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Case Percolation in Russian Numeral Constructions

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Abstract

The aim of this paper is to explore the various problems which arise in Russian numeral constructions, focusing on the peculiar case patterns following the lower numerals 2, 3, and 4. After these numerals, nouns realize what looks like genitive singular morphology. However, this morphological realization is inconsistent, notably in accusative environments and lexical case environments. In order to explain these patterns, I propose that Russian lower numerals co-occur with paucal number, and not what is traditionally seen as singular morphology. While the idea of paucal number in Russian isn't necessarily novel, previous analyses of paucal number identify these basic patterns as instances of nominative paucal morphology (Bailyn & Nevins 2008, Rakhlin 2003). I argue that what we are seeing is paucal number with default genitive case (cf. Pesetsky 2013).

I posit that a structural feature set of $[\pm\text{oblique}, \pm\text{object}]$ and the semantic/lexical feature set of $[\pm\text{f}, \pm\text{g}]$ percolate through the NP differently, especially in lower numeral constructions (Assmann et. al 2014). Namely, I argue that numerals in Russian are unable to realize structural case features without a semantic feature set. Without this, structural cases are prevented from continuing through the phrase, resulting in something similar to a 'failure-to-agree' mechanism. With no case being assigned, the noun must default to genitive case. It is how the noun realizes this genitive case that is of particular interest to this paper. I that genitive paucal is largely syncretic with genitive singular, except in a few certain cases. Additionally, paucal lexical case morphology is syncretic with plural lexical case morphology due to an impoverishment of the [augmented] feature. I will demonstrate that these syncretism patterns account for all of the various problems discussed here.

Case Percolation in Russian Numeral Constructions

Sarah Asinari*

1 Introduction

The aim of this paper is to explore the various problems which arise in Russian numeral constructions, focusing on the peculiar case patterns following the lower numerals 2, 3, and 4, and words denoting small groups. The general problem lies in the realization of case and number morphology after these numerals. In these environments, nouns typically realize genitive singular morphology (1).

- (1) dve/tri/četyre košk-i
two/three/four cat-F.GEN.SG
'two/three/four cats'

This is interesting, as after the higher numerals (5+), the noun typically realizes genitive *plural* morphology (2).

- (2) pjat' košek-Ø
five cats-F.GEN.PL
'five cats'

I will address four problems, all of which have been covered within the literature, but, to my knowledge, have not been explained within the same approach. Firstly, adjectives realize genitive plural morphology following lower numerals, while the noun realizes genitive singular morphology (Babby 1987, Franks 1995, Neidle 1988, Pesetsky 1982, 2013, Rappaport 2002). Secondly, there are five monosyllabic masculine nouns in Russian that show a stress shift after lower numerals, which is different than the regular genitive singular ending (Bailyn and Nevins 2008, Rappaport 2002, Pesetsky 2013). Thirdly, and the focus for this paper, for feminine nouns in lower numeral environments, it is common for the adjective to realize *nominative* plural morphology, instead of the expected genitive (Bailyn and Nevins 2008, Franks 1995, Pesetsky 2013). Additionally, in lexical case environments, all nodes within the DP receive *plural* lexical case morphology (Babby 1987, Franks 1995, Pesetsky 1982, 2013).

I propose that Russian lower numerals co-occur with paucal number, and not what is traditionally seen as singular morphology. While the idea of paucal number in Russian isn't necessarily novel, previous analyses of paucal number identify these patterns as instances of *nominative* paucal morphology (Bailyn and Nevins 2008, Rakhlin 2003). I argue that what we are seeing is paucal number with default genitive case (cf. Pesetsky 2013). I propose that Russian cases consist of two separate feature sets, which separate structural cases from lexical cases (Assmann et al 2014). Importantly, I argue that the structural feature set of [\pm oblique, \pm object] and the semantic/lexical feature set of [\pm f, \pm g] percolate through the NP differently, especially in lower numeral constructions. Namely, I argue that numerals in Russian are unable to realize structural case features without a semantic feature set. This prevents structural cases from continuing through the phrase, resulting in nouns unspecified for case features. With no case being assigned, the noun must default to genitive case, but it is how the noun realizes this genitive case that is the purpose behind this paper. I propose that genitive paucal is largely syncretic with genitive singular, except in certain cases. Additionally, paucal lexical cases are syncretic with plural lexical case morphology due to an impoverishment of the [augmented] feature. I will demonstrate that these syncretism patterns account for all the various problems discussed here.

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2 Patterns with Russian lower numerals

2.1 Adjective/Noun Number Mismatch

Russian separates lower and higher numerals. The lower numerals consist of the numbers *dve/dva* ‘two (f/m)’, *tri* ‘three’, *četyre* ‘four’, and a group of words denoting small groups: *pol* ‘half’, *poltora* ‘one and a half’, *obe/oba* ‘both (f/m)’, *četvert* ‘quarter’, etc. (Babby 1987, Corbett 2010, Franks 1994, Pesetsky 2013, Rappaport 1998, 2002). In lower numeral constructions (henceforth LNCs), nouns realize genitive singular morphology, while adjectives realize genitive *plural* morphology (3).

- (3) dva/tri/četyre krasn-yx stol-a
two/three/four red-GEN.PL chair-GEN.SG
‘two/three/four red chairs’

When higher adjectives and demonstratives are added ahead of the numeral, they realize nominative plural morphology, while the rest of the numeral phrase realizes genitive case (4).

- (4) et-i posledn-ie dva/tri/četyre krasn-yx stol-a
these-NOM.PL last-NOM.PL two/three/four red-GEN.PL chair-GEN.SG
‘these last two/three/four red chairs’

This is referred to as heterogeneous case morphology (Babby 1987). This is strange in that not only do the lower adjective and noun realize genitive case morphology, but the adjective doesn’t agree with the noun in its number feature. This number mismatch only occurs in LNCs in structural case assigning environments.

The higher numerals consist of numbers 5-19, all compound numerals ending in 5-9, and a group of words denoting large groups or uncountable quantities: *mnogo* ‘many’, *nemnogo* ‘a little’, *skol’ko* ‘how much’, *stol’ko* ‘so much’, etc. (Pesetsky 2013:24). These constructions also show heterogeneous morphosyntax, with the nouns and adjectives realizing genitive plural morphology, and the demonstrative, higher adjective, and numeral realizing nominative morphology. While this pattern is the same as the lower numerals, the main difference is that there is no number mismatch between the lower adjective and the noun after higher numerals (5).

- (5) et-i posledn-ie pjat’ krasiv-yx stol-ov
these-NOM.PL last-NOM.PL five beautiful-GEN.PL table-GEN.PL
‘these last five beautiful tables’

2.2 Feminine Case Patterns

An apparent exception to this genitive plural adjective pattern arises with feminine nouns. In addition to the number mismatch described in Section 2.1, in LNCs with feminine nouns, the lower adjective can appear in either genitive plural or nominative plural, with the latter being the more common variant (Corbett 2010, Pesetsky 2013) (6).

- (6) Case options in LNCs with feminine noun
a. dv-e krasiv-yx lamp-y
two-F beautiful-GEN.PL lamp-F.GEN.SG
‘two beautiful lamps’
b. dv-e krasiv-ye lamp-y
two-F beautiful-NOM.PL lamp-F.GEN.SG
‘two beautiful lamps’
(Pesetsky 2013:119, ex 143)

Feminine nouns also differ from most other nouns, in that the genitive singular and nominative plural morphemes are mostly syncretic (Bailyn and Nevins 2008) (7).

(7) Syncretism of genitive singular and nominative plural

- a. *devušk-i* *igraut* *na ulicu*
 girls-NOM.PL play on street
 ‘The girls are playing outside.’
- b. *sobaka devušk-i*
 dog girl-GEN.SG
 ‘the girl’s dog’

Since these constructions allow genitive plural, or more typically, nominative plural concord on the adjective, we might wonder which case is realized after the lower numerals. It’s also important to note here that the nominative case pattern does not occur after the higher numerals.

Feminine nouns exist in two different declension classes in Russian. Class 1 nouns end in -a or -ja, and Class 3 feminine nouns end in a yer vowel, marked by an apostrophe (‘) or with the Cyrillic character ъ.¹ Both declension patterns show a syncretism between the genitive singular and the nominative plural. The nominative plural adjective pattern can occur with either class of feminine noun, regardless of morphological ending (8).

(8) LNC nominative plural pattern with class 3 noun *kost* ‘bone’

- a. *tri star-ye kost-i*
 three old-NOM.PL bone-GEN.SG/NOM.PL
 ‘three old bones’
- b. *#tri star-yx kost-i*
 three old-GEN.PL bone-GEN.SG/NOM.PL
 ‘three old bones’

Masculine nouns belong to two main declension patterns (both of which are included in class 2). Most morphologically masculine nouns end in a consonant, but there is a small set of masculine nouns that end in -ъ, like Class 3 feminine nouns. Unlike feminine nouns, masculine nouns do not show a syncretism between the genitive singular and the nominative plural. They also do not allow a nominative plural adjective in LNCs (9-10).

(9) Inanimate masculine -ъ noun *kogot* ‘claw’

- tri ostr-yx /*ostr-ye kogt-ja*
 three sharp-GEN.PL/*NOM.PL claw-GEN.SG
 ‘three sharp claws’

(10) Animate masculine -ъ noun *gost* ‘guest’

- tri prijatn-yx /*prijatn-ye gost-ja*
 three nice-GEN.PL/*NOM.PL guest-GEN.SG
 ‘three nice guests’

Neuter nouns (also Class 2) end in -o or -e, and do not allow a nominative plural adjective in LNCs (11b). Like the feminine nouns, the morphological endings for nominative plural and genitive singular are segmentally the same, but they differ in stress (11).

- (11) a. *star-oe pís'ma lezat na stole*
 old-NOM.PL letter-NOM.PL lay on table-LOC.SG
 ‘The old letters are on the table.’
- b. *tri star-yx /*-ye pís'má lezat na stole*
 three old-GEN.PL/*NOM.PL letter-GEN.SG lay on table-LOC.SG
 ‘Three old letters are on the table.’

¹This includes morphologically feminine nouns that are semantically masculine, such as *mužčina* ‘man’. These nouns also allow nominative plural morphology on the adjective.

In Section 3, I will argue that this stress difference is a clear distinction between the two morphemes. The lack of a syncretism between nominative plural and genitive singular places neuter nouns closer to masculine nouns than feminine nouns, with regards to LNCs. I will use this syncretism to account for the nominative case pattern with feminine nouns.

2.3 Stress Shift Pattern

There are five nouns in Russian which behave differently after lower numerals. In these environments, the stress differs from the genitive singular. *Rjad* ‘row’, *šar* ‘sphere’, *sled* ‘trace’, *čas* ‘hour’, and *šag* ‘step’ are all monosyllabic masculine nouns, and they are the only nouns that show this difference (12-13).

(12) In genitive case assigning environments

s	perv-ogo	šág-a
since _{GEN}	first-GEN.SG	step-GEN.SG
‘since the first step’		

(13) In LNCs (stress shift)

dva šag-á
two step-GEN.PL
‘two steps’

These nouns shift the stress to the suffix only in LNCs, while in other genitive environments the stress is on the first syllable. This pattern has been used as a counterexample to previous analyses of Russian numeral constructions (Rappaport 2002). Since this stress shift occurs in lower numeral constructions, I will argue in Section 3 that this is a manifestation of paucal number and not just a quirk of the morphophonology.

2.4 Lexical Case Pattern

When either a higher or lower numeral construction is merged with a lexical case assigning verb or preposition, every element within the DP realizes lexical case. This is referred to as homogenous morphosyntax (Babby 1987). In lexical case assigning environments, the number mismatch previously seen in structural environments disappears (Babby 1987, Franks 1995, Freidin and Babby 1984, Pesetsky 1982, 2013). Both the adjective and the noun realize plural morphology in lower and higher numeral phrases following lexical case environments, as modeled by the dative case in (14).

(14) K	dv-um/tr-em/četyr-em	malen’k-im	mal’čik-am
to _{DAT}	two/three/four-DAT	young-DAT.PL	boy-DAT.PL
‘to two/three/four young boys’			

Why would lexical case environments require the noun to realize plural morphology, when it realized singular case morphology in structural case environments? If the lower numerals required a specific case like genitive, or paucal case, as has been argued by Rappaport (2002) and others, we wouldn’t expect the noun to change in number *and* case in lexical case environments. I propose in Section 3 that this is further evidence of a paucal number feature underlying LNCs, and that this paucal number feature in lexical cases is syncretic with the plural morphology.

3 Case Features

Previous approaches have attempted to resolve the general problem of genitive singular morphology after lower numerals by proposing paucal case and paucal number. Paucal case, or *sčētnaja forma* ‘numeral form’, which has been largely argued against, would mean that Russian has a separate case, which solely appears after lower numeral elements (Franks 1994, 1995, Mel’čuk 1985:174, Rappaport 2002, Zaliznjak 1967:46-48). This approach will not be entertained within this proposal. However, the notion of paucal number in Russian, as I will show, should not be ruled out entirely. Two main analyses of this variety, Bailyn and Nevins (2008) and Rakhlin (2003), mainly focus on

the co-occurrence of paucal number on nodes following lower numerals, given the existence of dual number in Old Slavonic. In addition, they propose that what is typically glossed as genitive singular is *nominative paucal*, which is where I will differ. I maintain that genitive case *is* realized, and that the case after lower numerals is *default* genitive case (Pesetsky 2013). It is within Pesetsky's model that I will root my proposal.

3.1 Structural Case Assignment

My analysis will assume with Rakhlin (2003) that the lower numerals (2, 3, 4) co-occur with paucal number. However, the main innovation of my account is that I will propose that the lower numerals are unable to realize structural case features of [\pm obl(ique), \pm obj(ect)] without a feature of [+animate] or a semantic feature set of [\pm f, \pm g].² I will maintain Pesetsky's (2013) analysis that nouns are 'born' genitive, and adopt his analysis of case percolation, while proposing a new restriction. This will result in the numeral not recognizing structural case features and case percolation failing to continue through the phrase. This then leaves the entire NumP without case, requiring default case to be assigned. This results in numerals realizing nominative case morphology, while the proceeding nodes realize 'primeval' genitive, or N_{GEN} . Since numerals can value the semantic feature set [\pm f, \pm g], which is percolated by lexically assigning prepositions and verbs, the entire phrase is able to realize homogenous lexical case. Paucal number in default N_{GEN} is largely syncretic with genitive singular, apart from the stress shift pattern and certain feminine nouns. I will use these exceptions to model default genitive case in lower numeral constructions. In lexical case, however, paucal number morphology is syncretic with plural morphology. This section will focus on case features, case percolation, and default case assignment.

Russian has six cases: nominative, accusative, genitive, dative, instrumental, and locative.³ Within Distributed Morphology (Halle and Marantz 1993), morphological case corresponds to a set of features with morphological insertion rules. Instead of basing Russian case morphology features on traditional features for Russian (cf. Jakobson 1984, Neidle 1988, Franks 1995), I will base this analysis on the set of case features from Assmann et al (2014) for Udmurt. This analysis of Udmurt separates structural case features from lexical case features. I will maintain that nominative, (default) genitive, and accusative are structural cases in Russian (Halle 1997). Structural cases are represented with [\pm obl(ique), \pm obj(ect)] , while (lexical) genitive, dative, instrumental, and locative are all semantic/lexical cases, which are marked with [+obl, +obj] and a separate set of features [\pm f, \pm g]. The case features I will be assuming for Russian, based on Assmann et al (2014), are stated in (15).

(15) Features for Russian cases

NOM:	[-obl, -obj]	DAT:	[+obl, +obj] [+f, -g]
ACC:	[-obl, +obj]	LOC:	[+obl, +obj] [+f, +g]
GEN:	[+obl, -obj]	INST:	[+obl, +obj] [-f, +g]
		GEN _L :	[+obl, +obj] [-f, -g]

Numeral constructions in nominative and inanimate accusative environments exhibit heterogeneous morphosyntax, with all nodes to the right of the numeral receiving genitive case. Unlike previous analyses which called this case *nominative paucal*, I believe that these morphemes are genitive. However, I propose that the Num head is unable to carry structural case features [\pm obl, \pm obj] without a semantic feature set. Since numerals can't carry these features, these structural case features can't percolate through the rest of the phrase. I propose a new restriction on case percolation to account for this in (16).

²For the purposes of this analysis, the content of the values f and g are inconsequential. Here they are simply representative values for semantic cases. The features of semantic cases in Russian will not be discussed here.

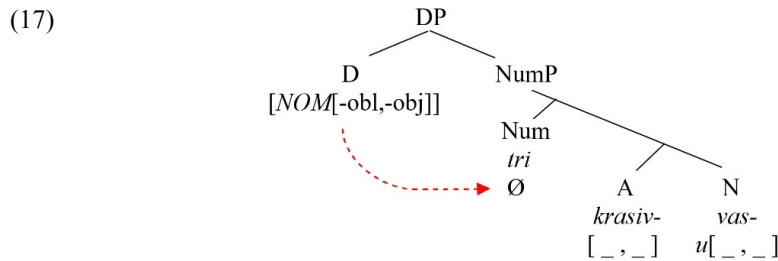
³This does not include: the partitive, which is normally syncretic with the genitive and classified as so, various other flavors of genitive.

(16) Restriction on case percolation

Case features:

- i. can only percolate within the complement domain (based on Pesetsky 2013:49),
- ii. if and only if, the target of percolation carries an unvalued version of at least one of the features involved.

Numeral constructions consist of a maximal projection NumP, headed by Num, which takes a NP complement. In structural case environments, which will be exemplified by D_{NOM} , D merges ahead of NumP and attempts to assign nominative to its complement NumP (17).

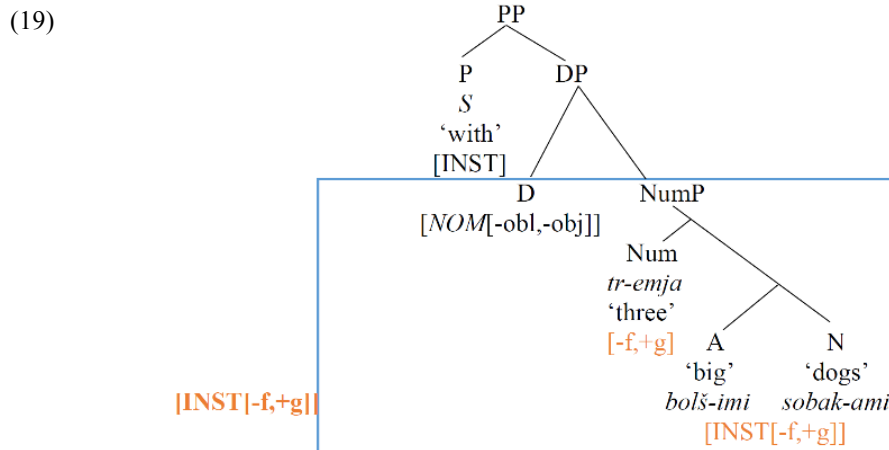


In (17), since Num is unable to carry the structural case features of [-obl,-obj], as indicated by the red arrow, case feature percolation fails at this point, leaving the preceding nodes unvalued for case. At this point in case percolation, these nodes are in violation of the Case Filter (Chomsky 1981, Vergnaud 2006). This then requires the numeral to realize default case morphology. Since nouns are under the head N, which assigns N_{GEN} , it is at this point that default N_{GEN} is realized on the noun.

Numerals' inability to carry structural case features is apparent with higher adjectives. As was mentioned in Section 2.1, adjectives to the left of numerals receive nominative plural morphology, while everything to the right realizes genitive case morphology. This is exactly the pattern we would expect if D_{NOM} is blocked by the lower numerals. The demonstrative *eti* and the higher adjective *poslednie* are able to realize the case features of [-obl,-obj], while Num is unable to value the features (4, repeated here as 18).

- (18) et-i posledn-ie dva/tri/četyre krasn-yx stol-a
 these-NOM.PL last-NOM.PL two/three/four red-GEN.PL chair-GEN.SG
 'these last two/three/four red chairs'

Lexical cases in Russian are assigned by prepositions, and they overwrite structural case in Russian, as exhibited by numeral constructions (Babby 1987, Franks 1995, Pesetsky 1982, 2013). These cases are semantic cases, which are represented with a separate matrix of features [$\pm f$, $\pm g$]. Since Russian numerals can carry these features, they percolate through to the entire NumP, allowing lexical case overwrite (19).



Lexical case feature percolation occurs after D_{NOM} has failed to percolate, and after default case assignment. For example, when P_{INST} is merged, it assigns the lexical case features of [+obl,+obj] [-f,+g] to the entire DP, which has already been assigned default case. Num is able to value the feature set [-f,+g], and therefore allows the percolation of both case features sets throughout the phrase.

4 Number Features in Russian

4.1 Paucal Features

To explain the various case syncretism patterns within Russian, I propose that paucal number exists in Russian. Paucal number in default genitive case is largely syncretic with genitive singular given the stress shift pattern from Section 2.3. In lexical case environments, paucal number is syncretic with plural, given the realization of homogenous case and number morphology. I base the paucal number feature off Bailyn and Nevins' (2008) adaption for paucal in Russian with the inclusion of [\pm augmented], which refers to large groups (cf. Harbour 2006, 2014) (20).

- (20) Singular: [+singular, -augmented]
 Paucal: [-singular, -augmented]
 Plural: [-singular, +augmented]

I will assume that in LNCs the feature of [singular] is deleted by Impoverishment, seeing as the structural genitive paucal is mostly syncretic with the singular morpheme (21).

- (21) Impoverishment of singular:
 Delete [singular] in the context of [-augmented][+obl,-obj] on a terminal node of a noun.

This analysis takes the difference between structural case singular/paucal and plural to be the difference between [\pm -augmented]. To demonstrate this, there are pairs of words in Russian that have different forms for the singular and plural, much like 'person/people' in English (*čelovek/ljudi* 'person/people'). In Russian LNCs, only the singular form of the pair can be used (22-23).

- (22) tri čelovek-a /*ljud-ej
 three person-GEN.SG /*people-GEN.PL
 'three people'
 (23) tri rebënk-a /*det-ej
 three child-GEN.SG /*children-GEN.PL
 'three children'

If [-singular] isn't deleted, it's not entirely clear that we would expect the plural form of the word to be ungrammatical in (22-23). However, in lexical case environments, only the plural form *ljudi* or *deti* is permitted (24-25).

- (24) k dv-um ljud-jam /*čelovek-am
 to_{DAT} two-DAT people-DAT.PL /*person-DAT.SG
 'to two people'
 (25) k dv-um det-jam /*rebënk-u
 to_{DAT} two-DAT children-DAT.PL /*child-DAT.SG
 'to two children'

Given this, I posit that in lexical case environments the [augmented] feature is deleted (26).

- (26) Impoverishment:
 Delete [augmented] on adjectives and nouns in lexical case environments.

From this point, nouns that would've previously been glossed as GEN.SG after lower numerals, will now be labelled GEN.PC to avoid confusion with differences from genitive singular morphemes. If the genitive singular and paucal morphemes are not syncretic, they will be labeled singular. The case of adjectives will be discussed below, but the number feature will be glossed as PC to show concord with the noun.

4.2 Feminine Noun Syncretism with Paucal Number

Most feminine nouns in Russian either end in /-a/, /-ja/, or /-ь/ (yer vowel, Lightner 1972). For inanimate Class 1 and 3 nouns, the genitive singular and the nominative and accusative plural are mainly syncretic. Table 1 shows the declension patterns for the inanimate feminine nouns *rabota* 'work', *pesnja* 'song', *kost* 'bone', and *reka* 'river'.

Inanimate	Singular				Plural			
NOM	rabot-a	pesn-ja	kost-ь	rek-á	rabot-y	pesn-i	kost-i	<u>rék-i</u>
ACC	rabot-u	pesn-ju		rek-u				
GEN	rabot-y	pesn-i	kost-i	rek-í	rabot-Ø	pesen-Ø	kost-ej	rek-Ø

Table 1: Inanimate feminine noun declension pattern

The genitive singular and the nominative and accusative plural are syncretic for most inanimate feminine nouns. This is an interesting syncretism pattern, as feminine nouns can have a nominative plural adjective after lower numerals. There are a few words in Russian, like *reka* 'river', that differentiate between the nominative plural and the genitive singular with stress (27).

- (27) *reka* gen.sg ≠ nom.pl
 a. tečenie rek-í / *réki
 current river-GEN.SG / *NOM.PL
 'the river's current'
 b. širok-ie rék-i / *rekí
 wide-NOM.PL river-NOM.PL / *GEN.SG
 'the wide rivers'

In LNCs, *reka* can take either a genitive plural or nominative plural adjective, but can only have the stress on the final -i, which is the genitive singular segment (28).

- (28) dve širok-ix / širok-ie rek-í / * rék-i
 two wide-GEN.PC/NOM.PC river-GEN.PC/*NOM.PL
 'two wide rivers'

While this might show that *reka* is not in nominative plural, it still doesn't explain why (28) allows both genitive plural and nominative plural morphology on the adjective. In (28), the lower numeral *dve* 'two' co-occurs with paucal number [-singular, -augmented] on the noun *reka*. When D merges ahead of the numeral and attempts to assign nominative to its complement, *dve* fails to realize the structural case [-obl, -obj], leaving the NumP without case. Default genitive case [+obl, -obj] is assigned to the noun. *Reka* now bears the features [+fem, -masc, +obl, -obj, -sing, -aug]. In structural environments, nouns undergo an Impoverishment of [singular] feature, resulting in the following feature set for the morpheme -í (29).

- (29) Class 1 noun: genitive singular/paucal insertion *reka* 'river'
 -í → [+obl, -obj, +fem, -masc, -aug]

While most animate feminine nouns regularly realize genitive singular/paucal and nominative plural as the same morpheme, the irregularly declining noun *doč'*, like *reka*, only appears in genitive singular (paucal), and allows both nominative plural and genitive plural adjectives, even though there is no nominative plural syncretism (30).

- (30) tri krasiv-ye/krasiv-yx doč-eri/*doč'
 three beautiful-NOM.PC/GEN.PC daughter-GEN.PC/*NOM.PL
 'three beautiful daughters'

It seems clear that nominative is not the case realized after the lower numerals, as Bailyn and Nevins (2008) have previously asserted, until you focus on the nominative plural adjective pattern with feminine nouns. To account for this variation, I will present two insertion rules for the genitive plural adjective pattern and the nominative plural pattern. Firstly, adjectives realize the features [+obl,-obj,-sing,-aug] on the noun as genitive plural morphology, through the Impoverishment of the [augmented] feature (31).

- (31) Adjectives:
 [augmented] goes to \emptyset in all contexts.

Adjectives can only distinguish between [\pm singular] in Russian. This allows for genitive plural case morphology on all adjectives regardless of gender, as all gender features are deleted in [-singular]. This presents a problem, as it's apparent that [+feminine] is the only distinction which allows adjectives to appear in nominative plural instead of genitive plural. [+feminine] is a marked feature in [-sing,-aug], which is why we only see this nominative plural pattern with feminine nouns and no other gender. For adjectives in concord with feminine nouns in LNCs, the two following insertion rules are possible (32).

- (32) Insertion rule for feminine adjectives in LNCs
 For adjectives with the features: [+obl, -obj, +fem, -masc, -sing, -aug]
 gen.pl -yx \rightarrow [-obj, +fem, -masc, -sing]
 nom.pl -ye \rightarrow [-obj, +fem, -masc, -aug]

5 Conclusion

The variance in morphological case realization after lower numerals in Russian is the result of default genitive case realization on nouns in structural contexts, and a general number syncretism of singular and paucal. Given my revision of Pesetsky's (2013) analysis of lower numerals in Russian, case percolation can only continue through the complement if the target of percolation can value at least one of the features involved. This explains why demonstratives and higher adjectives receive nominative case from the D head, while the lower nodes remain unvalued for case, resulting in default case assignment. The mismatch patterns with feminine nouns and the stress shift nouns after lower numerals have demonstrated that there is something else going on under the surface of the traditional genitive singular case glossing. The fact that the stress switches to the suffix only after the lower numerals and in no other genitive case assigning environment shows that there is something different about these environments, which I have argued is the existence of paucal number distinction in Russian. The few feminine nouns that realize a similar stress shift under certain environments have further solidified the idea that the noun is realizing genitive case, and not nominative case as previous assertions of paucal number have suggested. By deconstructing the syncretism paradigms for feminine nouns, variability in adjectival morphology can be explained as an underspecification after the lower numerals.

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