we will have reason to suspect that extraction from DP is not what is actually happening.

In short, if LBE is true extraction from DP, there are several semantic reasons that we do not expect such movement to successfully license an object PG. As we'll see in the next section, however, LBE does successfully license such PGs, in a way that we argue indicates that LBE does not actually involve sub-extraction, but rather, concealed pied-piping.

4 LBE is interpreted like movement of a full DP

Consider (15) below, repeating (7) above, which shows that full DP movement in Russian can license a PG in an adjunct island. Here the moved nominal phrase *kakoj podarok* serves as the antecedent for both the real gap, and the “parasitic” one in direct object position:

- (15) *A'-bar movement of DP licenses PG*
[Kakoj podarok]_k Vasja voznenavidel *t_k*, [ne obnaruživ ____k pod ëlkoj]?
 what present Vasja came.to.hate not discover.CNV under pine.tree
 ‘What present did V. come to hate, not finding (it) under the New Year tree?’

Example (16) below is the same as (15), except that (16) left-branch extracts the minimal *wh*-element *kakoj* rather than moving the entire DP that dominates it. Here we see that the interpretation of the PG is the same as in (15), where the whole DP moved. The only difference is a change in information structure—LBE in Russian signals focus on the element to which it applies. However, there is no truth conditional difference between these two examples.

⁸While Predicate Modification would be inapplicable in such circumstances, basic Functional Application could actually apply in the case of adjective LBE with an argument PG. In this case we would have a vP segment of type $\langle\langle et\rangle,t\rangle$, which could be saturated by the type $\langle e,t\rangle$ adjunct containing the argument gap. However, if this occurs, the resulting node of type t cannot be combined with the $\langle e,t\rangle$ trace left behind by successive-cyclic movement of the adjective. Thus adjective extraction licensing an argument PG is still not possible in this case, though the failure is slightly more complicated than for other instances of LBE.

⁹In the introduction, we mentioned that LBE can displace possessors. If possessors are typical DPs, we expect the semantic concerns discussed here to be irrelevant to possessor LBE, and therefore permit possessor LBE to license a PG in direct object position. This is discussed in detail in section 6, where we see that possessor LBE in fact does not license PGs.

- (16) *LBE licenses a PG as if it were movement of the entire DP*
Kakoj_k Vasja voznenavidel [*t_k podarok*]_j, [ne obnaruživ ____j pod jolkoi]?
 what Vasja came.to.hate [present], not discover.CNV under pine.tree
 ‘What present did V. come to hate, not finding (it) under the New Year tree?’

We get the same result for LBE of other elements, as (17-21) below show. While some of the examples in this set are more marked than others, we believe that this is attributable to the fact that not all elements undergo LBE with equivalent ease. Some speakers are relatively restrictive, as mentioned in footnote 1. Demonstrative and quantifier LBE are independently the most marked, which leads to the unsurprising result that PG licensing in combination with LBE of such elements is also relatively marked, as we see in (20) and (21). For the most part, our research has found that speakers who do not allow a particular example from this set do not readily permit LBE of the relevant element in the basic case.

- (17) *PG with adjective LBE*
Dorogučij_k Vasja voznenavidel [*t_k podarok*]_j, [ne obnaruživ ____j pod
 very.expensive Vasja came.to.hate [present], not discover.CNV under
 ělkoi]
 pine.tree
 ‘V. came to hate the EXPENSIVE present, not finding (it) under the New Year tree.’
- (18) *PG with possessor LBE*
Čej_k Vasja voznenavidel [*t_k podarok*]_j, [ne obnaruživ ____j pod ělkoi]?
 whose Vasja came.to.hate [present], not discover.CNV under pine.tree
 ‘Whose present did V. come to hate, not finding (it) under the New Year tree?’
- (19) *PG with skol’ko (‘how many’) LBE*
Skol’ko_k Vasja voznenavidel [*t_k podarkov*]_j, [ne obnaruživ ____j pod
 how.many Vasja came.to.hate [presents], not discover.CNV under
 ělkoi]?
 pine.tree
 ‘How many presents did V. come to hate, not finding (them) under the New Year tree?’
- (20) *PG with quantifier LBE*
 ? **Každyj_k** Vasja voznenavidel [*t_k podarok*]_j, [ne obnaruživ ____j pod
 each Vasja came.to.hate [present], not discover.CNV under
 ělkoi]
 pine.tree
 ‘V. came to hate EVERY present, not finding (it) under the New Year tree.’

- (21) *PG with demonstrative LBE*
 ? **Ětot_k** Vasja voznenavidel [*t_k podarok*]_j, [ne obnaruživ ___j pod ělkoj]
 this Vasja came.to.hate [present], not discover.CNV under pine.tree
 ‘V. came to hate THIS present, not finding (it) under the New Year tree.’

We take the fact that the PG in all these LBE contexts is interpreted as if the entire nominal phrase moved to be evidence that this is indeed precisely what has happened, despite surface appearances. This conclusion suggests that LBE is only apparent—when LBE seems to have occurred, the entire nominal phrase has been pied-piped, but a mechanism like distributed deletion (Faneslow and Ćavar (2002)) causes part of the moved phrase to be pronounced in the tail (= lower copy) of the movement chain:

- (22) *LBE as full DP movement + distributed deletion*
[Kako_j podarok]_j Vasja voznenavidel [**kako_j podarok**]_j?
 what present Vasja came.to.hate what present

We’ve just seen that (apparent) displacement of various modifiers from DP licenses PGs. We might not have expected this to be so, as some of these displaced elements are plausibly adjuncts, and adjuncts don’t seem to license PGs under normal circumstances. This may be the case because most adjuncts are of a high enough type to trigger a type mismatch in PG scenarios, as discussed in the previous subsection:¹⁰

- (23) *Adjuncts don’t license PGs: English* (Browning 1987, p. 252)
- a. * How_k did you fix the car *t_k* [after repairing the bicycle ___k]?
 Intended: ‘What is the way x such that you fixed the car in way x, after repairing the bike in way x?’
 - b. * When_k did you leave Boston *t_k* [in order to visit Mary ___k]?
 Intended: ‘What is the time x such that you left Boston at time x, in order to visit Mary at time x?’
- (24) *Adjuncts don’t license PGs: Russian*
- a. * Kak_k Vasja *t_k* poĉinil mašinu, [___k ne otremonirovav velosiped?]
 how Vasja fixed car not repair.CNV bicycle
 Intended: ‘What is the way x such that Vasja fixed the car in way x, not having fixed the bike in way x?’
 - b. * [V kakom mesjace]_k on priexal v Moskvu *t_k*, [ne najdja rabotu v
 in what month he came to Moscow not find.CNV job in
 Omske ___k]?
 Omsk

¹⁰Note that examples (23) and (24) are grammatical under the interpretation where there is no manner/temporal adjunct modifier in the adjunct clause.

Intended: ‘What month x is such that he came to Moscow in x , not having found job in Omsk in x ?’

But as we’ve seen, LBE of adjuncts from the nominal phrase does result in PG licensing in Russian. This is unsurprising given our conclusion that such movement is really movement of a full DP, an argument, rather than extraction of an adjunct.

4.1 Alternative hypothesis: PG licensing by DP remnant movement

It is conceivable that in the examples we’ve claimed to involve concealed pied-piping in strings instantiating apparent LBE (16-21), there actually is no pied-piping of DP, but instead the PG is licensed by the DP remnant undergoing either covert movement, or a short step of string-vacuous overt movement. We showed in section 2 that it is possible to construct Russian sentences with an illicit gap in an adjunct, as repeated in (25) below, which were our basis for diagnosing the existence of PGs in this language. If some covert or otherwise string-vacuous DP movement is generally available to license PGs, it is not obvious why such movement cannot license the PG in examples of this sort:

- (25) *Adjunct clause with undroppable object in Russian*
 Vasja voznenavidel [ètot podarok]_k, [ne obnaruživ **ego**_k/*___k pod èlkoj]
 Vasja came.to.hate this present, not discover.CNV him under pine.tree
 ‘V. came to hate this present, not finding it under the New Year tree.’

That a short string-vacuous movement is not responsible for PG licensing in our crucial examples is clear in cases where (apparent) LBE strands DP in an embedded clause, but licenses a PG interpreted in a higher clause, as in (26-27). Here, the (a) examples show an unlicensed gap, which in the (b) examples is licensed by long distance LBE:

- (26) (Scenario: Vasja thinks that Masha took the present that was supposed to be under the New Year tree)
- a. * Vasja [xotel, [ne obnaruživ ___j pod èlkoj], [čtoby Maša vernula [ètot podarok]_j]].
 Vasja wanted not discover.CNV under pine.tree that.SUBJ Masha returned this present
 ‘Vasja wanted that Masha would return this present, not having found (it) under the New Year tree.’
- b. **Kakoj**_k Vasja [xotel, [ne obnaruživ ___j pod èlkoj], [čtoby Maša vernula [_{t_k} **podarok**]_j]]?
 what Vasja wanted not discover.CNV under pine.tree that.SUBJ Masha returned present
 ‘What present did Vasja want that Masha would return, not having found (it) under the New Year tree?’

- (27) (Scenario: Vasja thinks that Masha took someone's present that was supposed to be under the New Year tree)
- a. * Vasja [xotel, [ne obnaruživ ____j pod ělkoj], [čtoby Maša
Vasja wanted not discover.CNV under pine.tree that.SUBJ Masha
vernula [Petin podarok]_j]].
returned Petya's present
'Vasja wanted that Masha would return Petya's present, not having found (it)
under the New Year tree.'
- b. **Čej_k** Vasja [xotel, [ne obnaruživ ____j pod ělkoj], [čtoby Maša
whose Vasja wanted not discover.CNV under pine.tree that.SUBJ Masha
vernula [_{t_k} **podarok**]_j]].?
returned present
'Whose present did Vasja want that Masha would return, not having found (it)
under the New Year tree?'

4.2 Convergent evidence from previous research

As we've mentioned, our findings are convergent with some previous research on Russian. Pereltsvaig (2008) argues for a distributed deletion analysis of both LBE, and various other discontinuous phrases in Russian. One of her reasons for this claim is that LBE can displace non-constituents, as we see with LBE of a preposition and adjective below, which is movement either of a head and a phrase, or perhaps of two heads. Either way, it is not obvious how such displacement can be derived by standard syntactic movement:

- (28) *Non-constituent LBE of P + Adj* (Pereltsvaig 2008.)
- a. **Na sledujuščij** ostan'tes' **trolleybus!**
for next stay trolleybus
'It is against the soviet regime that he demonstrated' (Ex. 2c)
- b. **Protiv sovetskoj** on vystupal **vlasti**
against Soviet he demonstrated regime
'It is against the soviet regime that he demonstrated' (Ex. 4a)

Pereltsvaig also shows that LBE can escape DPs that are typically islands for movement. This follows straightforwardly if such configurations are derived by movement of the full phrase followed by distributed deletion, rather than actual extraction from it.

Fanselow and Féry (2013) provide a separate argument for the same conclusion, based on a study of intervention effects and the prosody of LBE in Slavic languages. Intervention effects involve extraction being blocked by negation, a quantifier, or some other focus-sensitive element. Fanselow and Féry observe that such intervention applies to LBE in some Slavic languages (Slovenian, Sorbian, Bulgarian) but not others (Russian, Ukrainian, Polish, Czech, Macedonian). They argue that LBE is actual extraction from DP in the first set, and thus intervention applies. In contrast, they argue that intervention effects disappear

in the second set of languages because, for them, LBE is actually movement of a full DP followed by scattered deletion, rather than true sub-extraction. In support of this argument, Fanselow and Féry also show that LBE in the intervention-escaping set of languages can have a prosodic contour characteristic of full phrasal movement.

These works argue based on syntactic and prosodic evidence that LBE in Russian (among some other Slavic languages) is not sub-extraction, despite surface appearances. In essence, the present paper provides novel evidence in support of the same conclusion based on an interpretive diagnostic: since LBE in Russian is full DP movement, it LBE licenses PGs just like fully overt DP movement does.¹¹

5 Concealed pied-piping of DP feeds late merge

In this section, we'll provide further support for our conclusion about the nature of LBE in Russian with evidence from late merge (Lebeaux (1991); ?); Stanton (2016), a.o.). Since the effect in question requires there to be a moved DP for late merge to apply to, the data we are about to show provides further support for LBE being full DP movement.

Lebeaux (1991) argued that adjuncts can be merged late, post movement of their host, based on an asymmetry in the distribution of principle C violations. The representative contrast is shown in (29) below. First, notice that in the ungrammatical (29a), the *wh*-moved phrase contains a complement CP, which in turn contains an R-expression that is co-referential with the matrix subject. In contrast, as (29b) shows, a comparable sentence where the relevant R-expression is in a relative clause of the moved DP is grammatical:

- (29) *Principle C avoidance in adjunct of moved phrase*
- a. *R-expression in complement of moved phrase*
 */?? [Which rumor [that John₂ ate all the cakes]]₁ did he₂ deny *t*₁?
 - b. *R-expression in adjunct of moved phrase*
 ✓ [Which cakes [that John₂ ate]]₁ did he₂ find *t*₁ very tasty?

Lebeaux argues that this contrast emerges because complements/arguments must be merged as early as possible, but adjuncts can be merged late, post-movement. Thus in (29a), the complement of N is merged before the containing DP moves, meaning that there is a stage of the derivation where this complement is c-commanded by the co-referential subject. This triggers a principle C violation. In contrast, the relative clause in (29b) is not externally merged until after its host DP moves over the subject. Thus there is no level of the derivation

¹¹In principle, we expect the intervention-avoiding set of Slavic languages identified by Fanselow and Féry to all allow PG licensing by LBE as we have shown here for Russian. Among these languages is Polish, which Bartosz Wiland (p.c.) tells us does not appear to allow the patterns we report here for Russian. However, he tells us that Polish seems to lack PGs altogether, meaning that the examples that are critical for us cannot be tested in this language. While the fact that PGs are available in only some languages is indeed a puzzle, this issue is beyond the scope of the present paper.

at which the R-expression in the relative clause was c-commanded by the co-referential subject, and no principle C violation.

(30) *How to avoid principle C*

a. *Step 1: Move*

[Which cakes]₁ did he₂ find t₁ very tasty?

b. *Step 2: Merge adjunct to moved phrase*

[Which cakes [that John₂ ate]]₁ did he₂ find t₁ very tasty?

We find the same judgment pattern in Russian. For instance, in (31) below, we see that the complement *Vasja*.GEN of the moved NP *picture* fails to avoid a principle C violation caused by the co-indexed subject:

(31) *No principle C avoidance for complement of moved NP*

* [Kotoruju fotografiju **Vasi**_k]_j **on**_k kupil t_j ?

which photo.ACC Vasja.GEN he bought

‘Which photo [of Vasja_k] did he_k buy?’

In contrast, an R-expression in a relative clause of the moved phrase doesn’t violate principle C, as we see in (32) below. Here the R-expression which is the subject of the relative clause is co-referential with the matrix subject, and yet, there is no violation in this sentence. This indicates that in Russian too, adjuncts can merge late:

(32) *Principle C avoided by relative clause of moved NP*

[[Čju kartinu] [kotoruju **Vasja**_k kupil]]_j **on**_k voznenavidel t_j

Whose picture that Vasja bought he came.to.hate

‘Whose picture [that Vasja_k bought] did he_k come to hate?’

This pattern of principle C avoidance depends on internal merge creating a high position to which later external merge of an adjunct can apply. Given this, we can use similar examples as a diagnostic for what actually moves when LBE occurs in Russian. If LBE is actually concealed movement of a full DP as we have argued, we expect to be able to late merge a relative clause to the high (though covert) instance of DP created by LBE. This prediction turns out to be correct: Relative clauses can also avoid principle C in Russian LBE configurations, as the examples of (33) below show:

(33) *LBE with principle C avoiding relative clause*

a. *Adjective LBE*

Doroguščuju_j [kotoruju **Vasja**_k kupil] **on**_k voznenavidel t_j kartinu

very.expensive that Vasja bought he came.to.hate picture

- ‘The VERY EXPENSIVE picture, that Vasja_k bought, he_k came to hate.’
- b. *Demonstrative LBE*
- Ètu_j [kotoruju **Vasja**_k kupil] **on**_k voznenavidel t_j kartinu
 this that Vasja bought he came.to.hate picture
 ‘THIS picture, that Vasja_k bought, he_k came to hate.’
- c. *Possessor LBE*
- Čju_j [kotoruju **Vasja**_k kupil] **on**_k voznenavidel t_j kartinu?
 Whose that Vasja bought he came.to.hate picture
 ‘Whose picture [that Vasja_k bought] did he_k come to hate?’

The fact that overt pied-piping (32) and LBE (33) pattern together in allowing late merge of a relative clause is expected, if the underlying syntax of these two scenarios is the same. The only difference is that the moved DP is fully overt in (32), but partially covert in (33).¹²

Note that we do not expect the same pattern of judgments to emerge simply by doing LBE, and subsequently extracting a relative clause from the base position of DP. If the relative clauses in these examples 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 here if there were not a nominal phrase there to merge to.¹³

6 On the obligatoriness of concealed pied-piping

We’ve argued that LBE at least can involve concealed pied-piping of DP, but we have not yet shown that it must.¹⁴ It is conceivable that concealed pied-piping under LBE is simply an option, though forced for the purposes of PG licensing in (16-21) and for achieving late merge in (33). If concealed pied-piping under LBE is in fact optional, the element undergoing LBE should be able to truly leave DP behind and therefore license a PG on its own, in principle.

In section 3.1, we discussed some semantic reasons why a PG in object position should not be able to be licensed by most of the elements that can undergo LBE (adjectives, demonstratives, etc.). However, as shown in (18) above, LBE can also displace possessors. If possessors are simply DPs (and thus denote individuals), it is plausible that possessors are not constrained by the semantic complications of other sorts of LBE, and thus, might be

¹²In all these LBE + late merge configurations, PGs can be licensed as we’ve seen in previous examples.

¹³Given that the relative clauses in (33) must not have undergone movement, it would also be unclear how these examples could be interpreted if the relative clause were not late merging to a full DP. This is because relative clauses are adjuncts interpreted by Predicate Modification with NP (both being of type $\langle e, t \rangle$), but this interpretive rule could not apply if the relative clauses in (33) were not in fact attached to an NP.

¹⁴Kotek and Erlewine (2016) argue that covert movement pied-pipes as much as possible. They analyze movement that is entirely covert, while we are concerned with covert pied-piping that is driven by overt movement, though Kotek & Erlewine’s claim could conceivably apply to this sort of movement also.

able to license an argument gap. Davis (To appear) demonstrates the existence of possessor LBE in colloquial English, and shows that it can license PGs:¹⁵

- (34) *Parasitic gap licensed by extracted possessor in colloquial English*
- a. This is the guy [who_k I said [____k's idea] I liked [after talking to PG_k today]]
 - b. Who_k do you think [____k's research] is good, [despite not thinking PG_k's paintings are nice]?

Most relevant to the diagnostic used in this paper would be examples like (34a), where possessor extraction licenses an object gap. If such examples can be derived in Russian, we would have evidence that Russian possessors can in fact truly extract on their own, and thus, we would learn that concealed pied-piping is not obligatory.

Unfortunately, it is not immediately obvious whether Russian pre-nominal possessors are DPs or not. Most of them bear agreement morphology that looks just like that of adjectives, and if they are adjectives¹⁶, we don't expect them to be able to license an argument PG anyway, even if they really are able to extract from DP without covertly pied-piping it along.

Rappaport (To appear) provides a few pieces of evidence that pre-nominal possessors in Russian are referential DPs bearing genitive case, unlike similar looking de-nominal adjectives. For instance, Rappaport shows that such possessors participate in binding relations just as typical DPs do, as we see in (35). Here the first person possessor in (35a) is able to bind an anaphor, where the same is not possible for the de-nominal adjective of "author" shown in (35b):

- (35) *Unlike denominal adjectives, pronominal possessors can bind anaphors*
- a. ✓ On cital **moju**₁ stat'ju pro **sebja**₁
 he read my article about self.ACC
 'He read my₁ article about myself₁'
 - b. * On₁ kupil **avtorskij**₂ ekzempljar 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 also argues that such possessors bear genitive case, which is an expected property for a possessor DP, though not of an adjective. One indirect piece of evidence he provides is that such possessors can be coordinated with straightforwardly genitive lexical possessors. A potentially more informative piece of evidence comes from expressions introducing a DP with *kak* ('like, as'), which require that DP to match the case of the standard of comparison. We see this in (36a) in an accusative context, and in (36b) we see the same in a genitive

¹⁵Fox and Nissenbaum (2018) provide more indirect evidence for such extraction based on examples containing multiple parasitic gaps, which are more complex than can be efficiently discussed here.

¹⁶Ljutikova (2012) for instance, argues that Russian pre-nominal possessors are adjuncts.

context, where the DP *Evropejcev* introduced by *kak* bears genitive case due to its standard of comparison being a possessor:

- (36) *Case matching in kak-comparisons*
- a. On **menja** ub”jot kak **muxu**
 He **me.ACC** will.kill like **fly.ACC**
 ‘He will kill me like a fly’
- b. **Vaša** pervaja zadaca, kak
 you.GEN.PL.NOM.fem.SG first task.NOM.fem.SG as
Evropejcev, budet...
 European.GEN.PL will.be...
 ‘Your first task, as Europeans, will be...’

If we accept Rappaport’s argument Russian pre-nominal possessors are basically typical referential case-assigned nominal phrases, we might expect extraction of such elements to license PGs. In what follows, we’ll show that this appears not to be possible.

6.1 Probing concealed pied-piping with possessor LBE

Before moving on to the relevant tests, we must note that Russian PGs have a case matching requirement, which we discuss further in appendix B: the case of the phrase that licenses a given PG must match the case that is normally assigned in the position where the PG is interpreted. If possessors bear genitive case, as Rappaport argues, we must ensure that a PG potentially licensed by LBE of the possessor is also in a position for genitive case assignment. We can ensure that this is so by including negation with the verb whose object is a PG, since negation can trigger genitive marking on objects in Russian.

In (37) below we demonstrate that movement of a genitive PG can indeed license a PG in the object position of a negated verb. The verb in the adjunct is appropriately negated, and the object moved in the matrix clause bears genitive case, assigned by the verb “be.afraid.of”. This movement of a genitive object successfully licenses the PG here:

- (37) *Genitive DP licenses PG in a genitive object position*
- [Č’ego zvuka]_k Lena ispugalas’ t_k, [ne raspoznav ____k
 whose.GEN.SG sound.GEN.SG Lena was.afraid.of not recognize.CNV
 sproson’a]?
 after.waking
 ‘Whose sound was Lena afraid of, not having recognized (it) after waking up?’

Notice that the genitive DP that moved to license the PG in (37) contains a possessor. In (37) that possessor simply remains inside of the genitive object where it originates, but we can modify (37) to extract just the possessor, and see if the interpretation of the PG

in this sentence changes. This change is performed in (38) below, where we see only the possessor overtly moving, and yet the interpretation for the PG doesn't differ: this sentence has the same reading as (37) above, where the moved possessum licenses the PG. This result suggests that possessor LBE in fact fails to license PGs, consistent with concealed pied-piping of the entire possessum DP obligatorily occurring.

- (38) *PG with possessor LBE is interpreted as if the entire possessum moves*
 Č'ego_k Lena ispuǰalas' [t_k zvuka]_j, [ne raspoznav ___j
 whose.GEN.SG Lena was.afraid.of sound.GEN.SG not recognize
 sprosonja]?
 after.waking
 'Whose sound was Lena afraid of, not having recognized (it) after waking up?'

In (39) below we make another attempt using the pronoun *eě* "she", which is ambiguous between accusative and genitive case. This pronoun is independently fine as the object of a negated verb, or as a possessor. In (39) we extract a possessor *eě* in a configuration with a PG in the object position of a negated verb, but the only reading for the PG in (39) is the one we would expect if the entire possessum had moved:

- (39) *"eě" as a possessor does not license an object PG by LBE*
 Eě_k Lena voznenavidela [t_k otkrytku]_j, [ne obnaruživ ___{j/*k} v komnate]
 her Lena came.to.hate card.fem.ACC not find.CNV in room
 a. Lit: 'Hers Lena came to hate card, not having found (it) in the room'
 b. Lit: *'Hers Lena came to hate card, not having found (her) in the room.'

These examples show that an extracted possessor cannot license a PG on its own—the reading we receive when why try to do so is indicative of concealed pied-piping of the entire containing DP.¹⁷ If Rappaport's argumentation serves as reasonable grounds for expecting these possessors to have been potential candidates for PG licensing, then (38-39) suggest that concealed pied-piping is in fact obligatory.

¹⁷We have shown examples attempting to license an object PG with possessor LBE, but what we have not shown are similar examples attempting to license a possessor PG. Such an example is shown in (iv.) below. While we think the judgments for such examples are also indicative of concealed pied-piping, these examples are confounded by the fact that there is no decisive evidence for there actually being a possessor gap here. This is because possessed NPs in Russian receive no marking that indicates whether they are possessed. Thus any judgments for these examples cannot be regarded as conclusive evidence.

- iv. *Possessor ejo doesn't license a possessor PG*
 *Ejo₁ Lena voznenavidela [t₁ sestru]₂, ne obnaruživ [__₁ otkrytku] v komnate.
 her Lena came.to.hate sister.fem.ACC NEG find.CNV card in room
 Lit: 'Hers Lena came to hate sister, not having found a/*her card in the room.'

7 Conclusion

In this paper, we have shown that LBE in Russian licenses PGs with a semantic result that is identical to PG licensing by full DP movement. From this, we argued that LBE in Russian involves concealed pied-piping of the full DP. This result corroborates previous research on LBE in Russian (Pereltsvaig (2008); Fanselow and Féry (2013)) and provides novel evidence from the perspective of interpretation for a mechanism like distributed deletion (Fanselow and Ćavar (2002)). If this conclusion is correct, it reveals that the difference between languages with and without LBE is not necessarily a syntactic one, but may be an issue of how the relevant chains are pronounced.

(40) *LBE as full DP movement + distributed deletion*

[**Kako**j **podarok**]_j Vasja voznenavidel [**kako**j **podarok**]_j?
what present Vasja came.to.hate what present

If our investigation in section 6 is correct that this concealed pied-piping always applies whenever we see LBE, it suggests that in Russian something like the LBC holds in the underlying syntax, just as we see overtly in English examples like (2).

However, this result leaves it a mystery why possessor extraction is apparently possible in certain colloquial English examples like (34) above, but not in Russian. Even if Russian pre-nominal possessors are fundamentally DPs following Rappaport, our findings could be attributed to the position of the Russian possessor: for instance, Bošković (2005) proposes that adjective LBE is impossible in languages with D, since D introduces a phase, but anti-locality prevents movement of an adjunct of NP to spec-DP.¹⁸ If Russian in fact has D, but possessors are generated lower than D, similar concerns will prevent their extraction. In contrast, Bošković points out that such an account does not prevent extraction of elements that originate in spec-DP, and the English possessor is a candidate for such an element.¹⁹ Under this view, colloquial English is like Hungarian, which as Bošković (2005) shows, bans adjective LBE but permits possessor extraction. Under this view, Russian is more like standard English in its extraction patterns, but the availability of distributed deletion prevents this from being apparent on the surface.

¹⁸There are exceptions to this theory, however: Fanselow and Féry (2013) report adjectival LBE in Bulgarian and Macedonian, which have determiners. Pankau (2019) reports the same for Lower Sorbian. What is important for the current discussion is that there are plausible structural factors that can be appealed to here, even if the specific version proposed by Bošković is ultimately too strong.

¹⁹Davis (To appear) argues that PF constraints typically ban such extraction in English, even though possessor extraction should indeed be possible as far its syntax is concerned. It is only in certain contexts in colloquial registers for some speakers that those constraints can be circumvented.

7.1 On the nature of distributed deletion

While the evidence for a PF mechanism like distributed deletion is strong at this point, the existence of such a mechanism is troubling in that it is not obvious what constrains it. Danny Fox (p.c.) suggests that one could avoid positing distributed deletion by assuming that LBE is derived by covert movement followed by late merge of the apparently extracted constituent. There are at least two facts that challenge this approach. The first is that if late merge is really only applicable to adjuncts, as discussed in section 5, then late merge cannot be appealed to for LBE of anything but adjectives and perhaps demonstratives, which are a subset of the elements to which LBE can apply. Second, as we saw in section 4.2 in the discussion of Pereltsvaig (2008), LBE in Russian can displace non-constituents. The way to allow a non-constituent to be targeted by late merge is not straightforward.

- (41) *Non-constituent LBE of P + Adj* (Pereltsvaig 2008.)
- a. **Na sledujuščij** ostan'tes' **trolleybus!**
for next stay trolleybus
'It is against the soviet regime that he demonstrated' (Ex. 2c)
- b. **Protiv sovetskoj** on vystupal **vlasti**
against Soviet he demonstrated regime
'It is against the soviet regime that he demonstrated' (Ex. 4a)

This is not a problem for the distributed deletion analysis, since such deletion presumably applies in the PF part of the derivation, which need not reference structural facts.

If distributed deletion does indeed exist, and if it were freely applicable, languages could frequently create the appearance of all sorts of unexpected locality violations. While this would be an undesirable result, to some extent, this is actually what we need scattered deletion to sometimes do: Pereltsvaig (2008) and Fanselow and Féry (2013) show several circumstances where LBE appears to circumvent expected constraints on sub-extraction from nominal environments. Analogously, van Urk (2019) has recently argued that the character of VP fronting in the Polynesian language Imere is best captured by distributed deletion, since standard syntactic movement possibilities do not properly predict what material that movement can strand. Overall, then, removing distributed deletion from the toolbox of operations is likely unwise: the key is not to over-apply it. See Bošković (2005), Pereltsvaig (2008) and references therein for some consideration of this topic.

To conclude, while the existence of distributed deletion does make even less clear the extent to which we can trust overt strings as representative of underlying structure, the PG diagnostic we present here is useful in that it has the potential to diagnose what is actually moving in a variety of scenarios. Indeed, the sort of facts we have explored here could and should be tested with extraction in other contexts/languages.²⁰ Doing so has the potential

²⁰For instance, Pereltsvaig (2008) argues that inverted DP splits in Russian, which displace NP while stranding its modifiers, is also derived by distributed deletion. If this is so, we expect this construction to show a PG licensing pattern identical to that of LBE.

to reveal other instances of movement that are interestingly not as they appear to be, as we have argued is the case for Russian LBE.

8 Appendix A: PGs and numeral LBE

In section 6, we attempted to use possessor LBE as a test for determining whether concealed pied-piping must apply, or is simply optional. The facts we found for the interaction of possessor LBE and parasitic gaps in object position appears to be indicative of this pied-piping applying obligatorily. As footnote 17 mentions, while similar examples can be constructed with a gap in possessor position, such examples are inconclusive since there is no evidence that such examines definitely contain a gap. Cleaner examples of this sort can be constructed with certain numerals that assign idiosyncratic case to NP. For instance, the numeral “three” assigns genitive case. In (42) below we see extraction of “three”, and the NP “girl” it originated in bears genitive morphology as expected. This example also contains an object PG, which is licensed in a manner indicative of concealed pied-piping, as we’ve seen earlier in this paper:

(42) **PG with LBE of 3**

? Tri_k ja uvidel [t_k devočki]_j v restorane, [ne obnaruživ —_j
 three.ACC.SG I saw girl.GEN.SG in restaurant NEG discover.CNV
 v kafe]
 in cafe
 ‘I saw three girls in the restaurant, (after) not having found (them) in the cafe.’

The next example attempts a numeral PG by marking NP with genitive case, in an attempt to make clear that a DP internal numeral gap is intended here. LBE of “three” does not appear to license this gap:

(43) **LBE of 3 can’t license numeral PG**

* Tri_k ja uvidel [t_k devočki] v restorane, [obnaruživ [—_k
 three.ACC.SG I saw girl.GEN.SG in restaurant discover.CNV
 babuški] v kafe].
 grandmother.GEN.SG in cafe
 ‘I saw three girls in the restaurant, not having found (three) grandmothers in the cafe.’

Another element that behaves similarly is *skol’ko*, (“how many”), which assigns genitive plural to NP. LBE of *skol’ko* seems unable to license a DP-internal PG either:²¹

²¹See Pesetsky (1982) for examples where *skol’ko* appears to license PGs, in different constructions which we leave aside for now.

- (44) * Skol'ko_k Sabina zagruzila [*t_k* fajlov], [obnaruž ____k statej
 how.many Sabine uploaded file.GEN.PL find.CNV article.GEN.PL
 pro svjazyvanije]?
 about binding
 'What number x did Sabine upload x files, having found x articles about binding?'

Overall, these facts indicate that LBE cannot license DP-internal PGs. This could be because LBE obligatorily triggers concealed pied-piping due to something like the LBC, or alternatively, this could be due to a ban the high-type traces that would be necessary for the interpretation of the relevant structures, as discussed in section 3.1.

9 Appendix B: Case matching

As discussed in section 6.1 Russian PGs are subject to a case matching requirement: the case of the moved element can only license a PG if it matches that would be received in the position of the PG. Section 6.1 showed some representative examples of this with genitive case, and here we'll demonstrate a couple more.

In (45a) we see a verb that assigns dative case to its object, and in (45b), a verb that assigns accusative.

- (45) a. Ty pozvonil etomu studentu.
 you called this.DAT student.DAT
 'You called this student.'
 b. Ty obnaružil etogo studenta.
 you found this.ACC student.ACC
 'You found this student.'

In (46)-(47), we see that movement of a dative DP, and LBE from a dative DP, cannot license a PG in an accusative position:

- (46) *Movement offrom DAT DP doesn't license PG in ACC position*
 a. * Kakomu_k ty pozvonil [*t_k* studentu], [ne obnaruživ ____k na
 what.DAT you called student.DAT NEG find.CNV on
 seminare]?
 seminar
 'What student did you call, not having found (that student) at the seminar?'
 b. * [Kakomu studentu]_k ty pozvonil *t_k*, [ne obnaruživ ____k na
 what.DAT student.DAT you called NEG find.CNV on
 seminare]?
 seminar

‘What student did you call, not having found (that student) at the seminar?’

But pied-piping movement of an accusative DP, or LBE from accusative DP, licenses this gap successfully:

(47) *Movement offfrom ACC DP licenses PG in ACC position*

- a. [Kakogo studenta]_k ty otrugal *t_k*, [ne obnaruživ ____k na seminare]?
what.ACC student.ACC you scolded NEG find.CNV on seminar
‘What student did you scold, not having found (that student) at the seminar?’
- b. Kakogo_k ty otrugal [*t_k* studenta], [ne obnaruživ ____k na seminare]?
what.ACC you scolded student.ACC NEG find.CNV on seminar
‘What student did you scold, not having found (that student) at the seminar?’

There are many more combinations of cases that can be tested in principle. We leave this for future work to determine.

10 Appendix C: Scope and LBE

Previous work on LBE in some other Slavic languages (Stjepanović (2011); Despić (2015), a.o.) argues against an analysis of LBE as DP movement plus distributed deletion. One such argument comes from scope. For example, Despić observes that in Serbo-Croatian, a quantifier that has undergone LBE has the same scope (narrow) as a QP that has not moved. In contrast, overt scrambling of QP results in wide scope.

While the facts for Russian are complex, we observe that there are cases in Russian where the scope of a quantifier that has undergone LBE patterns with that of a moved QP. Examples (48-50) illustrate this with the relative scope of negation and a QP. This is what we expect to occur, if LBE of a quantifier is really movement of the entire QP:

(48) *No movement*

Maša ne ljubit dvux komentatorov.
Masha NEG loves two commentators

OK: *two commentators* > ¬: There are two commentators that Masha doesn’t like.
?: ¬ > *two commentators*: It’s not the case that Masha likes two commentators (for example, when she watches the show she actually prefers that there would be only one commentator).

(49) *QP scrambling over negation*

[Dvux komentatorov]_k Maša ne ljubit *t_k*
two commentators Masha NEG loves

OK: *two commentators* >¬: There are two commentators that Masha doesn't like.
 OK: ¬ >*two commentators*: It's not the case that Masha likes two commentators (for example, when she watches the show she actually prefers that there would be only one commentator).

(50) *LBE of quantifier over negation*

Dvux_k Maša ne ljubit [*t_k* komentatorov].
 two Masha NEG loves commentators

OK: *two commentators* >¬: There are two commentators that Masha doesn't like.
 OK: ¬ >*two commentators*: It's not the case that Masha likes two commentators (for example, when she watches the show she actually prefers that there would be only one commentator).

However, facts of this sort quickly become complex. For instance, as (51-53) show, in scenarios with two QPs quantifier LBE results in narrow scope. However, both scrambling and a lack of movement result in scope ambiguity:

(51) *No movement*

Dva mal'čika uvideli každyj podarok
 two boys saw every gift

OK: *two boys* >*every gift*: There are two boys who saw every gift. OK: *every gift* >*two boys*: For every gift, two boys saw it.

(52) *Lower QP scrambled over higher QP*

[Dva podarka]_k každyj mal'čik uvidel *t_k*
 two gifts every boy saw

OK: *two gift* >*every boy*: There are two gifts that were seen by every boy OK: *every boy* >*two gifts*: For every boy, there were two gifts that he saw.

(53) *Q scrambled over higher QP*

Dva_k každyj mal'čik uvidel [*t_k* podarka]
 two every boy saw gifts

*: *two gift* >*every boy*: There are two gifts that were seen by every boy OK: *every boy* >*two gifts*: For every boy, there were two gifts that he saw.

So while LBE can restrict scopal possibilities, it doesn't clearly pattern with scenarios without movement. More work is needed to understand these effects.

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