

The Assignment of Gender and Declension to Russian Nouns in Soft Consonants: Predictability and Rule Interaction*

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Abstract. This paper investigates the predictability of gender and declension of Russian nouns ending in soft consonants. It is argued that morphologically complex nouns and nouns denoting animates show nearly full predictability. For simplex inanimate nouns, clear statistical tendencies are documented based on stress patterns and the quality of the penultimate and final segments of the stem. In addition to explicating morphological, semantic, and phonological generalizations, the paper offers a detailed investigation of their interaction, for which an assignment hierarchy is advanced. The assignment of gender and declension is shown to be systematic and well behaved in that highly ranked generalizations consistently take precedence over those further down.

To what extent are gender and declension of Russian nouns in soft consonants predictable? Why are *gost* 'guest' and *den* 'day' masculine and why do they belong to the first declension, while *kost* 'bone' and *ten* 'shadow' are feminine and inflected according to the third declension? Not only are nouns of this type notoriously problematic for students of Russian as a foreign language, their gender and declension also tend to be mastered later than those of other Russian nouns in first-language acquisition (Gvozdev 1961: 396 and passim). It is surprising, therefore, that pedagogical grammars tend to pay little attention to this problem. Even in scholarly literature, the problem has not received much serious attention, although the insightful studies by Ermolenko (1969), Wade (1988) and Vrabie (1992) are important exceptions.

In this paper, the problem is addressed on the basis of a corpus consisting of all nouns ending in soft consonants from Zaliznjak (1977). My contribution is twofold. First, I explore morphological, semantic, and phonological generalizations, some of which have not been made explicit in the literature. I argue that morphologically complex nouns and nouns denoting animates display nearly full predictability. For simplex inanimate nouns, the situation is somewhat more complicated, but even here there are clear statistical tendencies.

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¹ I characterize the hushing consonants /š, ž, š', ž'/ as post-alveolar (Catford 1977: 149; Laver 1994: 136), since they are articulated in the back part of the alveolar ridge. Not all students of Russian phonology assume a phoneme /š'/, but this issue does not bear on any conclusion to be drawn in the present paper and will therefore not be discussed in what follows.

dress the important question of whether declensional class can be predicted (but see, however, Fraser and Corbett 1994: 132ff. for some brief remarks).² In the context of Corbett's analysis, the generalizations to be proposed in the present study may be interpreted as predictions about declension, which in turn constitute the basis for predicting gender. However, since my analysis does not hinge on Corbett's approach, I have chosen to let my generalizations refer to both gender and declension, thus leaving open the question about the relationship between these two categories.

The generalizations to be explored in the following fall into two groups, those predicting first declension and masculine gender and those yielding third declension and feminine gender. For convenience, the two classes of nouns will be referred to as 1M and 3F, respectively.³ Before we proceed to the generalizations, however, it should be pointed out that there are a few lexical items that do not fit into this bipartite classification. First, in standard Russian the noun *put'* 'way' is masculine and takes the first-declension ending /om/ in the instrumental singular but is otherwise inflected according to the third declension.⁴ Zaliznjak (1977; see also Wade 1988: 2) also lists four neuter nouns ending in palatalized consonants, viz., the three rather marginal indeclinable nouns *sol'* 'G in music', *èl'* 'the letter l', and *est'* '(the old name of) the letter e', as well as the compound *kréslo-krovát'* 'armchair sleeper'. Thirdly, several numerals (e.g., *pjat'* 'five') take the inflectional endings of the third declension, but combine with neuter or plural agreement targets. A fourth type of noun that deserves mention is what Corbett (1982, 1991) has labeled "hybrid nouns", e.g., *vrač'* 'doctor'. They are masculine nouns in the first declension, but may co-occur with feminine agreement targets when referring to female persons. While *put'* and the four neuter nouns are isolated exceptions, the agreement patterns of numerals and hybrid nouns represent interesting topics in Russian

² The same holds for the analysis proposed by Doleschal (2000). In her analysis, *sol'* 'salt' is assigned feminine gender essentially because it belongs to the third declension (pp. 142–43).

³ While the presence of three genders (agreement classes) in Russian is uncontroversial, the number of declensions has been subject to debate (see Corbett 1982 for detailed discussion with references). For the purposes of this study I assume three declensions in the singular. However, the number of declensions has no bearing on any conclusion to be drawn in this study, since the two groups of nouns we will be concerned with belong to different declensions on any account.

⁴ With regard to inflectional endings in the singular, *put'* behaves in the same way as *vrémja* 'time' and *ímja* 'name' and a handful of less frequent neuter nouns in /m'a/. However, since these nouns do not end in a soft consonant, they are not relevant for the present study.

linguistics (see, e.g., Dahl 2000 for a recent critique of Corbett's analysis of hybrid nouns). However, since they are tangential to the topic of the present study, they will not be explored in the following.

I shall propose generalizations referring to morphology, semantics, and phonology. However, generalizations pertaining to the orthographical level will not be included, although the gender and declension of nouns in the post-alveolar consonants /š, ž, š', č'/ can be predicted by a simple orthographic rule. If the post-alveolar consonant is followed by the symbol ь ("soft sign", represented as an apostrophe in transliteration), the noun is 3F; otherwise it is 1M. Thus, *pómošč'* in (1b) is 3F, while *továrišč* in (1a) is 1M. This orthographic distinction, however, has no phonetic correlate. While the orthographic rule has an obvious place in pedagogical grammars, I shall not discuss it in the present study, since I take language in its spoken mode to be the primary object of study.

Before we turn to the morphological generalizations in section 2, one final remark is in order. All generalizations to be explored in this study are tested against a corpus consisting of all nouns ending in soft consonants from Zaliznjak's (1977) *Grammatičeskij slovar' russkogo jazyka*. Since Zaliznjak's dictionary contains only common nouns, there are no proper names in my corpus. I leave for future research the interesting question as to what extent the generalizations to be proposed in the following sections carry over to proper names.

2. Morphological Generalizations

Although the question of gender and declension predictability of nouns ending in soft consonants has not received much attention in the literature, most grammars point out that certain suffixes head masculine nouns in the first declension, whereas other derivational patterns yield feminine nouns in the third declension. The lists in (2) and (3) are not exhaustive, but they constitute a good starting point for generalizations, since they contain the most widespread suffixes as well as examples of suffixes with a wide range of phonological properties. The importance of the latter point will be evident shortly.⁵

⁵ The suffixes are given in transliteration in (2) and (3). Only one allomorph is given for each suffix.

(2) 1M derivations (partial list):

Form:	Content:	Examples:
a. <i>-tel'</i>	Agent Instrument	<i>pisátel'</i> 'writer' <i>projavítel'</i> 'developer (photography)'
b. <i>-ar'</i>	Agent Instrument Exponent of property	<i>písar'</i> 'scribe, clerk', <i>kosár'</i> 'mower' <i>kosár'</i> 'large knife' <i>dikár'</i> 'wild person'
c. <i>-al'</i>	Agent Instrument Exponent of property	<i>vral'</i> 'liar' <i>rogál'</i> 'handle on plow' <i>rogál'</i> 'horn-shaped pastry'
d. <i>-yr'</i>	Agent Exponent of property	<i>pástyr'</i> 'pastor' <i>pustýr'</i> 'vacant land'
e. <i>-en'</i>	Agent Instrument Process	<i>zúden'</i> 'a tick' <i>bíven'</i> 'tusk' <i>líven'</i> 'downpour'
f. <i>-ač</i>	Agent Instrument Exponent of property	<i>skripáč</i> 'violinist' <i>tjagáč</i> 'prime mover' <i>bogáč</i> 'rich person'
g. <i>-ič</i>	Inhabitant/native of town	<i>moskvíč</i> 'Muscovite'
h. <i>-ěnyš</i>	Offspring	<i>utěnyš</i> 'duckling'
i. <i>-ěž</i>	Activity/event	<i>graběž</i> 'robbery'
j. <i>-až</i>	Activity/event	<i>massáž</i> 'massage' ⁶

(3) 3F derivations (partial list):

Form:	Content:	Examples:
a. <i>-ost'</i>	State Property Location w/char. property Mass w/char. property	<i>révnost'</i> 'jealousy' <i>smélost'</i> 'boldness' <i>okréstnost'</i> 'environs' <i>rastítel'nost'</i> 'vegetation, verdure'

⁶ As observed by an anonymous JSL reviewer, nouns like *massáž* are probably borrowed into Russian as unanalyzed wholes. However, on the basis of alternations like *massírovat'* ~ *massáž* and *pilotírovat'* 'to pilot' ~ *pilotáž* 'pilotage', I have included the suffix *-áž* in (2).

(3) b.	softening ⁷	Mass	<i>zelen</i> 'greens'
c.	-(e)l'	State	<i>kapél</i> 'dripping from the roof'
d.	-ěž'	Collective	<i>moloděž</i> 'youth'
e.	-zn'	State	<i>bolézn</i> 'illness'
f.	-ad'	Location	<i>plóšcad</i> 'square'
		Material	<i>čérnjad</i> 'kind of dye'
g.	-ot'	Mass w/char. property	<i>mjákot</i> 'pulp, flesh'
h.	-n'	Mass, collective	<i>rvan</i> 'rags'

Before I start commenting on the lists, let me emphasize that I do not think that lists of this sort do justice to the data. Many important aspects of the meanings are left out, the relationships between the meanings are not spelled out, and the labels themselves are anything but precise representations of meaning. However, for the purposes of a discussion of gender and declension predictability, the information in the lists is sufficient.

The use of the label "agent" in (2a) through (2f) is meant to capture the idea that the nouns in question denote the most prominent participant in a process. In most cases we are dealing with true agents, but examples like *žitel* 'inhabitant' from *žít* 'live' show that this is not always the case. Nevertheless, the agent meaning seems to be prototypical for animate nouns. When the nouns in (2a-f) are inanimate, they tend to denote an instrument by means of which a process is carried out. Agent and instrument are closely related, and some nouns evince both meanings. A case in point is *kosár* in (2b), which in addition to the standard agentive meaning of a person who mows grass, according to Ožegov and Švedova (1999), may also denote a large knife, i.e., something that serves as an instrument in the process of cutting.

It is important to note that the process evoked by the derived noun is not necessarily described explicitly in the word it is derived from. Thus I classify *slovár* 'dictionary', which is derived from the noun *slóvo* 'word', as an instrument because it is used as such in certain processes by people who want to find out something about a word. By the same token, *vratár* 'goalkeeper' denotes a person who performs certain actions in certain types of games, although the related word *voróta* 'gate, goal (in sport)' specifies the location of the person, rather than the activities he or she is engaged in.

⁷ This is the only pattern that does not include any (overt) suffix. I refer to it as "softening", since it involves palatalization of the final segment in addition to word initial stress. Comparison of the noun *zelen* 'greens' with the adjective *zelěnyj* 'green', from which it is derived, illustrates both properties.

With these points in mind, let us ask what generalizations can be made on the basis of the lists in (2) and (3). A first and somewhat trivial observation is that no derivational pattern appears on both lists. Thus, if you know the derivational pattern of a noun, its gender and declension can be predicted. Notice that *-ěž* in (2i) and *-ěž'* in (3d) are not counterexamples even though they are phonologically identical. The string /ož/ signals different meanings in each case, and will therefore be considered two different, albeit homophonous, suffixes.

A possible counterexample to the generalization about derivational patterns involves the suffix /en'/. As can be seen from (2e), this suffix heads 1M nouns with the labels "agent", "instrument" and "process". However, *stupén'* 'step (of a staircase)' from *stupít'* 'take a step' belongs to 3F. In Švedova (ed.) (1980: 157), this noun is analyzed as an "instrument", so we are arguably dealing with the same suffix as in (2e), although *stupén'* evinces stem-final stress, while the 1M nouns typically have initial stress. However *stupén'* may be analyzed, it is only an isolated exception, and as such does not threaten the generalization that gender and declension are predictable on the basis of derivational patterns.

Specifying the gender and declension of each derivational pattern enables us to predict the gender and declension of a large number of nouns. According to the word counts of Mučnik (1963: 48), the *-ost'* and *-tel'* suffixes alone account for 2700 and 520 nouns, respectively. However, such an approach is still not fully adequate insofar as it does not capture any generalizations about the relationships between the derivational patterns. Although generalizations of this type seem not to have been discussed in the literature, the lists in (2) and (3) do in fact suggest several such generalizations. If we first ask whether there is anything that unites the 1M suffixes in (2), the answer must clearly be in the affirmative. The agent and closely related instrument meanings are prevalent. Beyond that it seems fair to say that masculine suffixes in soft consonants tend to denote individual persons or countable physical objects, although there are exceptions, notably the suffixes *-ěž* as in *graběž* 'robbery' and *-až* as in *massáž* 'massage'.

In order to push the analysis one step further, I would like to relate the meanings of the masculine suffixes to the notions of "figure" and "ground", which Janda (1996a, 1996b) has shown to be relevant for Slavic declension. Langacker (1987) characterizes these terms as follows:

- (4) [T]he figure within a scene is a substructure perceived as "standing out" from the remainder (the ground) and accorded special promi-

nence as the pivotal entity around which the scene is organized and for which it provides the setting. (Langacker 1987: 120)

Janda (1996a, 1996b) treats figure and ground as endpoints in a hierarchy spanning from typical figures at the top to typical grounds at the bottom. For the purposes of the present study, not all categories included by Janda in her fine-grained hierarchy are relevant. Suffice it to say that humans are at the top of the figure-ground hierarchy and that they outrank animals. Towards the bottom we find *inter alia* mass nouns, collectives, and landscape features (locations). The figure-ground hierarchy is closely related to hierarchies of animacy (cf. Comrie 1989), individuation (Timberlake 1985; Sasse 1993) and topic-worthiness (Hawkinson and Hyman 1974). The claims that will be made in this paper are compatible with all these hierarchies. The theoretically important question as to whether they are notational variants of the same hierarchy or whether there are substantial differences between them is beyond the scope of the present study.

Agents and, more generally, countable physical objects are compact, able to move and contrast sharply with their surroundings, so they are easily construed as figures as this term is used in (4) above. Moreover, agents are typically human beings and therefore pertain to the top part of the figure-ground hierarchy. In addition to the relationship between the content of 1M suffixes and the notion of figure, it is also possible to state generalizations about the **form** of the 1M suffixes. As can be seen from (2), they fall into two groups. Either the suffixes end in one of the alveolar sonorants /r/, l/, n' /, or in one of the post-alveolar obstruents /š, ž, č, š'/.⁸ 1M suffixes in alveolar obstruents or labial consonants are not attested. For explicitness, the generalizations about the 1M suffixes are summarized in (5).

- (5) a. Derived 1M nouns tend to be agentive/instrumental and denote individual persons or countable physical objects, i.e., they are typical figures.
- b. Derived 1M nouns have suffixes ending in alveolar (dental) sonorants or post-alveolar obstruents.

What then about the 3F patterns listed in (3)—are there any generalizations to be made? In terms of content, the feminines are more heterogeneous than the masculines insofar as we find states, properties, locations, collectives, and mass nouns among them. However, the figure-ground

⁸ Throughout this study I shall use the term “alveolar” instead of “dental”. This choice of terminology, however, has no bearing on any conclusion to be made.

hierarchy facilitates generalizations, since these categories are placed towards the bottom of the hierarchy. In contrast to the 1M suffixes, the 3F derivations show affinity to ground.

As for phonology, the 3F patterns form a more homogeneous set than the 1M suffixes insofar as all the listed suffixes involve alveolar consonants. Notice that there is some overlap between 3F and 1M. Both categories display suffixes in the alveolar sonorants /l', n'/ (but not /r'/, which is only found in 1M). However, if we take into account that the obstruent final *-ost'* suffix in (3a) is vastly more productive than any other feminine pattern, we may say that the prototypical final segment in 3F is an alveolar **obstruent**. The generalizations about the 3F derivational patterns are summed up in (6).

- (6) a. 3F derived nouns tend to denote states, properties, locations, collectives, and substances, i.e., typical grounds.
- b. 3F derived nouns tend to end in alveolar obstruents.

Having established the generalizations in (5) and (6), we may ask whether the properties in question are relevant for morphologically complex nouns only, or whether they bear on gender and declension assignment in general. At this stage, I would like to propose the hypotheses in (7) and (8):

- (7) a. Figure → 1M
- b. Ground → 3F
- (8) a. Alveolar sonorant → 1M
- b. Post-alveolar obstruent → 1M
- c. Alveolar obstruent → 3F

Some remarks on notation are in order. The arrows here and elsewhere in this study mean "favor, tend to yield"; they do not represent generative rules and do not refer to any particular linguistic framework. While some of the generalizations to be pursued in this study are exceptionless rules, others are mere statistical tendencies. However, we are not dealing with two distinctly different rule types, but rather with end points on a scale. Therefore I have chosen to use the same arrow symbol for all generalizations. All statements involving arrows in this study pertain to nouns in soft consonants only, but this information has been left out in order to avoid unnecessarily cumbersome statements. The reader should bear in mind that, e.g., (8a) does not involve any claims about the correlations between alveolar sonorants and 1M in general. The intended meaning is only that, *for nouns in soft consonants*, 1M is favored if the noun ends in an

alveolar sonorant. The hypotheses in (7) and (8) will be subjected to testing in sections 3 through 5. We start with (7a) in section 3.

3. Semantic Generalizations: Sex and Animacy

It is well known that biological sex is pivotal in gender assignment in Russian. The correspondences between male sex and masculine gender on the one hand and between female sex and feminine gender on the other were discussed by Durnovo as early as 1924 (cf. Mučnik 1963: 41), and are crucial in Corbett's (1982, 1991) classical analyses. For instance, they account for the masculine gender of nouns like *djadja* 'uncle' and *deduška* 'grandfather', for which the morphology would suggest feminine gender. Against this background, it comes as no surprise that the generalizations in (9) hold for nouns in palatalized or post-alveolar consonants, although the reader should bear in mind that we are dealing not only with gender, but also with declension. A list of relevant nouns is given in (10). I am not aware of any exceptions to these generalizations.

- (9) a. Male biological sex → 1M
 b. Female biological sex → 3F
- (10) 1M: *test'* 'father-in-law', *zjat'* 'son-in-law', *déver'* 'brother-in-law',
 muž 'husband', *knjaz'* 'prince', *koról'* 'king', *car'* 'czar', *kobél'*
 'male dog', *sélezen'* 'drake', *trúten'* 'drone'
 3F: *mat'* 'mother', *doč'* 'daughter', *svekróv'* 'mother-in-law (of
 wife)', *nétel'* 'heifer', *lan'* 'doe'

Notice that the generalizations in (9) only hold for what Corbett (1991: 34) calls sex-differentiable nouns, i.e., "those where the language distinguishes a form for males and one for females."

Another semantic factor of general importance in gender assignment in Russian is animacy. For example, as Corbett (1991: 40) aptly observes, the word *boa* 'boa' is neuter if it denotes something to put around one's neck, but masculine when it denotes something definitely not to put around one's neck. While Corbett's account of gender assignment in indeclinable nouns may be somewhat simplistic (cf., e.g., Mäkilä 2000), I do not think anybody would contest the relevance of animacy in the Russian gender system. The generalization in (11) holds for the majority of nouns in palatalized or post-alveolar consonants, so it seems quite clear that a complete description must include a statement to this effect. Some illustrative examples are listed under (12).

(11) Animate → 1M

(12) Examples of 1M animate nouns:

gost' 'guest', *továřišč* 'comrade', *medvéd'* 'bear', *zver'* 'wild animal',
gus' 'goose', *gógol'* 'golden-eyed duck', *lin'* 'tench', *karás'* 'crucian
 carp'

Zaliznjak (1977) lists about 220 animate nouns in palatalized or post-alveolar consonants (not including agentive nouns with the extremely productive suffix *-tel'*). If we ignore nouns denoting females, which are accounted for by (9b), there are only about 30 animate nouns belonging to 3F. A complete list of 3F nouns denoting humans is given in (13).

(13) 3F nouns denoting humans:

mráz' 'nasty wretch(es)', *šval'* 'riffraff', *šúšval'* 'riffraff', *drjan'* 'rotter',
bézdár' 'dullard', *béstoloč'* 'muddle-head', *svóloč'* 'bastard', *tvar'*
 'creature, bastard'

Four of these nouns are deadjectival derivations of the type described in (3b) in section 2: *mráz'*, *drjan'*, *bézdár'* and *béstoloč'*. As shown there, all such nouns belong to 3F. While *šval'*, *šúšval'*, *drjan'*, and *bestoloč'* may denote humans, according to Ožegov and Švedova (1999) they are also used about inanimates. In (14), for example, *mráz'* is used to characterize the Chechen war:

(14) Vo vsjakom slučae ne bylo by takoj
 in any incident not was MOD such_{FEM.GEN.SG}
 mrazi, kak vojna v Čečne.
 nasty situation_{GEN.SG} as war in Chechnya
 'In any case, we wouldn't have had such a nasty situation as the
 Chechen war.' (*Vestnik*)⁹

Most of the nouns in (16) are also used as collectives, although for some of them, e.g., *svóloč'*, this meaning is given as secondary in Ožegov and Švedova (1999). An example of this type is given in (15), where *béstoloč'* refers collectively to the people surrounding the protagonist in an airport:

⁹ The example is taken from the Tübingen Interview Corpus available on the Internet (<http://www.sfb441.uni-tuebingen.de/b1.korpora.html>).

- (15) I, spotykajas' o vse tu že korzinu,
 and stumbling on all this EMPH wastepaper basket
 točno tak že, kak i vsja èta bestoloč' [...]
 exactly like EMPH as all_{FEM.NOM.SG} this_{FEM.NOM.SG} blockheads_{NOM.SG}
 udivljalsja on ètomu rešeniju Aèroflota [...].
 was surprised he this decision Aeroflot
 'And, stumbling over the very same wastepaper basket exactly like
 the whole lot of blockheads, he was surprised by this decision by
 Aeroflot.' (A. Bitov)¹⁰

Since collectives are not treated as animates in Russian, it is possible that this is why they do not belong to 1M. In sum, there seems to be independent motivation for the affinity of the nouns in (13) to 3F. Therefore, they do not provide strong evidence against the generalization in (11).

Upon closer examination a similar picture emerges for non-human mammals. Consider the complete list from Zaliznjak (1977) in (16):

- (16) 3F nouns denoting non-human mammals:
prístjaž' 'outrunner, trace-horse', *výxuxol'* 'muskrat', *myš'* 'mouse',
vígón' 'kind of llama', *lóšad'* 'horse', *gazél'* 'gazelle', *rys'* 'lynx'

Prístjaž' is in the 3F group because it is a deadjectival derivation of the same type as *mraz'* etc. in (16). While *výxuxol'* is given as feminine in Ožegov and Švedova's dictionary (1999), it seems to show vacillation in actual usage, and is therefore not a clear counterexample to the generalization in (11). The vacillation is illustrated by the sentences in (17) (cited after Es'kova 1994).

- (17) a. Voobrazite: barxatno-zamševye džinsy iz mexa
 imagine velvet-suede jeans from fur
 vyxuxolja [...].
 muskrat_{GEN.SG (1. DECL)}
 'Imagine: velvet-suede jeans from the fur of the muskrat [...]. (V. Aksënov)

¹⁰ The example is excerpted from the Uppsala Corpus. For information about this corpus, see Lönnegren (1993). It is available on the same Internet page as the Tübingen Interview Corpus.

- (17) b. Car' daruet vam šubu s pleča iz
 Czar gives you fur coat from shoulder from
 estestvennoj vyxuxoli.
 natural_{FEM.GEN.SG} muskrat_{GEN.SG (3. DECL)}
 'The Czar gives you his fur coat of natural muskrat.' (V.
 Vysotskij)

It may be worth pointing out that the noun is not only used about the animal, but also refers to its fur. It is interesting that in (17b) the 3F variant is used in this non-animate sense. However, 3F is also possible when the noun is used about the animal, as illustrated in example (18) from the Uppsala Corpus:

- (18) Poètomu poplyla vyxuxol' ne vdal' [...].
 therefore swam_{FEM.SG} muskrat_{NOM.SG} not far away
 'Therefore, the muskrat did not swim far away [...]' (V. Solouxin)

Myš' also evinces vacillation. In addition to the normative 3F, it is attested as 1M in non-standard usage. Since recent normative dictionaries like Es'kova (1994) and Rozental' and Telenkova (1998) warn us against the 1M variant of the word, this usage is probably not entirely peripheral. Although the noun *vigón'* may denote a kind of llama, it seems primarily to be used for the wool from this animal. If it is primarily inanimate, it is not surprising that it belongs to 3F. If these points are accepted, we are left with only three indisputable exceptions in the group of mammals, namely *lóšad'*, *gazél'* and *rys'*.

A complete list of 3F birds, fish and insects excerpted from Zaliznjak (1977) is given in (19).

- (19) 3F nouns denoting non-mammals:
 a. *svijáz'* 'the duck *anas penelope*', *vyp'* 'bittern', *nejásyt'* 'tawny owl'
 b. *sel'd'* 'herring', *péljad'* 'the fish *coregonus peled*', *stérljad'* 'sterlet',
kefál' 'grey mullet', *makrél'* 'mackerel', *forél'* 'trout', *tarán'* 'roach',
čexón' 'the fish *pelecus cultratus*', *syrť'* 'subspecies of the fish *vimba vimba*'
 c. *košeníl'* 'cochineal', *mol'* 'clothes-moth', *voš'* 'louse'

Of these nouns, *košeníl'* in (19c) is also inanimate; in addition to denoting an insect, it is the name of a dyestuff produced from this insect. However, the remaining nouns are indisputable exceptions to the animacy rule in (11).

In sum, the examination of the (putative) counterexamples to the animacy rule in (11) reveals that their number can be reduced considerably once independent factors are considered. In any case, the number of 3F nouns is too small to jeopardize the rule in (11). If the rule were removed we would have to specify in the lexicon the gender/declension of *all* relevant nouns, not only the relatively few exceptions. It is interesting to notice that the number of counterexamples appears to increase as we proceed down the figure-ground or animacy hierarchy. (Recall from section 2 that for the purposes of the present study I do not distinguish between these two hierarchies.) While there are no indisputable examples of 3F nouns denoting humans, we find a dozen or so non-mammals in (19). It is conceivable that the rule is sensitive to the hierarchy in applying most consistently at its uppermost part.

Another observation pertains to the phonological form of the 3F nouns denoting animates. With the single exception of *voš'* 'louse', for which the stem-final consonant and, arguably, the stress pattern would suggest 1M, all the indisputable exceptions to the animacy rule in (11) have a phonological form that is compatible with 3F. For most of them, the phonology even strongly favors 3F. We shall leave a detailed examination of the phonological generalizations to section 4 below. At issue here is the following generalization: Animate nouns can only be 3F if their phonological shape is compatible with this gender and declension. While the empirical basis for this generalization is limited, it is interesting to note that it ties in with the speculations about the figure-ground/animacy hierarchy above. Proceeding down the hierarchy we may enter a transitional zone where the animacy rule loosens its grip to the benefit of phonological factors.

Before turning to phonology, however, we must relate the findings about sex and animacy to the hypothesis advanced in section 2. Are the findings compatible with the claim that figure meanings favor 1M? The question can clearly be answered in the affirmative. Animates are easily construed as figures since they are able to move and contrast sharply with their surroundings. If correct, the observation about the relevance of the figure-ground/animacy hierarchy advanced above lends additional support to the figure hypothesis. Humans are presumably the most prototypical figures, so one would expect the correlation with 1M to be strongest for nouns in the upper part of the hierarchy. However, even though the situation described in this section is in harmony with the figure hypothesis, we have also seen that figure/animacy interacts with another factor, viz., sex. But in the context of gender assignment it is hardly surprising that females are singled out as the only animates that are feminine.

4. Phonological Generalizations

In the two preceding sections we have seen that gender and declension are—with few exceptions—predictable for morphologically derived and animate nouns. We are thus left with the group of simplex nouns denoting inanimates, to which we now turn. Wade (1988) and Vrabie (1992) have suggested that the phonological shape of a noun is relevant for gender and declension assignment. However, their analyses are hardly fully adequate since they tend to list individual segments instead of stating generalizations in terms of natural phonological classes or distinctive features. A detailed investigation is therefore in order. We shall see that several generalizations can indeed be formulated, although the statistical tendencies are not equally strong in all areas. By and large the generalizations conform to the hypotheses advanced in section 2, but we shall see that finer-grained distinctions must be invoked. In particular, not only the segmental shape but also stress patterns are relevant.

4.1. Final Segment

Table 1 shows the distribution of morphologically simplex nouns denoting inanimates with regard to some major phonological classes. The statistics have been compiled as follows. After having selected all nouns in palatalized or post-alveolar consonants from Zaliznjak (1977), I eliminated all nouns that are derived, animate, or both. Admittedly, it is not always easy to draw a clear-cut boundary between derived and simplex words. *Óxaben'*, a historical term denoting a wide caftan, may serve as an example. Even though etymologically it is possible to establish a derivational relationship to the obsolete verb *oxábit'* (Vasmer 1953-58), it is not likely that speakers of present-day Russian are aware of this. Therefore, I have classified the word as simplex. A less restrictive use of “derived” would indeed have reduced the number of nouns in the table somewhat. However, as it is imperative not to sweep any potentially problematic examples under the carpet, I have adopted a somewhat inclusive category of simplex nouns for the purposes of the present investigation. Although the distinction between animate and inanimate is easier to apply consistently than the derived-simplex distinction, even here there are a few borderline cases. Consider, for instance, *patrúl'* ‘patrol’, which according to Zaliznjak (1977) may also refer to an individual member of a patrol. Although in this second meaning it is an animate, I have included it in the table since in its primary meaning *patrúl'* is inanimate.

Table 1. Final Segment in Morphologically Simplex Inanimate Nouns

	Labial		Alveolar (Dental)		Post-Alveolar	
	1M	3F	1M	3F	1M	3F
Obstruent:	2	16	28	109	224	26
Sonorant:	0	0	378	178	—	—

In the table I distinguish between “0” for labial sonorants and “—” for post-alveolar sonorants. The latter is meant to indicate that no nouns of this type could exist, since Russian does not have post-alveolar sonorants at all. Labial sonorants, on the other hand, do exist. In fact, my corpus contains the nouns *tem’* ‘darkness’, *ózim’* ‘winter crop’ and *záum’* ‘smth. abstruse’. Since they are not morphologically simplex, however, they are not included in the table. For the purposes of the present study, nouns in /v’/, e.g. *krov’* ‘blood’, are treated as obstruent-final, in accordance with the traditional classification of /v, v’/ as fricatives in Contemporary Standard Russian.

The data material in table 1 confirms hypothesis (8b), that post-alveolar consonants favor 1M. The statistical findings are also compatible with hypothesis (8c) insofar as alveolar obstruents show a numerical preponderance for 3F. Although the material is very limited, we may extend this rule to labials as well by replacing “alveolar” by “anterior”. The revised statement is given in (20).

(20) Anterior obstruent → 3F (*step’* ‘steppe’, *kost’* ‘bone’)

However, the situation with regard to alveolar sonorants is more complex. While the table shows that the majority is 1M, there are so many 3F nouns that we cannot adopt hypothesis (8a) without further discussion. Therefore, we shall take a closer look at this group in the following subsections. Before we proceed, however, I would like to point out that in view of the morphological patterns investigated in section 2, it is not totally unexpected that the situation is least clear for nouns in sonorants. While suffixed 3F nouns prototypically end in obstruents, we saw that there are a few sonorant-final 3F suffixes also, notably the deverbal *-(e)l’* (*kapél’* ‘dripping from the roof’, (3c)) and *-n’* (*dan’* ‘tribute’, (3h)). Thus, metaphorically speaking, sonorants represent a battlefield where neither 1M nor 3F has gained full control. However, we shall see that the fronts are not situated randomly, as there are phonological generalizations to be made about the distribution of 1M and 3F. First, we shall see how stress is relevant.

4.2. Stress Patterns

For present purposes we need to distinguish between three stress patterns. I shall refer to these as end stress, stem-final stress and non-final stem stress. Examples are given in table 2 and statistics in table 3. Observe that table 3 gives only singular subparadigms, which are sufficient for present purposes. As can be seen from the table, the opposition between stem-final stress and end stress is neutralized in the Nominative/Accusative Singular because a zero ending cannot carry stress. In monosyllabic stems one cannot a priori distinguish between the two types of stem stress, since the single syllable in, e.g., *stal'* 'steel' can be considered both stem-final and initial. However, nouns of this type show the same statistic tendencies as polysyllabic nouns with stem-final stress, which are very different from nouns with non-final stem stress. This suggests that speakers analyze monosyllabic nouns as having stem-final stress. For this reason I have included the monosyllabic nouns in the column for this stress pattern in table 3.

Table 2. Relevant stress patterns

	Non-final stem stress	Stem-final stress	End stress
Nom	uč'ítel' -Ø ¹¹	for'él' -Ø	šm'él' -Ø
Acc	uč'ítel' -a	for'él' -Ø	šm'él' -á
Gen	uč'ítel' -a	for'él' -i	šm'él' -á
Dat	uč'ítel' -u	for'él' -i	šm'él' -ú
Inst	uč'ítel' -om	for'él' -ju	šm'él' -óm
Loc	uč'ítel' -e	for'él' -i	šm'él' -é

Table 3. Stress patterns in nouns in alveolar sonorants

	Non-final stem stress		Stem-final stress		End stress	
	1M	3F	1M	3F	1M	3F
/l'/	98	2	90	100	20	0
/r'/	11	1	5	8	30	0
/n'/	19	8	7	33	16	0
Total:	126	11	102	141	66	0

¹¹ The nouns in the table are given in phonemic transcription.

[illegible]

Since 3F has attracted new nouns with stem-final stress, it is tempting to assume a correlation between 3F and this stress pattern. However, the statistics in table 3 do not show any clear dominance on the part of 3F in this group. Further investigation is therefore necessary. This is the topic of the following two subsections.

Table 4 sheds light on the impact of the final segment for nouns in alveolar sonorants with stem-final stress. The table includes only monosyllabic nouns, for the reasons given in 4.2 above.

Table 4. Oral vs. nasal final sonorants of nouns with stem-final stress

Final segment:	1M	3F
Oral (/l', r'/)	95	108
Nasal (/n'/)	7	33
Total	102	141

While no clear tendency is observed for nouns with an oral sonorant in final position, nasal sonorants favor 3F:

- (22) Stem-final stress & nasal → 3F (*gerán'* 'geranium')

As can be seen from the table, this generalization covers 33 nouns and encounters only seven counterexamples, which, however, merit closer inspection:

- (23) 1M nouns in /n'/:
šampún' 'shampoo', *pel'mén'* 'Siberian meat dumpling', *ijún'* 'June',
juán' 'yuan', *bjulletén'* 'bulletin', *ženšén'* 'ginseng', *suxmén'* 'drought'

The first of these words is reported to vacillate in actual usage between normative 1M and 3F (cf. Graudina, Ickovič, and Katlinskaja 1976; Es'kova 1994; Rozental' and Telenkova 1998). Comrie, Stone, and Polinsky (1996: 107f.) characterize the non-standard use of *šampún'* as "common". *Pel'mén'* is rarely used in the singular. As a quasi plurale tantum, it is not an important counterexample, since the opposition between 1M and 3F is neutralized in the plural. *Ijún'* is 1M for independent reasons:

- (24) Names of the months → 1M (*ijún'* 'June', *aprél'* 'April')

Some of the months may be 1M for phonological reasons also, e.g., *janvár'* 'January', which has end stress. However, phonology cannot explain the gender and declension of all the months, and since (24) does not have any exceptions, speakers may well be aware of it. It should furthermore be noticed that *juán'* 'yuan' is a fairly marginal name of a historical monetary unit. It is not a very daring guess that few speakers have it in their active vocabulary. Some speakers might relate *suxmén'* 'drought' to the adjective *suxoj* 'dry', so it may possibly be analyzed as morphologically derived. In sum, it seems that the number of counterexamples in (23) can be reduced. The evidence for (22) is therefore quite compelling.

4.4. Stem-Final Stress: Penultimate Segment

We are now left with nouns with stem-final stress and an oral sonorant in final position, for which table 4 above did not yield any generalizations. Consider, however, the data in table 5, which suggest that the sonority of the penultimate segment is relevant for the gender and declension of these nouns.

Table 5. Sonority of penultimate segment of nouns with final oral sonorant and stem-final stress

Penultimate segment:	1M	3F
Consonant	19	2
High vowel /i/	18	10
/u/	5	2
Mid vowel /e/	11	48
/o/	27	20
Low vowel /a/	15	26
Total	95	108

If the penultimate segment is a consonant, i.e., a minimally sonorant segment, 1M is strongly favored:

(25) Stem-final stress & consonant+sonorant → 1M (*ansámbľ* 'ensemble')

There are only two counterexamples to this generalization, viz. the two peripheral loan words *grízájl* 'monochrome painting' and *rokájl* 'type of ornament'. The picture is less clear when the penultimate segment is a high vowel. However, both for penultimate /i/ and /u/ the majority is masculine, which suggests generalization (26).

(26) Stem-final stress & high V+sonorant → 1M (*tekstíl* 'textiles')

For mid and low vowels, which evince higher sonority than high vowels and consonants, 3F is more frequent. The tendency is strongest when the penultimate segment is /e/, but /a/ also seems to favor 3F:¹²

¹² Notice that a subset of the nouns in /ál/ are semantically related in that they relate to the geometrical concept of a line: *vertikál* 'vertical line', *normál* 'normal', *diagonál* 'diagonal', *spirál* 'spiral', *gorizontál* 'horizontal line' and possibly also *magistrál* 'main pipe'. It is arguable that they may be considered derivations from adjectives like *vertikál'nyj* 'vertical' etc., although they do not evince word initial stress like other

- (27) a. Stem-final stress & /é/+sonorant → 3F (*karusél'*
'merry-go-round')
 b. Stem-final stress & /á/+sonorant → 3F (*morál'* 'moral')

For nouns with a penultimate /o/, the table gives a small majority of 1M. However, the statistics are somewhat misleading, in that eight of the nouns in /ól'/ may be accounted for in terms of the following minor generalization:¹³

- (28) Names of chemical substances in /ól'/ → 1M (*glíkol'* 'glycol')

"Chemical substance" should be understood in its everyday sense. For instance, the 3F noun *sol'* 'salt' is not a counterexample, since non-specialists do not think of it as a chemical substance in the same way as glycol is. If these nouns can be disregarded, we get a small majority in favor of 3F for nouns with penultimate /ó/, thus suggesting:

- (29) Stem-final stress & /ó/+sonorant → 3F (*fasól'* 'beans')

There is some diachronic evidence in favor of this generalization. Over the past two centuries, several nouns of the relevant type have been unstable with regard to gender and declension. While *kanifól'* 'colophony', for instance, is nowadays 3F, it was used as a 1M noun by Anton Chekhov:

- (30) Da i k tomu že vory vmeste s brjukami ukrali
 and to this EMPH thieves together with pants stole
 naxodivšijsja v nix kanifol'.
 located_{MASC.SG.ACC} in them colophony_{ACC.SG}
 'And together with the pants, moreover, the thieves stole the
 colophony that was in the pockets.'¹⁴

In (31) I give a list of nouns of this type based on Černišev (1915: 119ff.), Gorbačevič (1971: 154ff., 1978: 139ff.), Graudina et al. (1976: 71ff.), Mučnik (1963: 51ff.) and Speck (1978).

deadjektiv nouns without suffix (cf. *zelen'* 'greens'). If an analysis as morphologically complex nouns is adopted, this would weaken the motivation for generalization (27b) somewhat.

¹³ The nouns covered by (28) are: *glíkol'* 'glycol', *alkogól'* 'alcohol', *gidrozól'* 'hydrosol', *aerozól'* 'aerosol', *silikól'* 'silicon alloy used in metallurgy', *tinól'* 'solder', *pergidról'* 'hydrogene peroxide', *persól'* 'kind of detergent'. The last noun is also attested as 3F, but 1M seems most widely accepted today (Graudina, et al. 1976).

¹⁴ Thanks to Alina Israeli (personal communication) who drew my attention to this example.

- (31) Nouns in /ó/+sonorant that have shifted gender/declension:
 to 1M: *kontrol'* 'control', *tol'* 'roofing felt'
 to 3F: *bol'* 'pain', *mozól'* 'corn, callus', *mol'* 'clothes-moth'¹⁵, *rol'*
 'role', *banderól'* 'postal wrapper, printed matter', *fasól'*
 'beans', *antresól'* 'mezzanine', *pemoksól'* 'kind of detergent',
 konsól' 'console', *persól'* 'kind of detergent', *kanifól'*
 'colophony'

As shown by the list, only two nouns are reported to have shifted to 1M. One of them, *tol'*, is used frequently in 3F in colloquial or non-standard Russian, as observed by Gorbačevič (1971:160n, 1978:143). The fact that the majority of the nouns have shifted to 3F lends diachronic support to the generalization proposed in (29). Now, if we adopt (29), we may conflate it with (27). The result is a broader generalization for all non-high vowels:

- (32) Stem-final stress & non-high V+sonorant → 3F (*karusél'*, *fasól'*)

Although speakers may possibly be aware of (32) as a meta-generalization for the more specific statements in (27) and (29), I would not suggest excluding (27) and (29) from the analysis. A description without these statements would not capture the differences in strength. As we have seen, they range from the well-entrenched (27a) to the rather weak (29), with (27b) occupying an intermediate position.

4.5. Summary of Phonological Generalizations

The phonological generalizations and the relationships between them are summed up in the flow chart in figure 1. Notice, however, that the flow chart is simplistic in at least one respect. While some of the generalizations cover relatively large sets of nouns and have few exceptions, others relate to smaller sets and are subject to more counterexamples. However, these differences are not reflected in the figure, in which all generalizations are treated on a par.

¹⁵ When used in chemistry as a measure for molecule weight, *mol'* 'mole' is 1M.

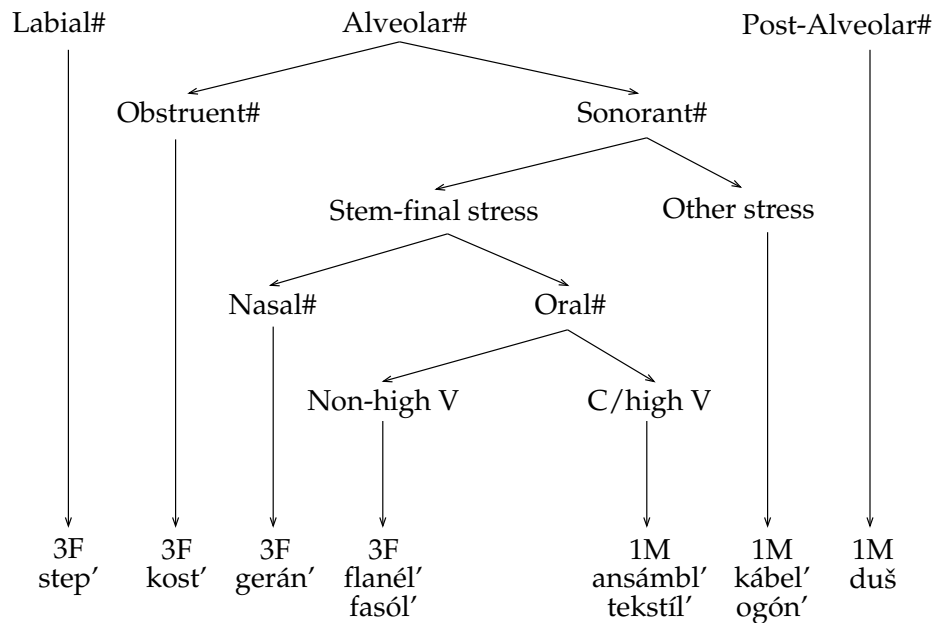


Figure 1. Overview of the phonological generalizations

5. Semantic Generalizations: Mass Nouns

Under (7) in section 2 I hypothesized a connection between “figure” and 1M, while “ground” meanings were connected to 3F. We have seen that these generalizations hold for morphologically complex nouns. For simplex nouns, the discussion of sex and animacy in section 3 provides confirming evidence for the first part of the hypothesis, since animates are typical figures. In the following, we turn to simplex nouns denoting inanimates. Does this group of nouns offer any support for the hypothesis that construal as ground favors 3F? I shall argue that there is indeed a correlation, although we shall see that it is not equally strong for nouns of all the phonological groups explored in the previous section.

As a testing ground for the hypothesis I have chosen mass nouns. There are two reasons for this. First, mass nouns constitute a set that is large enough to facilitate generalizations. Secondly, mass nouns evince a particularly clear relationship to “ground” since they do not involve boundedness. If something lacks boundaries, it cannot easily be conceived of as an individual entity and therefore as a figure. In adopting unboundedness as the defining criterion for mass nouns I follow Jackendoff (1991; see also Langacker 1991: 74ff. and Corbett 2000: 78ff. for discussion). A noun is unbounded if its referent can be divided up without losing its

identity. For instance, if a portion of oil is divided indefinitely, the result can still be referred to felicitously as *neft* 'oil'. It retains its identity as oil no matter how small the portion at hand is. Hence, *neft* will be considered a mass noun. If, however, a bed is subjected to division, the result of the process cannot be referred to as *krovát* 'bed'. Therefore, *krovát* is not a mass noun.¹⁶ Notice that counting and plurality presuppose boundedness. If an entity is not bounded, it makes no sense to talk about more than one of it. Thus, the criterion of boundedness explains why mass nouns do not pluralize or combine with numerals. An important subgroup of mass nouns is collectives, i.e., singular nouns denoting unbounded assemblies of entities, e.g. *mindál* 'almonds'. Several of the examples discussed below are of this type.

With this in mind we are ready to explore the data. We start with nouns whose phonological form strongly suggests 1M. As will be recalled from section 4.2, one such indicator is end stress. There are several mass nouns of this type in Zaliznjak (1977):

(33) Mass nouns with end stress:

- 1M: *xrjašč* 'cartilage', *surgúč* 'sealing wax', *kulěš* 'gruel', *potáš* 'potash', *žavěl* 'Javel water', *xrustál* 'cut glass, crystal', *mitkál* 'calico', *mindál* 'almonds, almond tree'
- 3F: *rož* 'rye'

Given that there is only one 3F noun in this group, it seems reasonable to conclude that in this group a noun's meaning has little or no bearing on the declension or gender. Another strong phonological indicator of 1M is a post-alveolar consonant in stem-final position. As can be seen from (34) there are a few mass nouns of this type. With one single exception, they are all 1M, thus suggesting that nouns in post-alveolar consonants tend to be 1M regardless of their meaning. Notice, however, that the set in (33) overlaps with that in (34), so it remains uncertain whether nouns like *xrjašč* are 1M because of the stress pattern or the final consonant or a combination of these factors.

(34) Mass nouns in post-alveolar consonants:

- 1M: *xrjašč* 'cartilage', *surgúč* 'sealing wax', *pljuš* 'plush', *kulěš* 'gruel', *kampěš* 'a dyestuff', *potáš* 'potash'
- 3F: *čuš* 'nonsense', *kartěč* 'buckshot', *rož* 'rye'

¹⁶ It should be pointed out that many nouns have both mass and count senses (cf., e.g., the careful analysis of plant names in Mel'čuk 1979). It is even arguable that any noun may be used as a mass noun in certain contexts, cf. examples like *There was dog all over the road* (discussed by Corbett 2000: 81). For the purposes of the present study, a noun is classified as a mass noun if it is used as such in one or more conventional senses.

Let us now turn to nouns where the phonological form strongly points towards 3F. As will be recalled from section 4.1, the possibly strongest cue is an anterior obstruent in stem-final position. While there are many such 3F mass nouns in Zaliznjak (1977), some of which are listed in (35), I am aware of only one 1M noun, viz., *dëgot*'.

(35) Mass nouns in anterior obstruents:

1M: *dëgot*' 'tar'

3F: *med*' 'copper', *kámed*' 'gum', *rtut*' 'mercury', *neft*' 'oil', *krov*' 'blood', *žest*' 'tin', *kópot*' 'soot', *pérxot*' 'dandruff', *morkóv*' 'carrots', *čud*' 'certain Finno-Ugric tribes in Medieval Russia (collective)'

This situation is not unexpected given that nouns in anterior obstruents show an affinity towards 3F regardless of their meaning. However, it is still interesting to observe that there are (almost) no exceptions among mass nouns, because this enables us to state the generalization that if a noun in an anterior sonorant denotes a mass, 1M is virtually impossible. The meaning here, as it were, reinforces the phonological generalization and in effect precludes exceptions. It is worth noticing that situations like this, where one assignment rule reinforces another, seem to be widespread cross-linguistically (Corbett 1991: 63ff.). We shall return to "conspiracies" of this type in section 6 below.

As was shown in section 4.2, non-final stem stress is an indicator of 1M for nouns with a sonorant in stem-final position. There are, however, exceptions to this rule, and among mass nouns we find both 1M and 3F:

(36) Mass nouns in sonorants and with non-final stem stress:

1M: *níkel*' 'nickel', *karákul*' 'astrakhan', *ščében*' 'road metal'

3F: *kálo mel*' 'calomel', *plé sen*' 'mold', *zá bolon*' 'sapwood', *ó bolon*' 'sapwood'

The situation in this group seems unclear. The occurrence of both 1M and 3F might be attributed to a conflict between phonology (stress pattern) pointing towards 1M and semantics (mass noun) pointing towards 3F. However, while the data are compatible with this interpretation, the material is too small to facilitate strong claims. It should be mentioned that morphology might also be relevant here. The 3F derivational pattern of the type *zelënyj* 'green' – *zélen*' 'greens' (cf. (3b) in section 2) involves the combination of mass meaning, initial stress, and palatalization of the final consonant. It is possible that speakers associate for example, *zá bolon*' and *ó bolon*' with this derivational pattern, although most speakers would

hardly have any clear intuitions about which words these fairly marginal words would be derived from.

In section 4 we saw that phonological indicators of gender and declension are least clear for sonorant-final nouns with stem-final stress. When the final sonorant is the nasal /n' /, we saw that the general tendency was 3F. Not surprisingly, this is also true for mass nouns. While I am not aware of any clear examples of 1M in this group, the corpus contains four 3F nouns, viz. *xin'* 'nonsense', *latún'* 'brass', *finšampán'* 'high quality brandy', and *sarýn'* 'rabble'. The situation is less clear when the final sonorant is oral. As the reader will recall, the sonority of the penultimate segment was shown to have some impact on the gender and declension of nouns of this type. When the penult is a high vowel, the findings in section 4.3 lead us to expect dominance on the part of 1M. However, this expectation is not borne out. As can be seen from (37), my corpus contains five 3F mass nouns, while only one is 1M:

(37) Mass nouns in high vowel + oral sonorant (non-final stem stress):

1M: *tjul'* 'tulle', *tekstíl'* 'textiles'

3F: *vaníl'* 'vanilla', *košeníl'* 'a dyestuff', *pyl'* 'dust', *gil'* 'nonsense', *cifír'* '(confusing) statistics'

It is worth mentioning that *tjul'*, one of the two 1M nouns in (37), is attested as 3F in non-standard Russian. Gorbačevič (1971: 160, 1978: 143) mentions the expression *očered' za tjul'ju* 'line for tulle' as an example of a departure from the norm that is typical in actual usage. According to Zaliznjak (1977), *tekstíl'* can also mean 'textile worker' in non-standard Russian. This usage as an animate noun is consistent with the masculine gender. Despite the limited material, the findings suggest that the mass semantics is relevant for the gender and declension for nouns of this type.

Less surprising is the fact that stem-stressed mass nouns in /él' / show a strong affinity towards 3F, since nouns of this type tend to be 3F regardless of their meaning:

(38) Mass nouns in /el' / and with non-final stem stress:

1M: *muskatél'* 'muscatel'

3F: *cvel'* 'mold', *šrapnél'* 'shrapnel', *flanél'* 'flannel', *bešamél'* 'a sauce', *prjunél'* 'prunella', *karamél'* 'caramel', *sinél'* 'kind of thread', *moskatél'* 'muscatel'

Observe that the only 1M noun on the list, *muskatél'*, has the 3F variant *moskatél'*. For nouns in /ál' / I have found two examples of 1M, while 3F is more common:

(39) Mass nouns in /al'/ and with non-final stem stress:

1M: *provansál'* 'mayonnaise dressing', *vežetál'* 'kind of hair lotion'

3F: *èmál'* 'enamel', *potál'* 'leaf metal', *stal'* 'steel', *susál'* 'leaf metal', *šval'* 'riffraff'

In section 4.3 we saw that "chemical substances" in /ól'/, e.g., *glíkól'* 'glycol', are 1M. However, for other mass nouns the tendency is rather towards 3F, although the material is rather small:

(40) Mass nouns in /ol'/ and with non-final stem stress:

1M: *tol'* 'roofing felt'

3F: *fasól'* 'beans', *sol'* 'salt', *smol'* 'resin', *kanifól'* 'colophony'

As mentioned in the previous section, *tól'* is reported to be 3F in colloquial and non-standard Russian (Graudina, et al. 1976: 73; Gorbačevič 1971: 160n, 1978: 143). We have also seen that *fasól'* and *kanifól'* have shifted from 1M to 3F during the last century (Graudina et al 1976: 72).

While this brief overview of the data shows a somewhat unclear picture, it suggests that the semantics of mass nouns may have an impact on their gender and declension. In cases where the semantics points in the same direction as phonological cues, i.e., towards 3F, we have seen that there are very few examples of 1M nouns, thus suggesting that the semantics reinforces the phonological generalizations. In cases where phonological cues point towards 1M, two different situations are attested. Whereas in some cases the semantics of mass nouns seems to have virtually no bearing on the gender and declension, as was the case for end-stressed nouns and nouns in post-alveolar obstruents, we have also seen examples where the semantics is decisive. A case in point is stem stressed mass nouns in /úl'/, /íl'/, or /ír'/ which tend to be 3F despite the general affinity of nouns with this phonological shape towards 1M. In general, it seems fair to say that for nouns with stem-final stress and a sonorant in stem-final position the semantics is relevant for gender and declension. While the phonological cues for this group are not very strong, there seems to be a quite clear tendency for mass nouns in this group to belong to 3F rather than to 1M.

6. Interaction: Conspiracy, Conflict, and the Assignment Hierarchy

We have now surveyed descriptive generalizations pertaining to gender and declension assignment, but we have not treated their interaction. We shall consider two types of interaction, which will be referred to as conspiracy and conflict. In the case of conspiracy, two or more generalizations point in the same direction, whereas conflicts occur when a

(41) Gender/declension assignment for *skripáč* 'violinist':

a. Morphology:	Suffix <i>-ač</i>	→	1M
b. Semantics:	Animate	→	1M
c. Phonology:	Stem-final post-alveolar obstruent	→	1M
	End stress	→	1M

Perhaps the clearest cases of conflicting generalizations involve morphological versus phonological generalizations. Three examples are given in (42).

- (42) a. softening, *pómošć'* 'help' (3F)¹⁷
 (Morphology → 3F, phonology → 1M)
 b. *-ěž'*, *moloděž'* 'youth' (3F)
 (Morphology → 3F, phonology → 1M)
 c. *-el'*, *gíbel'* 'death' (3F)
 (Morphology → 3F, phonology → 1M)

¹⁷ An anonymous *JSL* referee points out that *pómošč'* involves more than softening since softening alone would give **pómož*. The label "softening" is, however, sufficiently precise for present purposes.

We now turn to the interaction between phonology and semantics. It is convenient to look at the generalizations concerning sex and animacy first. Some illustrative examples are given in (43), which involve conflicts between semantic and phonological generalizations.

- As far as sexed nouns are concerned, semantics always takes precedence. Thus, although *knjaz'* ends in an anterior obstruent, it is 1M because it denotes a male person. The phonological shape of *nétel'* 'heifer', on the other hand, suggests 1M, since this noun combines a stem-final sonorant with initial stress. However, it is 3F because it denotes a female creature. For nouns denoting animates without reference to sex, the picture is somewhat less clear, as we saw in section 3 above. However, examples like *gost'* in (43b), where semantics takes precedence, are by far more common than the *forel'* type, which might seem to show the opposite pattern. It seems fair to conclude that there is a clear tendency for semantics to override phonology. This, of course, is not surprising in view of Corbett's (1982, 1991) analysis of gender assignment, in which semantic rules override all other rules.

Having explored the interaction of phonology with morphology and semantics, we turn to the third and last possible combination, viz., morphology versus semantics. Relevant are peripheral suffixes like *-až* and *-ěž* in (44), the latter of which should not be confused with the homophonous feminine suffix in (42b). They are masculine although they denote events, i.e., they display ground rather than figure meanings. Thus, the semantics seems to be overridden by the morphology.

- Since we have seen above that the semantic generalizations pertaining to mass nouns occupy a relatively low position in the assignment hierarchy, it is not surprising that morphology takes precedence over mass noun semantics. Therefore, it would be more interesting to find examples of conflicts involving the semantic generalizations pertaining to sex and animacy. While conflicts of this type seem to be few, consider the nouns *bézdár* 'dullard', *béstoloč* 'muddle head', *drjan* 'rotter', *mraz* 'nasty wretch(es)', and *tvar* 'creature, bastard' mentioned in section 3. These nouns are deadjectival or deverbal derivations of the type described in (3b) in section 2, i.e., they have word initial stress and palatalization, but no suffix. This would indicate 3F. However, according to Zaliznjak (1977) they may be animate, which would imply 1M. As the nouns in question

are consistently used as 3F nouns, it seems that morphology takes precedence over semantics.

While I am not aware of any clear counterexamples to this generalization, it may be worthwhile to consider *vožd'* 'chief'. Unsurprisingly, it is 1M since it is animate. Now, from an etymological point of view *vožd'* is clearly a deverbal noun of the same type as *bézdar'*. However, *vožd'* involves an alternation between /žd'/ and /d'/, which makes the relationship to *vodít'* 'lead' less than obvious for speakers of present-day Russian. On this basis, I shall not consider *vožd'* a derived word on a par with *bézdar'*. As far as the evidence goes, therefore, it suggests that morphology takes precedence over semantics. I hasten to add, however, that the evidence is less than strong. Not only is the number of relevant examples small, they may also be used as inanimates. As mentioned in section 3, nouns like *mraz'* may be used as collectives, which are not treated as animates in Russian. The nouns in question represent a conflict between morphology and semantics only insofar as they can be classified as animate nouns.

So far we have considered conflicts between generalizations from different areas. What about conflicts between generalizations from the same area? Since the flow chart presented in section 4.4 summarizes the relationships between the phonological generalizations, we shall consider semantics and morphology only. Semantics offers the simplest case. We have seen that nouns denoting females are always 3F, even though there is a generalization that links animates to 1M. Clearly these two semantic generalizations are in conflict. Since the words in question are always 3F, the sex-specific generalization overrides the animacy rule.

Conflicts between morphological generalizations are also conceivable, since nouns may contain two suffixes that relate to different genders and declensions. A case in point is *osnovátel'nost'* 'thoroughness', which contains the 3F suffix *-ost'* as well as the 1M suffix *-tel'*.¹⁸ While *osnovatel'nost'* is 3F, however, we cannot draw the conclusion that *-nost'* generally takes precedence over *-tel'*. The true generalization is instead that the rightmost suffix always takes precedence in Russian. The rightmost suffix is the head of the derived word, and the head determines the gender and declension class (cf. The Right-Hand Head Rule of Williams 1981).

To summarize the discussion of the interaction of the generalizations, I would like to propose the assignment hierarchy in (45).

¹⁸ *Osnovátel'nost'* is derived from the adjective *osnovátel'nyj* 'thorough' which in turn is derived from *osnovátel'* 'founder'. However, the intermediate step represented by the adjective is not relevant for the discussion, the point being that *osnovátel'nost'* contains two noun suffixes pertaining to different genders and declensions.

- (45) The Assignment Hierarchy:
 Morphology, Sex >> Animacy >> Phonology, Mass nouns
 (>> = "takes precedence over"; a comma separates generalizations
 that are not ranked with respect to each other)

The hierarchy is simplistic insofar as it does not attempt to represent the complex interaction of generalizations for mass nouns and phonology. I would also emphasize at this point that the assignment hierarchy should be treated with some caution. As we have seen, in some cases there are few conflicts and the conflicts may involve small sets of nouns. In such cases, it is difficult to rank the generalizations with respect to each other. However, at least two clear patterns emerge from the survey of the conflicts. First, the assignment hierarchy incorporates a figure-ground hierarchy in that generalizations pertaining to sex and animacy outrank generalizations about mass nouns. As argued in section 2, animates are typical figures, while mass nouns are more easily construed as ground. Secondly, it is striking that morphology occupies a high position in the assignment hierarchy, while phonology is located towards the bottom. I would like to speculate that the reason for this resides the Elsewhere Condition of Kiparsky (1982), i.e., the principle that specific rules override general rules.¹⁹ Morphological generalizations typically involve suffixes containing several fully specified segments, whereas phonological generalizations often refer to only one property of one segment. Thus, morphological rules tend to be of higher specificity than phonological rules, and on the basis of the Elsewhere Condition we would expect morphology to override phonology. In sum, it seems that although the empirical basis for the Assignment Hierarchy is limited, it receives additional support from two well-established principles in linguistics, viz., the Elsewhere Condition and the Figure-Ground hierarchy.

7. Conclusions and Implications

In this study I have explored the assignment of gender and declension to Russian nouns in soft consonants. It has been argued that declension and gender is (nearly) fully predictable for morphologically complex nouns and animate nouns, and that even for simplex, inanimate nouns there are clear statistical tendencies. In addition to proposing a set of morphologi-

¹⁹ This principle is also known *inter alia* as Proper Inclusion Precedence (Koutsoudas, Sanders and Noll 1974), Panini's Principle (Prince and Smolensky 1993; Stump 2001) and Wilensky's Law" (Lakoff 1987). Which name one prefers does not of course bear on the argument.

cal, semantic, and phonological generalizations, I have also provided a detailed investigation of their interaction. We have seen that in many cases generalizations conspire in the assignment of gender and declension, but that there also are cases of conflicts between generalizations. On the basis of the conflicting generalizations I advanced an Assignment Hierarchy which was shown to comply with the Elsewhere Condition and the Figure-Ground hierarchy.

This study has a wide range of implications for Russian and Slavic linguistics, e.g., for language acquisition and diachrony. While it is well known that gender and declension of nouns in soft consonants are mastered late in first-language acquisition (Gvozdev 1961), the present study raises several more precise questions. Do children acquire gender and declension of all the relevant nouns at approximately the same time? If not, which generalizations are mastered first? This study's emphasis on the systematic interaction of generalizations raises questions. What is the role of rule conspiracy and conflict in the acquisition of the system? How is the Assignment Hierarchy mastered? Similar questions arise with regard to diachrony. How and when did the various generalizations develop? How and when did the Assignment Hierarchy evolve? Has it undergone changes through time? While these and many other questions must be left open for future research, the present study has shown that in Contemporary Standard Russian the assignment of gender and declension to nouns in soft consonants is systematic in that morphological, semantic, and phonological generalizations interact in principled ways.

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