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GENDER IN RUSSIAN: MARKEDNESS, SYNCRETISM, AND THE ROLE
OF SURFACE REPRESENTATION

Dissertation Summary
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Publications

Three publications were selected for the defense:

1. Magomedova, V., & Slioussar, N., to appear. Gender variation and gender markedness in Russian nouns. To appear in *Voprosy Jazykoznanija*.
2. Magomedova, V., & Slioussar, N. 2021. Gender and case in Russian nouns denoting professions and social roles. *Computational Linguistics and Intellectual Technologies*, 20, 483-491.
3. Slioussar, N., Magomedova, V., & Makarova, P. 2022. The role of case syncretism in agreement attraction: a comprehension study. *Frontiers in Psychology*, 13, 829112, 1-13.

The results of the present study have also been presented in the following paper, as well as in several submitted manuscripts:

- Slioussar N., & Magomedova V., submitted. Gender stereotypes in agreement processing in Russian. Submitted to *Journal of Psycholinguistic Research*.

- Chuprinko K., Magomedova V., & Slioussar N., submitted. Gender variation in Russian indeclinable nouns: optimality over structuralism. Submitted to *Acta Linguistica Academica*.

- Chuprinko K., Magomedova V., & Slioussar N., submitted. Morphophonology and semantics affect gender variation in Russian indeclinable nouns. Submitted to *Journal of Slavic Linguistics*.

- Magomedova V. 2020. Two arguments against late vocabulary insertion. In: T. Ionin & J.E. MacDonald (eds.). *Formal Approaches to Slavic Linguistics: The Urbana-Champaign Meeting 2017* (pp. 362-379). Ann Arbor, MI: Michigan Slavic Publications.

Conference presentations

The main results and conclusions of the study have been presented in 2015–2022 in 25 oral and poster presentations at 11 international conferences:

- International Conference on the Mental Lexicon (2022, 2018, 2016);
- International Morphology Meeting (2022, 2016);
- Formal Approaches to Slavic Linguistic (2022, 2017);
- Annual Conference on Human Sentence Processing (2022);
- International Computer Linguistics Conference "Dialogue" (2021);
- International Conference on Cognitive Science (2018);
- Architectures and Mechanisms of Language Processing (AMLaP) (2018);
- Word-Formation Theories + Typology and Universals in Word-Formation (2018);
- Saint Petersburg Winter Workshop on Experimental Studies of Speech and Language (Night Whites) (2018);
- International Morphological Processing Conference (2017);
- Penn Linguistic Conference (2016).

1. Introduction

The dissertation consists of several studies exploring gender agreement in modern Russian and the role of the surface noun form – the surface similarity and frequency of form patterns. The main idea that I propose in the dissertation is that surface form patterns may influence structural features: both their choice and their processing. I also propose that the diversity of surface forms in Russian masculine nouns is the reason for the special status of the masculine gender in the system.

In the first study, we analyze different structural and phonological factors affecting variation in gender agreement for two groups of Russian nouns and propose a new approach to the problem of gender markedness in Russian. In the second study, we analyze how gender and case are interconnected: why some nouns are fully acceptable with feminine agreement only in the nominative and how their acceptability in other cases is affected by syncretism. The third study explores the influence of head syncretism and the dependent noun syncretism on attraction effects in gender agreement processing.

This dissertation summary has the following structure. It starts with the introduction (section 1), where I give a short overview of the relevant previous literature, and outline the system of genders and nominal inflectional classes, or declensions, in Russian (section 1.1). I also introduce the problem of gender markedness (section 1.2) and the phenomenon of agreement attraction (section 1.3). Then I present three papers selected for the defense (sections 2-4) and finish with conclusions (section 5).

The **goal** of the dissertation is to study variation in gender assignment and the mechanisms of gender agreement processing and to identify the relevant factors focusing on the role of gender markedness hierarchy and the role of surface form (its frequency, phonological properties and syncretism).

Concerning **materials and methods**, the dissertation relies on a combination of corpus and experimental studies. Firstly, we check if the phenomenon of interest is present in the corpus, using both traditional corpora and the web-as-corpus approach. Then we design experimental studies based on what we have found and test the influence of various factors. In the study of the agreement errors, though, we relied only on experimental methods because it is hard to search for these errors in the corpora. This dissertation relies both on comprehension experiments (using methods like acceptability judgment and self-paced reading) and on production experiments.

The **relevance** of study is defined by the fact that it contributes to several ongoing debates in the literature, including the debate on gender markedness (presented in section 1.2) and the debate on the role of syncretism in agreement processing (presented in section 1.3). Many questions addressed in this study have not been raised in the previous literature, which contributes to its **novelty**. In particular, it is the first study outlining the limits of variation in gender assignment to Russian expressive nouns in corpus data and estimating the role of different factors that influence this variation in an experiment. It is the first study analyzing the role of case in gender agreement for so-called hybrid nouns (denoting professions and social roles) in a corpus study and three experiments. It is the first study of syncretism effects in gender agreement processing (previous comprehension studies focused on number).

The study makes several theoretical contributions, which define its **theoretical significance.** The most important ones are reflected in the proposals for the defense below. It proposes a new approach to the problem of gender hierarchy and gender markedness in Russian and demonstrates the role of surface forms (their frequency, phonological properties and syncretism) in gender assignment and gender agreement processing. The methodological approach we use in our studies, namely, the combination of corpus studies and various experimental methods, is the basis for the **practical significance** of the paper, as it promotes cross-methodological verification of the results.

The main results of the study and theoretical proposals for the defense can be summarized as follows:

1. Neuter is the unmarked gender language-wide, while masculine is the *greedy* gender due to its frequency and diversity.
2. Surface forms may influence structural features due to surface form analogy. Frequency is crucial for this kind of influence.
3. The reason why hybrid nouns are fully acceptable with feminine agreement only in the nominative and are especially problematic in locative are the syncretism patterns of inflectional affixes.
4. Syncretism makes syntactic processing less efficient and plays a crucial role for the detection of agreement errors in processing, as we show in experiments on gender agreement attraction.

1.1 Gender and declension in Russian

Russian nouns are distributed between three genders: masculine (M), feminine (F), and neuter (N), and are inflected for six cases and two numbers. Nouns have different sets of inflectional forms depending on the declension class they belong to[1]. There are different approaches to the system of declension classes (Alexiadou & Müller 2008; Aronoff 1994; Halle 1994; Corbett & Fraser 1993; Müller 2004; Russian grammar 1980; Wiese 2008; Zaliznjak 1987), but we do not provide any arguments in favor of one or another in this dissertation. So we will rely on the model with four declensions outlined in Table 1 for the sake of convenience. Classes I and IV differ only in the nominative and accusative singular (the reason why many researchers unite them).

Table 1. A system of four inflectional classes for Russian nouns.

Classes	Descriptions	Examples	% in the RNC[2]
class I	M nouns ending in a C in Nom.Sg	zakon 'law', kon' 'horse'	46%
class II	F nouns ending in -*(j)a* in Nom.Sg	*komnata* 'room', *zemlja* 'earth'	29%
	M nouns ending in -*(j)a* in Nom.Sg	*papa* 'dad', *djadja* 'uncle'	1%
class III	F nouns ending in a C in Nom.Sg	*kost'* 'bone'	5%
class IV	N nouns ending in -*o* or -*e* in Nom.Sg	*okno* 'window', *more* 'sea'	18%
indeclinable	nouns of different genders	*kivi* 'kiwi', *pal'to* 'coat'	1%

In most cases, the gender of the noun cannot be unambiguously determined from its inflectional affix, one must look at the agreeing adjectives, participles, and verb forms. However, as we can see in Table 1, there is a very strong connection between gender and declension classes.

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[1] In plural, there is no gender agreement, and all declensions have the same inflections, so we focus on singular.

[2] Percentages of nouns in the Russian National Corpus, or RNC, are taken from (Slioussar & Samoilova 2015). Their counts were based on the grammatically disambiguated subcorpus and did not take substantivized adjectives into account. There is also a very small number of exceptional cases with irregular inflection.

The correlation between gender and declension is captured in different ways in several major theoretical frameworks (e.g. Corbett & Fraser 2000; Kramer 2015; Rice 2006).

There are also a few minor groups, not presented in Table 1. Firstly, some of the I class nouns denoting professions and social roles allow for feminine gender agreement if their referent is female: for example, *etot / eta vrač* 'this$_{M/F}$ doctor'. They are often called 'hybrid nouns'. Secondly, there is an extensive variation in augmentative and diminutive suffixes. They are not supposed to change the gender of the base noun (e.g. Vinogradov 1947), but in real language use, expressive derivates often change it to better fit the gender-declension connection: e.g. *domina* 'house$_{AUG}$' from *dom* 'house$_M$' is used both with masculine and with feminine agreement. Finally, there is a very small group of nouns with irregular inflections.

Hybrid nouns and expressive nouns are widely discussed in the literature, and we also focus on them in our studies, including two papers presented in sections 2 and 3 (Magomedova 2020; Magomedova & Slioussar, 2021, to appear, submitted). Hybrid nouns are fully acceptable with feminine agreement only in the nominative. Interestingly, if the referent is female, it is possible to use masculine agreement on the adjective modifying the noun and feminine agreement on the predicate, but not vice versa (using the same gender on the adjective and the predicate is fine as well). Many formal and functional studies discuss this pattern, often going into further details (Asarina 2009; Caha 2019; Corbett 1982, 1991; Graudina et al. 1976; King 2015; Landau 2016; Lyutikova 2015; Matushansky 2013; Mučnik 1971; Panov 1968; Pesetsky 2013; Privizentseva, to appear; Salzmann 2020; Steriopolo 2019; Steriopolo & Wiltschko 2010, among others). In section 3, we focus on a different problem: we show that oblique case forms with feminine agreement do occur naturally and test whether there are any case-related differences in their (generally low) acceptability and processing. The analysis we offer relies on case syncretism patterns that we will introduce below.

Nouns with diminutive and augmentative affixes, or expressive nouns, are briefly discussed in (Vinogradov 1947; Corbett 1982; Hippisley 1996; Rice 2005; Savchuk 2011; Sitchinava 2011). Steriopolo and colleagues offer a formal analysis (Steriopolo 2008, 2015, 2017; Steriopolo et al. 2021). In section 2, we show that gender variation in these nouns is much larger than it was suggested in the previous studies, identify the factors responsible for it and draw conclusions for the problem of gender markedness in Russian (introduced in section 1.2). We also test the predictions of Steriopolo et al. (2021) and show that they are not borne out. In a new project, in which Kirill Chuprinko is the main investigator, we turn to gender variation in indeclinable nouns (Chuprinko, Magomedova & Slioussar, submitted a, b).

Singular inflectional forms of five nouns from different declension classes are listed in Table 2. It shows that there are many instances of syncretism, both intraparadigmatic and transparadigmatic. For example, accusative and nominative forms coincide in classes III, IV, and I (in inanimate nouns); classes I and II have the same inflection in locative singular, and so on. This will be important for the studies in sections 3 and 4. In section 3, we demonstrate how different syncretism patterns define high and low acceptability of feminine agreement on hybrid nouns in different cases. In section 4, we look at the phenomenon of agreement attraction (introduced in section 1.3). We show that attraction effects in gender agreement processing crucially depend on case syncretism.

Table 2. Singular paradigms of the nouns *stena* 'wall$_F$', *pol* 'floor$_M$', *kot* 'cat$_M$', *okno* 'window$_N$' and *dver'* 'door$_F$'.

	Class I		Class II	Class III	Class IV
	M inanimate	M animate	F/M	F	N
Nominative	*pol*	*kot*	*stena*	*dver'*	*okno*
Genitive	*pola*	*kota*	*steny*	*dveri*	*okna*
Dative	*polu*	*kotu*	*stene*	*dveri*	*oknu*
Accusative	*pol*	*kota*	*stenu*	*dver'*	*okno*
Instrumental	*polom*	*kotom*	*stenoj*	*dver'ju*	*oknom*
Locative	*pole*	*kote*	*stene*	*dveri*	*okne*

1.2 Gender markedness in Russian

The definition of feature markedness depends on the theoretical framework. Structural approaches (e.g. Kramer 2015; Nevins 2011, Matushansky 2015) rely on the so-called representational markedness: a [+a] feature value is more marked than a [-a] value, and no feature is the least marked option. As a result, unmarked gender forms are expected to appear in structures with no gender feature available (e.g., in impersonal sentences). In other approaches, the unmarked option is the one that is used when there are no specific requirements to use an alternative – e.g., in the analysis by Rice (2005). In typological literature, the unmarked gender is expected to be the most frequent and productive (e.g. Jakobson 1960). Many functional studies hold similar views.

Despite these differences, the same feature value is usually selected as unmarked in different approaches. However, this is not true for gender in Russian: masculine is the most frequent, while neuter is the least frequent, but is used in impersonal sentences. According to structural approaches, neuter is unmarked (e.g. Kramer 2015), and according to the OT analysis masculine is (e.g. Rice 2005).

Both masculine and neuter demonstrate 'special' behavior — but in different contexts. To account for this, Corbett and Fraser (2000) assume masculine to be unmarked on the word level and neuter to be unmarked on the sentence level. But this solution cannot be implemented in most theoretical frameworks. Experimental studies also provide conflicting results (Akhutina et al. 1999, 2001; Romanova & Gor 2017; Slioussar 2018; Slioussar & Malko 2016). In the study presented in section 2, we suggest a solution to this paradox.

1.3 Agreement attraction

The phenomenon of agreement attraction, illustrated in (1) below, has been analyzed in many production and comprehension studies (Badecker & Kuminiak, 2007; Bock & Miller 1991; Clifton et al., 1999; Dillon et al., 2013; Eberhard et al., 2005; Franck et al., 2002, 2006, 2008; Hartsuiker et al. 2003; Pearlmutter et al., 1999; Slioussar, 2018; Slioussar & Malko, 2016; Solomon & Pearlmutter, 2004; Staub, 2009, 2010; Tanner et al., 2014; Tucker et al., 2021; Vigliocco & Franck, 1999; Vigliocco et al., 1995, 1996; Wagers et al., 2009 etc.). They found that errors like (1a) are produced more often and are more easily missed in comprehension than errors like (1b) — presumably because in (1a) the dependent noun phrase *the cabinets* (termed *attractor*) interferes with the agreement between the verb and the head of the subject noun phrase. In particular, comprehension experiments showed that processing attraction errors like (1a) is associated with smaller reading time delays, fewer grammaticality judgment errors, and smaller P600 amplitudes than processing other agreement errors like (1b).

(1)　　a. *The key to the cabinets were rusty.*

　　　　b. *The key to the cabinet were rusty.*

Attraction effects were observed for number and gender agreement in many languages. Different syntactic, semantic and morphological factors that influence attraction have been identified. In our study presented in section 4, we focused on syncretism.

Syncretism was found to affect agreement attraction in several previous production and comprehension studies in different languages (e.g., Hartsuiker et al., 2003; Badecker and Kuminiak, 2007; Slioussar, 2018). However, in comprehension studies, the role of attractor syncretism was tested only on number agreement (in Slioussar's (2018) study on Russian), while the role of head syncretism has never been tested. The study in section 4 fills this gap and offers some general conclusions on the role of syncretism in processing.

2. Russian nouns with ambiguous gender cues and the problem of gender markedness

Paper selected for the defense: Magomedova, V., & Slioussar, N., to appear. *Gender variation and gender markedness in Russian nouns.* To appear in *Voprosy Jazykoznanija.*

This section presents a series of corpus and experimental studies of gender assignment to nouns with ambiguous or contradictory gender cues. These are expressive nouns with diminutive and augmentative affixes and nouns ending in a palatalized consonant (I will refer to them as C'-final nouns). C'-final nouns can belong to the inflectional class I (and be masculine) or to the class III (and be feminine).

In expressive nouns, normally, the conflicting cues are the lexical gender of the base noun and the inflection associated with a different gender feature. According to prescriptive grammars, expressive nouns are supposed to keep the base noun gender, which may not coincide with the gender associated with their declension class (see Table 1 and Table 3). While some authors claimed that the base gender always prevails (e.g. Vinogradov 1947; Corbett 1982; Hippisley 1996; Rice 2005), others noted variation in real language use (e.g. Savchuk 2011; Sitchinava 2011; Doleshal 2000).

We analyzed dictionary data and then used the web-as-corpus approach — as expressive formation is extremely productive, many of the forms cannot be found in dictionaries and edited texts. Some examples of variation patterns are given in Table 3. We explored the factors defining this variation and tested our hypotheses as well as some predictions by Steriopolo, who published many studies focusing on gender in expressive nouns (Steriopolo 2008, 2015, 2017; Steriopolo et al. 2021).

Table 3. Examples of expressive nouns with contradictory gender cues.

Affixes	Declension associated with the affix	Base noun	Expressive derivate
-čik-Ø	class I (M)	*mama* 'mother$_F$'	*mamčik*
-in-a	class II (mostly F)	*dom* 'house$_M$'	*domina*
-išk-o	class IV (N)	*pidžak* 'jacket$_M$'	*pidžačiško*
-išč-e	class IV (N)	*mašina* 'car$_F$'	*mašinišče*

For C'-final nouns, we provided a statistical analysis of the Hagen dictionary data (Hagen 2018). The analysis showed that nouns with stem-final sonorant segments are significantly more likely to be masculine, while nouns with stem-final labials are significantly more often feminine. Then we tested whether native speakers are sensitive to these correlations in an experiment with nonce words. The experiment demonstrated that sonority significantly affects gender assignment to nonce C'-final nouns, while the labial articulation does not.

We found a substantial variation in both cases. However, there are clear trends. In expressive nouns, two factors are predominantly responsible for the variation: the base gender and the inflection of the derivate. In nonce nouns ending in a palatalized consonant, the main factor was the phonological features of the stem-final segment.

In expressive nouns, for both factors, masculine gender has a special status: it is preserved significantly more often and is triggered by changing the inflection class significantly more often than feminine or neuter. In nonce C'-final nouns, participants selected masculine gender more often than feminine, while real C'-final Russian nouns are more often feminine than masculine. This also points to a special status of masculine gender. At the same time, neuter is found in impersonal sentences and prevails in indeclinable nouns, especially in the cases in which there are no strong gender cues — we analyze indeclinable nouns in a large corpus study in Chuprinko, Magomedova and Slioussar (submitted a, b).

These findings give us a basis for a theoretical analysis of gender markedness hierarchy. We propose that neuter is the unmarked gender in Russian language-wide, while masculine is the most frequent and the most diverse in terms of the final segments (surface form). Many patterns found in feminine and neuter can also be found in masculine: there are masculine nouns ending in *-a* like *papa* 'dad'; masculine nouns ending in *-o* and *-e* like *domiško* 'little house', and many other expressive derivates that preserved their base gender; masculine nouns

with zero inflections ending in all possible consonants. Feminine nouns with zero inflections can only end in alveo-palatal and palatalized consonants, while neuter nouns always end in vowels. There are also indeclinable masculine nouns with final segments not typical for nominative singular forms, like *-i* in *viski* 'whiskey' or *-u* in *kenguru* 'kangaroo'.

Masculine is also the most frequent gender. These are the reasons why it is assigned more often than feminine, even if the cues are ambiguous. At the same time, neuter is representationally unmarked and is chosen when there are no (strong) gender assignment cues. If any cues are present, the ones that point to masculine will tend to win over the others because masculine is the most frequent and productive. I would call it a *greedy gender* using an analogy to greedy operators in regular expressions in programming. Let me also mention another finding. In the experiment with nonce nouns, participants were sensitive to the final consonant of the stem, selecting masculine gender especially often with those final consonants that are especially frequent in real masculine C'-final nouns. This stresses the role of the surface form that we keep coming back to in this dissertation.

3. Hybrid nouns and the role of case syncretism in gender agreement

Paper selected for the defense: Magomedova, V., & Slioussar, N. 2021. Gender and case in Russian nouns denoting professions and social roles. *Computational Linguistics and Intellectual Technologies*, 20, 483-491.

In this study, we analyzed a group of Russian nouns denoting professions and social roles. Historically, these nouns were masculine; in modern Russian, they can also be used with a feminine agreement (e.g., *etot / eta vrač* 'this$_{M/F}$ doctor'). Many authors call them 'hybrid nouns.'

As I have mentioned in the introduction, in normative Russian feminine agreement with hybrid nouns is only grammatical in the nominative case. Thus, many studies only considered nominative forms. They focused on different phenomena related to hybrid nouns – for example, on mixed agreement and the distance from the head. It is possible to use masculine agreement on the adjective and feminine on the verb, e.g. *naš vrač prišla* 'our$_M$ doctor came$_F$', but not vice versa – **naša vrač prišel* 'our$_F$ doctor came$_M$'.

We studied feminine agreement in oblique cases. Using the Web-as-corpus approach, we found that oblique case forms with feminine agreement occur naturally and then conducted three experimental studies. Our primary goal was to find out whether the status of feminine forms (their prevalence, their perceived grammaticality, and their online processing) depends on their case.

The corpus study demonstrated that oblique feminine forms are dramatically less frequent than nominative forms, which cannot be explained by general differences in case frequency. At the same time, all case forms are attested. Only locative is almost absent, but it is the least frequent case in animate nouns. A grammaticality judgment study confirmed that all oblique feminine forms are perceived as marginal. However, a ranging experiment that zoomed on the differences between oblique cases and a self-paced reading experiment showed that locative case differs from the others.

To explain the contrast between nominative and other cases, let us consider why the words like *vrač* 'doctor' hardly develop into a common gender noun with a full paradigm. Russian has many common gender nouns (mostly denoting personal qualities, but also professions and social roles, like *kollega* 'colleague' or *sudja* 'judge') that belong to the inflectional class II ending in *-a/ja* in the nominative singular. Apparently, this is possible because this class contains both masculine and feminine nouns, while class I (nouns ending in consonant in the nominative singular) has no feminine nouns. We argue that this is the reason why the words like *vrač* 'doctor' are easily used with feminine agreement only in the nominative. There are feminine nouns like *mat'* 'mother' ending in consonant in the nominative singular, but they belong to the class III, which differs from the class I in all singular oblique case forms.

Considering locative case, the only possible explanation is affix syncretism. In other oblique cases in singular, affixes of the class I do not coincide with the classes II or III, but the locative affix *-e* is the same in the classes I and II. Prima facie, this could seem advantageous because most of feminine nouns belong to the class II. But the actual effect is the opposite as the class II nouns have a different paradigm.

This points to a deep connection between grammatical gender and declension, which is hard to explain in various morphological theories. For example, in the Distributed Morphology framework, an inflectional class is a feature stored on a syntactic node (e.g. Kramer 2015). As syntactic trees are parsed successively, either gender may be expected to influence declension

or vice versa. In non-structural theories, for example, the Optimality Theory, it is easier to explain how various factors, including inflectional classes, may influence gender assignment (e.g. Rice 2005). Some non-structural analyses can even predict gender assignment variation (e.g. Doleschal 2000). However, these approaches do not explain why certain factors play a more important role than others in a particular case in a particular language.

4. The role of case syncretism in gender agreement from a different angle: a processing study of agreement attraction

Paper selected for the defense: Slioussar, N., Magomedova, V., & Makarova, P. 2022. The role of case syncretism in agreement attraction: a comprehension study. *Frontiers in Psychology,* 13, 829112, 1-13.

In this study, we present two comprehension experiments that aim to clarify the role of syncretism in agreement attraction focusing on gender agreement in Russian. Patterns of syncretism in the Russian nominal declension are presented in Table 2 above. For this study, it is crucial that nominative forms coincide with accusative forms in some classes, but never coincide with any other oblique cases.

Several previous studies discussed the role of syncretism for attraction (e.g., Hartsuiker et al., 2003; Badecker and Kuminiak, 2007; Slioussar, 2018). In this study, we demonstrate that both attractor and head syncretism affect agreement attraction in comprehension — while the attractor syncretism was addressed in several studies, only Badecker and Kuminiak (2007) assessed the role of the head syncretism, but only in production. Also, this study is the first to analyze any syncretism effects in gender agreement processing.

We conducted two moving-window word-by-word self-paced reading experiments on gender agreement processing in Russian. In the first experiment, we compared sentences with syncretic and non-syncretic attractors, like (2a-b) and (3a-b). Attraction effects were found only in the former. In the second experiment, we tested whether the syncretism of the head noun plays a role for attraction in gender agreement, comparing examples like (2a-b) and (4a-b). Attraction effects were significantly larger in the latter.

(2)　　a. *Nagruzka na otrasl' byla / *byl snižena / *snižen posle otmeny naloga.*

　　　burden$_{F.NOM.SG}$ on industry$_{F.ACC.SG(=NOM)}$ was$_{F.SG / *M.SG}$ reduced$_{F.SG / *M.SG}$
　　　after canceling$_{GEN.SG}$ tax$_{GEN.SG}$

　　b. *Nagruzka na sektor byla / *byl snižena / *snižen posle otmeny naloga.*

　　　burden$_{F.NOM.SG}$ on sector$_{M.ACC.SG(=NOM)}$ was$_{F.SG / *M.SG}$ reduced$_{F.SG / *M.SG}$
　　　after canceling$_{GEN.SG}$ tax$_{GEN.SG}$

　　'The burden on the industry/sector was reduced after the cancellation of the tax.'

(3)　　a. *Vyboina v plitke byla / *byl zadelana / *zadelan posle smeny podryadčika.*

　　　pothole$_{F.NOM.SG}$ in tile$_{F.LOC.SG}$ was$_{F.SG / *M.SG}$ repaired$_{F.SG / *M.SG}$
　　　after change$_{GEN.SG}$ contractor$_{GEN.SG}$

　　b. *Vyboina v asfal'te byla / *byl zadelana / *zadelan posle smeny podryadčika.*

　　　pothole$_{F.NOM.SG}$ in asphalt$_{M.LOC.SG}$ was$_{F.SG / *M.SG}$ repaired$_{F.SG / *M.SG}$
　　　after change$_{GEN.SG}$ contractor$_{GEN.SG}$

　　'The pothole in the tile/asphalt was repaired after the change of the contractor.'

(4)　　a. *Reč' pro moral' byla / *byl skučnoj / *skučnym s pervyx slov.*

　　　speech$_{F.NOM.SG(=ACC)}$ about moral$_{F.ACC.SG(=NOM)}$ was$_{F.SG / *M.SG}$ boring$_{F.SG / *M.SG}$
　　　from first$_{GEN.PL}$ words $_{GEN.PL}$

　　b. *Reč' pro etiket byla / *byl skučnoj / *skučnym s pervyx slov.*

　　　speech$_{F.NOM.SG(=ACC)}$ about etiquette$_{M.ACC.SG(=NOM)}$ was$_{F.SG / *M.SG}$ boring$_{F.SG / *M.SG}$
　　　from first$_{GEN.PL}$ words $_{GEN.PL}$

　　'The speech about morality / etiquette was boring from the very first few words.'

Thus, we demonstrated that both head syncretism and attractor syncretism are important for attraction effects in comprehension. Slioussar (2018), who was the first to study the role of attractor syncretism in comprehension, concluded that during retrieval, the system looks for a combination of features, trying to find a form that has the relevant number or gender feature and the nominative case feature. If the dependent noun is in the form syncretic with nominative, it activates two feature sets and may be erroneously retrieved.

However, this hypothesis is not enough to explain the role of head syncretism. We cannot say that a head activates accusative case features due to syncretism, and they become relevant

because the system searches for an accusative form — it does not; anything that is not nominative is irrelevant for head agreement in Russian. Apparently, syncretism has a more general impact on processing. A morphologically ambiguous form creates uncertainty activating two feature sets and therefore makes the retrieval less automatic and gives an opportunity for the attractor to be retrieved.

5. Conclusions

In the reported studies, we demonstrated that the properties of the surface form of nouns may influence morphosyntactic features. We have also proposed a new analysis of Russian gender markedness problem, namely: neuter is the unmarked gender language-wide, while masculine is a *greedy* gender that is assigned in case of contradictory cues. As masculine is the most frequent and the most diverse in terms of surface forms, there is a masculine analogy to almost any possible Russian noun, which may trigger masculine agreement.

Speaking very generally, my theoretic approach is rather 'foxy' if we look at morphology in the same way as Mark Aronoff (2016) through the lens of the philosophical essay by Isaiah Berlin (1953). Language definitely has structure, but at the same time it is a living system, which constantly changes and gains new properties. The *greedy class* is a purely surface thing based on the surface form only. However, it grew so big that it changed the structural properties of words that, according to many linguists, cannot be influenced by the surface form in any way.

We can see that when a surface property spreads wide enough, it might become structural. And besides that, there are a lot of interesting data that have not reached that threshold yet, but which show how language may accommodate for very peculiar little things that do not fit into the rigid system. To cite Darya Kavitskaya (an invited talk at FASL26 2017)[3], «it is all alive and boiling».

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[3] Citing by heart, may not be the exact citation.

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