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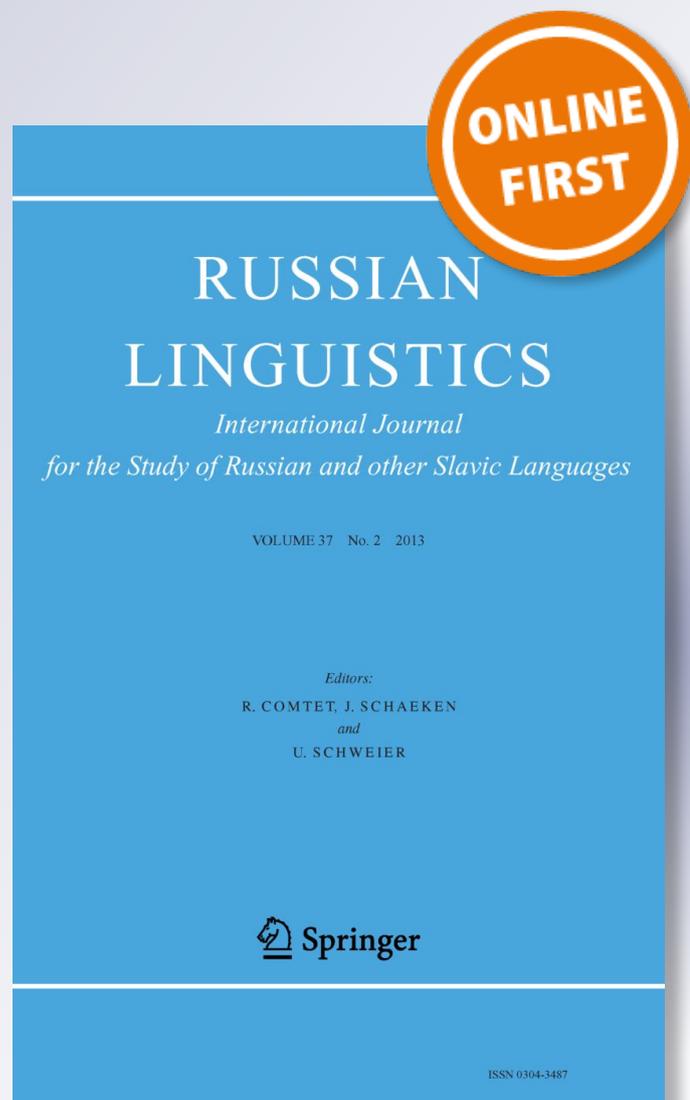
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Case marking in Russian eventive nominalizations: inherent vs. dependent case theory

Падежное маркирование в русских событийных номинализациях: ингерентный или зависимый падеж

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Abstract In recent years, two theories have been advocated in the syntactic literature with respect to case assignment mechanisms, and this paper tests them based on new empirical material from Russian. One theory, advocated by Woolford and others, is Inherent Case Theory (ICT), which views case as an overt reflection of a relationship between a given noun phrase and a (usually functional) head. The other theory, known as Dependent Case Theory (DCT) and advocated most recently by Baker and Bobaljik, views case as a reflection of a relationship between noun phrases in a given structural domain. In this paper, we test the two theories against the findings of two experimental studies conducted by us on eventive nominalizations in Russian. In such nominalizations, transitive/agentive subjects are marked by the instrumental, whereas objects/internal arguments are marked by the genitive. We call into question whether in these types of nominalizations, an agentive subject that is not accompanied by an internal argument that needs a case is marked by the instrumental (as predicted by ICT) or the genitive (as predicted by DCT). Having tested this in two experimental studies, we argue that only one of these theories, the ICT, can account for our empirical findings in a complete and coherent way.

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Аннотация В этой статье на новом эмпирическом материале из русского языка тестируются две теории приписывания падежа, представленные в современной синтаксической литературе. Одна теория, связанная с именами Э. Вулфорд и других исследователей,—это теория ингерентного падежа, рассматривающая падеж как экспонент синтаксической связи между именной группой и некоторой (обычно функциональной) вершиной. Другая теория—теория зависимого падежа—отстаивается в недавних работах М. Бейкера и Дж. Бобалькиа; в этой теории падеж отражает соотношение именных групп в некоторой структурной области. В статье мы проводим эмпирическую проверку данных теорий, используя результаты проведенных нами экспериментальных исследований русских событийных номинализаций. В таких номинализациях переходные (агентивные) подлежащие маркируются инструменталисом, а дополнения/внутренние аргументы—генитивом. Мы задаемся вопросом, какое маркирование получает агентивный внешний аргумент в номинализации, где внутренний аргумент отсутствует либо не нуждается в структурном падеже. Теория ингерентного падежа предсказывает в таком случае инструменталис, теория зависимого падежа—генитив. На основе двух экспериментов мы показываем, что только теория ингерентного падежа может последовательно объяснить эмпирические данные русского языка.

1 Introduction

This paper deals with the issues surrounding case theory. In recent years, two approaches have been competing with respect to case assignment mechanisms, and this paper gives an account of how we tested them based on new empirical material from Russian. One approach, which we shall refer to as Inherent Case Theory (for reasons which will become clear in Sect. 2), or ICT for short, views case as an overt reflection of a relationship between a given noun phrase and a (usually functional) head. The other approach, known as Dependent Case Theory (DCT) views case as a reflection of a relationship between noun phrases in a given structural domain. In this paper, we test the two theories against the findings of two experimental studies conducted by us on eventive nominalizations in Russian. We argue that only one of these theories, the ICT, can account for these findings in a complete and coherent way.

The rest of the paper is organized as follows: Sect. 2 describes the two theories in more detail and lays out their predictions with respect to the constructions under consideration. Sections 3 and 4 describe the two experimental studies we have conducted in order to tease apart those predictions. In Sect. 5, we discuss the results and evaluate which case theory can account for the Russian facts.

But first a brief note on Eventive Nominalizations (ENs) in Russian is called for. Grimshaw (1990), Alexiadou (2001) and others distinguish several classes of derived nominals, particularly ‘process’ and ‘result’ nominals (for a similar distinction in Russian see Apresjan 1974). As shown in Pazel’skaja (2006), Padučeva (2009) and Pereltsvaig¹ in Russian, derived nominals that are otherwise indistinguishable from ‘process’ nominals can denote not only activities (processes) but also achievements and even states. Consequently, the term ‘eventive’ appears to be more appropriate for such nominals. The example in (1) illustrates an EN based on a transitive verb:

¹Pereltsvaig, A., Eventive Nominalizations in Russian and the DP / NP Debate. To appear in *Linguistic Inquiry*.

- (1) a. *razrušenie goroda vragom*
 destruction city.GEN² enemy.INSTR
- b. *razrušenie vragom goroda*
 destruction enemy.INSTR city.GEN
- both: '[a / the] destruction of the city by the enemy'

One notable fact about ENs is the head-before-arguments order: the deverbal noun *razrušenie* 'destruction' appears before its arguments *goroda* 'city' and *vragom* 'enemy'. Contrary to Rappaport (2000, 2002),³ we derive this order via the movement of the head around the argument(s). Moreover, contrary to Engelhardt and Trugman (1998)⁴ and Rappaport (2000, 2002; see also fn. 3), we have argued elsewhere (Lyutikova 2014, 2017; Pereltsvaig, see fn. 1) that the Russian genitive case in nominals is assigned not by a possessive determiner head D^o, but by a lower functional head *n*^o, which dominates the lexical noun phrase and introduces an external argument of the nominal (unlike in Tatar, in which the genitive is assigned by D^o; see Lyutikova and Pereltsvaig 2015a, 2015b). Another important fact to note is that the order of the arguments is 'free', as shown in (1). The order of the arguments is in fact subject to weight- and information-structure-based constraints, as discussed in Pereltsvaig's⁵ paper; in the experimental studies reported below, word order was controlled for. Finally, note that in Russian ENs lexical case on the internal argument assigned by the verbal base is preserved, as shown in (2) (unlike, for example, in Lithuanian, in which lexical cases assigned by verbs can be replaced by the structural genitive in nominalizations; cf. Zaika 2014). ENs based on transitive verbs that check lexical case on the internal argument, as in (2b), will be crucial to our experimental studies below:

- (2) a. *torgovat' marixuanoj*
 to.trade marijuana.INSTR
 'to trade in marijuana'
- b. *torgovlja marixuanoj*
 trade(N) marijuana.INSTR
 '{a/the} trade in marijuana'

2 Two case theories and their predictions

In this section, we consider the two Case Theories mentioned in the introduction—the Inherent Case Theory (ICT) and the Dependent Case Theory (DCT)—and identify certain types of ENs for which the two theories make contrasting predictions.

First, consider the ICT. The closest to the consensus Minimalist view of Case, this theory is laid out in Chomsky (2000), Bobaljik and Wurmbrand (2009), Pesetsky and Torrego

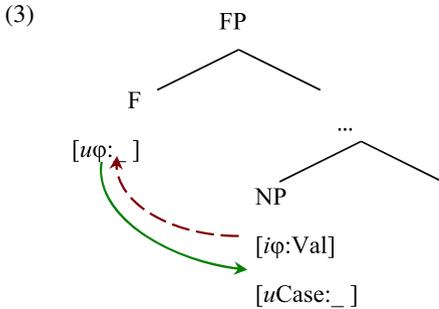
²The following abbreviations are used: ABS—absolute; ACC—accusative; AUX—auxiliary; DAT—dative; ERG—ergative; GEN—genitive; INSTR—instrumental; N—nominalization. For syntactic categories, we use the following abbreviations: C—complementizer, D—determiner, *n*—light nominal head, P—preposition, Q—quantifier/numeral, T—tense (predicative) head, V—verb. The ^o symbol indicates the head, i.e. V^o means the verbal head.

³See also Rappaport, G. C., *The Slavic noun phrase*. Position paper presented at the Workshop on Comparative Slavic Morphosyntax, Indiana University, Bloomington, May 1998.

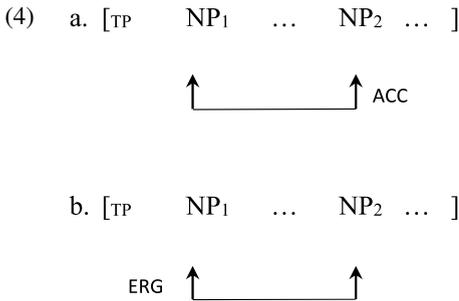
⁴Cf. also Engelhardt, M., & Trugman, H., *Double genitive constructions in Russian*. Presented at the Workshop on Comparative Slavic Morphosyntax, Indiana University, Bloomington, May 1998.

⁵Pereltsvaig, A., *Nominalizations in Russian: argument structure, case, and the functional architecture of the noun phrase*. Paper presented at the 6th Workshop on Nominalizations. Verona (Italy) 2015.

(2001, 2011), Woolford (1997, 2006), *inter alia*, and applied specifically to Russian in Bailyn (2004, 2012). According to ICT, case is a relationship between a noun phrase and a typically functional, mostly verbal head. For example, Pesetsky and Torrego (2001) proposed that the nominative (NOM) is an expression of the finite Tense head (T°); similarly, Bailyn (2004) argued that the quantificational genitive (GEN) in Russian is an expression of the quantificational head Q° introducing numerals and lower quantifiers. This is schematized in general terms in (3):



In contrast, the DCT, developed by Marantz (1991) and advocated more recently by Baker (2012, 2014, 2015), Baker and Bobaljik (2017), considers case to be a relationship between two noun phrases competing for Case in a defined domain. For instance, the ACC is seen as a marker of the ‘lower’ of two noun phrases in the same domain, whereas the ERG is taken to be a marker of the ‘higher’ of two nominals in the same domain, as schematized in (4):



Each of the two theories distinguishes three types of case. In particular, both theories allow for the lexical case, that is a case that is dependent on a particular lexical item and which preempts other cases; see (2) above. In addition, the ICT distinguishes the so-called Inherent Case (which gives the theory its name) and Structural Case. Inherent Case is tied to a particular θ -role such as Agent, as in the Basque example in (5). The ERG is, thus, considered to be an instance of Inherent Case, whereas the ABS is considered to be Structural Case:

- (5) Miren-ek atea ireki du.
 Miren-ERG door.ABS open AUX
 ‘Miren opened the door.’ (Levin 1989, p. 2, cited in Woolford 2006, p. 115)

In contrast, the DCT distinguishes Dependent Case, that is case that is dependent on there being another noun phrase in a defined domain, and the so-called Unmarked Case. In the Basque example above, the ERG is an instance of Dependent Case because it appears only

in the presence of another noun phrase (i.e. the object) with which it competes for Case. The ABS, in contrast, is an instance of Unmarked Case.

Previous arguments in support of one or the other of the two theories came mostly from ergative languages such as Basque, Shipibo, Chukchi, and so on. In this paper, we turn to a language that is generally considered to be a nominative-accusative language, but whose ENs exhibit ergative case alignment, namely Russian. As can be seen from the example below, ENs based on transitive verbs contain an internal argument ('object') in the GEN and an external argument ('subject') in the INSTR, whereas ENs based on unaccusative verbs contain a sole argument in the GEN. Thus, the INSTR can be viewed as similar to ERG and the GEN as similar to the ABS (cf. Koptjevskaja-Tamm's 1993, 2013 characterization of Russian ENs as belonging to the ergative-possessive type):

- (6) a. Transitive:
 razrušenie goroda vragom
 destruction city.GEN enemy.INSTR
 'destruction of the city by the enemy'
- b. Unaccusative:
 vymiranie jazykov
 dying.out languages.GEN
 'dying out of languages'

With respect to these two types of structures—('simple') transitive and unaccusative—the two theories make the same predictions. Their predictions vary, however, with respect to two other types of structures: (A) those that contain only one noun phrase which is the Agent (i.e. unergatives), and (B) those that contain two noun phrases neither of which is the Agent. In constructions of type A, the ICT predicts Inherent Case, whereas the DCT predicts the Unmarked Case. In constructions of type B, the predictions are exactly the opposite: the ICT predicts Structural Case, whereas the DCT predicts the Dependent Case. Because in Russian constructions of type B, such as psych-predicates and 'resistance'-type predicates (e.g. *soprotivlenie* 'resistance'), are rife with additional complications, in our experimental studies we have set them aside.

Instead, in what follows we focus on constructions of type A, which include unergatives (e.g. *xoždenie* 'going, walking'), as well as transitive predicates whose internal argument is marked with Lexical Case and therefore is not competing for Case with the external argument such as *torgovlja* 'trade', which takes INSTR internal argument; *mščenie* 'avenging', which takes a dative (DAT) internal argument; and *kasanie* 'touching', which takes a GEN internal argument. A third kind of type A constructions we have considered involves transitive predicates whose internal arguments are prepositional phrases (PP, and are therefore exempt from Case requirements), such as *preklonenie* 'worshipping' and *mečtanie* 'dreaming'. The fourth and final kind of type A constructions involves transitive predicates whose internal arguments are infinitival phrases (also exempt from Case requirements), such as *planirovanie* 'planning', *uprašivanie* 'begging'. To recap, what all these ENs have in common is that they contain only one noun phrase in need of case (once Lexical Case is assigned), but that the noun phrase is the Agent. As pointed out above, the two theories make contrasting predictions with respect to such structures: since the external argument is associated with the Agent θ -role, the ICT predicts it will appear in the Inherent Case (here, INSTR), while the DCT predicts that the external argument will appear with the Unmarked Case (here, GEN). In DCT, the appearance of the Unmarked Case in such structures is a result of there being only one noun phrase competing for Case; noun phrases with Lexical Case, as well as prepositional and verbal phrases (PPS and VPs) (or tense phrases TPs), or complementizer phrases

(CPs), depending on the analysis of infinitival structures, which is irrelevant for the present purposes), are effectively invisible when it comes to Case competition. So, would ENs containing such predicates include external arguments in the INSTR, as in (7a), or in the GEN, as in (7b)? This is exactly the questions we set out to answer:

- (7) a. *torgovlja narkodel'cami marixuanoj*
 trade(N) drug.traffickers.INSTR marijuana.INSTR
 b. *torgovlja narkodel'cov marixuanoj*
 trade(N) drug.traffickers.GEN marijuana.INSTR
 both: ‘{a/the} trade in marijuana by drug traffickers’

Examples reported in the previous literature, as in (8), are all DCT-compatible, that is, contain the external argument in the GEN:

- (8) a. *plavanie životnyx*
 swimming animals.GEN
 ‘swimming of animals’
 b. *torgovlja angličan opiumom*
 trading the.British.GEN opium.INSTR
 ‘trading in opium by the British’

However, our preliminary searches in the Russian National Corpus (RNC) and Google revealed some relevant examples that are ICT-compatible, that is contain the external argument in the INSTR (the following examples are all Google hits):⁶

- (9) a. *xoždenie imi v ježdnevno stirannyx ženoj noskax*
 walking.around they.INSTR in daily laundered wife.INSTR socks
 ‘their walking around in socks daily washed by the wife’⁷
 b. *zavedovanie kafedroj docentami*
 superintending department.INSTR lecturers.INSTR
 ‘heading of departments by lecturers’⁸
 c. *vladenie studentami navykami samoorganizacii*
 possession students.INSTR [skills self-organization].INSTR
 ‘possession of skills of self-organization by students’⁹

⁶Similar examples from the RNC include the following:

- (i) a. *Ovladenie rebēnkom ljuboj dejatel'nostju*
 mastering child.INSTR [any activity].INSTR
 ‘mastering of any activity by a child’
 (RNC: I. V. Dubrovina. *Praktičeskaja psixologija* [. . .]. *Voprosy psixologii*. 2004.04.13)
 b. *faktičeskoe pol'zovanie potrebitelem uslugami*
 actual using consumer.INSTR services.INSTR
 ‘actual using of services by a consumer’
 (RNC: n.a. *Osobennosti zaključenii* [. . .]. *Arbitražnyj i graždanskij processy*. 2003.04.28)
 c. *požimanie Baffetom plečami*
 shrugging Buffett.INSTR shoulders.INSTR
 ‘Buffett’s shrugging the shoulders’ (RNC: D. Mendeljuk. *Sueta. Biznec žurnal*. 2004.08.17)

⁷<http://amigos.lv/ru/qna?id=78348> (March 2018).

⁸http://old.kpfu.ru/struktur/zav_kaf.htm (January 2018).

⁹http://www.rusnauka.com/14_ENXXI_2014/Pedagogica/2_166928.doc.htm (January 2018).

- d. komandovanie polkom *polkovnikom Zassom*
 commanding regiment.INSTR Colonel Sasse.INSTR
 ‘command of the regiment by Colonel Sasse’¹⁰
- e. obladanie *monarxom* vsej polnotoj vlasti
 possessing monarch.INSTR [all fullness power].INSTR
 ‘possession of full power by a monarch’¹¹

Intriguingly, virtually all examples of unergatives that appeared with the INSTR external argument contained a PP of some sort, as in (9a) and also (10a). Only one example from the RNC contained an unergative predicate, an external argument in the INSTR and no PP, see (10b). We wondered whether the presence of a PP plays an important role in allowing the external argument to be marked INSTR:

- (10) a. xoždenie *imi* v tonkix kolgotax, [...] legkix sapožkax
 walking.around they.INSTR in thin stockings . . . light boots
 i koroten’kix kurtočkax
 and short coats
 ‘their walking around in thin stockings, light boots and short coats’¹²
- b. vo vremja penija *soslužasčimi*
 during singing acolytes.INSTR
 ‘during singing by the acolytes’
 (RNC: S. A. Diomidov. *Ukazatel’ porjadka arxierejskix služenij*. 1915)

The acceptability of such ENs with INSTR external arguments was further confirmed by a pilot study conducted with a dozen native speakers of Russian who were asked to complete the following sentence. Since the sentence paraphrases a famous quote, all respondents completed it with two arguments (both internal and external). The order of arguments differed from speaker to speaker, but crucially the external argument, *kuxarka* ‘cook’ was marked with GEN by some speakers and with INSTR by others. It thus emerged that there is inter-speaker variation: could some speakers be guided by DCT and others by ICT, perhaps?

- (11) “Lenin pisal, čto ljubaja kuxarka možet upravljat’ gosudarstvom, no pozže opyt Sovetskogo Sojuza pokazal, čto upravlenie _____ privelo k ploxim posledstvijam.”
 ‘Lenin said that any cook can manage the state, but later Soviet experience showed that managing _____ has sad consequences.’
- a. upravlenie *kuxarki* gosudarstvom
 managing cook.GEN state.INSTR
 ‘a cook’s managing the state’
- b. upravlenie *kuxarkoj* gosudarstvom
 managing cook.INSTR state.INSTR
 ‘a cook’s managing the state’

Another suggestive pattern that offered support for the ICT arose from the examples containing *kasanie* ‘touching’ found through Google searches: in these examples (illustrated below), the external argument was marked with INSTR only if it denoted an entity that controlled the movement that resulted in touching; otherwise, the external argument is marked with GEN:

¹⁰<http://smolbattle.ru/> (forum) (February 2018).

¹¹Kozbanenko V.A. (Ed.) (2006). *Pravovedenie: Učebnik*. Moskva.

¹²http://www.krasrab.com/archive/2013/11/28/15/view_article (February 2018).

- (12) a. *kasanie sportsmenom setki*
 touching athlete.INSTR net.GEN
 ‘touching of the net by the athlete’
- b. *kasanie snarjada bëder*
 touching crossbar.GEN hips.GEN
 ‘touching of the crossbar at the hips’

In order to assess both interspeaker variation and variability across specific constructions, we conducted two experimental studies reported below. The goal of these studies was two-fold: (a) to determine what the patterns of case marking in Russian ENs are, by using corpus and experimental methods, and (b) to investigate whether the ICT or the DCT accounts better for these patterns. As we shall see below, these studies exhibited the following three findings:

1. There is a great deal of variation;
2. neither the ICT nor the DCT (as previously defined) accounts for the full range of Russian data;
3. but the ICT can be amended to do so and the DCT cannot.

3 Experimental study #1: fill-in-the-blanks

In order to address the research questions identified in the previous section we conducted two experimental studies. The first study involved a fill-in-the-blanks task, illustrated below with an example of a transitive (bivalent) predicate with a lexically case-marked internal argument (henceforth, Trans + LEX, where LEX stands for lexical case):

- (13) Pri vide babuški *sobaka^{nom} maxala xvostom^{instr}*, odnako takoe maxanie _____
 vyražalo ne ljubov', a želanie poest'.
 ‘On seeing grandma *dog waved tail* however such *waving* _____ expressed
 not love, but wanting to eat.’

The study was conducted online, using Google Forms. The subjects were presented with 35 experimental stimuli, as well as 4 training examples and 35 fillers (which were participial constructions). Altogether 126 people responded, of whom 7 had to be disqualified because they did not seem to understand the task. Thus, data from 119 respondents was analyzed. These respondents varied in age from 15 to 55, with an average age of 23. Both genders were represented: 31 were male and 88 female. (The male respondents were aged between 15–52, with an average age of 25; the female respondents were aged between 15–55, with an average age of 22.) No correlation of the responses with age or gender has been apparent to us. We did not ask for information that would allow us to contemplate the possibility of geographical variation. Most of the respondents were non-linguists.

Having analyzed the data from this experiment, we reached the following conclusions and formulated additional research questions:

- A) There is much interspeaker variation, with the overwhelming majority of respondents (99.2%) using the INSTR in some of the relevant examples, and none of them consistently using the INSTR in all the relevant examples. What is the nature of this variation? Is it subject to sociolinguistic factors or due to an interplay of different grammars?
- B) Approximately 30% of the respondents used the INSTR only in Trans + LEX where the internal argument is marked with the lexical GEN, seemingly to avoid two GEN arguments (as suggested by Babby 1997). The examples of this type of structure used

in our experimental stimuli set are given in (14) below. Is this a constraint against two occurrences of the GEN on internal and external arguments, or is something else at play here?

- C) As with Google searches, virtually all examples of INSTR involved Trans + LEX constructions with varying lexical cases on the internal argument (INSTR, DAT, or GEN) but the experimental data contained only 1 token of the INSTR with an unergative predicate.¹³ Why is there such a difference between the two types of structures? From the ICT perspective, both unergatives and Trans + LEX structures have an Agent, which is expected to be marked by the INSTR. From the DCT perspective both unergatives and Trans + LEX structures have only one caseless noun phrase in Case competition. Crucially, neither theory offers an obvious account as to why the two types of predicates lead to different patterns of Case marking:

- (14) a. ožidanie *reporterom* skandala
 expecting reporter.INSTR scandal.GEN
 'the reporter expecting a scandal'
 b. kasanie *prodavcom* monitora
 touching vendor.INSTR monitor.GEN
 'the vendor touching the monitor'

To address these new research questions, a second experiment was conducted, as reported in the following section.

4 Experimental study #2: acceptability judgments

Our second experimental study involved an acceptability judgment task and used the same subjects who responded to our first experimental study, which allowed us to compare their responses in the two studies, while completing two different sorts of tasks. Of the 119 respondents from the first experiment who were asked to participate, 73 responded (61.3% response rate). These respondents ranged in age from 15 to 53, with both genders represented (19 male, 54 female). Most respondents were once again non-linguists.

In the second experiment, subjects were asked to judge entire sentences on a non-calibrated Likert scale from 1 to 5. Like the first study, this one was also done online, using Google Forms, and included 4 examples of each type of nominalization, but no fillers. The decision to not use fillers was based on our desire to receive as many responses as possible from the same subjects who responded to the first study and therefore a need to keep the test as short as possible. Prior to the test, subjects were randomly divided into two lists, with each list evaluating 2 of the 4 examples in each nominalization type with GEN and the other 2 examples with the INSTR. This design allowed us to receive judgements for each sentence with the relevant noun phrase in the GEN or in the INSTR, without any individual subjects having to judge essentially the same sentence twice, with two different case marking patterns.

Moreover, subjects were also divided into two groups, based on responses in the first experiment: recall from the previous section, that about a third of respondents in the first

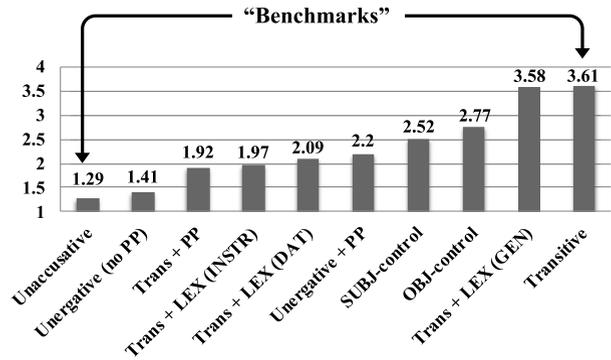
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(i) Daže zimoj deduška plavaet v rečke každyj den', xotja eždnevnoe plavanie *deduškoj*^{instr} bespokoit vsju sem'ju.
 'Even in winter grandfather swims in the river every day, although daily swimming by *grandfather* worries the whole family.'

Table 1 Distribution of speakers across groups and lists

	Total	Group 1	Group 2
Experimental list 1	38	28	10
Experimental list 2	35	25	10

Fig. 1 Acceptability of INSTR in nominalizations with different stems



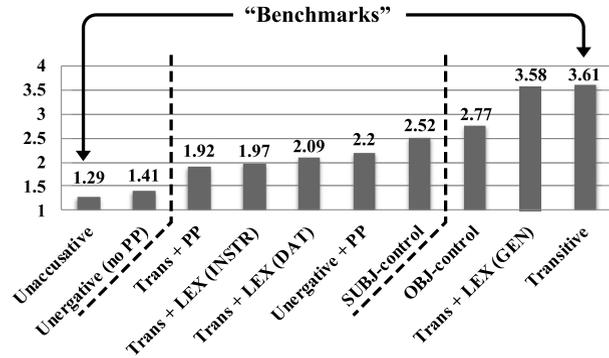
experiment used the INSTR on the external argument only if the internal argument was lexically marked as GEN (Trans + LEX (GEN)), seemingly to avoid two GEN noun phrases in a row. Those respondents were placed in Group 2; of the 33 such respondents in the first study, 20 (60.61%) participated in the second study as well. Group 1 contained respondents who in the first experiments used the INSTR at least once, besides examples of Trans + LEX (GEN) structures. Of the 86 such respondents in the first study, 53 (63.6%) participated in the second study. Subjects in each group were divided up into two lists, as summarized in Table 1.

Subsequent statistical analysis showed that the differences between Group 1 and Group 2 in responses to experimental stimuli in the second study are not statistically significant (see below for further discussion). Therefore, in what follows we present the results from the two groups together.

As summarized in Fig. 1, ten different types of ENs were evaluated in the second experiment, and all ten received different average acceptability scores when it came to the use of the INSTR on the external argument (or the internal argument, in the case of unaccusatives). The acceptability of the GEN on the relevant noun phrases differed as well, to which we shall return below. As expected, ENs with unaccusative and ‘simple’ transitive predicates presented ‘benchmarks’ by which the acceptability of other constructions can be assessed. As expected, ENs with unaccusative predicates were judged ‘on the floor’ of the acceptability range (recall that ‘1’ rather than ‘0’ was the lowest possible acceptability score). In contrast, the INSTR was judged most favorably in examples with ‘simple’ transitive predicates, again, as expected. Note, however, that even in these structures in which the INSTR is most acceptable, its score does not reach perfect acceptability (5) or even close-to-perfect (4). The acceptability of the INSTR in all other types of ENs was judged to be somewhere between the ‘really bad’ score as in unaccusatives and the ‘okay-ish’ score as in ‘simple’ transitives.

Note that ENs containing unergative predicates were tested separately with and without some sort of adjunct PP. Transitive predicates with lexically case marked internal arguments were broken down into three categories based on the specific lexical case involved: INSTR, DAT, or GEN. Finally, transitive predicates with infinitival internal arguments were broken down into subject-control and object-control predicates. All these fine distinctions paid off, as

Fig. 2 Acceptability of INSTR in nominalizations with different stems, with statistical significance



the relevant predicates resulted in different acceptability judgments for the INSTR on the external argument. For example, the INSTR was judged as much less acceptable in unergatives without a PP than in those with a PP (1.41 vs. 2.2). Are these differences in the acceptability of the INSTR statistically significant?

Our analysis showed that the results for the ten categories of ENs can be binned into three groups, as shown in Fig. 2. The average acceptability score for the two types of structures in the ‘least acceptable’ bin (i.e. unaccusatives and unadorned unergatives) is 1.35. The average acceptability score for the two types of structures in the middle bin (Trans + PP, Trans + LEX (INSTR), Trans + LEX (DAT), unergatives with a PP, and transitives with a subject-control infinitive) is 2.14. Finally, the average acceptability score for the two types of structures in the ‘most acceptable’ bin (i.e. transitives with a object-control infinitive, Trans + LEX (GEN), and ‘simple’ transitives) is 3.32. To group the types of nominalizations we applied Student’s *t*-test to the sets of acceptability scores for different types of ENs. The *T*-test shows whether the mean differences between the sets are significant. In order to avoid an assumption about the normality of variance we also tested the sets of scores for homogeneity using the Mann-Whitney *U*-test. The results of the two statistical tests coincided.

This break-down into three bins cannot be straightforwardly accounted for by either the ICT or the DCT. The ICT cannot explain the difference between the structures in the ‘most acceptable’ and the middle bins, nor the patterning of ‘unadorned unergatives’ with unaccusatives: all these structures contain an Agent, so from the ICT perspective they are equivalent. On the other hand, the DCT cannot account for the contrast between structures in the ‘least acceptable’ and the middle bins: from the DCT perspective, arguments that do not compete for Case and adjuncts could not possibly matter as far as Case marking is concerned. Nor can the DCT handle the contrast between unergatives with and without a PP.

One possible explanation to consider is that the 3-bin break-down results from there being two kinds of speakers in our pool of respondents: according to this hypothesis, some speakers are ‘ICT-ists’ (conflating the ‘most acceptable’ and the middle bins), and other speakers are ‘DCT-ists’ (conflating the ‘least acceptable’ and the ‘middle’ bins). In order to test this hypothesis, we investigated whether our respondents were consistent in judging the INSTR in ENs with predicates of the same type. Recall that there were 4 examples of ENs with each type of predicate for the subjects to judge, two of which would be presented with the INSTR and the other two with the GEN. Thus, a given subject might judge sentences with the following two Trans + LEX (DAT) nominalizations—to what extent did they judge such pairs consistently?

- (15) a. podrażanie diletantom masteru
 imitating diletant.INSTR master.DAT
 'a diletant imitating the master'
- b. przyznanie grabitelem advokatu
 confessing robber.INSTR lawyer.DAT
 'a robber confessing to a lawyer'

We found, based on the Kendall coefficient,¹⁴ that respondents can be placed on a spectrum, from the most consistent in judging the INSTR in nominalizations of the same type to the least consistent. Crucially, there is no consistent division into 'ICT-ists' and 'DCT-ists' among the respondents.

Our second hypothesis was that some speakers simply like the INSTR in relevant constructions more than other speakers do. This hypothesis is already compromised by the previous thesis: speakers are not consistent enough in judging the INSTR. Moreover, the two groups of speakers—those using the INSTR to avoid two GENs and those using the INSTR in other configurations—are statistically indistinguishable on the basis of their grammaticality judgments. Recall from our discussion earlier that about a third of the respondents in the first experiment seemingly used the INSTR only as 'the last resort', to avoid two noun phrases in the GEN in a row, exhibiting a certain dispreference for the INSTR. Curiously, based on their responses in the second experiment and using cluster analysis (namely, *k*-means clustering method¹⁵), the respondents in the second experiment can also be divided into those that 'like the INSTR' and those who dislike it. We called respondents who disfavor the INSTR in the second experiment 'Cluster 1' and those who favor it 'Cluster 2'. Respondents in Cluster 1 judged the acceptability of the INSTR in constructions in the three bins as 1.13, 1.63, and 3.18, whereas respondents in Cluster 2 judged the acceptability of the INSTR in constructions in the three bins as 1.76, 2.94, and 3.56.

However, unlike in the first experiment, in the second one merely a third of the respondents showed a preference for the INSTR. Even more surprisingly perhaps, there is no correlation between one's placement in Groups 1 and 2 in the first experiment and one's placement in Clusters 1 and 2 in the second experiment. In other words, the same speaker may 'like INSTR' while doing the fill-in-the-blanks task and 'dislike INSTR' when doing a judgment task, or vice versa.¹⁶ In particular, 64% of respondents who used the INSTR in the first experiment belong to Cluster 1 and 36% of the same group belong to Cluster 2. Almost the same numbers are true for respondents who preferred not to use the INSTR: 65% of them were classified as members of Cluster 1 and 35%—as members of Cluster 2; this is schematized in Fig. 3.

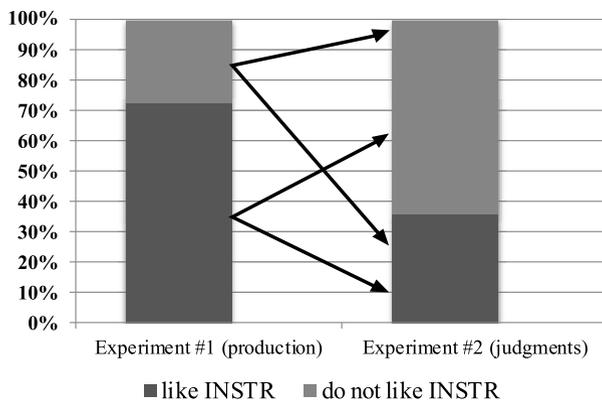
Crucially, speakers in each Cluster still made a 3-way distinction between 'least acceptable', 'medium acceptable', and 'most acceptable' constructions. Therefore, the hypothesis that some speakers favor the INSTR across the board while others disfavor it is supported

¹⁴Kendall's coefficient of concordance is usually used to measure agreement among experts' judgments. In our analysis we applied it to the judgments for ENs that belong to the middle and 'most acceptable' bins with external arguments marked with INSTR. We counted the coefficient for each respondent as if each sentence in one EN type was evaluated by a distinct expert. This approach shows whether respondents judge the INSTR consistently: the higher the coefficient is, the less variance we find within one EN type.

¹⁵Computation starts with $k = 2$ randomly selected observations that are assumed to be centers of clusters. Then clusters are created by associating every observation with the nearest center and by changing centers after each iteration in order to minimize variance within clusters and maximize variance between them. Variance is computed with respect to distinct parameters, which in our case are types of ENs.

¹⁶This finding raises interesting methodological issues about experimental studies based on production vs. judgment, to be considered in future research.

Fig. 3 Distribution of respondents between Groups 1 and 2 (Experiment #1) and between Clusters 1 and 2 (Experiment #2)



by the facts. We are thus left with the question of why there is a 3-way distinction, for all speakers.

5 Discussion

As can be seen from our discussion of the immediate experimental results in the previous two sections, there is no distinction among speakers into those that follow an ICT-based grammar and those that follow a DCT-based grammar, nor a distinction between those that favor the INSTR across the board and those who disfavor it. Which of the two Case Theories, the ICT or the DCT, can be amended to account for these experimental findings? Why is there a 3-way distinction in the acceptability of the INSTR? And why does the adjunct PP matter with unergatives?

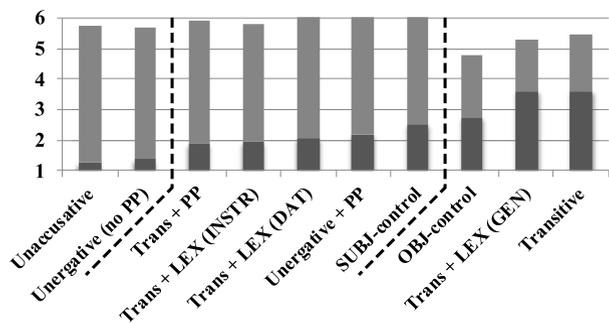
Let's consider the DCT first. Recall from our discussion above, that the DCT cannot account for the contrast between structures in the 'least acceptable' and the middle bins. According to the DCT, phrases that are 'invisible' to Case competition, that is lexically case marked noun phrases, non-nominal arguments (PPs, infinitival phrases) and adjuncts, should not affect the outcome of the Case competition. Yet, our experimental data shows that this sort of 'invisible stuff' makes the INSTR more acceptable. It seems to us that the DCT cannot handle this data without making reference to θ -roles (or internal vs. external argument distinction), in other words, without reintroducing the ICT 'through the back door'.

What about the ICT? Can it handle the problem with a 3-way distinction in the acceptability of INSTR? If so, how? Note that, from the perspective of the ICT, the constructions in the middle bin can be characterized as those in which both cases are structurally possible: the GEN is not needed for the internal argument (which is either lexically case marked or is exempt from Case requirements altogether), and the INSTR is available because the relevant noun phrase is θ -marked as the Agent. This is confirmed by our experimental data concerning the acceptability of not only the INSTR (which we have considered up to this point), but of the GEN as well. The relevant data are presented in the table below and schematized in Fig. 4. As shown here, the acceptability of both the INSTR and GEN in the constructions of the middle bin is above 'really bad' but below 'perfect', with the GEN being the preferred option. In the two constructions in which the INSTR is judged least acceptable, the GEN emerges as the only acceptable option, whereas in the three constructions in which the INSTR is judged to be the most acceptable, the GEN is merely marginal (see Table 2).

Table 2 Acceptability of the GEN and INSTR in constructions from the ‘middle bin’

	GEN	INSTR
Trans + PP	4.01	1.92
Trans + LEX (INSTR)	3.86	1.97
Trans + LEX (DAT)	4.15	2.09
Unergative + PP	4.27	2.2
SUBJ-control	3.92	2.52

Fig. 4 Combined acceptability of the INSTR and GEN in different types of ENs



Based on these findings, we propose an OT-style analysis, in which two Case-related constraints compete. On the one hand, there is a constraint that disfavors the Structural GEN not being realized (we shall call this constraint ‘No Structural Case left behind’). On the other hand, there is a constraint that requires the INSTR on noun phrases associated with the Agent θ -role. (The latter is part-and-parcel of the ICT anyway.) **Given that the GEN is judged more favorably than the INSTR in constructions belonging to the middle bin, we propose that the former constraint weakly outranks the latter constraint, resulting in disfavoring—but not entirely ruling out—the INSTR option.**

This leaves us with one question: why is there no difference between unaccusatives and ‘unadorned’ unergatives (i.e. those without a PP)? Recall that from the ICT perspective, the presence or absence of an adjunct, which does not change the θ -roles, should not affect the Case patterns. Here, we propose that the contrast between unergatives with and without an adjunct PP, and the similarity between unergatives without a PP and unaccusatives, result from the possibility of attaching the nominalizing morpheme at two levels in the derivation: either at the verbal root level (which we call ‘small nominalization’) or after vP or even $AspP$ is projected (which we call ‘big nominalization’), cf. Alexiadou (2001). Since small nominalization has no verbal structure beyond the root itself, there is no room for projecting anything but one argument, which functions as the ‘Possessor’ (loosely defined). The presence of any other argument and an adjunct forces a ‘big nominalization’, which contains enough verbal structure to accommodate those elements. Furthermore, we propose—in the same OT-style—that the constraint forcing ‘small nominalization’ outranks all other constraints.

When deriving a nominalization based on an unergative predicate, if there is no PP adjunct, the sole argument of the unergative can be projected as the ‘Possessor’ of a ‘small nominalization’. Structurally, such ‘small nominalization’ of an unergative predicate looks exactly the same as one of an unaccusative predicate. However, if a PP adjunct is to be accommodated, a ‘small nominalization’ does not contain sufficient structure, and a ‘big nominalization’ must be used instead. Since the INSTR is associated with the verbal structure

and θ -roles are expressed in the verbal part of the nominalization, it is only possible in a 'big nominalization', resulting in the contrast in the acceptability of the INSTR between unergatives with and without a PP.

In conclusion, neither the DCT nor the ICT, in their original form, can account for all the findings for Russian obtained in our experimental studies. However, the ICT can be amended with additional constraints that interact in an OT-style, while the DCT cannot handle these findings without reintroducing θ -roles in some form.

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