

Gender and Adjectives in Numeral Constructions in Russian*

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1 Introduction

The aim of this paper is to describe the system of gender assignment in Russian. We will show how gender of Russian nouns is predictable based on the features [human] and [female], along with features identifying declension classes. We also present some initial thoughts on how these gender-assignment rules may be related to the choice of genitive vs. nominative adjective case in paucal numeral constructions.

We begin by summarizing the Russian nominal declension class system. We then present data on Russian gender assignment. A model capturing most of the data is then proposed, though dealing with case of mixed agreement is left for further research. Finally, we describe the data on adjective case in paucal numeral phrases, and how it relates to the proposed model of gender assignment.

2 Russian Nominal Declension System and Gender

2.1 Russian Gender

Russian has three grammatical genders: masculine, feminine, and neuter. Nouns referring to humans have masculine or feminine gender. The relationship between gender and declension class will be discussed below, but a special case that can be addressed now is indeclinables.¹

With a few exceptions, inanimate indeclinables are neuter. There are a number of indeclinable animal names, which are generally given as masculine in the dictionary, or sometimes as masculine or feminine, presumably depending on the sex of the referent. However, for many speakers, it seems that these animal names are actually neuter. As with inanimates, there are a few exceptions to the pattern – *cece* (‘tze-tze’), for instance, is clearly feminine.

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¹The special case of nouns that decline like adjectives will not be discussed.

Indeclinables referring to humans have gender corresponding to the gender of the referent – for example, *ledi* (‘lady’) is feminine, while *dendi* (‘dandy’) is masculine. There are not many common nouns referring to humans that are indeclinable, but many foreign names also do not decline.

2.2 Declension Classes

Russian nouns are traditionally categorized into three declension classes:

Declension I:

- masculine nouns with endings other than *-a* in the nominative²
- neuter nouns ending in *-o* or *-e* in the nominative³

Declension II: nouns with endings *-a* in the nominative, mostly feminine

Declension III:

- feminine nouns ending in a palatalized consonant in the nominative
- neuter nouns ending in *mja* in the nominative (14 nouns)

Examples of the full case paradigm for each declension are given in A.

2.3 Connecting Declension Class and Gender

As can be seen from the list above, there’s a strong connection between declension class and gender in Russian. This is illustrated in the following table⁴:

declension \ gender	gender		
	masculine	feminine	neuter
first	✓	✗	✓
second	✓	✓	✗
third	✗	✓	✓

Thus for each declension only two genders are possible, and for each gender only two declensions are possible. Corbett (1982) additionally argues that the neuters in the first declension should be assigned to a separate fourth declension, and that since there are only 14 neuters in the third declension, these can be set aside as lexical exceptions. If we follow Corbett (1982), we then end up with the following table:

²The only exception is *put’* (‘way’), which declines like the third declension.

³Corbett (1982) argues that these neuter nouns form a separate fourth declension.

⁴We set aside nouns formed with diminutive suffixes which retain the gender of the root but take on a declension class consistent with the suffix. We also ignore *put’* (‘way’) as a lexical exception.

gender \ declension	masculine	feminine	neuter
first	✓	✗	✗
second	[✓]	✓	✗
third	✗	✓	✗
fourth	✗	✗	✓

Note that all second-declension masculine nouns (indicated with a bracketed checkmark) refer to humans; they will be discussed below. For all the other categories, it looks like gender is predictable from declension class. On the other hand, declension cannot be predicted solely from gender, as feminine nouns fall both into the second and into the third declension. (Corbett (1982))

Given the close connection between them, it seems that listing both gender and declension class in the lexicon would be redundant. We will focus on deriving gender from declension class (and other factors), as this appears to be the more promising tack.⁵ This derivation process can be viewed as applying in the lexicon, simply filling in a noun’s gender feature unless it is lexically specified, as it would be for the exceptional masculine *put*.⁶ Before we go on to our analysis, we must present some data that belies the neatness of the table above.

2.4 Gender and Human-Referent Nouns

2.4.1 Declension II Nouns

As mentioned above, all declension II nouns not referring to humans are feminine. There are second declension nouns referring to humans that are masculine, such as *djadja* (‘uncle’), *papa* (‘dad’), *dedushka* (‘grandpa’), *junosha* (‘young man’). There are also many nicknames from men’s names that are masculine and fall into declension II: Kolja, Mitja, Pasha, etc.

In addition, there are a number of second declension common gender nouns. These are usually epicenes, referring to a negative habit or personal quality: *p’janica* (‘drunkard’), *rastjapa* (‘clumsy person’), *poproshajka* (‘beggar’), *verzila* (‘brute’), etc. We will refer to these as *p’janica*-type nouns. In non-referential contexts, these tend to take masculine agreement (Nikunlassi (2000), example (2)):

- (1) Kazhdyj/?Kazhdaja sirota hochet, chtoby u nego/?neë byla bol’shaja sem’ja.
 Every-MASC/?Every-FEM orphan wants that at him/?her was big family.
 ‘Every orphan want to have a big family.’

When referring to a male, these nouns will generally take masculine agreement. When referring to

⁵Note that it may be possible to derive declension classes from phonological features. It may therefore also be possible to derive gender directly from phonological features, without the intermediary step of using declension classes. We will not attempt to do so here.

⁶This view may have some problems given the mixed agreement patterns discussed below.

a female, feminine agreement is used:

- (2) a. Petja – gor’kij pjanica.
Peter – bitter-MASC drunkard
‘Peter is a complete drunkard.’
b. Masha – gor’kaja pjanica.
Mary – bitter-FEM drunkard
‘Mary is a complete drunkard.’

But the opposite agreement is also found, at least with male referents:

- (3) Da i zhenix-to vash gor’kaja p’janica.
DA and fiancé you bitter-FEM drunkard
‘And your fiancé is a complete drunkard.’⁷

Feminine agreement with a clearly masculine referent sounds derogatory.⁸

2.4.2 Declension I Nouns

A number of traditionally male-dominated professions have names that are first declension nouns, with no second declension counterpart available to refer to a woman in that profession.⁹ This is different from pairs such as *uchitel’/uchitel’nica* (teacher (M)/teacher (F)), *officiant/officiantka* (waiter/waitress), etc. Examples of professions with no equivalent name to be used when referring to women include *vrach* (‘doctor’), *biolog* (‘biologist’), *deputat* (‘representative’), *sherif* (‘sheriff’), etc. We will call these *vrach*-type nouns.

These forms (unsurprisingly) take masculine agreement when referring to a man and in non-referential contexts. When referring to a woman, these forms traditionally also take masculine agreement:

- (4) Ot grippla menja lechil drugoj vrach – Marija Nikolaevna.
from flu me treated-MASC different-MASC doctor – Maria Nikolaevna
‘A different doctor treated me when I had the flu – Maria Nikolaevna.’

However, even in formal modern usage, feminine agreement on the verb is allowed (Nikunlassi (2000)), and often preferred.

- (5) Moj vrach dolgo menja osmatrivala.
my-MASC doctor long me examined-FEM
‘My doctor examined me for a while.’

⁷<http://lib.ru/TALES/SIBIYAK/hleb.txt> piece40.10

⁸I’ve been unable to track down where I saw this observation.

⁹Some of these have a second declension variant that can be used in a somewhat derogatory manner in an informal context, e.g. *vrach/vrachixa* (doctor/female doctor (derogatory)), *professor/professorsha* (professor/female professor (derogatory), professor’s wife).

Notice that while the verb shows feminine agreement, *moj* ('my-MASC') displays masculine agreement. This is the general pattern for *vrach*-type nouns, and will be discussed in a later section.

In addition to names of professions, there are some first declension nicknames from names used exclusively for women. These follow the same pattern as the profession names, allowing masculine agreement:

- (6) Lizok u nas umnyj.
Lizok at us smart-MASC
'Our Lizzie is smart.' (c.f. Doleschal and Schmid (2001), (16))

3 Predicting Russian Gender

3.1 Proposal

Let us focus, for the time being, on declinable nouns. On this set, the system in Corbett (1982) gives us the following:

Sex-differentiable:

Female: feminine

Else: masculine

Non-sex-differentiable:

Declension I: masculine

Declension II or III: feminine

Declension IV: neuter

This simple system gets most of the data right. Assuming "sex-differentiable" means that a given noun can refer only to a female or only to a male, nouns that refer to animals of either sex (e.g. *sobaka* ('dog'), *zhiraf* ('giraffe')) are correctly assigned gender based on declension class. The other potentially tough case that Corbett (1982) tries to address, namely second declension nouns that refer to males (e.g. *papa* ('dad'), *Kolja*) is also handled by this system: these nouns are sex-differentiable and do not refer to females, so they receive masculine gender. Note that a few nouns (third declension masculine *put'* ('way'), and third declension neuters ending in *mja*) are set aside as lexical exceptions.

However, this is not the complete story. Corbett (1982) specifically excludes from the discussion nouns that can refer to humans of either gender like *professor* and *p'janica* ('drunkard'), and the

system does not automatically generalize to these nouns. Nikunlassi (2000) does attempt to capture these nouns in his system, but at the cost of a much more elaborate setup.¹⁰

Rather than talking about sex-differentiability, a term that is somewhat confusing in any case, we will use the feature [human]. For the cases Corbett (1982) addresses, the two are equivalent. We will also take advantage of the feature [female]. We will see that it is not necessary to provide corresponding [-human] and [-female] features; privative features will suffice.

Let us suppose that a noun generally has to be specified for any feature that is not contingent. Thus *mama* ('mom') is marked [human, female], *otec* ('father') and *papa* ('dad') are marked as [human]. A noun can also be specified for a contingent feature if it is relevant, so that noun like *vrach* and *p'janica* can be marked as [human, female], or simply as [human].

Given our supposition that there is no [-human] feature available, the rules above that derive gender from declension class for non-humans will have to apply to humans as well. If we denote the feature for declension I as [I], and so forth, we thus have the following rules:

- (7)
- a. [I] → [masculine]
 - b. [II] → [feminine]
 - c. [III] → [feminine]
 - d. [IV] → [neuter]

These rules clearly contradict the fact that second declension nouns that always refer to males (e.g. *papa* ('dad'), *junosha* ('young man')) are masculine. Since there is no [-female] feature to refer to, we will need to use the [human] feature to specify this category. We can then propose the following rule:¹¹

- (8) [human] → [masculine]

Suppose we have a system of ordered rules, where if a noun has already been assigned gender, all later gender-assignment rules that would affect it are ignored – a noun may not be assigned more than one gender. Then ordering the rule in (8) before the rule in (8b) allows us to capture the fact that nouns like *papa* ('dad') are masculine.

What about common gender second-declension nouns such as *p'janica* ('drunkard')? As discussed above, in non-referential uses or in reference to a male these nouns generally take masculine agreement. This is captured by our rules so far.

¹⁰The system in Nikunlassi (2000) includes, in addition to a feature for each declension class, the following features: impersonal, human, male, female, thing, nonfeminine subdeclension. For any given gender, each feature is either simply a property of that gender, a prototypical property of that gender, or not a property of that gender. In order to determine which gender should be assigned to a given noun, we count how many properties in each gender category it has. Counting properties how many of the noun's properties are prototypical of each gender serves as a tie-breaker.

¹¹Nikunlassi (2000) makes a similar observation.

However, at this point we need to explain why declension II nouns that refer to women (e.g. *zhena* ‘wife’) take feminine agreement. At the moment, these nouns are being assigned masculine gender by the rule in (8). We can use the following rule to remedy this:

(9) [female, human] → feminine

The rule above refers to humans in particular to account for the fact that, no matter how salient the sex, animals in the declension class I cannot take feminine agreement.

(10) *beremennaja zhiraf
pregnant-FEM giraffe

This rule will of course need to apply before rule (8) above in order to have an effect. It will also automatically capture the fact that feminine agreement is used with *p’janica*-type nouns with female referents.

As mentioned above, *p’janica*-type nouns can sometimes take feminine agreement despite clearly referring to a male; this usage sounds derogatory. A possible explanation is that in such examples, the [human] feature of the noun is ignored. The [human] → [masculine] rule then fails to apply, and the [II] → [feminine] rule assigns feminine gender to the noun. The derogatory feeling thus arises from the fact that the referent is being dehumanized.

There remain to be discussed first declension nouns that can refer to females, such as *vrach* (‘doctor’) or *deputat* (‘representative’). When the referent is male or of unspecified gender, both of the applicable rules ([I] → [masculine], [human] → [masculine]) indicate that the gender is masculine, as desired. The interesting case is when the referent is female, as then we have two rules coming into conflict:¹²

(11) a. [I] → [masculine]
b. [female, human] → [feminine]

If the proposal above is correct, a contingent feature can be ignored, which predicts correctly that masculine agreement with these nouns is permitted. But it is also possible to take the [female] feature into account, in which case feminine agreement is present.¹³

Finally, recall that indeclinable nouns are generally neuter (with some exceptions, which we presume are lexical), unless they refer to humans. We can account for this with a default rule that assigns [neuter]] unless some other gender has been assigned:

¹²The [human] → [masculine] rule has already been shown to apply after the [female, human] → [feminine] rule, and will therefore not be relevant.

¹³The fact that declension I diminutives clearly referring to females (e.g. *Lizok*) pattern similarly to *vrach*-type nouns puts into doubt the relevance of the contingency of a feature for the possibility of ignoring it. However, it is perhaps relevant to note that many declension II diminutives are generally available, and could be used if the referent’s gender were relevant. Note that I am also not sure to what extent it is possible to use masculine agreement with *p’janica*-type nouns with a female referent, which is currently expected to be OK.

(12) assign [neuter]

This rule will of course apply after all the other rules. It allows us to eliminate as redundant the rule assigning neuter to fourth declension nouns:

(13) [IV] → [neuter]

3.2 System Summary

We thus have the following ordered set of rules:

1. [female, human] → [feminine]
2. (a) [I] → [masculine]
(b) [human] → [masculine]
3. [II] → [feminine]

In addition, the following rule is unordered with respect to the rules above:

- [III] → [feminine]

Finally, we apply the default gender assignment rule:

- assign [neuter]

The following table illustrates how the system applies based on the noun and its referent for declinable nouns referring to humans.

noun	referent	declension	rule
zhena ('wife')	female	II	[female, human] → feminine
muzh ('husband')	male	I	[I] or [human] → masculine
p'janica ('drunkard')	unspecified	II	[human] → masculine
p'janica ('drunkard')	male	II	[human] → masculine
p'janica ('drunkard')	female	II	[female, human] → feminine
vrach ('doctor')	unspecified	I	[I] or [human] → masculine
vrach ('doctor')	male	I	[I] or [human] → masculine
vrach ('doctor')	female	I	[female, human] → feminine

3.3 Constraints

If we wanted, we could rewrite the ordered rules above in terms of constraints. Corresponding to each rule (other than the default rule), there would be a constraint that requires a noun having the features on the left side of the rule to have the gender on the right side of the rule. For example:

rule: [human] → [masculine]

constraint: A noun with the feature [human] must have [masculine] gender.

We can thus define the following constraints, which will correspond to the rules give above:

FEMALE, HUMAN:F: A noun with the features [female, human] must have [feminine] gender.

I:M: A noun with the feature [I] must have [masculine] gender.

HUMAN:M: A noun with the feature [human] must have [masculine] gender.

II:F: A noun with the feature [II] must have [feminine] gender.

INDECLINABLE:N: A noun with the feature [indeclinable] must have [neuter] gender.

III: A noun with the feature [III] must have [feminine] gender.

The rule ordering specified above then corresponds to the following constraint ranking in an OT framework:

(14) FEMALE, HUMAN:F \gg I:M; HUMAN:M \gg II:F

The neuter default could be captured by ranking *[neuter] below *[masculine] and *[feminine]. We would also need to include a highly ranked constraint specifying that each noun has exactly one gender assigned to it.

4 Adjectives in Paucal Numeral Phrases

We will not discuss the syntax of Russian paucal numeral constructions (see Pesetsky (2007) for an analysis), but will present some interesting data. When a paucal numeral construction, i.e. a numeral construction with *dva* ('two'), *tri* ('three'), or *chetyre* ('four'), occurs in a nominative environment, we find the following case and number markings:

numeral: nominative

adjectives: genitive plural *or* nominative plural

noun: genitive singular (syncretic with nominative plural in declensions II, III, and IV, modulo frequent stress differences)

What we will focus on here is whether the genitive or the nominative form of the adjective is used.

4.1 Declinables

For declinable nouns referring to non-humans, the data is fairly straightforward. With declinable masculine nouns (declension I) and declinable neuter nouns (declension II) only the genitive form of the adjective is allowed. With feminines, the nominative form is preferred, though the genitive form is possible at least for some speakers.

For nouns referring to humans, we find the following patterns¹⁴:

declension I: genitive, regardless of gender (i.e. including female *vrach* ('doctor'), and *Lizok*)

declension II, obligatorily female: nominative preferred

declension II, obligatorily male: mixed

declension II, common gender (i.e. *pjanica*-class):

- mixed regardless of referent (one speaker)
- nominative preferred when referents are female; different numeral form used otherwise, so no data available (another speaker)

These generalizations seem to correspond to the gender assignment rules/constraints above in a way that ignores their ordering. In particular, for any given instance of a noun we have the following possibilities:

1. more rules entailing masculine/neuter than feminine
2. more rules entailing feminine than masculine/neuter
3. equal numbers of rules entailing feminine and masculine/neuter

It seems that in the first case the adjectives must be in the genitive, in the second case the nominative form is preferred, and in the third case both the genitive and the nominative are used.¹⁵

¹⁴I did not gather data on declension III or IV nouns referring to humans. There are only several such nouns in declension III, and no nouns always referring to humans in declension IV.

¹⁵We will want to take a look at the patterns found for nouns that are lexical exceptions to the proposed gender assignment rules.

The following table illustrates the pattern for example nouns of all the types discussed above. The columns correspond to all the feature combinations that occur on the left side of the arrow in our rules. For each noun, if it has the feature combination being considered, it is marked with an F in the corresponding column if the rule applying to that feature combination assigns feminine gender, M if it assigns masculine gender, and N if it assigns neuter.

Noun	I	II	III	IV	human	female, human	Adjective Case
stol ('table')	M						genitive
lampa ('lamp')		F					nominative
kost' ('bone')			F				nominative
oblako ('cloud')				N			genitive
mal'chik ('boy')	M				M		genitive
vrach ('doctor'), male/unspecified	M				M		genitive
vrach ('doctor'), female	M				M	F	genitive
Lizok ('Lizzie')	M				M	F	genitive
tëtja ('aunt')		F			M	F	nominative
djadja ('uncle')		F			M		mixed
p'janica ('drunkard'), male/unspecified		F			M		mixed
p'janica ('drunkard'), female		F			M	F	nominative ¹⁶

4.2 Indeclinables

The data for indeclinables is not predicted by the generalization made above. As expected, inanimate indeclinables in paucal phrases take genitive adjectives:

- (15) tri vkusnyx/*vkusnye beze
 three tasty-GEN.PL/*tasty-NOM.PL meringue
 'three tasty meringues'

However, animate indeclinables are able to take nominative adjectives as well:

- (16) tri umnyx/umnye èmu
 three smart-GEN.PL/smart-NOM.PL èmu
 'three smart kangaroos'

Consistently with our rules, *èmu* is neuter for the speaker who accepted the nominative adjective in the example above. As our system stands, we have no grasp on why animates would follow a

¹⁶One of the two speakers I consulted made no distinction between female drunkards and drunkards of unspecified gender, but gave both genitive and nominative adjectives for both. Perhaps this happened because the fact that several drunkards were all women could not be made sufficiently salient.

different pattern for inanimates. The data would be consistent with our proposed generalization if the default gender assignment rule somehow “counted” for the inanimates and did not “count” for animates when determining what case the adjective must be in. It is not obvious why things would work this way.

5 Mixed Agreement

As mentioned above, we have so far left out some details concerning gender agreement patterns with *vrach*-type nouns with female referents. Corbett (1991) proposes the following agreement hierarchy:

(17) attributive < predicate < relative pronoun < personal pronoun

Corbett (1991) presents evidence that cross-linguistically in general, and in Russian in particular, elements to the right in the hierarchy are more likely to show “semantic” agreement (i.e. agreement based on the sex of the referent) than elements to the left in the hierarchy.

Still, while feminine agreement with *vrach*-type nouns is least common on the adjectives, it is possible in the nominative case (but not in oblique cases). Furthermore, there are also distinctions to be made among different types of adjectives. (Rothstein (1980), Nikunlassi (2000)) In particular, Rothstein (1980) distinguishes three types of modifiers:

1. (syncategorematic) reference modification: “X is an A N” = “X is an N of the type/in the manner specified by A”, e.g. *rural policeman*, *intellectual dwarf*
2. syncategorematic referent modification: “X is an A N” = “as an N, X is A”, e.g. *beautiful dancer* (dances beautifully), *poor violinist* (plays poorly)¹⁷
3. attributive referent modification: “X is an A N” = X is A and X is N (i.e. intersective), e.g. *drowsy policeman*, *kind doctor*

Rothstein (1980) proposes the following hierarchy, where again the elements to the right are more likely to show semantic agreement:

(18) (syncategorematic) reference modification < syncategorematic referent modification < attributive referent modification

¹⁷It is not entirely obvious how the two categories of syncategorematic reference modification and syncategorematic referent modification can be distinguished.

The following examples illustrate this pattern:

- (19) a. zubnoj/*zubnaja vrach
dental-MASC/*dental-FEM doctor
‘dentist’
- b. Umelyj/umelaja vrach bystro postavila plombu.
skillful-MASC/skillful-FEM doctor quickly stood-up-FEM filling
‘The skillful doctor quickly put in the filling.’ (i.e. skillful as a doctor)
- c. Umelaja/*umelyj vrach bystro postroila lodku.
skillful-FEM/*skillful-MASC doctor quickly built-FEM boat
‘The skillful doctor quickly built a boat.’ (e.g on a reality TV show) (i.e. skillful as a person)

Analysis of this data is left for further work.

6 Conclusion

In this paper, we laid out the data on Russian gender assignment. We then presented a system that derives the gender of Russian nouns from declension class and the features [female] and [human]. We showed that this system works in some non-trivial cases. We discussed some facts concerning case on adjectives in paucal numeral constructions, and tentatively tied these facts to the proposed gender-assignment system. We also presented some data on mixed agreement patterns, which remains to be analyzed.

A Russian Declensions

Singular:

case \ declension	I	II	III	IV
Nominative	stol-∅	lamp-a	kost-’	oblak-o
Genitive	stol-a	lamp-y	kost-i	oblak-a
Dative	stol-u	lamp-e	kost-i	oblak-u
Accusative	stol-∅*	lamp-u	kost-’	oblak-o
Instrumental	stol-om	lamp-oj	kost-’ju	oblak-om
Prepositional	stol-e	lamp-e	kost-i	oblak-e

*The accusative is syncretic with the nominative for inanimates, and with the genitive for animates.

Plural:

case \ declension	I	II	III	IV
Nominative	stol-y	lamp-y	kost-i	oblak-a
Genitive	stol-ov	lamp-∅	kost-ej	oblak-ov
Dative	stol-am	lamp-am	kost-jam	oblak-a
Accusative	stol-y*	lamp-y*	kost-i*	oblak-a*
Instrumental	stol-ami	lamp-ami	kost-jami	oblak-ami
Prepositional	stol-ax	lamp-ax	kost-jax	oblak-ax

*The accusative is syncretic with the nominative for inanimates, and with the genitive for animates.

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