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Abstract	We present three case studies of the distribution of adjective + head noun ('adjective') vs. head noun + noun-genitive ('genitive') constructions based on datasets extracted from the Russian National Corpus. Each case study focuses on a different set of non-head referents: case study 1 examines non-heads that are country names (like 'Norway' as in *norvežskij* N vs. N *Norvegii*), case study 2 looks at non-heads that refer to leaders (like 'president' as in *prezidentskij* N vs. N *prezidenta*), and the focus of case study 3 is non-heads that are person names (like 'Petja' as in *Petina* N vs. N *Peti*). Head nouns in all three datasets were annotated for the same set of nine semantic categories representing an Individuation Hierarchy. This hierarchy accounts for only some of the patterns that we see across	

the case studies. Other patterns can be explained in terms of: 'uniqueness', which favors the genitive construction when the head noun is a unique entity; 'salience', which favors the genitive construction when the non-head is more salient than the head noun; and 'obligatoriness', which favors the genitive construction when the head is a relational noun that presupposes a specific non-head.

Аннотация	Опираясь на данные, извлеченные из Национального корпуса русского языка, мы рассматриваем три частных случая конкуренции между 'адъективной конструкцией' (прилагательное + вершинное имя) и 'генитивной конструкцией' (вершинное имя + определение в генитиве). Три частных случая выделяются на основании семантики зависимого компонента: в первом случае рассматриваются названия стран (например, для 'Норвегии': *норвежский* N или N *Норвегии*), во втором—обозначения различных «лидеров» (например, для 'президента': *президентский* N или N *президента*), а в третьем— краткие личные имена (например, для имени 'Петя': *Петин* N или N *Пети*). Для всех трех групп данных вершинные имена были разбиты на 9 семантических категорий, различающихся по положению на иерархии индивидуированности. Эта иерархия объясняет лишь некоторые аспекты полученных нами распределений. Другие аспекты этих распределений связаны с тремя параметрами: 'уникальность' (вершины, задающие уникальный референт, притягивают генитивную конструкцию), 'значимость' (генитивная конструкция более вероятна, если зависимый компонент обладает большей значимостью, чем вершина) и 'обязательность' (генитивная конструкция более вероятна, если вершиной является реляционное имя, семантика которого предполагает наличие определенного зависимого).
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Prezidentskie vybory vs. *vybory prezidenta*: how to choose?

Президентские выборы или *выборы президента*: как выбрать?

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различных «лидеров» (например, для 'президента': *президентский* N или N *президента*), а в третьем—краткие личные имена (например, для имени 'Петя': *Петин* N или N *Пети*). Для всех трех групп данных вершинные имена были разбиты на 9 семантических категорий, различающихся по положению на иерархии индивидуированности. Эта иерархия объясняет лишь некоторые аспекты полученных нами распределений. Другие аспекты этих распределений связаны с тремя параметрами: 'уникальность' (вершины, задающие уникальный референт, притягивают генитивную конструкцию), 'значимость' (генитивная конструкция более вероятна, если зависимый компонент обладает большей значимостью, чем вершина) и 'обязательность' (генитивная конструкция более вероятна, если вершиной является реляционное имя, семантика которого предполагает наличие определенного зависимого).

1 The problem: adjective or genitive construction?

The purpose of this article is to explore the relationship between the Russian constructions in pairs of the following types:

(1)   a. Norvežskaja stolica – stolica Norvegii
        'Norwegian capital' – 'capital of Norway'
      b. Prezidentskie vybory – vybory prezidenta
        'Presidential election' – 'election of the / a president'
      c. Petina mašina – mašina Peti
        'Petja's car' – 'the car of Petja'

The first member of each pair is an example of what we will call the 'adjective construction', where a relational or possessive adjective modifies a head noun, while the second member of each pair contains a head noun plus a non-head noun in the genitive, which we will refer to as the 'genitive construction'. Typically, the adjective construction has the non-head before the head, whereas the genitive construction normally has the opposite word order, as shown in the examples.

Our research question is simple: Is the choice of construction in pairs like those in (1) predictable? We address this question based on three case studies. In the first case study, we investigate examples involving names of countries as in (1a). The second case study involves words denoting leaders of various sorts, e.g. *prezident* 'president' in (1b), while case study number three is about person names like *Petja* in (1c).

Adjectives like *norvežskij* (1a) and *prezidentskij* (1b) are referred to as 'relational', while those like *Petin* in (1c), as 'possessive'. As the genitive construction is the basic structure used for the expression of possessive relations, the semantic similarity between possessive adjectives and genitives is obvious and widely acknowledged in the literature. The relationship between constructions with relational adjectives and the genitive construction may seem less obvious and does not figure prominently in scholarly literature. However, examples like (1a) and (1b) show that these adjectives can also be synonymous with genitives. The aim of the present study is to explore the competition between the genitive construction and the adjective construction, with both possessive and relational adjectives.

Few Russian constructions have received more attention in scholarly literature than the adnominal genitive, which has been studied from a number of theoretical perspectives. Partee and Borschev have analyzed the Russian genitive in terms of formal semantics (Borschev and Partee 2001, 2004; Partee and Borschev 2003, 2012a, 2012b). Among cognitive and

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constructional approaches, Janda and Clancy (2002) describe the Russian genitive as a ra-
dial category network, while Raxilina investigates genitive constructions in terms of what she
calls 'stable relations' ('ustojčivye otnošenija', Raxilina 2000, 2008, 2010). A recent contri-
bution couched in the Meaning-Text approach is Mel'čuk (2018), where six surface-syntactic
relations involving the genitive are analyzed.

Russian relational adjectives, including those with the suffix *-sk*, as in (1a, b), are highly
productive. Graščenkov (2018, pp. 45–60) proposes a formal analysis of the ways in which
adjectival denominal suffixes determine the syntactic distribution of relational adjectives in
Russian. Relatedness to the nominal concept is the constant component in the semantics of
denominal adjectives, covering the meanings of instrument, place, agent, object, parame-
ter, purpose, material etc. (Raxilina 1998; Zemskaja 2004). Legal ownership is not among
the most frequent meanings of relational adjectives, but these uses are sometimes possible,
cf. *puškinskie vešči* 'Puškin's belongings' (Kustova 2018, p. 65). The choice of a specific
interpretation can be based on encyclopedic, lexical semantic and contextual cues.

Most researchers acknowledge the competition between the adjective and genitive con-
structions (e.g., Raxilina 2008, p. 342, 2010, p. 272), especially in the case of possessive ad-
jectives and their genitive counterparts (Ivanova 1975; Kopčevskaja-Tamm and Šmelev 1994;
Timberlake 2004, p. 206; Šmelev 2008). Typically, the competition has been approached in
terms of discrete meanings of the constructions. As an alternative to introspection-based in-
vestigations of small sets of examples, we offer an empirically driven investigation based on
data from the Russian National Corpus (RNC, www.ruscorpora.ru).[1] In order to annotate
our data in a consistent way, we decided to rely on the meaning of the head noun, rather than
classifying the semantic relationship between the head and the dependent, since pinpointing
the meaning of a noun is more straightforward than assessing the relationship between head
and dependent. This facilitates systematic investigation of the impact of the head noun on the
choice of construction.

In order to make the three case studies comparable, we sorted the head nouns into nine
classes that were considered broad enough to be relevant for all three case studies, but at the
same time specific enough to enable us to capture tendencies in each case study. The classes
were inspired by what is sometimes referred to as the 'animacy hierarchy' (Comrie 1989, pp.
185–200; Corbett 2000, pp. 54–87, 2006, pp. 185–205; Enger and Nesset 2011), the 'indi-
viduation hierarchy' (Timberlake 1985; Sasse 1993, p. 659), or the 'figure-ground hierarchy'
(Janda 1996, p. 99). A strong hypothesis would be that the position of an entity in the hierar-
chy would directly correlate with the choice of construction. However, it turned out that this
hypothesis was too strong. Nevertheless, we found that semantic categories were relevant for
the choice of constructions in all three case studies. All three co-authors participated in the
classification of all case studies to ensure consistency across case studies. The classes were
defined as follows:

(2)   Individuation Hierarchy

    a. Human. The noun refers to individual persons: *aktrisa* 'actress', *zamestitel'*
       'deputy', *sosed* 'neighbor'. This category also includes kinship terms: *sestra* 'sis-
       ter', *roditeli* 'parents', *djadja* 'uncle'.

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[1]All numbered examples in this article, except (1), are from the RNC unless otherwise stated. For each example
we provide a year, as well as the name of the author (for books and works of fiction) or the name of the
periodical (for articles in newspapers and journals). For the convenience of the reader, in each example we
italicize the construction under scrutiny.

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   b. Concrete. The noun denotes an object that can be touched (excluding body parts): *plašč* 'raincoat', *krovat'* 'bed', *bilet* 'ticket', *mašina* 'car', *časy* 'watch'. Animals are rare in our data and are included in this category: *kon'* 'horse'.

   c. Body Parts. The noun denotes a body part (*golova* 'head'), even if used metaphorically (*v Petinom serdce* 'in Petja's heart'). Other nouns related to the body (*krov'* 'blood') as well as 'metaphorical body parts' (*golos* 'voice', *duša* 'soul') are included in this category.

   d. Place. The noun refers to a location: *dvorec* 'palace', *dom* 'house, home', *spal'nja* 'bedroom'. Places are normally the size of a room / apartment or bigger; however smaller items can be used as places, e.g. *kreslo* 'armchair, seat' in a theater.

   e. Group. The noun refers a plurality of persons: *komanda* 'team', *sem'ja* 'family', *polk* 'regiment'. We include organizations (*akademija* 'academy') and companies (*kompanija* 'company') in this category.

   f. Status. The noun describes the role of a person with regard to other persons, e.g. his / her rank or post: *dolžnost'* 'post, office', *rol'* 'role'. Nouns that normally denote concrete objects were classified as Status if they refer to a job, position, as in *direktorskoe kreslo* 'director's post' (lit. 'director's armchair').

   g. Words. The noun denotes a 'linguistic product', something that is made up of words: *rasskaz* 'short story', *vopros* 'question', *slovo* 'word', *pis'mo* 'letter', *pesnja* 'song', *prikaz* 'order'.

   h. Abstract. This category covers abstract nouns in a wide sense (*žizn'* 'life', *korrupcija* 'corruption', *vozrast* 'age', *den'* 'day', *put'* 'path', *šag* 'step', *kampanija* 'campaign'), including deverbal and deadjectival nouns denoting events, properties etc. (*vybor* 'choice', *suščestvovanie* 'existence', *gordost'* 'pride').

   i. Prepositional. Head nouns in this category do not refer to any entity, do not participate in anaphoric chains, are partially decategorialized and thus are in the process of becoming (parts) of complex prepositions: *so storony* 'on the part of', *po slovam* 'according to' (lit. 'by words of'), *pamjati* 'in memory of' (as in *stixotvorenie pamjati Saši* 'a verse in memory of Saša').

Although the choice of construction is not fully predictable from the meaning of the head noun, three generalizations, which we refer to as the 'Uniqueness', 'Salience', and 'Obligatoriness Hypotheses', are relevant across case studies. Raxilina's (2010, p. 255) observation that the genitive construction involves 'a prohibition against a plurality of referents' ('zapret na množestvennost' korreljatov') supports the Uniqueness Hypothesis, which may be made explicit as follows: in the genitive construction, the head noun has unique reference, so that it is possible to identify one and only one referent. Salience here refers to the likelihood of an entity to serve as a figure that stands out from its background. According to the Salience Hypothesis, the genitive construction tends to be used with dependents that are relatively salient compared to the heads. The Salience Hypothesis is consistent with Langacker's (2000, p. 194) characterization of a reference point construction as evoking a salient entity for the purpose of providing a mental 'address' for the head. The Obligatoriness Hypothesis attends to the semantics of what are often referred to as 'relational' nouns (cf. Taylor 1996, p. 239): nouns that can be understood only in relation to another entity, like *roof*, which can be understood only in relation to a building. According to the Obligatoriness Hypothesis, the genitive construction is more likely if the head noun presupposes a specific dependent.

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The Uniqueness, Salience and Obligatoriness Hypotheses are not mutually exclusive, and in many situations two or even all three may apply.

Our study is organized as follows. In Sect. 2, we analyze constructions involving names of countries, before we turn to words denoting leaders and person names in Sects. 3 and 4. Our findings are summarized in Sect. 5.

2 Case study 1: countries

The question we ask in our analysis of names of countries is whether the choice between the genitive and adjective constructions is predictable based on the semantics of the head noun with respect to the Individuation Hierarchy. Although full predictability is not supported by our data, we find indications that the head noun is relevant, since abstract nouns and places favor the genitive, while nouns denoting humans and concrete entities show an affinity for the adjective construction. In Sect. 2.1, we will outline the data collection procedure and give an overview of the empirical findings. We will then discuss the Uniqueness Hypothesis in Sect. 2.2.

2.1 Overview: is the Individuation Hierarchy relevant?

Names of five countries were included in the study: Hungary, Italy, Japan, Norway, and Poland. These countries were chosen because they are well represented in the RNC. In aggregate, these country names figure in a total of 26,199 examples of the adjective construction and 3,742 examples of the genitive construction. The overall average distribution is thus about 87.5% adjective vs. 12.5% genitive construction and this does not differ greatly across these five country names, with the highest percentage of genitive constructions for Norway (18%), and the lowest for Poland (10%). For each country, we extracted 400 examples from the RNC, 200 for each construction. Some noise had to be weeded out, and the resulting database consists of a total of 1,918 examples (933 with the genitive and 985 with the adjective construction).

Table 1 shows the distribution of the semantic classes for constructions in our database involving names of countries. Note that while the sampling procedure skews the picture of relative adjective vs. genitive constructions somewhat by collecting similar numbers (cf. the overall distribution stated above), this does give us some idea of how semantic classes are distributed and associated with the two constructions. The two columns marked as '#adj' and '#gen' give the raw numbers of examples with the adjective and genitive constructions. Direct comparison of the frequencies of the two constructions for individual semantic categories is not possible, because our sample contains roughly equal totals for the two constructions. For this reason, we use a different strategy: we calculate the percentages of individual categories relative to the total number of examples with a given construction. These percentages are provided in the columns marked as '%adj' and '%gen'. The next column gives the quotient of these two percentages. Higher values of this quotient show that the category attracts the adjective construction, whereas values below 1 show that the category attracts the genitive construction. Rows are ordered according to this parameter, starting with categories that clearly attract the adjective construction and ending with categories that attract the adjective construction. The rightmost column gives the total numbers for each semantic category.

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Table 1 Distribution of semantic categories in constructions with names of countries

	#adj	%adj	#gen	%gen	%adj / %gen	#total
Concrete	145	14.7%	21	2.3%	6.54	166
Words	28	2.8%	7	0.8%	3.79	35
Human	395	40.1%	163	17.5%	2.30	558
Group	166	16.9%	135	14.5%	1.16	301
Status	3	0.3%	4	0.4%	0.71	7
Abstract	159	16.1%	347	37.2%	0.43	506
Prepositional	7	0.7%	19	2.0%	0.35	26
Place	81	8.2%	233	25.0%	0.33	314
Body Parts	1	0.1%	4	0.4%	0.24	5
Total	*985*		*933*			*1,918*

On the basis of Table 1, the following tendencies can be identified (at this stage, we disregard categories with few examples):

(3)   a.   The categories Concrete and Human attract the adjective construction.
  b.   The category Group is neutral with respect to this constructional competition.
  c.   The categories Place and Abstract attract the genitive construction.

For the remaining semantic categories, we do not have enough data to draw any firm conclusions. However, although the data material is limited, the generalizations in (3) are interesting, because the Individuation Hierarchy is relevant for the choice between the genitive and adjective constructions. Head nouns that are relatively high on the Individuation Hierarchy, such as Human and Concrete, attract the adjective construction, in which the head is the only noun. By contrast, heads from the numerous Abstract category attract the genitive construction, in which the non-head is also represented as a noun.

Place and Abstract occupy similar positions in the hierarchy but for different reasons. Attraction to the genitive construction for Place is explained by high frequency part-whole expressions of the type *berega Norvegii* 'the shores of Norway' and *jug Italii* 'the southern part of Italy'. Part-whole is one of the core functions of the genitive (cf. e.g. Janda and Clancy 2002, p. 111), and the fact that nouns denoting places naturally lend themselves to this function makes the genitive construction frequent for these nouns when the non-head is a name of a country.

Abstract nouns in this dataset are often 'action nouns', i.e. deverbal nouns that can describe the same situation as the corresponding verb. With such nouns, the genitive construction is widespread in what is traditionally called 'subjective' and 'objective' genitive, where the noun in the genitive represents an agent or a patient. By way of example, consider *vystuplenie Italii* 'Italy's advancement' from a text describing events from World War I:

(4)   Kompensaciej sojuznikam kak budto javljalos' *vystuplenie Italii* protiv Avstrii 23 maja 1915 g.
  '*Italy's advancement* against Austria on May 23, 1915 was apparently compensation for the allies.'   (A. I. Denikin. *Put' russkogo oficera*. 1944–1947)

Examples of this type are few and far between in the adjective construction, at least in our database. Among the 159 examples of Abstract heads with the adjective construction we find only ten nouns that are (relatively) clear examples of action nouns: *avtomobilestroenie*

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'car production', *vozroždenie* 'revival', *vosstanie* 'uprising', *vstreča* 'meeting', *zapis'* 'recording', *igra* 'play', *investicija* 'investment', *proisxoždenie* 'provenance', *putešestvie* 'travel', and *rukovodstvo* 'supervision'. This suggests that action nouns favor the genitive construction. While this appears to be a strong tendency, counterexamples do exist. Although the corresponding adjective construction *ital'janskoe vystuplenie* 'Italian advancement' is not attested in our database, it does occur on the internet. In a diary from World War I, under the heading *vystuplenie Italii* with the genitive construction, we find the synonymous use of *ital'janskoe vystuplenie* in the following example:

(5)   [. . .] sledovatel'no, *ital'janskoe vystuplenie* privlečet na sebja dostatočnyje sily.
       '[. . .] consequently *the Italian advancement* will enlist the help of sufficient forces.'
                                                    (*Dnevnik voennyx dejstvij I.* [*K.*] *Šumskago.* 1915)[2]

In both (4) and (5), the country is the agent that carries out the action. While the agent and patient semantic roles are characteristic of the genitive construction, in the adjective construction the country more frequently represents the location of the action:

(6)   *Ital'janskoe vystuplenie* Putina voobšče svoditsja k prostoj i ponjatnoj koncepcii "nafing personal, džast biznes".
       'Broadly speaking, *Putin's speech in Italy* can be boiled down to the simple and comprehensible idea of "nothing personal, just business".'
                                                          (Gosindeks. November 28, 2013)[3]

Here, in (6), *ital'janskoe vystuplenie* refers to a statement made by President Putin during a visit to Italy. In examples of this kind where the country is a location rather than an agent or a patient, the genitive construction seems to be ruled out.

2.2 Uniqueness and obligatoriness with respect to case study 1

Good examples of genitive constructions with unique heads involve leaders of states, which are frequent in our database: *imperator Japonii* 'the emperor of Japan', *korol' Norvegii* 'the king of Norway', *prezident Vengrii* 'the president of Hungary' and *prem'er Pol'ši* 'the prime minister of Poland'. In examples like *čempion Vengrii* 'the champion of Hungary (in some kind of sport)' and *osvoboditel' Italii* 'the liberator of Italy' we are also able to identify unique individuals in the relevant contexts. These head nouns are furthermore relational in the sense that a leader must be a leader of something. Therefore, the Obligatoriness Hypothesis adds support to the expectation that the genitive construction will prevail.

Nouns denoting occupations that are not reserved for a single person, such as *aktrisa* 'actress', *lyžnik* 'skier', *meteorolog* 'meteorologist', are more complex. Since neither uniqueness nor obligatoriness applies to these head nouns, we would expect the adjective construction to be used, and this expectation is borne out by the facts, insofar as our database contains numerous examples like *norvežskij geolog* 'Norwegian geologist', *pol'skij geograf* 'Polish geographer', and *vengerskij poėt* 'Hungarian poet'. In examples of this type, the genitive is not fully acceptable (??*geolog Norvegii* 'Norway's geologist', ??*geograf Pol'ši* 'Poland's geographer', and ??*poėt Vengrii* 'Hungary's poet').[4] However, there are two ways to make examples of this type fully acceptable in the genitive construction.

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[2]This text is available at http://nik191-1.ucoz.ru/blog/pervaja_mirovaja_vojna_06_ijunja_24_maja_1915_goda/2015-06-05-1024. Accessed January 8, 2019.

[3]Available on http://gosindex.ru/chausov-zdrsmysl/. Accessed 8 January 2019.

[4]We use '??' rather than '*' in our acceptability judgments, since examples like *geolog Norvegii* 'Norway's geologist' may be marginally acceptable in, say, a context where different countries have nominated one member

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First, the addition of certain adjectival modifiers has an effect. In our database we find examples like *lučšij poėt Pol'ši* 'Poland's best poet' and *glavnyj aziatskij sojuznik Japonii* 'Japan's main Asian ally'. While Poland has many poets and Japan many allies, only one poet can be the best poet, and only one ally can be the main ally. Since examples of this type involve unique reference to individuals, these examples are not at variance with the Uniqueness Hypothesis.

A second way to make nouns denoting occupations compatible with the Uniqueness Hypothesis is to pluralize them. In our database, we find examples like *poėty Pol'ši* 'Poland's poets' and *xudožniki Vengrii* 'Hungary's artists'. Here, reference is not to unique individuals, but to entire categories, which are also uniquely identifiable. For instance, *poėty Pol'ši* 'Poland's poets' enables us to identify all the poets of Poland as opposed to those from other countries. It is worth pointing out that the referents of pluralized head nouns may be uniquely identifiable relative to a certain context:

(7)   Zakončilsja turnir vaterpolistov v Ispanii, v kotorom prinimali učastie 6 komand. Pobeditelem ego vyšli *igroki Vengrii*.
      'The water polo tournament in Spain is now over. *Hungary's players* won.'
                                                        (Komandy pokidajut Barselonu. *Sovetskij sport*. 1957)

Here, in (7), we are not dealing with the entire category of Hungarian players, but the members of Hungary's water polo team that participated in a particular tournament are uniquely identified. Examples with heads in the plural are not at variance with the Uniqueness hypothesis, but they demonstrate that unique reference may involve both individuals and categories.

3   Case study 2: leaders

Case study 2 parallels case study 1, with the difference that the non-head refers to a leader that is alternatively represented as a noun in the genitive case, or as a denominal adjective.

3.1   Unique referents and types

The following two examples illustrate the two constructions with the head noun *rabota* 'work' and the non-head *režisser* 'director' presented in the genitive case in (8) and in the relational adjective *režisserskij* 'director' in (9):

(8)   Konečno, v moem uspešnom vystuplenii v partii Ljubaši skazalas' i *rabota režissera*, i usilija pedagoga, podgotovivšego so mnoj ėtu rol', i, dumaetsja, moja professija arxitektora—umenie 'vystraivat'' partiju...
      'Of course, many things contributed to my successful performance in the role of Ljubaša: *the work of the director*, the efforts of the coach who prepared the part with me, and possibly my profession as an architect, my ability to 'build' a part ...'
                                                        (I. K. Arxipova. *Muzyka žizni*. 1996)

of an international commission of geologists. Importantly, in this context *geolog Norvegii* 'Norway's geologist' would refer to one unique individual, and this usage is therefore not at variance with the Uniqueness Hypothesis.

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(9) Prixodit'sja [sic!] analizirovat', video snimat', smotret', kak ty dvigaeš'sja, čto-to is-
pravljat', no ėto takaja obyčnaja *režisserskaja rabota*.
'One has to analyze it, take videos, look at how you move, make some corrections,
but that is just the usual *director's work*.'
(M. Axmedova, P. Mamonov. Peten'ke stydno. *Russkij reporter*, *22*(200). 2011)

In keeping with the Uniqueness Hypothesis, *rabota režissera* 'work of the director' in (8)
names the specific training that the director gave the speaker that led to success. This example
refers to a uniquely specified director. By contrast, *režisserskaja rabota* 'director's work'
in (9) describes what goes into the kind of work that a director or any director does. This
tendency does not prevent the adjective construction from being used in a more specific
reference, as in (10), where the same phrase is used to reference a specific work (and here
the meaning of *rabota* is also more concrete, referring to a result), possibly facilitated by the
presence of the superlative *lučšaja* 'the best':

(10) 'Kraj' (2010) otmečen premijami 'Nika' ('Lučšij igrovoj fil'm') i 'Zolotoj orel'
('Lučšaja *režisserskaja rabota*').
"Kraj' (2010) was awarded the 'Nika' prize ('Best film acting') and the 'Golden
eagle' prize ('Best *work by a director*').' (Oficial'no. *Ogonek*. 2014)

However, note that even in the case of (10), the referent of the director is left unspecified:
what is referred to is the best work of any director, not of a specific director, whereas the
director in (8) is a unique individual.

Case study 2 facilitates further quantitative and qualitative investigation of these tenden-
cies with regards to 'leaders'. Dictionaries and thesauruses were used to construct a list of
fifty-four Russian words denoting leaders that readily form denominal adjectives. For each of
the fifty-four leader-words, data on the genitive and adjective constructions were downloaded
from the RNC. Since some of the leader-words, particularly their denominal adjectives, are of
low frequency, these words were sorted to find those that would yield the most data. A thresh-
old of 100 hits in the RNC was set for both the genitive and the adjective constructions, yield-
ing fifteen high-frequency leader-words that crossed that threshold, presented in Table 2.

The two constructions appear a total of 64,976 times with these fifteen leader-words. For
twelve out of fifteen of these words, the genitive construction is more frequent than the ad-
jective construction, and overall the genitive construction accounts for 68% of the total dis-
tribution. For the three leader-words where the adjective construction prevails, this fact is at
least partially attributable to high-frequency collocations, namely: *dirižerskaja paločka* 'con-

Table 2 Leader-words for which both the genitive and the adjective constructions appear at least 100 times
in the RNC with the percentages of the genitive constructions

Leader word	%gen	Leader word	%gen
vladelec 'owner'	87	*gubernator* 'governor'	69
direktor 'director'	85	*ataman* 'Cossack chieftain'	63
komandir 'commanding officer'	85	*režisser* '(theater or film) director'	55
rektor 'rector'	83	*voditel'* 'driver'	52
general 'general'	80	*dirižer* 'conductor'	48
episkop 'bishop'	76	*komendant* 'commandant'	46
prezident 'president'	73	*korol'* 'king'	42
inspektor 'inspector'	71		

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Table 3 Distribution of semantic categories in constructions with leader-words

	#adj	%adj	#gen	%gen	%adj / %gen	#total
Place	**153**	19.9%	23	4.5%	4.39	176
Concrete	**106**	13.8%	23	4.5%	3.04	129
Group	76	9.9%	35	6.9%	1.43	111
Abstract	316	41.0%	179	35.2%	1.16	495
Status	44	5.7%	35	6.9%	0.83	79
Body Parts	18	2.3%	21	4.1%	0.57	39
Words	25	3.2%	**63**	12.4%	0.26	88
Human	31	4.0%	**89**	17.5%	0.23	120
Prepositional	1	0.1%	**40**	7.9%	0.02	41
Total	*770*		*508*			*1,278*

ductor's baton', *komendantskij čas* 'curfew', *komendantskij vzvod* 'firing squad', *korolevskij dvorec* 'royal palace', *korolevskaja straža* 'royal guard'. High-frequency collocations for the adjective construction (*voditel'skoe udostoverenie / voditel'skie prava* 'driver's license') are likewise conspicuous for *voditel'* 'driver'.

For each of these high-frequency leader-words, 100 examples for each construction were selected for further analysis, meaning that we started with ($15 \times 100 \times 2 =$) 3,000 example sentences. This database was further cleaned to ensure that no more than one example was collected from any one source and to eliminate noise (items that were not actually examples of the constructions in question); after this process 1,278 examples remained, and all of these were hand-annotated for the classification of head nouns presented in Sect. 1. The distribution of semantic categories for these examples is displayed in Table 3. While the selection process for examples skews the distribution somewhat (68% of total examples for the leader-words use the genitive construction, but only 40% of examples in the dataset for case study 2 are of the genitive construction), Table 3 does show how categories are associated with the constructions. Table 3 is organized in a similar way as Table 1.

A chi-square test shows that the distribution in Table 3 is not random,[5] meaning that there is a relationship between semantic categories and the two constructions for the leader-words. Fisher test evaluations of the cells in Table 3 further pinpoint the strongest relationships (boldfaced in Table 3): significantly higher than expected values are found for the adjective construction with head nouns naming concrete objects and places, whereas the genitive construction is significantly attracted with head nouns naming human beings and words and in prepositional phrases.[6] This distribution is consistent with the Uniqueness Hypothesis: concrete objects and places are usually types that are associated with leaders (as in *episkopskij žezl* 'bishop's staff, crosier' and *episkopskij dvorec* 'bishop's palace'), whereas human beings (associated with a leader either through the workplace or by kinship, as in *assistent režissera* 'director's assistant') and words (usually pronounced by a leader, as in *vopros komandira* 'commanding officer's question') are specific entities. This is illustrated in further detail in the examples that follow.

[5]Chi-squared = 241.73, *df* = 8, *p*-value < 2.2e-16, and Cramer's *V* = 0.435, indicating both a significant association and an effect size between 'moderate' and 'strong'.

[6]Fisher test evaluations for all five of these relationships are highly significant ($p < 0.001$).

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3.2 Categories of head nouns that attract the adjective construction

Concrete objects and Places appear to attract the adjective construction. For example, as mentioned above, *dirižerskaja paločka* 'conductor's baton' names a type of object, and there are twenty-six such examples in our database, as in (11), as opposed to only two examples of *paločka dirižera*, where a specific object is connected to a given conductor and event when it is used, as in (12):

(11) Svjaščennik pol'zovalsja vilkoj, kak *dirižerskoj paločkoj*, razmaxival rukami, zakaty-
val glaza.
'The priest used his fork like a *conductor's baton*, waved his arms, and rolled his
eyes.' (G. F. Grin. *Ketopolis—Kity i bronenoscy.* 2001)

(12) Odnako ona nikogda ne zazvučala by, esli by ne *paločka dirižera*, zastavivšego ee
zaigrat'
'However it never would have made a sound if not for the *conductor's baton*, which
forced it to start playing.'
(S. Strokan'. Čelovek, kotoryj otmyl Klintona. *Soveršenno sekretno.* 2003)

However, when concrete objects are unique items associated with a specific leader the genitive construction is often used, as in: *ključ / podpis' vladel'ca* 'the owner's key / signature', *fil'm režissera* 'the director's film', *telefon rektora* 'the rector's telephone', and *portret dirižera* 'the director's portrait'.

Likewise, when Places are buildings constructed not for an individual but for whoever happens to hold the given leadership post, the adjective construction is found more often in our data, as in the case of *prezidentskij dvorec* 'the presidential palace', *gubernatorskij dom* 'the governor's residence', *rektorskij korpus* 'the rector's building'.

3.3 Categories of head nouns that attract the genitive construction

The categories of Prepositional, Words, and Human, attract the genitive construction. Prepositional yields the most extreme distribution, with all but one example selecting the genitive construction. This distribution is consistent with the Obligatoriness Hypothesis since the head nouns in the Prepositional category require reference to a possessor. Here the most common items are *po slovam* 'according to the words of' and *pod rukovodstvom* 'under the direction of'; see example (3):

(13) Po slovam generala, glavnyj iz ètix voprosov takoj [. . .].
'According to the general's words, the most important of those questions is this one
[. . .].' (D. Litovkin. Sroki podviga perenosjatsja [. . .]. *Izvestija.* 2002)

Most actual words pronounced or written by leaders are represented only in the genitive construction, such as *vopros* 'question', *interv'ju* 'interview', *pis'mo* 'letter', *poslanie* 'epistle', *pros'ba* 'request', *rasskaz* 'story', *replika* 'reply'. Here all three hypotheses come into play: a) when Words are connected to a speech event, they are unique; b) the human producer of Words is always more salient than the words themselves; and c) Words are necessarily produced by someone and thus obligatorily presuppose an agent. However, Words that are not specific to a speech event can appear in both constructions. For example, *ukaz* 'decree' appears four times, all of these in connection with a president, twice in the genitive construction as in (14) and twice in the adjective construction as in (15), with little if any discernable difference:

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(14)   Tem bolee čto *ukazom prezidenta* s 1 ijulja [. . .].
'Especially since the *president's decree* from July 1 [. . .].'
(B. Vareckij. Stydnye uroki barstva [. . .]. *Sovetskaja Rossija*. 2003)

(15)   *Prezidentskij Ukaz* ot 1 sentjabrja [. . .].
'The *president's decree* from September 1 [. . .].'
(Vnutrennyj golos. *Kommersant"-Vlast'*. 2000)

Within the Human category it makes sense to distinguish between kinship terms and other words naming people. Among the non-kinship terms, most common are words that name subordinates at the leader's workplace, such as *assistent* 'assistant', *vrio* 'interim official', *zamestitel'* 'deputy', *pomoščnik* 'assistant', *predstavitel'* 'representative', *sovetnik* 'advisor'. All these words for subordinates appear only in the genitive construction in our database, consistent with the Obligatoriness and Salience Hypotheses since a subordinate requires the existence of a superordinate and the superordinate is always more salient than the subordinate. Kinship terms likewise refer to an obligatory relationship. The only two kinship terms that appear in more than a handful of examples are *doč'* / *dočka* 'daughter' and *žena* 'wife', and these are also the only nouns that appear more than once in the adjective construction, revealing a striking gender bias. *Doč'* 'daughter' appears three times in the genitive construction, twice with *korolja* 'king's', as in (16) and once with *dirižera* 'conductor's', each time in collocation with the name of the king or conductor, making the adjective construction syntactically impossible:

(16)   *Doč' korolja* Xuana Karlosa obvinjajut v otmyvanii deneg [. . .].
'The *daughter of King* Juan Carlos is accused of money laundering [. . .].'
(Mir v zagolovkax. *Russkij reporter*. 2014)

Doč' / *dočka* 'daughter' appears eight times in the adjective construction, seven of these with *general'skij* 'general's' as in (17) and once with *direktorskij* 'director's'. Even though a specific person is named in this example, it could be argued that calling Sof'ja Perovskaja 'a general's daughter' amounts to claiming that she represents a certain type of person:

(17)   Sof'ja Perovskaja byla *general'skaja dočka*, ne prosto general'skaja, gubernatorskaja.
'Sof'ja Perovskaja was a *general's daughter*, not just a general's daughter, but a governor's daughter.'   (V. Grossman. *Žizn' i sud'ba, čast' 2*. 1960)

There are five examples of *žena* 'wife' in the genitive construction, every time referring to a specific individual, whereas both of the examples of the adjective construction involve plurals which are generalizations over the types of wives that generals and commanders have, as in (18):

(18)   Takim obrazom, na vorotniki dlja *general'skix žen* godilis' liš' te lisicy, kotorye na xorošie otnošenija s čelovekom nikak ne soglašalis'.
'Thus for the collars of *generals' wives* the only suitable foxes were those that had not agreed to positive relations with humankind.'
(L. Ulickaja. Kazus Kukockogo. *Novyj Mir*. 2000)

The attraction between these two female kinship terms and the adjective construction may be indicative of attitudes that stereotype daughters and wives of leaders as privileged and spoiled, while similar assumptions are less likely to be made for male relatives.

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3.4 Categories of head nouns that appear in both constructions

The remaining categories of head nouns do not attract either construction. Among these, the Abstract category is by far the largest. However, a closer look at this data reveals that most of the high-frequency words have a very strong or absolute preference for one construction over the other. In some cases we are dealing with what can be considered a lexicalized collocation, as in the case of *voditel'skie prava* 'driver's license', and *inspektorskij smotr* 'inspector's review'. Words that exclusively appear in the adjective construction refer to abstract concepts that in the given context are associated with the post of the leader rather than the leader as an individual, as we see with these head nouns: *vlast'* 'power', *dejatel'nost'* 'activity', *dostoinstvo* 'virtue', *kar'era* 'career', *programma* 'program', *srok* 'period of time'. These can be contrasted with the head nouns that exclusively prefer the genitive construction, all of which construe an individual leader as the agent of some action: *vstreča* 'meeting', *želanie* 'desire', *razrešenie* 'permission', *trebovanie* 'demand', *učastie* 'participation'. The two examples at the beginning of Sect. 3 illustrate the Abstract head noun *rabota* 'work, job', which, like *objazannosti* 'responsibilities', can be interpreted either as a type dictated by the post of the leader, or as the specific tasks / responsibilities attached to that individual. The only high frequency noun that readily appears in both constructions with little or no discernable difference in meaning is *vybory* 'elections', as we see in (19) and (20), where the choice of the construction is influenced by the surrounding syntax, with a modification of the head noun (the specification of the year 1996) making the adjective construction more likely in (19) and the modification of the non-head leader-word (the specification of the state) making the adjective construction grammatically impossible in (20):

(19)   On byl vmeste s Lebedem na *prezidentskix vyborax* 1996 goda.
       'He was together with Lebed' in the 1996 *presidential election*.'

                                   (G. A. Zjuganov. Tol'ko kommunisty popravjat položenie.
                                                                 Sovetskaja Rossija. 2003)

(20)   Da, ėto važnoe delo, no liš' v toj stepeni, v kakoj daet nam vremja i vozmožnost' dlja nakoplenija sil i vse bolee polnogo zavoevanija tex mestnyx i regional'nyx struktur, kotorye priblizjat nas k glavnoj celi: pobede na *vyborax prezidenta* Rossijskoj Federacii i formirovaniju našego nacional'no-patriotičeskogo pravitel'stva.
       'Yes, it is an important matter, but only to the extent that it gives us the time and opportunity to collect strength and greater conquest of those places and regional structures that will bring us closer to the main goal: victory in the *election of the president* of the Russian Federation and establishment of our national-patriotic government.'

                                   (V. Fedotkin. Vlast' i oppozicija. *Sovetskaja Rossija*. 2003)

4 Case study 3: person names

4.1 Setting the stage

Case study 3 is concerned with cases when the non-head component of the noun phrase is a proper (person) name. The two options that participate in a constructional competition are shown in (21) and (22):

(21)   *Otec Saši*, kreščenyj evrej, byl vidnym xar'kovskim juristom.
       '*Saša's father*, a baptized jew, was an outstanding lawyer in Xar'kov.'

                                                       (I. Metter. *Pjatyj ugol*. 1967)

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(22) Goda čerez tri ja polučil pis'mo ot *Sašinogo otca*. (Metter 1967)
    'About three years later I got a letter from *Saša's father*.' (ibid.)

The structure in (21) is a regular genitive construction: *Saša*, a person name, functions as a possessor and is marked for the genitive case. Example (23) involves a so-called possessive adjective (PA) derived from the same name. Thus, as in case studies 1 and 2, we deal here with a competition between genitives and adjectives. However, unlike those previous case studies, it is very unlikely that there is any denotational difference between the nominal constructions shown in (21) and (22). In both cases, the noun phrase as a whole refers to a specific human referent who is identified as Sasha's father. In fact, (21) and (22) come from the same text, so it is clear that the two noun phrases have the same referent.

The research question pursued in this section is whether there are any factors that affect the probabilities of choosing between the options illustrated in (21) and (22). Regardless of the construction used, proper names, such as *Saša*, normally have unique referents within their discourse context. Thus, unlike case studies 1 and 2, in case of person names both the genitive and the adjective constructions are very unlikely to denote types and clearly we should look for other factors that are at work here.

We start by briefly surveying some properties of PAs in Sect. 4.2. In Sect. 4.3, we outline the data collection process. Sections 4.4 and 4.5 are devoted to two potentially relevant factors: linear position within the text and semantic category of the head noun. Interim generalizations are formulated in Sect. 4.6.

4.2 Possessive adjectives: general facts

Russian PAs are derived using suffixes *-in* (*maminy sapogi* 'mom's boots') or *-ov* (*dedovy sapogi* 'grandfather's boots'). PAs are morphologically distinct from other adjectives: they constitute a distinct—'mixed'—declension type.

Synchronically, PAs are similar to other denominal adjectives, which are clearly derivational, but in some respects they behave as if they are forms of nouns (Kopčevskaja-Tamm and Šmelev 1994). For an overview of unusual properties of Slavic PAs and the theoretical challenges that they raise, see (Corbett 1987). Historically, PAs are related to denominal adjectives such as *korolevskij* 'king's' (see case study 2 above), but the two types of forms have diverged in the course of history (Frolova 1960; see also Eckhoff 2011, pp. 36–41 for a discussion).

Competition between genitives and PAs has received significant scholarly attention. Most writers emphasize the fact that PAs in modern Russian are severely restricted in many respects (Eckhoff 2011, p. 2). Constraints mentioned in the relevant literature (Frolova 1960; Sannikov 1968; Corbett 1987; Kopčevskaja-Tamm and Šmelev 1994) include the following:

i. PAs are normally derived from human (and, rarely, animate non-human) nouns.[7]
ii. They presuppose a singular possessor.
iii. They presuppose a definite, or at least a specific possessor.
iv. They cannot be derived if the possessor has any modifiers or appositions of its own (see Kopčevskaja-Tamm and Šmelev 1994, pp. 213–216 for exceptions, and Eckhoff 2011 for a historical perspective). One can derive *djadin* from *djadja* 'uncle', but this derivation is impossible for e.g. *dvojurodnyj djadja* 'first cousin once removed'.

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[7]Bratishenko (1998, p. 162 and elsewhere) discussed the ways in which high position of the non-head nominal on the animacy scale attracted the PA construction (rather than the genitive construction) in the history of Russian.

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    v. Normally, PAs presuppose speaker's familiarity with the possessor. This is also a matter of style: PAs are associated with 'domestic' communication (Timberlake 2004, p. 206), as opposed to formal registers where they are avoided.

    vi. In modern Russian, PAs can be productively derived exclusively from nouns of the *-a* declension class, in which case the suffix used is *-in* (*-ov* is somewhat obsolete).

Restrictions in i)–vi) significantly affect the competition between genitives and PAs: in many possessive contexts, PAs are impossible or marginal, and the possessor can only be expressed by the genitive form of the noun, as was repeatedly shown in the studies mentioned above.

However, there is one type of nominal possessor that systematically meets all the restrictions in i)–vi): these are 'short' or 'familiar' names such as *Saša* (cf. *Sašin*), *Maša* (cf. *Mašin*), *Petja* (cf. *Petin*). Most short names in modern Russian belong, regardless of gender, to the *-a* class (vi). These possessors are of course human (i), singular (ii), and, in the vast majority of cases, definite (iii). Typically, they do not have modifiers (iv), except for contexts when they are used in combination with surnames, in which case the genitive construction must be chosen (cf. *gibel' Saši Beljavskogo* vs. **Sašina Beljavskogo gibel'* 'Saša Beljavskij's death'). Finally, short names are usually used in informal contexts, which explains why PAs such as *Sašin* or *Mašin* are much more frequent than *Aleksandrin* or *Mariin* in modern Russian.

Thus, with short names as possessors there is nothing to block the competition between the two alternatives, see (21) and (22) again.[8] These possessors constitute the core of the PA construction in modern Russian. In the vast majority of cases PAs can be replaced with a genitive, but see (30) below for an exception. As we will see shortly, short names are in fact frequently used as possessors in the genitive construction. That is the reason why we chose short names as possessor for closer examination in this study.

4.3 Data collection

In order to collect data, we used two types of queries in the RNC, illustrated below with *Saša* as the target name. In case of PAs, we searched for the adjective *Sašin* (in any form) immediately (no punctuation marks) followed by a noun in the same case, number and gender, cf. *Sašinymi glazami* 'with Saša's eyes'. In case of the genitive construction, we searched for a noun (in any form) immediately followed by the genitive singular form of the name, cf. *glazami Saši* 'with Saša's eyes'.[9] These queries were performed for 35 frequent short names belonging to the *-a* declension class.

Although the data collected in this fashion contained some noise, they clearly showed that there is a huge variation between names. The ratio of the PA construction ranges from 5% (for *Žora*) to 56% (for *Mitja*), with individual names rather evenly distributed across this range. We do not have any clear explanation why the difference between the names is so large. There might be a weak positive correlation between a name's overall frequency and the ratio of the adjective construction, but the effect is not statistically significant with the data at hand (Pearson's $r = 0.23$, $p \approx 0.19$).

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[8]Constraints on the use of genitive possessors also exist (e.g. genitive possessors are problematic in the predicative position and especially in headless noun phrases, see Kopčevskaja-Tamm and Šmelev 1994, pp. 211, 220), but these constraints are largely irrelevant for our data.

[9]These search queries are not ideal, because they both yield some noise and miss some relevant uses. For example, appositional constructions such as *ot djadi Saši* 'from uncle Sasha' are among the search hits, although *Saša* is not a possessor in this example. On the other hand, PAs where the head noun is modified by an additional adjective (*Sašin staršij brat* 'Sasha's elder brother') did not meet the search criteria. However, overall these queries do cover most of the relevant examples.

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Table 4 Frequency of PAs and genitives in recent diachrony

	#PA	%PA	#gen	%gen	#total
1824–1894	19	**10**	173	90	192
1895–1917	49	**24**	159	76	208
1918–1945	171	**42**	235	58	406
1946–1991	428	**45**	519	55	947
1992–2015	598	**50**	587	50	1,185
Total	1,265		1,673		2,938

Despite identity of semantic and formal properties, short names in -*a* do not form a homogenous class with respect to the genitive vs. PA competition. For this reason, we decided to concentrate on a smallish and more homogeneous focus group of six names: *Vitja*, *Tolja*, *Jura* (all male), *Ljuda*, *Tanja* (female) and *Saša* (can refer to either sex). We chose these names because they are all sufficiently frequent and show reasonably balanced distribution between the two constructions: the ratio of the adjective construction varies between 39% (for *Ljuda*) and 52% (for *Vitja*). We manually weeded out noise from search results based on the focus group and arrived at a working database of 2,938 examples, of which 1,265 (43%) contain the PA construction.

It is generally believed that PAs are infrequent in modern Russian; Ivanova (1975, p. 151) found that they cover only 22.3% of contexts where both PAs and genitives are theoretically possible (this ratio is much lower than in other Slavic languages except Polish). This might well be the case for the rivalry between PAs and genitives in general, but our data show that with some short names as possessors PAs strongly compete with the genitive.

Another commonly accepted observation is that Russian PAs declined in frequency for many centuries (Sannikov 1968, pp. 79–89; Eckhoff 2011, p. 171), including at least the 19th century (Zemskaja 1964, p. 282). Again, this is true for common nouns and some proper names (e.g. full names such as *Ivan* or *Aleksandra*), but not for short proper names in -*a* (see also Kopčevskaja-Tamm and Šmelev 1994, pp. 224–226 for the distinction between 'old' and 'new' systems of PAs). In fact, the names from our focus group show a significant increase in the relative frequency of PAs during the last two centuries (the earliest relevant example that we have in the corpus is from 1824), as shown in Table 4. We divided the time span covered in the data into five relatively long periods so that there be enough datapoints in each period and arbitrarily used several historically important dates as boundaries between periods.

Thus, both the PA construction and the genitive construction are frequently used with the names from our focus group. This raises the question whether for these names, the choice between constructions is completely random. We annotated our database for a number of potentially relevant parameters and found at least two factors that can play a role here. They are analyzed in Sects. 4.4 and 4.5.

4.4 Distribution within a text

Proper names often function as possessors more than once within a given document (short story, novel, memoire, etc.). For example, there are 6 examples with the name *Saša* used as a possessor that come from Vladimir Solouxins' *Grigorovy ostrova*. Out of these six examples, four contain a PA, as in (23), and the genitive construction is used twice:

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Table 5 Distribution of constructions according to the total number of the name's appearances in the role of possessor in a given document[a]

Total number of mentions as a possessor	#PA	%PA	#gen	%gen	#total
1	179	31	393	69	572
2	126	39	200	61	326
3–5	276	43	366	57	642
6–10	327	46	384	54	711
11–20	357	52	330	48	687
Total	*1,265*	*43*	*1,673*	*57*	*2938*

[a]The total is never higher than 20 for a technical reason: it is not possible to download more than 10 examples per document per query from the corpus. For the same reason, the distributions might be artificially flattened for texts with the scores between 11 and 20: e.g. if a given name has the score of 20, the distribution in the database is necessarily 10 to 10, even though it may be different in the full text. However, for the scores in the range between 1 and 10, the data are fully accurate.

(23) V rasstrojstve poxodili my vokrug vernogo *Sašinogo «Moskviča»*, soveršivšego na ètot raz stol' nepredvidennyj podvox, i pošli na stojanku taksi konsul'tirovat'sja.
'In distress we circled around *Saša's* trusty *'Moskvič'*, which had played such an unexpected dirty trick this time, and walked over to the taxi stand to talk it over.'

(V. Solouxin. *Grigorovy ostrova*. 1963)

We annotated all entries in the database according to the total number of examples from the same text with the same name as the possessor; thus, the example in (23) received the score of 6 because Saša is mentioned six times as possessor in the document. The distribution between the two constructions according to this score is shown in Table 5.

Table 5 shows that the ratio of the adjective construction is higher if the relevant name is used repeatedly as the possessor within the same document.[10]

One possible explanation for this is that the adjective construction is favored if the possessive relation between the possessor and the thing possessed is known from the previous discourse (Timberlake 2004, pp. 206–207). Indeed, the car mentioned in (23) is actually known to the reader, because it was established as a discourse referent a few sentences before (using a predicative possessive construction).

However, this explanation alone can't account for the steady cline that we see in Table 5, because typically the same possessor is used with different possessed nominals within a given document. A more general explanation is that the adjective construction correlates with the familiarity of the possessor and / or its topical status, cf. Givón's (1983) quantitative measures of topicality: referential distance and referential persistence.

If the explanation in terms of topicality is correct, then we should expect the adjective construction to appear more frequently later in the text. Unfortunately, it is not possible to explore this question quantitatively using the RNC, because it is not possible to see the relative order in which the two constructions are used within a given document. However, the anecdotal evidence that we have supports this hypothesis. For example, there are 11 occasions in which *Jura* is mentioned as the possessor in Pasternak's *Doktor Živago*. Two out of

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[10]As can be seen from Table 5, it is more natural for proper names to be used as possessors repeatedly within a given text. For that reason, in case study 3 we decided against taking only one example per document (cf. case study 2). Implementing this principle would have artificially biased the distribution in favor of the relatively unusual pattern with just one instance of the construction per document.

these 11 are instances of the genitive construction. These two examples are found at the very beginning of the novel, very soon after the main protagonist is first referred to by his name *Jura*. By contrast, *Jurin* is used at various locations throughout the novel (as long as the short name is used with reference to the protagonist).

4.5 Semantic properties of the head noun

As in case studies 1 and 2, we annotated examples with proper names as possessors for the semantic category of the head noun. The results are shown in Table 6. The nine categories we used are listed in order of increasing ratio of the genitive construction.

It is immediately evident that the ratios of the two constructions strongly depend on the semantic nature of the head. Let's briefly discuss some noteworthy semantic categories.

By far the lowest ratio of the PA construction is found with Prepositional heads, as in (24):

(24)   Èto mnogix vozmutilo i pokazalos' kaprizom *so storony Saši*, no [...].
'This upset a lot of people and turned out to be a whim *on Sasha's part*, but [...].'
(N. S. Leskov. *Na nožax.* 1870)

By our working definition, syntactic heads in Prepositional constructions are partly grammaticalized: they are semantically bleached, do not correspond to any referent and consequently cannot participate in anaphoric links across clauses. These head nouns undergo morphological degeneration: the nominative *storona Saši* (lit. 'Sasha's side') and other case forms are not possible in meanings similar to that of (24). Prepositional constructions are expected to prefer the genitive construction due to the Salience and Obligatoriness Hypotheses, since the head nouns are very low in relative salience and require reference to a non-head (see discussion below). Although the genitive construction is strongly preferred in prepositional contexts, the adjective construction is also possible:

(25)   Èto proizošlo soveršenno slučajno i bezo vsjakix *s Tolinoj storony* pretenzij.
'It happened entirely at random and without any interference *on Tolja's part*.'
(V. Recepter. *Nostal'gija po Japonii.* 2000)

Thus, prepositional constructions retain their nominal nature in this respect and are clearly different from primary genitive-taking prepositions, which always require a full-fledged noun phrase as their argument.

Table 6 Distribution of semantic categories in constructions with proper names

	#adj	#gen.	%gen	#total
Concrete	175	94	35%	269
Place	80	60	43%	140
Human	337	277	45%	614
Group	20	23	53%	43
Body Parts	251	304	55%	555
Words	93	171	65%	264
Abstract	289	609	68%	898
Status	9	28	76%	37
Prepositional	11	107	91%	118
Total	*1,265*	*1,673*	*57%*	*2,938*

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Leaving aside the rare Status category, two other categories in the lower part of the hierarchy are Words and Abstract. In both cases, the head is often a deverbal noun:[11]

(26)   Nas gluboko mučila *gibel' Toli*.
       '*Tolja's death* caused us much grief.'

                    (A. D. Saxarov. *Gor'kij, Moskva, dalee vezde*. 1989)

Subjective PAs can be triggered by contexts where the nominalization simultaneously has an objective genitive dependent, as in (27), whereas the option with two genitives is ungrammatical:

(27)   *Sašino čtenie* povesti slušali obyčno s interesom. (V. D. Alejnikov. *Tadzimas*. 2002),
       cf. ^{OK}*čtenie Saši*, ^{OK}*čtenie povesti Sašej*, but **čtenie Saši povesti*.
       'Usually they listened with interest to *Saša's reading* of the story.'

The adjective construction is slightly favored with human head nouns. In the majority of cases, human head nouns are kinship terms (*babuška* 'grandmother', *syn* 'son') or other terms that are inherently relational (*sosed* 'neighbor', *drug* 'friend'). In some cases, relational reading is coerced by the context:

(28)   [...] a krome togo, vse ėto kakim-to kosvennym obrazom otnositsja k *taninomu rebenočku*.
       'and furthermore, all of this in some indirect way is connected with *Tanja's child*.'
                                        (V. V. Nabokov. *Dar*. 1935–1937)

Finally, the adjective construction is clearly attracted by Concrete heads. Sometimes, these constructions convey the meaning of ownership (e.g. this is a likely interpretation of *Tanina mebel'* 'Tanja's furniture'), but they also cover a wide array of other relations, which are only partially predictable from the lexical meaning of the head noun (Grinšpun 1965). In (29), *Ljudina ėlektrička* refers to a suburban train that Ljuda is intending to take:

(29)   Kogda *Ljudina ėlektrička* podošla, i nado bylo sadit'sja, Ženja, kak v ploxom kino, skazal ej: «Ostan'sja».
       'When *Ljuda's suburban train* pulled up and it was time to get on, Ženja, like in a bad movie, said to her: "Don't go".'
                                        (M. Kučerskaja. *Sovremennyj paterik* [...]. 2004)

As stated in Sect. 1, the Salience Hypothesis gives a prediction based on the relative salience of the head noun and the possessor: greater salience of the possessor favors the genitive construction. By far the least salient heads are found in Prepositional contexts, where the head is always non-referential and abstract. Three further groups (Status, Abstract and Words) are low in saliency: typically, these entities can't be touched, seen or counted and their potential as discourse topics is limited. Body Parts are interesting. On the one hand, they are concrete and clearly identifiable objects. On the other hand, their discourse prominence is typically low: speakers often make reference to someone's hands or teeth when they are actually more interested in human possessors, their states and actions (Hopper and Thompson 1985, p. 167). By contrast, three categories in the upper portion of the hierarchy, viz. Concrete, Place and Human, all denote tangible entities. Their possessors are used as referential anchors (Koptjevskaja-Tamm 2002), that is, serve to identify the referent of the head noun,

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[11] There is some debate as to how genitives and possessive adjectives and pronouns are interpreted when the head noun is a nominalization (Corbett 1987, p. 330; Kopčevskaja-Tamm and Šmelev 1994, pp. 223–224; Padučeva 2009). These details are irrelevant for our purposes.

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but these head nouns are normally distinct from their background, cf. Hopper and Thompson's (1980) 'individuation'.

The highest degree of salience is found with heads that are themselves proper human nouns. This is a very rare configuration, but interestingly, it is one of the few contexts where the PA construction cannot be replaced with the genitive construction (Kopčevskaja-Tamm and Šmelev 1994, p. 211, with further reference to Grinšpun 1967):

(30)   . . . no kak dlja menja ėto vozmožno, esli *Katin Oleg* nenavidit *Olega Taninogo*, esli [. . .]. (B. Ju. Poplavskij. *Domoj s nebes*. 1935), cf. ???Oleg Kati nenavidit Olega Tani '. . . but how can I manage if *Katja's Oleg* hates *Tanja's Oleg*, if [. . .].'

The Obligatoriness Hypothesis links the hierarchy of semantic types (see Table 6 once again) with the degree of obligatoriness of the possessor.[12] Prepositional uses are exceptional in this respect: here, a possessor must be overtly expressed: both *so storony Saši* and *s Sašinoj storony* are possible in the prepositional meaning ('on Saša's part'), but the phrase *so storony* without an object cannot be used in this meaning. Other categories in the lower part of the hierarchy, such as Body Parts and Abstract nouns, including nominalizations, can be syntactically used without an overt possessor, but normally the relevant referents are either overtly present or semantically recoverable from the context. By contrast, the category of Concrete nouns, which occupies the adjective pole of the hierarchy, encompasses many nouns which can be used without any reference to a possessor: 'bicycle', 'door', 'table', 'hat' etc.

4.6 Generalizations

In case study 3, we explored the competition between the possessive adjective construction and the genitive construction. We found that with at least some person names as possessors the two constructions are used with comparable frequency. As in Old Russian (Eckhoff 2011, p. 52), the two constructions do not show a complementary distribution, but they have their distinct centers of gravity. Among other things,[13] we identified two tendencies in the rivalry between constructions. First, the adjective construction is used more frequently if a certain human referent is repeatedly mentioned as a possessor within the relevant text. Second, the adjective construction is associated with higher salience of the possessee relative to the possessor. Together with some background knowledge on the use of possessive adjectives, which is usually formulated in terms of restrictions on their use, we can tentatively speculate that the basic property which distinguishes possessive adjectives from the usual genitive possessors is that the former are associated with more familiar entities and constitute more expected (hence, less noteworthy) information. If this generalization is correct, it can also be linked with word order phenomena: linear precedence is generally associated with given or expected information in Russian. This general principle can partly account for the func-

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[12]This observation is related to a more general idea that prenominal possessors are modifier-like, whereas postnominal genitives are argument-like (Partee and Borschev 2001; see also Eckhoff 2011, p. 155 for a historical perspective). Another potentially relevant generalization is that possessive pronouns are interchangeable with the genitives when they represent arguments, whereas in those cases when they represent "possessors" *sensu stricto* they can't be replaced by genitives. Šmelev (2008, p. 928) critically assesses this latter claim; however, his analysis is concerned with pronominal rather than nominal possessors, on the one hand, and with grammaticality judgements rather than quantitative evidence, on the other hand.

[13]There seems to be a weak effect of the head noun's case on the choice between the two constructions. The genitive and the accusative attract the PA constructions, whereas two clearly peripheral cases, the instrumental and the locative attract the genitive construction (the nominative and the dative are neutral). The role of this factor and its possible interrelations with other factors should be explored elsewhere.

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tional differences between PAs, which are prenominal in modern Russian, and postnominal genitive possessors.

5 Conclusion

We start with a summary of the findings in terms of the rankings of semantic categories as presented in the case studies in Sects. 2–4. Table 7 shows the hierarchies that we arrived at ranked according to the distribution of the two constructions. This table shows the items that appear most frequently in the adjective construction at the top, with the proportion of adjective constructions decreasing as we go down the table. If a category has less than 25 examples in our data, we put that item in parentheses to indicate uncertainty in the ranking due to scarcity of data, as in case study 1 on countries for Status and Body Parts.

As detailed below, the patterns shown in Table 7 corroborate the hypotheses put forward in our analysis. In all three case studies we find that Concrete head nouns attract the adjective construction, which is consistent with the Uniqueness Hypothesis. By contrast, the Prepositional category attracts the genitive construction across the board, which is motivated by the Salience and Obligatoriness Hypotheses. The remaining categories are differently distributed across the constructions for the three case studies. The Human category attracts the adjective construction when the non-head is a country or person name, which is explained by Salience. Place attracts the genitive construction only for countries, which is due to the fact that for countries, Places are parts of a whole, in agreement with the Obligatoriness Hypothesis. As predicted by Obligatoriness, Words attract the genitive construction for leaders and person names because the modifier is often the agent who produces utterances. Abstract attracts the genitive construction for both countries and person names, and is mixed for leaders, where two groups of abstract nouns are differentiated by Uniqueness.

The starting point of our analysis is the observation that both the genitive construction and the adjective construction are headed by nouns, but their dependents are different. The genitive construction clearly instantiates the canonical possessive construction where the dependent is also a noun. Canonical nouns are typically used as referential expressions (Croft 2001, p. 88). If a nominal dependent refers to an established entity in discourse, it can serve as a referential anchor for its head: the reference of the head noun is established via its link to the possessor (Koptjevskaja-Tamm 2002). The adjective construction involving Russian denominal adjectives is more complex. It combines properties of 'canonical possession' and

Table 7 Summary of rankings of semantic categories

Countries	Leaders	Person names
Concrete	Place	Concrete
Words	Concrete	Place
Human	Group	Human
Group	Abstract	Group
(Status)	Status	Body Parts
Abstract	Body Parts	Words
Prepositional	Words	Abstract
Place	Human	Status
(Body Parts)	Prepositional	Prepositional

'canonical modification' in terms of Nikolaeva and Spencer (2013, pp. 223–224), who mention Russian denominal adjectives among other instances of "modification-by-noun" (ibid., p. 221). Generally speaking, adjectives tend to be non-referring. In particular, Russian denominal adjectives are believed to mainly signal "non-anchoring" relations, that is, are used "to classify, describe and qualify the class of entities denoted" by the head (Koptjevskaja-Tamm 2002, pp. 154–155). The basic distinction outlined here is an important cue for our analysis, but in its general form it fails to explain all the intricacies of the competition between the two constructions.

We put forward three hypotheses which to some extent overlap with each other, but also adumbrate various characteristics of the distribution of modifying constructions.

According to the Uniqueness Hypothesis, in order for the genitive construction to be used, the head noun must have unique reference, it must refer to one and only one item, not to a type of items. The Uniqueness Hypothesis is useful in distinguishing the semantics of the adjective vs. genitive constructions in the cases of countries and leaders. Here we see a denotational difference between, for example, *korol' Norvegii* 'the king of Norway' which is unique, as opposed to **učenyj Norvegii*, lit. 'a / the scholar of Norway', which is not; instead *norvežskij učenyj* 'Norwegian scholar' is preferred. Similarly, *učastie gubernatora* 'the governor's participation' refers to a specific event, which makes *???gubernatorskoe učastie* a very unlikely alternative, while *gubernatorskaja vlast'* 'gubernatorial power', as a concept not localized in time or space, is fine. However, in the case of person names, there is no denotational difference between the two constructions.

According to the Salience Hypothesis, the choice of the genitive construction can be motivated if the dependent is salient enough, whereas the adjective construction is associated with cases where the head noun is more salient than the dependent. By Salience we mean the degree to which an entity is cognitively distinct from its discourse background, that is the extent to which it is likely to be a figure as opposed to a ground. Animacy, concreteness and individuation are all factors that contribute to Salience. Salience is relevant to all three case studies. Concrete nouns are open to both types of modification without requiring any other salient entity, which means that they are frequently used in the adjective construction. Generally speaking, Human heads are expected to attract the adjective construction because humans are prominent in discourse. However, with both person names and leaders, when the category of the head is Human, both the head noun and the dependent refer to a human being. We see that in the case of person names, Human head nouns have a slight tendency to attract the adjective construction, whereas in the case of leaders, this expected pattern is not observed. The reason for this finding is that in the case of person names, most Human head nouns denote people of equal or similar standing (thus, *drug Miši* and *Mišin drug* 'Misha's friend' are both frequent). In the case of leaders, most Human head nouns denote subordinates (*zamestitel'* 'deputy', *pomoščnik* 'assistant' etc., see Sect. 3.2 for further examples) who are often less salient than their leaders, and these nouns tend to require the genitive construction (*direktorskij* zamestitel', expected meaning 'deputy director' does not occur in our database and sounds unnatural). The head nouns in the Prepositional category do not refer to any discourse referent and do not compete with the salience of the dependent.

Obligatoriness refers to the extent to which the head noun makes inherent reference to some other item, and this is associated with the genitive construction. Overall in our database, the majority of head nouns are inherently relational to some extent. This can be true to varying degrees. The Prepositional category is most clearly associated with obligatoriness, and the genitive is clearly favored, as we see in *po slovam direktora* 'in the words of the director' as opposed to the very unlikely *po direktorskim slovam*. Abstract categories are also relevant here in examples like *kapituljacija Japonii* 'Japan's capitulation', where the deverbal noun

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always implies that there is an argument. In these contexts, the genitive construction prevails; *japonskaja kapituljacija* is less likely. By contrast, Concrete is the category that encompasses many nouns that can freely be used without reference to any other entity, facilitating use of the adjective construction. Finally, head nouns from the Place category behave differently in the three case studies. With leaders and person names, Places are often non-relational nouns that can but need not take modifiers, which accounts for the frequent use of the adjective construction (*prezidentskij dvorec* 'presidential palace', *Sašin dom* 'Saša's house'). However, in the case of countries, typical Places are nouns like *stolica* 'capital', *granica* 'border' that denote parts of the countries themselves, thus instantiating part-whole relationships often marked with the genitive construction.

This article makes the point that even when examining well-known and studied grammatical constructions, it is possible to find new information through detailed case studies of corpus material, and that even broad semantic categories like the ones we have used here are helpful for that purpose.

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