Categorial selection and functional structure in the noun phrase
Revisiting Russian Small Nominals*

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Abstract

Given the well-attested selectional asymmetries between clauses and nominals, selection-based empirical arguments for the projection of functional structure in the noun phrase are especially pertinent for the debate regarding the syntax of nominal phrases. One such argument is the selection of 'small nominals' by a Russian aspectual prefix. This paper reports naturally occurring and experimental data showing that the Russian cumulative aspectual prefix *na-* is equally compatible with nominals with and without adnominal modifiers and therefore does not c-select a 'small nominal', contrary to all existing claims in the literature. Russian 'small nominals' thus provide no evidence for the selection of functional structure in the noun phrase and the observed restrictions follow from the semantics of the prefix and how it interacts with the semantics of the event description.

1 Introduction

The syntax of the noun phrase is currently at the heart of lively theoretical debates in the syntactic and semantic literature, and transcends theoretical frameworks and persuasions. Ever since the seminal work by Szabolcsi (1983) and Abney (1987), the internal syntax of noun phrases in late GB and minimalist frameworks has mainly come to resemble that of clauses so that they can be of different sizes and headed by different functional categories

such as determiners (category D), possessors (category D or Poss), quantifiers (category Q), classifiers (category Cl) etc., just like clauses have been argued to instantiate projections of C, T, v etc. Similar proposals have been formulated within Head-Driven Phrase Structure Grammar (Xue & McFetridge 1995), Lexical-Functional Grammar (Laczkó 2004) and Dependency Grammar (Osborne 2021). While most proposals convincingly demonstrate the existence of such elements in typologically and genetically diverse languages, they fall short of demonstrating their head status (see Salzmann 2020 for a recent overview of the discussion). This is because most of the distributional arguments typically adduced for the existence of adnominal functional elements D, Poss, Cl etc. are based almost exclusively on cooccurrence restrictions, which need not be syntactic but could be semantic in nature. As a result, nominal expressions have come to have rich, articulated functional structures, sometimes involving recursive D heads (see Hsu & Syed 2020 for a recent example of such a proposal).

Three families of phenomena have been argued to determine headedness in the noun phrase: (i) agreement patterns, (ii) head movement, and (iii) selection. Agreement-based arguments are inconclusive (see Salzmann 2020 and Bruening 2020 for DP- and NP-analyses of hybrid agreement in Serbo-Croatian respectively, initially thought to instantiate an argument for the DP view). Hebrew construct-state nominals, argued by Ritter (1991) and Preminger (2020), to require head movement from N to a higher functional head, have received an endocentric analysis in Bruening 2022.

Selection appears to be the most straightforward way of settling the headedness issue, since it is a local relation between a head and the head of its complement or specifier. Bruening (2009), Bruening et al. (2018), Bruening (2020) have demonstrated that the selection patterns in the nominal domain are the polar opposite of the selection patterns in the clause. They argue that, while there are heads specifically c-selecting certain clausal heads and crucially incompatible with others, noun phrases are selected in such a way as for the selecting head always to ignore all the material intervening between them and the selecting head. It is therefore surprising that there are heads only selecting a finite or a nonfinite CP but there are no heads only selecting definite or indefinite noun phrases, for example. This is problematic for the functional-structure view, since selection in the noun phrases unambiguously identifies the noun as the head. For a functional element such as D, Poss, Cl or Num to qualify as the head of the nominal based on selection, there ought to be heads in natural languages that specifically select, say, quantificational noun phrases and are incompatible with definite ones.

I am aware of three crosslinguistic empirical arguments for the projection of functional structure in the noun phrase based on categorial selection: (i) c-selection of QP by the cumulative aspectual prefix *na-* in Russian (Pereltsvaig 2006); (ii) c-selection of NP by several attributivizers in Tatar (Lyutikova & Pereltsvaig 2015); (iii) c-selection of NumP by a comitative adposition in Digor and Iron Ossetic (Erschler 2019). In all these works, a functional head is argued to impose a c-selectional restriction on the type of noun phrase with which it can cooccur so that certain noun phrases — in this instance 'full DPs', *viz.* nominals accompanied by demonstratives, possessive pronouns or realized as pronouns or proper names, —

can never cooccur with these functional heads.[1]

In this paper, I focus on the first of these empirical arguments, due to Pereltsvaig (2006), which I summarize in a little more detail in Section 2 below. I then proceed to the empirical core of the paper and present, in Section 3, naturally occurring examples of cumulative *na*-verbs taking as their internal arguments bare definites, proper names, personal pronouns and nominals modified by possessive and demonstrative pronouns and universal quantifiers. Section 4 then reports the results of an online acceptability study showing that cumulative *na*-verbs are equally compatible with 'small nominals' and with what is traditionally characterized as 'full DPs'. Section 5 argues that 'small nominals' do not differ substantially from other types of nominals in their ability to control PRO and bind reflexives and reciprocals. In Section 6, I return to the judgements in (3) and address the question of how they can be reconciled with the empirical findings of this paper. In particular, I claim that because the cumulative prefix does not select or introduce arguments, it could not underlie any argument for the projection of functional structure in the noun phrase based on selection. Finally, Section 7 summarizes the discussion.

2 Selectional arguments: the logic

Pereltsvaig (2006) identifies a class of so-called 'small nominals', that is nominals not accompanied by a (strong) determiner, that are claimed to share a relatively stable cluster of syntactico-semantic properties crosslinguistically. These properties are listed in (1).

(1) 'Small nominals' cannot

    a.   have an individuated interpretation

    b.   be specific

    c.   have a partitive interpretation

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1 There is a fourth potential argument, from Larson 2019. It relies on English but the pattern in question can indubitably be replicated crosslinguistically. Larson (2019) claims that the fact that determiners such as *every* can cooccur with nouns, whether count or mass, and cannot cooccur with adjectives suggests that D (*every*) c-selects N (*man/happiness*) but does not c-select A (*happy*), and projects DP in (i) below. This presumably rules out a semantic explanation since both nouns and adjectives are taken to be semantically identical in denoting sets of individuals.

(i) every man/happiness/*happy

If this reasoning were followed through, however, it would lead us to the conclusion that in adjective-noun combinations, it is the adjective that would have to be the head, since the pattern above holds of adjectives just as well:

(ii) beautiful weather/flower/*floral

If the head of the noun-adjective combinations in (ii) is the adjective, then the acceptability of *every beautiful flower* goes against the distributional pattern in (i). I conclude that Larson's (2019) argument does not work as intended and is thus without force. What *could* be responsible for the pattern in (i) and (ii) is the observation that adjuncts select their hosts (Pollard & Sag 1994, Bruening 2010, Zeijlstra 2020).

d. take non-isomorphic wide scope

e. serve as controllers of PRO

f. bind reflexives and reciprocals

g. trigger external agreement

Because most of the properties listed in (1) are semantic in nature and at most capable of diagnosing the presence of a determiner, they can by themselves provide no insight into the question of headedness, which is why I do not discuss them in detail. In Section 5, I revisit the three properties in (1d–f) and show that 'small nominals' can in fact take non-isomorphic wide scope, serve as controllers of PRO and bind reciprocal pronouns. With respect to the headedness issue, however, Pereltsvaig (2006) writes that '[n]ot only can Small Nominals appear in argument positions, but they can be specifically selected by a head' (Pereltsvaig 2006: 455). One such head, according to Pereltsvaig (2006), is the Russian cumulative aspectual prefix *na-* spelling out the Asp head (see also Pereltsvaig 2021). In example (2a) below, the verb appears without such a prefix, whereas in example (2b) the verb does carry one.[2]

(2) a. Džejms Bond skopiroval čerteži.
     James Bond copied   blueprints.ACC
     'James Bond copied {some/the} blueprints.'

   b. Džejms Bond **na-** kopiroval čertežej.
     James Bond **CML**-copied   blueprints.GEN
     'James Bond copied (many) blueprints.'

Pereltsvaig (2006) makes two claims regarding the selectional requirements of the cumulative *na-*: (i) she argues that its arguments cannot be smaller than a projection of a quantifier, QP, so that the bare genitive noun in (2b) is actually accompanied by a silent quantifier; (ii) she posits that at the same time the internal arguments of *na-*verbs cannot be bigger than a QP since cumulative *na-*verbs are incompatible with nominals containing determiners, as in (3a), personal pronouns, as in (3b), or proper names, as in (3c). Consequently, *na-* specifically selects exclusively QPs.[3]

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2 Russian examples in this paper follow the Scholarly Transliteration for Russian. Glosses are simplified for presentational purposes, and the following abbreviations are used: 1 = First person, ACC = accusative, CML = cumulative, GEN = genitive, INTSF = intensifier, N = neuter, PL = plural, POSS = possessive, PST = past, PTCL = particle, REFL = reflexive, REL = relative, SBJV = subjunctive, SG = singular.
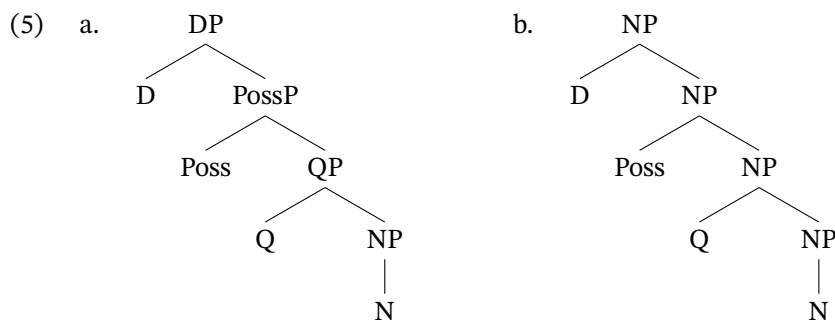
3 The quantity expression Q can be both covert or overt, and when overt, it can itself be marked with accusative case, as in [_QP_ *djužinu čertežej* 'dozen.ACC.SG blueprints.GEN'] (Pereltsvaig 2006: 456). The dependent of Q, on Pereltsvaig's (2006) analysis, receives its genitive case from Q irrespective of whether the quantity expression is overt or not.

(3) a. *Džejms Bond na- priglašal [ètu djužinu krasotok]
        James Bond CML-invited   this dozen   babes
        ('James Bond invited these dozen babes.')

     b. *Džejms Bond na- priglašal [nas / menja]
         James Bond CML-invited   us   me
         ('James Bond invited {us/me} a lot.')

     c. *Džejms Bond na- priglašal [Ivanovyx / Ivanova]
         James Bond CML-invited   Ivanovs   Ivanov
         ('James Bond invited {the Ivanovs/Ivanov} a lot.')

According to Pereltsvaig (2006), the cooccurrence restrictions in (3) follow from the analysis of the cumulative prefix provided in (4), whereby the prefix requires a QP argument in its specifier.

(4)
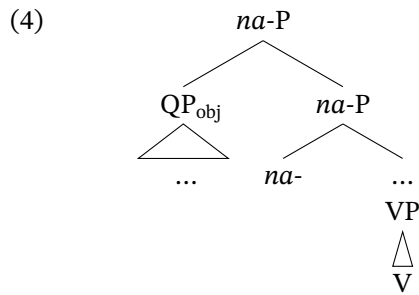
Pereltsvaig's (2006) argument is formulated fully in accordance with the logic of selectional arguments and is geared specifically to highlighting the advantages of the exocentric, functional-structure, view of the noun phrase (whether holding universally across languages or being parameterised to apply to a subset of languages, see Abney 1987, Pereltsvaig 2006, Bošković 2005, Lyutikova 2018), illustrated in (5a), over the endocentric analysis whereby the head of the nominal is the noun (Bruening 2009, Bruening et al. 2018, Miller & Pullum 2022, Pullum & Miller 2022, Chomsky 2020), illustrated in (5b). As mentioned in the introduction, observing selectional restrictions remains a reliable way of identifying the head of a constituent, since selection is a relationship between heads: only heads may select and be selected (Zwicky 1985). The exocentric view in (5a) postulates a hierarchy of nominal projections (e.g., DP > PossP > QP > NP), each of which should be selectable by a head to the exclusion of the others. The endocentric view in (5b), on the other hand, treats noun phrases without the accompanying determiners or quantifiers as categorially identical with the noun phrases that are accompanied by determiners or quantifiers.

(5) a.
```
            DP
           /  \
          D   PossP
              /   \
           Poss    QP
                  /  \
                 Q    NP
                      |
                      N
```

b.
```
            NP
           /  \
          D    NP
              /   \
           Poss    NP
                  /  \
                 Q    NP
                      |
                      N
```

The logic of the argument is therefore as follows: firstly, we observe the existence of a distributional restriction, say the one in (3), whereby certain nominals typically associated with the category D cannot cooccur with a particular verbal head, the cumulative aspectual prefix *na-*. Secondly, we observe that the distributional restriction in question is a negative restriction in that what is required is the *absence* of certain elements. Thirdly, we observe that only the exocentric view in (5a) is capable of capturing this negative restriction: the prefix *na-* selects a nominal containing an element of category Q (including the phonologically null ones), which means that the higher projections have not been merged above it. The endocentric view cannot capture this restriction because it does not categorially distinguish nominals with determiners from nominals without determiners, treating them all as NPs. To capture the restriction, the endocentric view counterintuitively requires the selection of the absence of structure (see Salzmann 2020: §4.2.1 for the discussion of the logic of selection-based arguments).

While Pereltsvaig's (2006) claim based on the cooccurrence restrictions in (3) is widely cited as a selectional argument for the articulated functional structure of the nominal, and, by extension, for the DP hypothesis (Romanova 2007, Borik & Espinal 2019, Bowers 2018, Deal 2010a, Kagan 2012, Rubina & Dubinsky 2021, Salzmann 2020, Türker 2019), it has to the best of my knowledge been taken at face value and has never been questioned or tested empirically. Because the claim is purely distributional, its confirmation or refutation must also be purely distributional. If the restriction exists, then the endocentric view is at a disadvantage; if the restriction does not exist, then the distributional argument for the exocentric view is invalid.

3 Russian cumulative *na*-verbs and their arguments

Inititally guided by my own introspective judgements and using the Russian-language segment of the web, I searched for sentences containing a cumulative *na*-verb with an internal argument modified by a demonstrative or possessive pronoun, or realized as a personal pronoun or a proper name with a view to testing the restrictions in (3a), (3b), and (3c) above. All naturally occurring examples in this section have been checked for acceptability with ca. 30 native speakers of Russian and all have been found to sound acceptable and natural.

3.1 Cumulative *na*-verbs are compatible with bare definites

I begin by showing that cumulative *na*-verbs do not differ from their noncumulative counterparts with respect to compatibility with bare definite internal arguments.

As is known, some Russian NPs that are not accompanied by an overt determiner, nevertheless receive a definite interpretation, which is frequently explained by postulating an unpronounced definite determiner (see Borik & Espinal 2019 and references there). The 'small nominal' view predicts that, since such bare definite nominals are DPs and not QPs, they should be unable to cooccur with cumulative *na*-verbs. As the naturally occurring example (6) shows, however, this prediction is incorrect.

(6)   No   zatem,   kogda   mama   vdovol'   na-   obnimala   malyša,   ona   smogla   vypolnjat'
       but then   when   mum   enough   CML-hugged   baby   she   was.able   execute

       upražnenija   pravil'no.
       exercises   correctly

       'But then, once the mother had hugged the baby enough, she was able to execute the exercises correctly.'   shorturl.at/azKWX

In (6) above, the mother, the baby and the exercises are not accompanied by an overt determiner but, since they have all been mentioned in preceding discourse, are interpreted as definites. One such bare definite NP, *malyša* 'baby.ACC', is the internal argument of the cumulative *na*-verb *naobnimat'* 'CML-hug' derived from *obnimat'* 'hug'. In contrast with the exocentric 'small-nominals approach' whereby *na*-verbs select a QP, the endocentric approach whereby all nominals are NPs rightly predicts the bare definite in (6) to be acceptable.

3.2 Cumulative *na*-verbs are compatible with personal pronouns

Turning to pronominal internal arguments, let us consider example (7) containing the cumulative *na*-verb *napriglašat'* derived from *priglašat'* 'invite', which takes a third-person plural pronoun, *ix* 'them', as its internal argument. That third-person pronoun is accompanied by a floating universal quantifier *vse* 'all' and is interpreted as definite and referring to particular people, and the utterance could be accompanied by direct ostension.

(7)   Na-priglašal   ix   vsex   na   svoju   registraciju...   teper'   ne   znaju,   kak   vsë   razrulit'.
       CML-invited   them   all   on   POSS   registration   now   not   know   how   all   sort.out

       'I invited them lot to my wedding ceremony... and I don't know how to sort it all out now.'   https://proza.ru/2012/02/05/1047

In addition to third-person internal arguments, *napriglašat'* 'CML-invite' is equally compatible with first-person internal arguments, as shown in (8):

(8) Moi druz'ja na- priglašali menja v kuču kakix-to besed.
my friends CML-invited me in pile some conversations
'My friends have invited me to a whole bunch of various conversations.'

In (8), the internal argument of a cumulative *na*-verb is the first-person singular pronoun *menja* 'me', which shows that the cumulative *na-* imposes neither a categorial nor a semantic restriction on the internal argument.

The pattern of compatibility with pronominal internal arguments is not restricted to just one cumulative verb, *napriglašat'* CML-invite', as the following examples involving different verbs make clear. One such verb is *naubivat'* 'CML-kill', illustrated in (9):

(9) Vo-pervyx, on k tomu vremeni uže na- ubivaet tebja i tvoix timejtov.
firstly he by that time already CML-kill you and your team mates
'First of all, by that time he'll already have killed you and your team mates.'

The internal argument of the cumulative *na*-verb *naubivat'* 'kill' in (9) is a coordination that consists of the second-person singular pronoun *tebja* 'you' and a plural NP, *timejtov* 'team mates', accompanied by the second-person possessive pronoun *tvoix* 'your'. The relevant context is that of a video game.

Examples involving *nasobirat'* 'pick up' and a third-person singular pronominal argument are also attested:

(10) on našël zarosli zapreščënnogo sornjaka i na- sobiral ego.
he found overgrowth prohibited weed and CML-picked.up him
'There he found an overgrowth of marijuana and picked it up by the score.'

Another cumulative *na*-verb capable of cooccurring with pronominal internal arguments is *nasočinjat'* 'make up/invent', illustrated in (11), and yet another is *nazakazyvat'* 'order/commission', illustrated in (12).

(11) I ne sobiral on skrupulëzno svedenija o Makedonskom, a sam
and not collected he rigorously facts about Macedonian but himself

že i na- sočinjal ix.
PTCL and CML-invented them

'And he didn't rigorously collect the facts about Alexander the Great but made the whole lot up by himself.'

(12) Oni sduru na- zakazyvali ix ponačalu.
    they foolishly CML-ordered them initially
    'They foolishly ordered them by the score at first.'

Naturally occurring examples thus reveal that cumulative *na*-verbs can take singular and plural personal pronouns as their internal arguments, which is unexpected on the 'small nominal' hypothesis whereby they c-select a QP but follows naturally from the endocentric approach whereby all nominals are NPs.

3.3 Cumulative *na*-verbs are compatible with demonstratives

The literature on the structure of the Russian noun phrase typically treats demonstrative pronouns *ètot* 'this' and *tot* 'that' as the closest counterparts of D heads (Engelhardt & Trugman 1998, Rappaport 2002, Franks & Pereltsvaig 2004, Trugman 2005, Pereltsvaig 2007, but see Bošković 2005, Gepner 2021 for an opposing view). As shown in (3a) and (4), the 'small nominal' hypothesis predicts that cumulative *na*-verbs should be incompatible with internal arguments accompanied by demonstrative pronouns. Nevertheless, such sentences are easy to come by, as the following examples from the Internet demonstrate.

(13) Po suti, na- priglašali tex, kto obeljaet vyrodka.
    by essence CML-invited those who whitewash bastard
    'They essentially invited those who had been whitewashing the bastard.'

The internal argument of the cumulative *napriglašat'* 'CML-invite' in example (13) above is the distal demonstrative pronoun *tex* 'those' accompanied by a restrictive relative clause, which should constitute a c-selection violation in the framework of Pereltsvaig 2006. It has both a referential interpretation, referring to the exact people who had been whitewashing the bastard, and a kind interpretation (Carlson 1977, Chierchia 1998). Their syntactic properties have been argued to be the same (Borik & Espinal 2019), associated with the projection of DP, *pace* Kagan & Pereltsvaig 2011.

(14) Na- vezli ètot musor javno ne iz Novosibirska.
    CML-brought this rubbish clearly not from Novosibirsk
    'Clearly, this rubbish wasn't brought here from Novosibirsk.'   shorturl.at/cmvAC

Example (14) above contains a cumulative *na*-verb, *navezti* 'CML-bring', whose internal argument *ètot musor* 'this rubbish' is a singular noun phrase accompanied by the proximal demonstrative *ètot* 'this'. Because the sentence is used in a context where a particular heap of rubbish is at issue, it is clear that the NP here is definite and purely referential and does not give rise to a kind interpretation.

The findings of this subsection are thus far consistent with those of the previous ones: the existence of naturally occurring examples involving a cumulative *na*-verb taking an internal

argument accompanied by a demonstrative pronoun present a challenge for the 'small nominal' hypothesis. No such challenge is forthcoming for the endocentric, NP-style, approach, since the nominal is an NP irrespective of the presence or absence of a demonstrative.

3.4 Cumulative *na*-verbs are compatible with possessors

Possessive pronouns have equally widely been argued to instantiate D heads in Russian (Engelhardt & Trugman 1998, Rappaport 2002, Franks & Pereltsvaig 2004, Trugman 2005, Pereltsvaig 2007). It is therefore natural to test whether the predictions of the 'small nominal' hypothesis hold for them, too. The examples below show that NPs accompanied by possessive pronouns do occur with cumulative *na*-verbs.

(15) Naprimer, Aleksej Mixajlin na-priglašal moix znakomyx v gruppu
for.instance Alexey Mikhaylin CML-invited my acquaintances in group
'Alexey Mikhaylin, for instance, has invited lots of the people I know to the community.'   https://mydocx.ru/4-100147.html

(16) Na- dobavljala vaši idei v zakladki.
CML-added your ideas in bookmarks
'I've bookmarked a fair share of your ideas.'
https://www.babyblog.ru/user/id1163723/118529

In (15), the internal argument of *napriglašat'* 'CML-invite' is accompanied by a first-person singular possessive pronoun, *moix* 'my', whereas in (16), the internal argument of a different *na*-verb, *nadobavljat'* 'CML-add', is accompanied by a second-person plural possessive pronoun, *vaši* 'your'.

The following example presents perhaps an even more interesting case, since it juxtaposes an NP accompanied by a reflexive possessive pronoun and several proper names.

(17) Na èpizodičeskie roli Ljuk Besson na-priglašal svoix druzej-režissërov
on supporting roles Luc Besson CML-invited POSS:REFL friends-directors

Lui Leter'e, Žerara Kravčika, Èrika Rošana i drugix.
Louis Leterrier Gérard Krawczyk Éric Rochant and others
'Luc Besson invited his film-director friends Louis Leterrier, Gérard Krawczyk, Éric Rochant and others to play supporting roles.'
https://afishaplus.ru/valerian-and-the-city-of-a-thousand-planets-review

The acceptability of (17) could be construed as a counterexample to the observation that proper names are excluded from internal-argument positions of cumulative *na*-verbs, shown in example (3c) from Pereltsvaig 2006.[4] As the following subsection demonstrates, no such

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4 It has been argued in the literature that possessors and demonstratives in Russian may occur lower inside the nominal expression than the D head (Alexiadou et al. 2007, Deal 2010b, Norris 2014). Such a reanalysis of the objects of cumulative *na*-verbs accompanied by demonstratives and possessors from Subsections 3.3 and 3.4 would make them compatible with the 'small nominal' hypothesis. It would also predict that these objects,

observation can be maintained, which is unexpected on the exocentric 'small nominals' approach but is compatible with the endocentric approach that treats nominals with possessors and proper names as NPs.

3.5 Cumulative *na*-verbs are compatible with proper names

The following examples show that cumulative *na*-verbs are indeed compatible with proper-name internal arguments, irrespective of whether those proper names are toponyms, like *Rostov-on-Don* in (18), or corporation names, like *Yandex* in (19).

(18) Itak, na- fotografiroval ja Rostov-na-Donu.
      so   CML-photographed I Rostov-on-Don
      'So, I've photographed Rostov-on-Don a lot.'

                                    https://smart-lab.ru/blog/324335.php

(19) ne uspeli   optimizatory nagovorit'sja i   na- obvinjat' Yandex   vo vsex
      not managed optimizers   CML.talk   and CML-accuse Yandex.ACC in all

        smertnyx grexax, ...
        mortal   sins
      'No sooner had the optimisers had a chance to talk and accuse Yandex of all mortal
      sins, ...'   www.seonews.ru

I conclude from data like (18) and (19) that Pereltsvaig's (2006) claim regarding the incompatibility of cumulative *na*-verbs with proper names is incorrect. Again, as stated in the preceding subsections, the endocentric approach to nominal syntax makes no predictions regarding the acceptability of proper names with these verbs and is therefore at an advantage.

3.6 Cumulative *na*-verbs are compatible with universal quantifiers

Other determiners, often taken to instantiate strong determiners (Milsark 1974) in Russian, can also accompany the internal arguments of cumulative *na*-verbs. One of these is the universal quantifier *každyj* 'each', argued by Bailyn & Bondarenko (2019) to occupy Spec,DP, as shown in (20), and another is the universal quantifier *vse* 'all', as shown in (21).

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by virtue of being small nominals, should have the properties in (1), being unable, for instance, to antecede reciprocals. As I show in Subsection 3.2 and Subsection 3.5, however, the object position of cumulative *na*-verbs can also be filled by personal pronouns and proper names; furthermore, these pronominal objects can antecede reciprocals, as I show in Subsection 5.2. I conclude that relocating demonstratives and possessors to a lower position than D does not rescue the 'small nominal' hypothesis.

(20) A   ja na- kupil   každogo vitamina B otdel'no... teper' p'ju   po odnoj
And I CML-bought each   vitamin B separately now   drink.1SG by one

   v   den'...
   in day

'And I bought each vitamin B separately and now take one pill a day.'

https://otzovik.com/review_10810638.html

(21) a.   Ja-to   vsex druzej na- priglašal i   vsë.
     I- PTCL all   friends CML-invited   and all
     'I've invited all my friends, and that's it.'   https://m.vk.com/wall-26890786_67

    b.   Ona na- otkryvala vse okna   v kvartire...
     she CML-opened   all windows in flat
     'She opened all the windows in the flat.'

https://www.baby.ru/blogs/post/48909937-21027721/

The examples above, where the internal arguments of cumulative *na*-verbs are accompanied by strong quantifiers, are problematic for the exocentric 'small nominals' approach requiring the selection of QP by the prefix *na*-. If, on the other hand, those internal arguments are NPs headed by Ns, as required by the endocentric approach, the facts follow automatically.

There appear to be no adnominal modifiers in Russian argued to instantiate the category D and project a DP in previous literature that are incompatible with cumulative *na*-verbs, as evidenced by the existence of corresponding naturally occurring examples.

3.7 Section summary

In this section, I have provided naturally occurring sentences from Internet searches that show that cumulative *na*-verbs in Russian can take as their internal arguments bare definites, personal pronouns, proper names, and NPs accompanied by demonstrative and possessive pronouns. We thus have preliminary evidence against Pereltsvaig's (2006) claim that 'small nominals' are c-selected by the cumulative aspectual prefix in Russian. In the next section, I provide experimental data confirming this conclusion.

4 Acceptability survey

This section presents the results of an acceptability-judgement study designed to test the predictions of Pereltsvaig's (2006) 'small nominals' hypothesis in the context of cumulative *na*-verbs and compare them with those of the endocentric approach to the structure of the noun phrase whereby the head of a nominal expression is N.

The predictions of the endocentric approach are effectively equivalent to the null hypothesis: noun phrases in identical syntactic positions (i.e. as internal arguments of cumulative *na*-verbs) should be equally acceptable irrespective of the presence of a D-like element. Such sentences should also not differ substantially from grammatical controls.

Because the 'small nominals' hypothesis is based on c-selection, on the other hand, it predicts a significantly higher degree of acceptability for sentences with cumulative *na*-verbs and a 'small-nominal' internal argument than for sentences with cumulative *na*-verbs and a 'full-DP' argument. The former should then be comparable to grammatical controls whereas the latter to ungrammatical controls.

4.1 Design

The test items were eight sentences involving a cumulative *na*-verb with a pronominal internal argument or an internal argument accompanied by a demonstrative pronoun. These were some of the naturally occurring Internet hits discussed in Section 3 above, with occasional modifications to make sure they were not too long or too short. I will refer to this condition as 'has_D' onwards. The eight 'has_D' sentences were then manipulated in such a way as to remove the D-like elements from within the cumulative *na*-verbs' internal arguments. These were labelled 'no_D'. Overall there were eight pairs of sentences with the following cumulative *na*-verbs:

- *napridumyvat'* 'make up': 2 pairs;

- *napriglašat'* 'invite': 2 pairs;

- *nasobirat'* 'pick up': 2 pairs;

- *navezti* 'bring': 1 pair;

- *nazakazyvat'* 'order/commission': 1 pair.

In the 'has_D' sentences, the internal argument either was pronominal (*nas* 'us', *vas* 'you' and *ix* 'them') or contained a demonstrative pronoun (both the proximal *ètix* 'these' and distal *tex* 'those'). The internal arguments in all 'has_D' and 'no_D' sentences were plural. A sample pair is given below.

(22) Na-vezli **ljudej** sjuda so vsej strany, a potom brosili 'no_D'
CML-brought people here from all country and then left
'They brought people from the entire country here, and then just left them.'

(23) Na-vezli **nas** sjuda so vsej strany, a potom brosili 'has_D'
CML-brought us here from all country and then left
'They brought us here from the entire country, and then just left us.'

The only point of difference between (22) and (23) is the form of the internal argument: it is the plural NP *ljudej* 'people' in the 'no_D' sentence (22) and the first-person plural pronoun *nas* 'us' in the 'has_D' sentence (23). Everything else is identical.

In addition to the eight pairs of test sentences, 16 pairs of filler sentences were created by manipulating a variable in a grammatical sentence (condition 'filler-GOOD') to create an

ungrammatical sentence (condition 'filler-BAD'). A sample pair of filler items is given in (24) and (25), where the parameter being manipulated is wh-movement.

(24) Nikto   ne   znaet gde   rabotaet ego mama   'filler-GOOD'
     nobody not knows where works his mum
     'Nobody knows where his mother works.'

(25) *Nikto ne   znaet rabotaet ego mama gde   'filler-BAD'
     nobody not knows works his mum where
     'Nobody knows where his mother works.'

Since Russian is a wh-movement language, sentence (24) is acceptable because the wh-word *gde* 'where' moves to the left edge of the embedded clause. In sentence (25), on the other hand, the wh-word stays *in situ*, giving rise to unacceptability.

4.2 Procedure

The four conditions — 'has_D', 'no_D', 'filler-GOOD' and 'filler-BAD' — were tested using the Ibex Farm platform for online experiments (Drummond 2020). Participants were recruited on a voluntary basis initially from amongst the undergraduate and graduate student population in Moscow and subsequently via social networks; they received no payment.

Each participant had to evaluate a total of 24 sentences (eight test sentences and 16 filler sentences appearing as a separate list for each subject) on a 7-point scale where 1 was 'unacceptable' and 7 'fully acceptable'. Of the eight test sentences, half were 'has_D' and half 'no_D'. Similarly for the filler sentences: eight fillers were 'filler-GOOD' sentences, the other eight were 'filler-BAD' sentences. The test sentences on the one hand, and good and bad filler sentences on the other were distributed in such a way as for each participant to see only one member of each pair. Participants also had to answer a comprehension question after every experimental item. Before commencing the task, participants received detailed instructions and completed two practice items that were not related to the subject matter of the experiment. They also provided basic sociolinguistic information and consented to participation in the study.

4.3 Results

82 subjects (mean age 22.4) took part in the experiment, and none were excluded from subsequent calculations, since the mean scores for ungrammatical filler sentences never exceeded the mean scores for grammatical filler sentences, either on a 7-point scale or as *z*-scores, and no subjects failed to complete more than two test items. The R programming environment (R Core Team 2018) was used for data analysis. I begin by presenting the results of the application of statistical significance tests and then proceed to statistical modelling.

Table 1 summarizes the main results by condition type. It shows that the mean ratings for 'has_D' and 'no_D' are virtually identical; grammatical filler sentences, on the other hand,

Condition	Mean	Sd
filler-GOOD	6.24	1.31
filler-BAD	3.01	2.04
has_D	5.21	1.76
no_D	5.34	1.82

Table 1: Sample mean ratings and standard deviations by condition type

are rated significantly higher than ungrammatical filler sentences. The mean ratings for 'has_D' and 'no_D' are close to the mean rating for 'filler-GOOD', albeit slightly lower.

Using ipsatized z-score ratings instead of 7-point ratings to even out the individual interpretations of the 7-point scale by the subjects, we can visualize the scores for the four conditions as the violin plot in Figure 1.
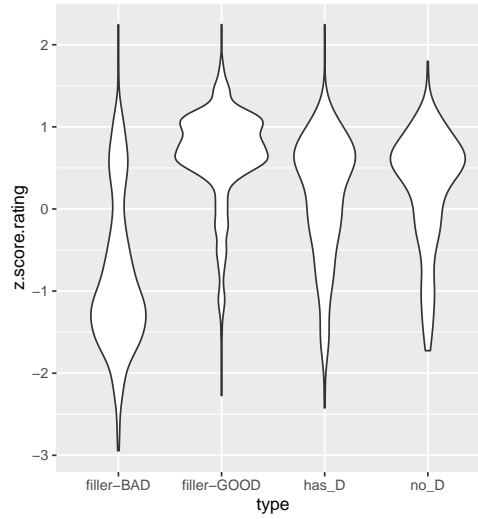

Figure 1: Ipsatized (z-score) ratings by condition type

A visual examination of Figure 1 reveals an almost identical clustering of acceptable responses for both 'has_D' and 'no_D' that is also close to the clustering of acceptable responses for the acceptable fillers. Crucially, 'has_D', predicted by the 'small nominals' hypothesis to be unacceptable as a c-selection violation, looks effectively the opposite of the unacceptable fillers.

Comparing 'has_D' and 'no_D' with each other and using Cohen's (1988) recommendations to label the effect sizes, Welch's Two Sample t-test (mean of $x = 0.25$, mean of $y = 0.15$) suggests that the effect is positive, statistically not significant, and very small (difference $= 0.10$, 95% CI $[-0.02, 0.21]$, $t(642.62) = 1.69$, $p = 0.091$; Cohen's $d = 0.13$, 95% CI $[-0.02, 0.29]$). We see that 'has_D' and 'no_D' do not differ. The very same test applied

rating	has_D	no_D	filler-BAD	filler-GOOD
1	14	17	197	9
2	19	20	149	11
3	27	20	88	17
4	36	30	70	32
5	56	47	31	53
6	70	72	36	115
7	101	118	78	412

Table 2: Rating distribution by condition type

to the 'filler-GOOD' and 'filler-BAD' sentences (mean of $x = 0.65$, mean of $y = -0.85$) reveals a large and statistically significant difference between them (difference = 1.50, 95% CI [1.41, 1.58], $t(1102.47) = 35.39$, $p < 0.001$; Cohen's $d = 1.96$, 95% CI [1.83, 2.10]).

Using Pearson's χ^2 test to compare the rating distribution for 'has_D' *vs.* 'no_D' again reveals no significant difference between them, as shown in Table 2.

Given df = 6 and a standard accepted statistical significance of 0.05, we expect a critical χ^2-value of 12.59159. The overall conclusion from Table 2, then, is that conditions 'has_D' and 'no_D' do not differ ($\chi^2 = 4.0366$, df = 6, $p = 0.6717$). This contrasts starkly with the rating distribution for the ungrammatical and grammatical filler items: $\chi^2 = 627.52$, df = 6, $p < 0.001$.

We can also compare the mean ratings and standard deviations for all pairs of test items separately. These are given in Table 3. We see that sometimes 'no_D' is rated slightly higher than 'has_D' and sometimes 'has_D' is rated slightly higher than 'no_D'. If the rating of 4 is taken as an acceptability threshold so that everything rated below 4 is interpreted as being unacceptable, then all pairs of experimental sentences but one are acceptable. Even though the existence of one sentence pair with low acceptability ratings is surprising as a finding, the low acceptability itself clearly ought to be attributed to an independent factor distinct from the presence *vs.* absence of a D-like element in the internal argument of a cumulative *na*-verb (*nazakazyvat'* 'order/commission', in this instance). If it were the D-like element that was responsible for the low mean rating, we would expect only one member of the pair to score low. What we observe instead is that both members of the pair are affected, since their mean ratings are equally low and virtually indistinguishable.

The factor in question can arguably be identified as the use of an invariant relative complementizer, *čto* 'what/which', rather than the significantly more frequent *kotoryj* 'which', in this pair of sentences.

Sentence	has_D-mean	no_D-mean	has_D-sd	no_D-sd
napridumyval1	5.429	5.784	1.451	1.084
napriglašal	5.763	6.25	1.195	1.123
nasobirala1	5.333	4.108	1.776	2.105
napriglašala	5.659	4.757	1.697	1.706
napridumyval2	5.395	6.273	1.346	1.107
nasobirala2	4.474	5.326	1.767	1.809
navezli	5.895	6.0	1.573	1.312
nazakazyvala	3.837	3.789	2.115	2.220

Table 3: Means and standard deviations arranged per sentence

(26) Ja po tvoej ssylke i s širotoj russkoj duši na- zakazyvala (tex)
I by your link and with broadness Russian soul CML-ordered (those)

trav čto po opisaniju mne ponravilis'
herbs REL by description me pleased

'Using your link and my broad Russian soul I went and ordered the herbs whose
descriptions I liked.' http://golodanie.su/forum/showthread.php?t=15242&page=7

The lower acceptability rate of (26) irrespective of the presence of the demonstrative pronoun
tex 'those', therefore, does not alter the conclusion that 'has_D' and 'no_D' do not differ.

Finally, to evaluate the statistical difference between 'has_D' and 'no_D', two linear mixed-
effects models were fit to the 'has_D'/'no_D' part of the dataset using the lme4 package (Bates
et al. 2015) and the lmerTest package (Kuznetsova et al. 2017) to extract *p*-values and sum-
mary tables via Satterthwaite's degrees of freedom method. One model, m1, predicted the
ratings as a function of item type, with subjects and items added as random effects. The
other model, m0, also predicted the ratings but only on the basis of random effects.[5]

In model m1, if 'has_D' is taken as the intercept, the effect is not significant (df = 560.5,
$t = 1.366$, $p = 0.173$), as can be seen from Table 4.

	Estimate	Std. Error	df	t value	Pr(>|t|)
(Intercept)	0.16319	0.12941	7.61975	1.261	0.245
typeno_D	0.06991	0.05118	560.52974	1.366	0.173

Table 4: Linear mixed-effects model m1

I have plotted the predictions of model m1 using the ggeffects library; they are presented in

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5 lmer model specification for m1: z_score_rating ∼ type + (1 | subj_id_new) + (1 | item), where z_score_rating is
the ipsatized *z*-score. Model m0 had the following formula: z_score_rating ∼ (1 | subj_id_new) + (1 | item). Both
models were also tested on standardized sample *z*-scores and raw 7-point scale scores, with identical results.

Figure 2, and the predicted *z*-score ratings of 'has_D' and 'no_D' are barely distinguishable.
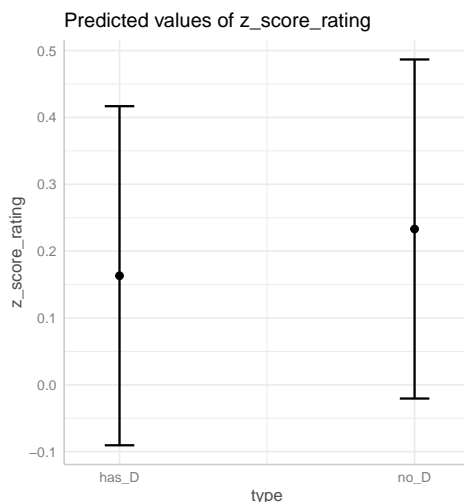

Figure 2: Predictions of `m1`

Comparing the results of models `m1` and `m0` using the `anova` function, shown in Table 5, reveals a lack of a statistically significant effect of sentence type — 'has_D' vs. 'no_D' — on model performance ($\chi^2 = 1.8741$, df $= 1$, $p = 0.171$).[6]

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
m0	4	1315.6	1333.5	−653.82	1307.6			
m1	5	1315.8	1338.1	−652.88	1305.8	1.8741	1	0.171

Table 5: Model comparison

We have seen that multiple statistical significance tests and statistical modelling support the conclusion that 'has_D' and 'no_D' do not differ significantly, exactly as predicted by the null hypothesis. Pereltsvaig's 'small nominals' hypothesis, on the other hand, makes incorrect predictions and is falsified by both naturally occurring and experimental data. The results of the empirical investigation reported in this section and the one before it, then, instantiate the refutation of a distributional claim on the basis of distributional observations. In Section 6, I discuss potential amendments to the 'small nominals' hypothesis aimed at rescuing the QP-selection view in the light of these new data, but first I consider some of the syntactico-semantic properties attributed to 'small nominals'.

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6 R code: `anova(m0, m1)`.

5 Other properties of 'small nominals'

A crucial part of Pereltsvaig's (2006) QP-selection analysis, reiterated in Pereltsvaig 2021, is a tight link between the putative selectional restrictions imposed on the arguments of cumulative *na*-verbs and a cluster of syntactico-semantic properties that 'small nominals' are argued to share crosslinguistically. It would be suspicious if the arguments of cumulative *na*-verbs in the examples from Sections 3 and 4, despite containing overt demonstratives and having a definite interpretation, still failed to bind anaphors or control PRO. While we have already seen that the internal arguments of *na*-verbs can be definite, which is especially visible when they are realized as personal pronouns, a closer look at these properties is warranted. This section shows that 'small nominals' actually can antecede reflexives and reciprocals, control PRO and take non-isomorphic wide scope, even though the ability to do so has strictly speaking no direct bearing on the issue of headedness: the presence of a determiner or quantifier inside a nominal expression does not automatically entail its status as a head.

5.1 Alleged inability to take non-isomorphic wide scope

Pereltsvaig (2006: 443) claims that sentence (27) can only mean that 'every time Bond was operated on there were some five surgeons (not necessarily the same ones every time) who did it,' which should attest to the inability of non-agreement controlling nominals to take wide scope characteristic of definite or specific nominals. The purportedly unavailable wide scope in question is non-isomorphic because the scopal relations ($5 > \forall$) are not reflected in the linear order ($\forall > 5$).

(27) Každyj raz [pjat' xirurgov] **operirovalo** Bonda.
      every time five surgeons operated.N Bond
      'Every time five surgeons operated on Bond.'   [*5 > ∀; ∀ > 5]

Now, 12 out of 15 native-speaker colleagues I have informally surveyed agree that the sentence in (27) *can* be understood as involving the same five surgeons being called on to perform every surgery on Bond, provided the NP *pjat' xirurgov* 'five surgeons' receives a rhematic/focus accent. I should note, however, that that reading can also follow from the surface scope reflected in the linear order, which is why its presence or absence cannot be taken to argue for or against the definite/specific interpretation of non-agreeing numerical subjects.

We have thus seen preliminary evidence showing that 'small nominals' can in fact give rise to meanings traditionally associated with non-isomorphic wide scope but large-scale empirical work is required before any definitive pronouncements can be made. I should note before proceeding that the availability or unavailability of particular interpretations cannot be taken as evidence of the head status of determiners; all it shows is whether a nominal expression behaves for the purposes of scope taking similarly to unambiguous definites.

5.2 Allegedly reduced anaphoric potential

'Small nominals' have also been argued by Pereltsvaig (2006) to instantiate poor controllers of PRO and poor binders of reflexive and reciprocal anaphors. This observation has been contested in subsequent work by Matushansky & Ruys (2015a,b), Ionin & Matushansky (2018) with respect to the binding of reflexives by 'small-nominal' subjects and the availability of particular readings of control for the 'small-nominal' objects of cumulative *na*-verbs, so I do not discuss these particular issues further. Instead, below I present examples of 'small nominals' participating in obligatory exhaustive control and anteceding reciprocal anaphors that seem not to have been discussed in the existing literature. I consider 'small nominals' both in the context of the cumulative *na*-verbs and outside it.

(28) 57% oprošennyx ne xočet [PRO vakcinirovat'sja]
      57% respondents not wants   vaccinate.REFL
      '57% of the respondents do not want to get vaccinated.'   shorturl.at/dAGU6

The subject NP *57% oprošennyx* '57% of the respondents' in example (28) does not control full resolved plural agreement on the finite verb *xočet* 'wants', which appears in its third-person singular form in the present tense. Despite being a 'small nominal' according to Pereltsvaig's (2006) definition, the subject can control the null PRO subject of the infinitival embedded clause. Similarly in (29), the quantified nominal does not control agreement on the finite verb, which displays default singular neuter agreement, and controls PRO in the embedded clause at the same time.

(29) Dovol'no mnogo naučnyx èkspedicij pytalos' [PRO ego najti]
      quite   many   scientific expeditions tried.N   it   find
      'Quite a few scientific expeditions have tried to find it.'
                                              https://www.alean.ru/active/print/3335/

On a more general note, it would actually be surprising if 'small nominals' were unable to antecede various anaphoric elements in Russian while even syntactically non-realized implicit arguments such as the implicit agent in the passive can control PRO in both depictive secondary predicates and infinitival clauses (see Pitteroff & Schäfer 2019 on why implicit control is obligatory control).

(30) A esli èto bylo skazano [PRO so   slezami na glazax?]
      and if this was said   with tears   on eyes
      'And if this were said with tears in one's eyes?'
                                              https://otvet.mail.ru/question/78332431

Example (30) features a passive clause whose agent is implicit and is therefore not realised (Bruening 2013, Rudnev & Volkova 2020). The passive clause contains a depictive secondary predicate, *so slezami na glazax* 'with tears in one's eyes', that is predicated of an entity distinct from the inanimate sentential subject, *viz.* the implicit agent. The same applies to example

([31](#)) containing an infinitival clause whose PRO subject is controlled by the implicit agent of the passive matrix clause.

(31) Vsë èto bylo sdelano [čtoby PRO menja ubrat' podal'še]
      all this was done   for   me   remove further
      'All this was done to move me further away.'

<div align="right">https://www.newsko.ru/news/nk-5015113.html</div>

Turning now to the internal arguments of cumulative *na*-verbs, these are more than capable of binding reciprocal pronouns, as shown below. Because of the highly specific semantics of cumulativity coupled with the structural conditions on reciprocal binding, searching for naturally occurring examples is complicated. Nevertheless, the relevant sentences can easily be constructed and are judged acceptable.

(32) Kto èto vas na- rassažival drug naprotiv druga?
      who that you CML-seated   friend against friend
      'Who on earth has seated you against each other?'

(33) Opjat' kto-to korobok / korobki drug na druga na- stavil!
      again someone boxes.GEN boxes.ACC friend on fried CML-put
      'Someone's stacked the boxes on top of one another again!'

As can be seen from examples ([32](#)) and ([33](#)), the internal arguments of cumulative *na*-verbs, whether animate or inanimate, genitive or accusative, can antecede the reciprocal pronoun *drug druga*, which is a well-behaved reciprocal pronoun taking local c-commanding antecedents.

Because 'small nominals' have been shown in previous literature to participate in partial control and bind reflexive pronouns and, as just demonstrated, can also participate in exhaustive control and bind reciprocal pronouns, I conclude that Pereltsvaig's (2006) conclusion about their inability to do so is premature. I maintain, however, that, even if these properties did in fact hold, this would have had no bearing on the issue of headedness in the nominal domain: in the absence of syntactic evidence, the referential character of an NP does not entail that a functional head such as D is the head of the nominal constituent.

6 No selection, no argument for DP

We have now arrived at an impasse. On the one hand, there are the judgements from Pereltsvaig 2006, shared by all native speakers I have consulted, that the sentences in ([3](#)), repeated here as ([34](#)), are unacceptable. On the other hand, Russian speakers produce such sentences spontaneously, as evidenced by their occurrence on the web, and rate them as acceptable, as revealed by the acceptability survey presented in Section [4](#).[7]

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7 An anonymous reviewer observes that the counterexamples to the selection of QP analysis can be made compatible with it if the definite direct objects from the offending examples in this paper were in fact embedded inside

(34) a. *Džejms Bond na- priglašal [ètu djužinu krasotok]
James Bond CML-invited this dozen babes
('James Bond invited these dozen babes.')

    b. *Džejms Bond na- priglašal [nas / menja]
James Bond CML-invited us me
('James Bond invited {us/me} a lot.')

    c. *Džejms Bond na- priglašal [Ivanovyx / Ivanova]
James Bond CML-invited Ivanovs Ivanov
('James Bond invited {the Ivanovs/Ivanov} a lot.')

A substantial proportion of the naturally occurring counterexamples and acceptable experimental stimuli considered so far contains an adverbial or a prepositional phrase, as illustrated by example (35), repeated from above. This makes them different from the unacceptable examples from Pereltsvaig 2006.

(35) Moi druz'ja na- priglašali menja v kuču kakix-to besed
my friends CML-invited me in pile some conversations
'My friends have invited me to a whole bunch of various conversations.'
https://ficbook.net/readfic/2925938/7780137

Example (35) contains a first-person pronoun in the position of the direct object of a cumulative *na*-verb and therefore directly contradicts Pereltsvaig (2006), who maintains 'that the cumulative prefix *na*- alone is responsible for selection of the object' (Pereltsvaig 2006: 466).

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a bigger constituent headed by a silent Q: *tex trav* 'those herbs' from example (26), for instance, would have the structure [QP Q [DP *tex* [NP *trav*]]]. To approach descriptive adequacy, such an analysis would have to overcome multiple major obstacles. Firstly, it would have to explain why the accusative-marked objects, both singular and plural, and especially proper names, do not have the predicted semantics of quantity or measure expressions despite being headed by a silent Q. Secondly, it would have to stipulate an *ad-hoc* mechanism for derivationally relating the accusative and genitive cases on the object. Thirdly, it would have to explain why that mechanism does not apply when the Q is overtly realised. Fourthly, since it allows definite complements to the genitive-assigning silent Q, it predicts that *èta džužina krasotok* 'this dozen babes' from (34a) should become acceptable in the genitive case. As shown by the unacceptability of (i), this prediction is incorrect.

(i)*Džejms Bond na- priglašal [Q [ètoj džužiny krasotok]
James Bond CML-invited this dozen babes
('James Bond invited these dozen babes.')

Finally, even if the aforementioned obstacles were overcome, the resulting analysis would nevertheless cease to constitute a selection-based argument for the exocentric approach to nominal syntax, since it would no longer be in line with the overall logic of selection-based arguments outlined in Section 2 above, as it would still have to tacitly or explicitly acknowledge that there is no distributional restriction to be captured by postulating a c-selectional requirement.

6.1 Selection of Measure Phrase realized as QP or PP?

While Pereltsvaig (2006) claims that cumulative *na*-verbs select arguments that are QPs, she does not explicitly say that they select *only* QPs. Consequently, Pereltsvaig's (2006) analysis could be reformulated in such a way as to allow for the selection of a Measure Phrase syntactically realized as a PP or a QP. Example (35) and its ilk would then be acceptable because the selectional requirement of the prefix would be satisfied by the PP rather than by the internal argument.

Because there is no homogeneous syntactic category of Measure that would display a uniform distribution, semantic selection of a measure expression would have to reduce to disjunctive selection for either QP or PP so long as the QP or PP in question is interpreted as a measure. This would be analogous to how certain verbs can select either an NP or a clause (Bruening et al. 2018: §2.3). There are numerous problems with such an approach, both conceptual and empirical. Let us consider them in that order.

The conceptual problem has to do with the extremely local character of selection, be it c-selection, s-selection or l-selection. A selecting head selects the head of its complement and it selects the head of its specifier. Normally, when a head selects a P, then it either selects a particular P (e.g. *depend on/*into X*) or a semantic class of P, such as source, location etc. (e.g. *receive something from/*to X*). It is crucial that the relevant semantics should come from the P itself rather than from the dependents of P or the dependents of the dependents of P. Yet the latter is precisely what is required to analyse the PP *v kuču kakix-to besed* 'to a bunch of conversations' as a measure PP: the relevant semantics is contributed by the N *kuča* 'heap'. It is also quite mysterious why *na-* should be able to see the measure-like *kuču* 'heap' in (35) while ignoring the intervening P, and unable to see the measure-like *djužinu* 'dozen' in (34a) ignoring the intervening demonstrative. Distributionally speaking, it is also not clear how such PPs could ever be shown to be measure PPs, given that their syntactic properties are those of their P-heads, as witnessed, for example, by their ability to be substituted by the directional proforms *kuda/tuda* 'where/there' but not the measure/quantity proforms *skol'ko/stol'ko* 'how much/this much'. The addition of another selectional requirement amounts to postulating an unattested model of selection.

Appealing to the selection of measure PPs by the cumulative *na-* comes with the additional difficulty of having to state the criteria of measure-PP-hood; after all, as we have seen, the PPs in question need not even contain a measure expression of any kind. The directional PP *na svoju registraciju* 'to one's wedding' in example (7) contains a singular NP accompanied by a reflexive possessive pronoun. The adverbial expression *sduru* 'foolishly' in example (12) also does not contain any measure expressions and does not convey any measure semantics.

Furthermore, because the modified 'small nominals' approach allows for the satisfaction of the cumulative *na*-prefix's selectional requirements by either a QP or a PP, it makes two clear predictions, both of them incorrect. The first incorrect prediction stems from how disjunctive selection normally works. If the cumulative *na*-head indeed selects either a QP or a measure PP at a time, then sentences with cumulative *na*-verbs that contain both a QP and a measure PP should always be unacceptable, since they cannot simultaneously be selected

by one and the same head. We find this behaviour with verbs like *claim*, which select either an NP or a CP but not both, so that both *Hugh claimed it* and *Hugh claimed that I had left* are acceptable but **Hugh claimed you that I had left* is not. Cumulative *na*-verbs, on the other hand, can cooccur with both a measure-denoting 'small nominal' and a measure-denoting vP adjunct at the same time.

(36) a. My texniki   u Vas uže   na- kupili po polnoj
         we equipment   at you already CML-bought by full
         'We've already bought a full share of equipment from you.'

                                          https://www.forumavia.ru/t/150438/22/

     b. V ètom godu ot   ètoj problemy otdoxnul po polnoj
         in this year from this problem   rest.PST   by full
         'This year, I took a full share of rest from this problem.'   shorturl.at/vAHL2

In (36a), the cumulative *na-* cooccurs with both a genitive NP *texniki* 'equipment' interpreted as a measure, according to Pereltsvaig's (2006) criteria, as well as the PP *po polnoj* 'in full', which, as the intransitive example (36b) shows, is a vP/VP modifier. The genitive NP *texniki* and the PP *po polnoj* do not form a constituent, **texniki po polnoj*. The order in (36a), then, does not reflect a discontinuous constituent.

The other prediction is that sentences with cumulative *na*-verbs and a (non-QP) definite internal argument but without a measure PP should always be unacceptable. Yet, as the naturally occurring example (37) demonstrates, such sentences are attested.

(37) On dobavil [čto evropejcy sami   na- pridumyvali èti   ugrozy.]
     he added   that Europeans INTSF CML-invented   these.ACC threats.ACC
     'He added that Europeans invented those threats themselves.'   shorturl.at/orPYZ

The bracketed embedded clause in (37) above is a simple transitive clause. It contains a cumulative *na*-verb taking a definite object, *èti ugrozy* 'these threats', and no PP argument, whether overt or implicit, is present. If the cumulative *na-* imposed a c-selectional requirement (for a QP or a PP), it would remain unsatisfied. If it imposed an s-selectional requirement for a measure, it too would remain unsatisfied.

The same observation applies to cumulative *na*-verbs formed on the basis of unaccusative predicates. Let us examine a cumulative *na*-verb formed on the basis of *padat'* 'fall'. The acute in the examples below is used to mark stress so as to distinguish the cumulative verb from its homograph meaning 'attack'.

(38) Èti   list'ja na- pádal-**i** /*na- pádal-**o**   s   kryši.
     these leaves   CML-fell- **PL**   CML-fell- **SG:N** from roof
     'These leaves have fallen from the roof.'

In (38), the subject is the internal argument in the form of a plural NP, *list'ja* 'leaves', modified by a proximal demonstrative, *èti* 'these'. Because it obligatorily controls full resolved

agreement on the finite verb, it is not a QP, as argued by Pereltsvaig (2006), Matushansky & Ruys (2015a,b), Ionin & Matushansky (2018) and numerous other authors. The utterance can also be accompanied by direct ostention, proving that the subject is definite and referential. The perfectivizing prefix *na-* is cumulative, rather than purely perfectivizing, as the unacceptability of the minimally different example (39) involving a singular subject demonstrates.

(39) *Ètot list na- pádal s   kryši.
       this leaf CML-fell   from roof
       ('This leaf has fallen from the roof.')

Finally, the PP *s kryši* 'from the roof' does not have the semantics of a measure expression. Example (38), then, contains no QPs or measure PPs and is expected to be unacceptable, contrary to fact. If the PP had had the semantics of a measure expression, it would have satisfied the selectional requirement of *na-* in (39), resulting in an acceptable judgement, again contrary to fact.

Before closing this subsection, I would like to briefly mention what seems to me an under-appreciated argument from Romanova (2007: 188) showing that the cumulative *na*-prefix could not be imposing a c-selectional requirement on the internal argument. The argument is based on the existence of obligatorily intransitive cumulative *na*-verbs such as *na-kurit'* 'smoke', *na-toptat'* 'trample' or *na-bolet'* 'ache'. If the prefix did c-select a QP, its c-selectional requirement would invariably remain unsatisfied, leading to irreparable unacceptability as in the English example (40a), where *devour*, which normally c-selects a nominal direct object, is deprived of one. In actual fact, the effect is the opposite, as shown by example (40b).

(40) a. *They have devoured.

      b. Nu vy tut i   na- toptali!
          well you here and CML-trampled
          'What a mess of footsteps you've left here!'

I conclude that the Russian cumulative aspectual prefix *na-* does not select anything other than the verb (phrase) to which it attaches. It does not select a nominal, whether measure-denoting or otherwise, and it does not select a PP (see Romanova 2007, Zinova 2016 for the same conclusion). It follows, then, that, because it does not perform selection, it could not form the basis of an argument for the selection of functional structure in the noun phrase.

6.2 'Selectional restrictions' as epiphenomenon

While cumulative *na*-verbs, as we have seen, are compatible with a wide range of NPs and can therefore not plausibly be argued to impose a selectional requirement on the type of NP with which they cooccur, something must be responsible for the unacceptability of Pereltsvaig's original examples. Although developing a detailed full-fledged analysis is beyond the scope of this paper, I maintain that the key to understanding the distribution of acceptabil-

ity judgements for sentences with cumulative *na*-verbs and definite or pronominal internal arguments lies in the semantics of these verbs.

In particular, the observed distribution of acceptability judgements follows if cumulative *na*-verbs are creation verbs and the cumulative prefix *na*- is a measure function applying to the event argument (Romanova 2007, Žaucer 2009), measuring the accumulation of the change of state (Zaliznyak et al. 2015: 121). For reasons of space, I simply assume that that is so, but see Romanova (2007: chap. 4) for detailed argumentation and analysis, as well as further references. The measure function can measure the event along a variety of scales (entity, stuff, intensity, time, space etc.), and the relevant scales are all introduced inside the verb phrase in a variety of ways — as selected arguments introduced by V, Appl and v/Voice, as non-selected dependents, and can sometimes be inferred from the lexical semantics of the unprefixed verb. The semantic contribution of the cumulative prefix is given semi-formally in (41) below.

(41) $\llbracket NA_{CUM} \rrbracket (\llbracket VP \rrbracket) = \lambda e \exists \Delta [VP'(e) \& \mu(\Delta) = n_C \& \text{degree-of-change}(e, \Delta)] \& n_C \geq C_C$,
       with the presupposition that C_C must be a high estimate   (Romanova 2007: 209)

To yield a sensible cumulative verb, *na*- must apply to events that contain degrees (Δ in the representation above is a set of degrees contained in e) so that those degrees can be measured. The measure $\mu(\Delta) = n_C$ is a weak cardinal number that must be sufficiently substantial.

Let us see how this captures the contrast between the pair of unaccusative sentences (38) and (39) above. As a creation verb, *na-pádat'* ʟCMʟ-fall' creates a large quantity of the event of leaf-falling in the form of a heap of fallen leaves, so the measure-related $\mu(\Delta) = n_C$ and $n_C \geq C_C$ parts of the meaning of *na*- can be perceived directly. Example (38) involving a plural NP is compatible with this interpretation while example (39) involving a singular definite NP contradicts it. As Romanova (2007) notes, the same applies to the obligatorily intransitive cumulative *na*-verbs *na-dyšat'* ʟCMʟ-breathe', *na-kurit'* ʟCMʟ-smoke' etc. that also contradict Pereltsvaig's (2006) claims about the selectional requirements of *na*-. What these creation verbs create are an accumulation of warmth in the case of *na-dyšat'* ʟCMʟ-breathe' and an accumulation of smoke in the case of *na-kurit'* ʟCMʟ-smoke'.

Turning now to the contrast between the unacceptable (34) and the acceptable (35) featuring the cumulative verb *napriglašat'* 'invite', the unacceptable examples do not specify the measure-related $\mu(\Delta) = n_C$ and $n_C \geq C_C$ parts of the meaning of the aspectual prefix. Once the degree of change component of the meaning is emphasized, however, either by the inclusion of a PP, as in the subset of acceptable examples in this paper, or by the speaker of the utterance witnessing a substantial number of invitees carrying a name badge with 'Ivanov' on it, examples like (34c) become acceptable.

Russian cumulative *na*-verbs, then, do not c-select a 'small nominal', and their selectional pattern is exactly the same as that of all the other verbs selecting an NP. The putative c-selectional restriction is only apparent, and the actual restrictions are in fact semantic in nature.

7 Conclusions

In this paper, I have reexamined Pereltsvaig's (2006) claims regarding the existence of selected 'small nominals' in Russian. We have seen that the analysis of the Russian cumulative prefix *na-* as c-selecting a small-nominal QP and being incompatible with definite referential noun phrases, is unmotivated. I have shown, by adducing naturally occurring data from Internet searches, that the Russian cumulative *na*-verbs are entirely compatible with definite noun phrases, possessed noun phrases and personal pronouns. I have also provided experimental evidence from an online acceptability survey confirming this observation: Russian speakers place no negative requirement on the type of nominal that can cooccur with cumulative *na*-verbs. I have argued that the inexistence of such a negative requirement is consistent with the overall selectional patterns both in Russian and elsewhere: whenever a head c-selects a nominal, it invariably disregards the intervening nominal modifiers (Bruening et al. 2018, Bruening 2020). Contrary to numerous claims in the literature, then, Russian 'small nominals' cannot and do not provide any evidence for the selection of functional structure inside the noun phrase.

Conflict of interest

The author declares none.

References

Abney, Steven Paul. 1987. *The English noun phrase in its sentential aspect*. Massachusetts Institute of Technology dissertation.

Alexiadou, Artemis, Liliane Haegeman & Melita Stavrou (eds.). 2007. *Noun phrase in the generative perspective*. New York, NY: Mouton de Gruyter.

Bailyn, John Frederick & Tatiana Bondarenko. 2019. Theoretical and empirical issues in Russian ellipsis. In Jeroen van Craenenbroeck & Tanja Temmerman (eds.), *The Oxford handbook of ellipsis*, 988–1019. Oxford: Oxford University Press.

Bates, Douglas et al. 2015. Fitting linear mixed-effects models using lme4. *Journal of Statistical Software* 67(1). 1–48. https://doi.org/10.18637/jss.v067.i01.

Borik, Olga & M.-Teresa Espinal. 2019. Definiteness in Russian bare nominal kinds. In Ana Aguilar-Guevara, Julia Pozas Loyo & Violeta Vázquez-Rojas Maldonado (eds.), *Definiteness across languages*, 293–318. Berlin: Language Science Press.

Bošković, Željko. 2005. Left branch extraction, structure of NP, and scrambling. In Joachim Sabel & Mamoru Saito (eds.), *The free word order phenomenon: Its syntactic sources and diversity*, 13–74. Berlin: de Gruyter. https://doi.org/10.1515/9783110197266.13.

Bowers, John. 2018. *Deriving syntactic relations*. Cambridge University Press.

Bruening, Benjamin. 2009. Selectional asymmetries between CP and DP suggest that the DP Hypothesis is wrong. In L. MacKenzie (ed.), *U. Penn working papers in linguistics 15.1: Proceedings of the 32nd Annual Penn Linguistics Colloquium*, 26–35.

Bruening, Benjamin. 2010. Ditransitive asymmetries and a theory of idiom formation. *Linguistic Inquiry* 41(4). 519–562. https://doi.org/10.1162/ling_a_00012.

Bruening, Benjamin. 2013. *By* phrases in passives and nominals. *Syntax* 16(1). 1–41. https://doi.org/10.1111/j.1467-9612.2012.00171.x.

Bruening, Benjamin. 2020. The head of the nominal is N, not D: N-to-D movement, hybrid agreement, and conventionalized expressions. *Glossa: a journal of general linguistics* 5(1). https://doi.org/10.5334/gjgl.1031.

Bruening, Benjamin. 2022. Hebrew nominals do not require functional structure above the NP. *Glossa: a journal of general linguistics* 7(1). https://doi.org/10.16995/glossa.5763.

Bruening, Benjamin, Xuyen Dinh & Lan Kim. 2018. Selection, idioms, and the structure of nominal phrases with and without classifiers. *Glossa: a journal of general linguistics* 3(1). 42. https://doi.org/10.5334/gjgl.288.

Carlson, Gregory N. 1977. *Reference to kinds in English*. University of Massachusetts at Amherst dissertation.

Chierchia, Gennaro. 1998. Reference to kinds across languages. *Natural Language Semantics* 6(4). 339–405. https://doi.org/10.1023/a:1008324218506.

Chomsky, Noam. 2020. The UCLA lectures. Unpublished ms., https://lingbuzz.net/lingbuzz/005485.

Cohen, Jacob. 1988. *Statistical power analysis for the behavioral sciences*. Routledge.

Deal, Amy Rose. 2010a. Ergative case and the transitive subject: a view from Nez Perce. *Natural Language & Linguistic Theory* 28(1). 73–120. https://doi.org/10.1007/s11049-009-9081-5.

Deal, Amy Rose. 2010b. *Topics in the Nez Perce verb*. Amherst, MA: University of Massachusetts at Amherst dissertation.

Drummond, Alex. 2020. *Ibex Farm manual*. Online.

Engelhardt, Miriam & Helen Trugman. 1998. D as a source of adnominal genitive in Russian. In Željko Bošković, Steven Franks & William Snyder (eds.), *Formal Approaches to Slavic Linguistics 6: The Connecticut Meeting 1997*, 114–133. Ann Arbor, MI: Michigan Slavic Publications.

Erschler, David. 2019. A new argument for existence of the DP in languages without articles. *Journal of Linguistics* 55(4). 879–887. https://doi.org/10.1017/s0022226719000288.

Franks, Steven & Asya Pereltsvaig. 2004. Functional categories in the nominal domain. In Olga Arnaudova et al. (eds.), *Formal Approaches to Slavic Linguistics 12: The Ottawa Meeting 2003*, 109–128. Ann Arbor, MI: Michigan Slavic Publications.

Gepner, Maria. 2021. Demonstratives, possessives and quantifier expressions in articleless Russian. In Andreas Blümel et al. (eds.), *Advances in formal Slavic linguistics 2018*, 87–114. Berlin: Language Science Press. https://doi.org/10.5281/zenodo.5483098.

Hsu, Brian & Saurov Syed. 2020. Cooccurrence of nonarticle determiners as evidence for split DPs and bundled projections. *Language* 96(3). e114–e134. https://doi.org/10.1353/lan.2020.0051.

Ionin, Tania & Ora Matushansky. 2018. *Cardinals: The syntax and semantics of cardinal-containing expressions*. Cambridge, MA: The MIT Press.

Kagan, Olga. 2012. *Semantics of genitive objects in Russian: A study of genitive of negation and intensional genitive case*. Dordrecht: Springer.

Kagan, Olga & Asya Pereltsvaig. 2011. Syntax and semantics of bare NPs: Objects of intensive reflexive verbs in Russian. *Empirical issues in syntax and semantics* 8. 221–238.

Kuznetsova, Alexandra, Per B. Brockhoff & Rune H. B. Christensen. 2017. lmerTest package: Tests in linear mixed effects models. *Journal of Statistical Software* 82(13). 1–26. https://doi.org/10.18637/jss.v082.i13.

Laczkó, Tibor. 2004. Grammatical functions, LMT, and control in the Hungarian DP revisited. In Miriam Butt & Tracy Holloway King (eds.), *Proceedings of the LFG04 conference*, 313–333. Stanford, CA: CSLI Publications.

Larson, Richard. 2019. The DP hypothesis and (a)symmetries between DP and CP. *Linguistic Analysis* 42(3–4). 507–548.

Lyutikova, Ekaterina. 2018. *Struktura imennoĭ gruppȳ v bezartiklevom yazȳke* [The structure of the noun phrase in an articleless language]. Moscow: LRC Publishing House. 440.

Lyutikova, Ekaterina & Asya Pereltsvaig. 2015. The Tatar DP. *Canadian Journal of Linguistics/Revue canadienne de linguistique* 60(3). 289–325. https://doi.org/10.1017/s0008413100026232.

Matushansky, Ora & Eddy G Ruys. 2015a. 4000 measure NPs: another pass through the *шлюз*. In Małgorzata Szajbel-Keck, Roslyn Burns & Darya Kavitskaya (eds.), *Proceedings of FASL*, vol. 23, 184–205.

Matushansky, Ora & Eddy G Ruys. 2015b. Measure for measure. In Gerhild Zybatow et al. (eds.), *Slavic grammar from a formal perspective: The 10th anniversary FDSL conference*, 317–330.

Miller, Philip & Geoffrey K. Pullum. 2022. La tête du groupe nominal: l'hypothèse du DP dans les théories génératives. *Corela* (HS-37). https://doi.org/10.4000/corela.15038.

Milsark, Gary. 1974. *Existential sentences in English*. Cambridge, Massachusetts: Massachusetts Institute of Technology dissertation.

Norris, Mark. 2014. *A theory of nominal concord*. Santa Cruz, CA: University of California at Santa Cruz dissertation.

Osborne, Timothy. 2021. NPs, not DPs: The NP vs. DP debate in the context of dependency grammar. *Acta Linguistica Academica* 68(3). 274–317. https://doi.org/10.1556/2062.2021.00001.

Pereltsvaig, Asya. 2006. Small nominals. *Natural Language & Linguistic Theory* 24(2). 433–500. https://doi.org/10.1007/s11049-005-3820-z.

Pereltsvaig, Asya. 2007. The universality of DP: A view from Russian. *Studia Linguistica* 61(1). 59–94. https://doi.org/10.1111/j.1467-9582.2007.00129.x.

Pereltsvaig, Asya. 2021. Noun phrases, big and small. In Sabine Laszakovits & Zheng Shen (eds.), *The size of things I: Structure building*, 323–337. Berlin: Language Science Press. https://doi.org/10.5281/zenodo.5524304.

Pitteroff, Marcel & Florian Schäfer. 2019. Implicit control crosslinguistically. *Language* 95(1). 136–184. https://doi.org/10.1353/lan.2019.0016.

Pollard, Carl & Ivan A. Sag. 1994. *Head-driven Phrase Structure Grammar*. Chicago: Chicago University Press.

Preminger, Omer. 2020. Functional structure in the noun phrase: revisiting Hebrew nominals. *Glossa: a journal of general linguistics* 5(1). https://doi.org/10.5334/gjgl.1244.

Pullum, Geoffrey K. & Philip Miller. 2022. NPs versus DPs: Why Chomsky was right. Unpublished ms.

R Core Team. 2018. *R: A Language and Environment for Statistical Computing*. R Foundation for Statistical Computing. Vienna, Austria.

Rappaport, Gilbert C. 2002. Numeral phrases in Russian: A minimalist approach. *Journal of Slavic linguistics* 10(1–2). 327–340.

Ritter, Elizabeth. 1991. Two functional categories in noun phrases: Evidence from Modern Hebrew. In Susan D. Rothstein (ed.), *Perspectives on phrase structure: Heads and licensing*, 37–62. San Diego, CA: Academic Press. https://doi.org/10.1163/9789004373198_004.

Romanova, Eugenia. 2007. *Constructing perfectivity in Russian*. University of Tromsø dissertation.

Rubina, Angelina & Stanley Dubinsky. 2021. Morphosyntactic, contextual, and lexical determinants of non-referentiality in Russian. Paper presented at Slavic Linguistics Society 16, 3rd September 2021.

Rudnev, Pavel & Anna Volkova. 2020. Case marking in Russian eventive nominalisations revisited. *Russian Linguistics* 44(2).

Salzmann, Martin. 2020. The NP vs. DP debate. Why previous arguments are inconclusive and what a good argument could look like. Evidence from agreement with hybrid nouns. *Glossa: a journal of general linguistics* 5(1). https://doi.org/10.5334/gjgl.1123.

Szabolcsi, Anna. 1983. The possessor that ran away from home. *The Linguistic Review* 3(1). 89–102. https://doi.org/10.1515/tlir.1983.3.1.89.

Trugman, Helen. 2005. *Syntax of Russian DPs, and DP-internal agreement phenomena*. Tel Aviv University dissertation.

Türker, Lola. 2019. *Noun phrases in article-less languages: Uzbek and beyond*. Amsterdam/Philadelphia: John Benjamins.

Xue, Ping & Paul McFetridge. 1995. DP structure, HPSG and the Chinese NP. In *Proceedings of the 14th Annual Conference of the Canadian Linguistics Association*.

Zaliznyak, Anna A., Irina L. Mikaelyan & Alekseĭ D. Shmelev. 2015. *Russkaya aspektologiya: v zashchitu vidovoĭ parȳ* [Russian aspectologu: in defence of the aspectual pair]. Moscow: LRC Publishing House.

Žaucer, Rok. 2009. *A VP-internal/resultative analysis of 4 'VP-external' uses of Slavic verbal prefixes*. University of Ottawa dissertation.

Zeijlstra, Hedde. 2020. Labeling, selection, and feature checking. In Peter W. Smith, Johannes Mursell & Katharina Hartmann (eds.), *Agree to Agree: Agreement in the Minimalist Programme*, 137–174. Berlin: Language Science Press.

Zinova, Yulia. 2016. *Russian verbal prefixation: A frame semantic analysis*. Heinrich-Heine-Universität Düsseldorf dissertation.

Zwicky, Arnold M. 1985. Heads. *Journal of Linguistics* 21(1). 1–29. https://doi.org/10.1017/s0022226700010008.