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Optimizing Russian Gender: A Preliminary Analysis

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Research has established that nouns are assigned to gender classes as a function of meaning and shape (Corbett 1991, Comrie 1999).^{*} Once this point has been made for several individual languages, research should move towards the establishment of a typologically robust theory of gender assignment. One example of such a theory is *optimal gender assignment theory* (Rice 2004), which formalizes several of the key insights in Steinmetz' (1985, 1986) theory.

A robust theory of gender assignment must identify the general principles that are relevant for gender assignment, while at the same time providing a strategy for correctly assigning nouns to their gender category. The burdens on a theory of gender assignment also include the requirement that the theory be cross-linguistically robust. Finally, the construction of a theory of gender assignment should avoid theoretical idiosyncrasies and instead aspire to a formalism independently shown to be motivated for other domains of grammar.

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The central purpose of this article is to apply the principles of optimal gender assignment theory to the gender assignment system of Russian. The Russian system is particularly prominent in the literature on gender assignment, cf. Corbett (1991). Our particular interest here lies in the notions of markedness and gender conflict resolution, and in a comparison of Corbett's analysis with that offered by optimal gender assignment theory.

1. Markedness

The notion of markedness is employed in analyses from many domains of grammar. In the case of assignment to classes, its most prominent motivation is to be found in Pinker (1999).

What does markedness mean in the context of a theory of gender assignment? Part of a theory of gender assignment for a particular language will include the identification of features that are relevant for assignment to the various categories. Gender-relevant features can refer to either the shape or the meaning of a noun. One use of markedness involves nouns that have no gender-relevant features. These nouns are not randomly distributed across the gender categories, but instead are assigned to just one of them, and this is the least marked category.

The theoretical advantage of invoking markedness is that for one of the gender categories, it becomes unnecessary to identify gender-relevant features. The least marked category will be the one that would require the most gender-relevant features to account for. It is the category that is most diffuse in terms of the set of gender-relevant features that lead nouns to it. By invoking markedness, that set can be left out of the theory, and the task is reduced to identifying the gender-relevant features for the marked categories.

Even among the marked categories, however, one will be relatively more marked than another, and this will be crucial for the theory advocated here. Relative markedness becomes relevant in cases of gender assignment conflict, such that a noun with two gender-relevant features leading to different marked categories can

be assigned to a gender class by identifying which of the conflicting categories is least marked. The theory, then, uses not only a distinction between marked and unmarked, but rather a hierarchy of markedness.

In the case of Russian, the criteria given above suggest that masculine is the least marked category while neuter is the most marked one. To formalize this within an optimality theoretical approach, we propose three constraints, each one of which bans a noun from belonging to a gender category, as in (1). Their hierarchical arrangement is such that the constraint banning the most marked category dominates the constraint banning the next most marked constraint. The lowest ranked constraint is the one banning the least marked category, as in (2).

- (1) a. *NEUTER: A noun is not neuter.
 b. *FEMININE: A noun is not feminine.
 c. *MASCULINE: A noun is not masculine.

- (2) *NEUTER » *FEMININE » *MASCULINE

Given this ranking, nouns will be assigned masculine by default, as reflected in Tableau 1.

	stol 'table'	*NEUT	*FEM	*MASC
☞	a. stol, m.			*
	b. stol, f.		*!	
	c. stol, n.	*!		

Tableau 1

Candidates (a-c) in Tableau 1 represent the possibility of assigning the noun to any of the three gender categories. It is the job of the grammar to identify which candidate is optimal. Candidate (c)–the neuter option–is promptly eliminated by its violation of the most highly prioritized constraint, namely the prohibition against assign-

ing a noun neuter gender, leaving candidates (a) and (b) to compete with one another. In the competition between candidates (a) and (b), candidate (b)–the feminine option–loses, because of its violation of the relatively highly prioritized constraint prohibiting the assignment of nouns to the feminine category. Even though candidate (a) violates the constraint prohibiting assignment to masculine, it is nonetheless optimal because this constraint is sufficiently far down the hierarchy that no alternative candidate remains under consideration. In this way, the noun *stol* is correctly predicted to be assigned masculine gender. At this point, the approach suggested here suggests that all Russian nouns will be masculine. And, indeed, they will be ... unless they have a reason to go into one of the marked categories.

2. Some Russian gender assignment constraints

Three morphological criteria play an important role in the assignment of Russian nouns to their gender categories. Nouns ending in the morpheme *+a* are feminine. This can be captured with an OT constraint punishing nouns which have this shape but which are either masculine or neuter. In other words, a ‘*’ is awarded if a noun ending in *+a* is masculine or neuter.

(3) $*+A\# \Rightarrow$ MASCULINE, NEUTER: A noun ending in the morpheme *+a* is not masculine and is not neuter.

Nouns ending in *-o* (or its predictable variant *-e*) are neuter. This can be captured with a constraint assigning an asterisk to nouns which have this shape but which are either masculine or feminine, as in (4); no asterisk is recorded when a noun ending in *-o* is neuter. Whether a noun is declinable or not is information speakers must store in their lexicon. This information is available to the grammar. In Russian, indeclinable nouns are neuter, as in (5).

(4) *+O \Rightarrow MASCULINE, FEMININE: A noun ending in *-o* is not masculine and is not feminine.

(5) *INDECLINABLE \Rightarrow MASCULINE, FEMININE: An indeclinable noun is not masculine and is not feminine.

Three semantic criteria also play a role in the assignment of gender in Russian. Nouns denoting animates may not be neuter. They are usually masculine, but there are also many animate nouns that are feminine. The constraint in (6) captures the fact that animates are either masculine or feminine, since these two categories have an obvious semantic connection to the notion of animacy. No asterisk appears in the tableau when an animate noun is either masculine or feminine.

(6) *[+ANIMATE] \Rightarrow NEUTER: A noun denoting an animate thing is not neuter.

Nouns denoting males are masculine. This is captured in (7) with a constraint punishing nouns which have this meaning but which are either feminine or neuter. Nouns denoting females are feminine. This is captured in (8) with a constraint punishing nouns which have this meaning but which are either masculine or neuter.

(7) *[+MALE] \Rightarrow FEMININE, NEUTER: A noun denoting a biological male is not feminine and is not neuter.

(8) *[+FEMALE] \Rightarrow MASCULINE, NEUTER: A noun denoting a biological female is not masculine and is not neuter.

These constraints interact with the markedness hierarchy to assign nouns with the relevant features to either of the marked categories—feminine or neuter. To achieve this, each of these constraints must dominate the markedness hierarchy, as in Tableaux 2 and 3.

In Tableau 2, the feminine candidate (b) is selected as optimal for the noun *kniga* ‘book’; the masculine and neuter candidates are eliminated by the constraint referring to final *+a*. Given that candidate (b) is the only candidate to satisfy this constraint, the default hierarchy is irrelevant here.

<i>kniga</i> ‘book’	*+A⇒M,N	*NEUT	*FEM	*MASC
a. knig+a, m.	*!			*
☞ b. knig+a, f.			*	
c. knig+a, n.	*!	*		

Tableau 2

For the neuter noun *boa* ‘boa’ (the garment), the relevant constraint punishes indeclinable nouns that are either masculine or feminine. This constraint eliminates candidates (a) and (b), such that the neuter candidate (c) is optimal. The fact that candidate (c) violates *NEUTER is irrelevant to the selection of the optimal candidate here.

<i>boa</i> ‘boa’	*INDEC⇒M,F	*N	*F	*M
a. boa, m.	*!			*
b. boa, f.	*!		*	
☞ c. boa, n.		*		

Tableau 3

At this point, nine constraints have been introduced: three in the default hierarchy, three referring to the shape of a noun and three referring to a noun’s semantic features. Simply allowing nouns in the domain of a gender-relevant feature (shape or meaning) to be assigned the relevant gender—alternatively allowing assignment by default—will be adequate to account for the vast majority of gender assignment in Russian. (The statistics presented by Corbett and

Fraser suggest that as much as 97% of Russian may be accounted for in this way.)

Most masculine nouns will fail to fall into the domain of any gender-relevant constraint, and will be assigned masculine by default. Most feminine nouns will have a final *+a* which leads to correct gender assignment.¹ Most neuters are assigned neuter either because of a final *-e* or *-o*, or because they are indeclinable. It is the nouns which are not assigned in this simple matter which are especially interesting, and which we turn our attention to in the next section.

3. Gender assignment conflicts

While we can easily determine that any single constraint referring to a gender-relevant feature must dominate the subhierarchy of markedness constraints, a more difficult question involves the relative ranking of what I call the “gender features” constraints. The determination of relative rankings can only be made by identifying conflicts.

Gender assignment conflicts involve nouns with two gender-relevant features. The three genders of Russian present the logical possibility of three pairwise conflicts, all of which are attested.

A noun may be in the domain of one feature suggesting masculine and another suggesting feminine. For example, nouns which denote males but which end in *+a* are of this type, e.g. *djadja* ‘uncle’, *mal’čiška* ‘urchin’, *deduška* ‘grandfather’, etc. (including many diminutives of names).

Nouns which denote animates but which are indeclinable show a conflict between masculine and neuter, e.g. *boa* ‘boa’ (snake),

¹ In addition to the feminine nouns ending in *+a* – the 2nd declension – there are also the 3rd declension nouns which are feminine, i.e. a set of nouns ending in soft consonants. Of course, many nouns ending in soft consonants are masculine, or 1st declension. Considerable progress has been made in uncovering the gender principles relevant for words ending in soft consonants, cf. Nessel (2003c), Steinmetz (2000).

gnu ‘gnu’, *kenguru* ‘kangaroo’, *marabu* ‘marabou’. Also nouns that denote males but are indeclinable are also of this type, e.g. *attaše* ‘attaché’ (cf. Corbett 2001:40).

A conflict between feminine and neuter can be seen in nouns which denote females but which are indeclinable, e.g. consonant final names of females, such as *Liv*, etc. Another example with this type of conflict is *ledi* ‘lady’.

When a conflict arises in the assignment of a noun to a gender category, the conflict will be resolved. In other words, these kinds of conflicts do not lead to indecision or variation for speakers. We turn now to two proposals about how this resolution might be implemented.

4. Conflict resolution I: Meaning » shape

Corbett (1991) claims that conflicts are resolved by looking at the nature of the features in conflict and that “the semantic assignment rules take precedence” (Corbett 1991:38). Corbett and Fraser (2000:307) state that “both sets of rules [semantics and morphology–CR] are required, and the semantic rules dominate.” This view is also advanced by Comrie (1999:459), who writes that “the exceptions in Russian are interesting in that they show how semantics can intervene”.

In the cases sketched in §3, the conflicts are all between one semantic feature and one morphological feature. For nouns such as *djadja*, the rule requiring nouns denoting males to be masculine is in conflict with the rule requiring nouns ending in *+a* to be feminine. These nouns are in fact masculine, which is indeed the gender suggested by the meaning. For nouns such as *boa* (the snake), the conflict is between the rule requiring that animates be masculine and the rule requiring that indeclinables be neuter. Again, the nouns are masculine, which again is the gender indicated by their meaning. Finally, the conflict which arises for consonant-final names denoting females is in the domain of the rule requiring nouns which designate females to be feminine, while

it is also in the domain of the rule requiring that indeclinable nouns be neuter. The nouns are indeed feminine, such that the conflict can correctly be characterized as being resolved in favor of the rule sensitive to meaning at the cost of the rule sensitive to morphology. We conclude here that Corbett's proposal about conflict resolution achieves correct assignment of these nouns to their gender categories.

While this principle delivers correct results for the cases above, its success may be the result of spurious correlation, and the principle therefore must be subjected to further inquiry. An equally robust alternative analysis for these conflicts would be to state that conflicts are resolved in favor of the least marked of the conflicting categories. The conflicts *masculine vs. feminine* and *masculine vs. neuter* are both resolved in favor of masculine, which is less marked than either feminine or neuter. The *feminine vs. neuter* conflicts are resolved in favor of feminine, which also is less marked than neuter.

How could one distinguish a claim that conflicts are resolved in favor of semantics from a claim that conflicts are resolved in favor of the less marked category? Such a distinction could be achieved by finding a conflict in which the semantic feature is associated with a more marked category, while the morphological feature is associated with the less marked category.

In Russian, this could mean finding a *masculine vs. feminine* conflict in which the masculine feature was morphological and the feminine feature was semantic. But there are no morphological features pushing nouns towards masculine. This also explains why there are no *masculine vs. neuter* conflicts that could determine the matter either.

We could also search for a *feminine vs. neuter* conflict in which the feminine feature is morphological and the neuter feature is semantic. We have yet to uncover any productive process assigning nouns neuter gender on the basis of a semantic category, hence this type of conflict also seems unlikely to be found in Russian.

In short, the properties of the Russian gender system are such that a distinction between *semantics trumps shape* and *unmarked trumps marked* cannot be made. Fortunately, there are languages showing conflicts between unmarked shapes being in conflict with marked meanings. For example, Rice (2004) notes that the German nouns *die Pflanze* ‘plant’, *die Waffe* ‘the weapon’, and *die Wette* ‘bet’ bear two well-established gender-relevant features. They each have a final *-e*, suggesting feminine, and they denote superordinates, suggesting neuter (Zubin and Köpcke 1983). The noun is feminine, which is the least marked category of the two. It is not neuter, even though the relevant semantic features would point in that direction.

To the extent that those analyses are correct, the MEANING » SHAPE principle is demonstrated to be untenable as a cross-linguistically robust principle, which in turn raises questions about its status in Russian.

5. Conflict resolution II: Optimal gender assignment theory

The present paper asks whether Rice’s (2004) optimal gender assignment theory can successfully be applied to Russian. The core strategy of the theory is to assign nouns to the least marked category by default. Nouns are assigned to a marked category when there is a reason for that, such that the markedness hierarchy is irrelevant when a noun has a single gender relevant feature. The markedness hierarchy reasserts its relevance when there are conflicts, such that a noun having two gender-relevant features is assigned to the least marked of the two competing categories.

To allow the markedness hierarchy to reassert itself, the constraints referring to gender-relevant features are crucially equally ranked. Rice (2004) demonstrates for German that groupwise and individual rankings are untenable, supporting the claim of crucial equal ranking. I have already shown how the markedness hierarchy works alone and how a single constraint dominating the markedness hierarchy leads to assignment to a

marked category. What remains is to demonstrate the mediation of conflicts, as can be seen in Tableaux 4 and 5.

One of the best known conflicts in Russian involves the nouns which denote biological males but which end in *+a*. Tableau 4 illustrates how such a noun is assigned masculine gender. There are two constraints which are relevant; one prohibiting a noun which denotes a male from being either feminine or neuter and one prohibiting a noun ending in the segmentable morpheme *+a* from being masculine or neuter. These two constraints are crucially equally ranked, and dominate the markedness hierarchy.

		GENDER FEATURES				
		*[+MALE]⇒F,N	*+A#⇒M,N	*N	*F	*M
	djadja					
☞	a. djadj+a, m.		*			*
	b. djadj+a, f.	*			*!	
	c. djadj+a, n.	*	*!	*		

Tableau 4

The first constraint is violated by candidates (b) and (c), since the noun denotes a male. The second constraint is violated by candidates (a) and (c). Since candidate (c) violates both of the equally ranked constraints while candidates (a) and (b) each violate just one, candidate (c) is ruled out at this point, as indicated by the exclamation point. Candidates (a) and (b) are distinguished by the markedness hierarchy. Specifically, candidate (b) is ruled out by the relatively highly ranked constraint *FEMININE, leaving candidate (a) as optimal. Hence, a conflict between an animate noun which ends in *+a* will be resolved in favor of the least marked of the conflicting categories, in this case masculine.

boa 'snake'	GENDER FEATURES			*N	*F	*M
	*[+ANIM] ⇒N	*IND.⇒M,F				
a. boa, m.		*				*
b. boa, f.		*		*!		
c. boa, n.	*			*!		

Tableau 5

In Tableau 5, all candidates incur one violation of gender features. Since the constraints are crucially equally ranked, none of the candidates are ruled out at this point. The markedness hierarchy performs as expected, yielding the masculine candidate as optimal, in a typical *emergence of the unmarked* effect.

One criticism of this approach is that it involves counting, and that counting is something that grammars do not do. Another is that crucial equal ranking is a radical modification of OT. Rice (2004) argues that both of these criticisms are false, but space restrictions prohibit their discussion here.

6. Further comparisons and conclusion

The comparison of Corbett's approach with that advocated here can only be done by looking at very small sets of data, primarily those showing conflict. I noted above that the general properties of the Russian system do not facilitate finding the right kind of case to test MEANING » SHAPE. However, there are some nouns in Russian that would seem to be counterexamples to Corbett's generalization, i.e. nouns in which SHAPE » MEANING. If these cases are robust, Russian at least allows us to argue against groupwise constraint ranking, implicitly lending support to optimal gender assignment theory.

Consider first three animate nouns that are neuter, noted by Corbett (1991:42): *čudovišče* 'monster', *životnoe* 'animal',

nasekomoe ‘insect’. Why are these animate nouns neuter? Corbett (1991) does not address this question, but the theory developed there incorrectly leads one to expect that these nouns will be masculine. Perhaps they are neuter because of the final *+e*, or perhaps they are neuter for some reason relevant just to deadjectival nouns. Regardless of the details, if these nouns are neuter because of their shape or some other aspect of their morphology, they would seem to be a counterexample to MEANING » SHAPE.

A better example of a semantic feature yielding to a morphological one comes from ongoing work by Tore Nessel (2004/in prep). Nessel’s insight is that nouns of the type seen below may present a serious challenge to Corbett’s data. I will argue here that they are straightforwardly reconciled with optimal gender assignment theory.

Nouns like *boa* (masculine, ‘the snake’) show that the Russian gender system includes a rule sensitive to animacy. Corbett (1991:41) assigns animates masculine gender. The fact that this noun is masculine even though it is indeclinable motivates the explicit rule for animates (and the assertion that meaning wins).

However, not all animates are masculine. As an example, consider the following nouns, denoting fish, all of which are feminine: *ryba* ‘fish’, *ščuka* ‘pike’, *treska* ‘cod’, *beluga* ‘white sturgeon’. Some nouns denoting fish are masculine, as with *gol’jan* ‘minnow’, *karp* ‘carp’, *sazan* ‘wild carp’, *karas* ‘carp’, and *osëtr* ‘sturgeon’.

Why are some of these nouns feminine and others masculine? The difference resides in the morphology. Specifically, the feminine ones have a final *+a*. This is a conflict which is resolved in favor of the noun’s shape, at the expense of its meaning.

Of course, this might also seem to be a case in which resolution favors the marked category over the unmarked one. Though superficially correct, this observation rests on an imprecise generalization about animates. In particular, the generalization about animates in Russian is not that they must be masculine, but

rather that they cannot be neuter. With this correction, the nouns in question are straightforwardly assigned feminine gender.

	GENDER FEATURES				
	*[+ANIM] ⇒N	*+A⇒M,N	*N	*F	*M
beluga					
a. belug+a, m.		*!			*
b. belug+a, f.				*	
c. belug+a, n.	*	*!	*		

Tableau 6

The neuter candidate (c) violates both the GENDER FEATURES constraints and is thereby eliminated. The masculine candidate only violates one of these constraints, but the feminine candidate satisfies both GENDER FEATURES constraints, and the single violation incurred by the masculine candidate is therefore enough to eliminate it. The markedness hierarchy plays no role here, and the noun is correctly assigned feminine gender.

The core conclusion of this article is that the assignment of nouns to their gender class in Russian is straightforwardly accomplished by optimal gender assignment theory. This approach is differentiated from others by examining nouns that have more than one gender-relevant feature, suggesting that gender conflict will be a fruitful domain for gaining deeper insights into the nature of gender assignment.

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