Gerasimova Anastasia (anastasiagerasimova432@gmail.com)
Lomonosov Moscow State University
Moscow State University of Education

GENDER MISMATCH IN RUSSIAN:
ON THE DISTRIBUTION OF MIXED AGREEMENT PATTERNS[*]

1. Gender Agreement Patterns in Russian

The standard agreement pattern implies the same gender values for adnominals and verbs inflected for past tense choosing between masculine, feminine and neuter agreement.

(1) *Moja   mama   kupila   kartinu.*
     My-**F**   mother.**F** bought-**F**   a picture.

     Moj   brat   kupil   kartinu.
     My-**M**   brother.**M** bought-**M**   a picture.

     Literaturnoe objedinenie   kupilo   kartinu.
     Literature-**N** association.**N**   bought-**N**   a picture.

The grammatical category of gender is considered to be an inherent grammatical category that corresponds to the semantic distinction by gender for animate nouns:

1. Lexical correlations
        tjotja 'aunt'   –   *djadja* 'uncle'
2. Parallel forms, derived by affixes
        sluzhashhij 'clerk (male)'   –   *sluzhashhaja* 'clerk (female)'
        traktorist 'tractor driver (male)' – *traktoristka* 'tractor driver (female)'

However, there is no one-to-one correspondence between grammatical gender of the noun and gender of the referent.

A. Masculine nouns that have a feminine parallel. They can be used to denote professional or social affiliation of the referent without any reference to gender:

(2) *bortprovodnik / bortprovodnica Ivanova*
     flight attendant (male) / flight attendant (female) Ivanova

B. Nouns that refer to humans denoting their position, profession, degree etc. and trigger masculine grammatical agreement, but that do not have a feminine parallel: *vrach* 'doctor', *director* 'director/principal', *sekretar'* 'secretary', *agent* 'agent', *redactor* 'editor'.

When referring to women in nominative case they may trigger both masculine or feminine agreement and gender mismatch may occur: constituents may demonstrate different values of the same feature.

(3) *Novyj   redactor   rabotala   s uvlecheniem.*
     New-**M**   editor.**M**   was working-**F**   enthusiastically.

(Muchnik 1971), (Crockett 1976):

For a group of nouns, it was impossible to derive feminine parallel. Derivational affixes might

a. add expressive meaning	*vrach – vrachiha* 'doctor'
b. lead to phonetically different alternations	*hirurg – hirurzhka* 'surgeon'
c. form a noun that already exists in the language	*general'sha* 'wife of general'

Constituents inside noun phrases with such heads may demonstrate different values of gender feature: not only masculine grammatical value but also feminine referential value.

The paradigm adopted from (Lyutikova 2015) with added demonstratives:

(4)						
a.	*etot*	*novyj*	*zubnoj*	*vrach*	*prishel*	masculine grammatical agreement
	this-**M**.NOM.SG	new-**M**.NOM.SG	dental-**M**.NOM.SG	doctor.**M**.NOM.SG	arrived-**M**.SG	
b.	*etot*	*novyj*	*zubnoj*	*vrach*	*prishla*	feminine predicate agreement
	this-**M**.NOM.SG	new-**M**.NOM.SG	dental-**M**.NOM.SG	doctor.**M**.NOM.SG	arrived-**F**.SG	
c.	*eta*	*novaja*	*zubnoj*	*vrach*	*prishla*	feminine attributive and predicate agreement
	this-**F**.NOM.SG	new-**F**.NOM.SG	dental-**M**.NOM.SG	doctor.**M**.NOM.SG	arrived-**F**.SG	
d.	?*eta*	*novaja*	*zubnaja*	*vrach*	*prishla*	
	this-**F**.NOM.SG	new-**F**.NOM.SG	dental-**F**.NOM.SG	doctor.**M**.NOM.SG	arrived-**F**.SG	
e.	**eta*	*novaja*	*vrach*	*prishel*		ill-formed
	this-**F**.NOM.SG	new-**F**.NOM.SG	doctor.**M**.NOM.SG	arrived-**M**.SG		
f.	**etot*	*novyj*	*zubnaja*	*vrach*		ill-formed
	this-**M**.NOM.SG	new-**M**.NOM.SG	dental-**F**.NOM.SG	doctor.**M**.NOM.SG		

➢ (4b) – the preferred agreement pattern when adnominals agree with the formal features of the NP and predicate shows referential agreement.

➢ Adnominals may bear feminine agreement <u>only when predicate demonstrates the same value</u>.

➢ Adnominal cannot trigger referential gender if higher adnominals or predicate are masculine.
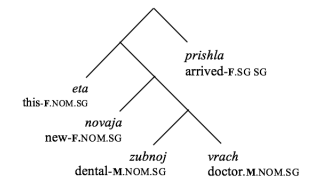

2. Gender Mismatch Analysis

The main idea: The observed variance results from "feminization" at some stage of derivation, that henceforth determines agreement pattern of the nominal.

2.1 Inherent Semantic Feature [FEMALE]

(Matushansky 2013):

➢ Gender switch occurs when a gender semantic feature [FEMALE] is introduced into syntactic structure.

➢ The ungrammaticality of (4e) and (4f) is explained by both syntactic and semantic feature clash: syntactic features do not match and a semantic feature [MALE] cannot override [FEMALE] feature.
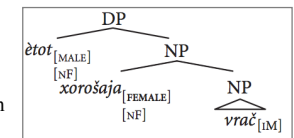
[Matushansky 2013: (25d)]

2.2 The Feminizing Head Ж

(Pesetsky 2013):

➢ Gender switch occurs when a phonologically null morpheme Ж ([že]) is introduced.

➢ The feminizing head cannot be merged above a certain structural threshold that is above the lowest level of the nominal phrase at which adjectives with nonintersective, idiomatic or argumental interpretation are introduced.

(Lyutikova 2015):
➢ More precisely describes possible positions of the feminizing head inside the syntactic structure of Russian DP. Ж should be introduced:

above the level of lexical noun;
above cardinal and collective numerals.

2.3 DP as Referential Semantics Domain

(5)　a.　*? ochen'　interesn-aja　nov-yj　vrach*　(Pesetsky 2013: (38))
　　　　very　interesting-**F**.NOM.SG　new-**M**.NOM.SG　doctor.NOM.SG

　　b.　**ochen'　interesn-yj　nov-aja　vrach*
　　　　very　interesting-**M**.NOM.SG　new-**F**.NOM.SG　doctor.NOM.SG

(Pesetsky 2013): (5a) is marginally possible. Ill-formedness of (5b) is explained by the fact that the lower constituent already demonstrates female agreement, which means that the feminizing head has already merged (6b).

(6)　　a.　[(F) very interesting-**F**.NOM.SG [(F) new-**F**.NOM.SG [(F) Ж [(M) doctor.NOM.SG]]]]
　　　b.　*[(M) very interesting-**M**.NOM.SG [(F) new-**F**.NOM.SG [(F) Ж [(M) doctor.NOM.SG]]]]

(Pereltsvaig 2015): (5a) is considered to be ill-formed.
⇒ The analysis with the feminizing head does not account for the fact that constituents of the same nature cannot have different gender value.

　　(Lyutikova 2015): Hypothesis: referential agreement correlates with the DP projection.

Ill-formedness of (5a) can be explained by gender switch occurring in the referential semantics domain, which corresponds DP.

If this is the case, we may expect that the pattern within which demonstrative is feminine and high adjective is masculine would be as unacceptable as the pattern from (5a).

(7) *nash-a trudoljubiv-yj　menedzher organizoval-a konferenciju*
　　our-F　hard-working-M　manager.M organized-F　conference

Which analysis is more appropriate?

The range of the variance?

Quantitative parameters?

3. Survey 1

(Graudina et al. 1976): variability within Russian agreement patterns was last measured.

In order to determine the frequency of masculine and feminine agreement quantitative data was collected from a survey of 106 native speakers. The aim of the survey was to find out how native speakers would agree various combinations of adnominals and verb inflected for past tense with noun knowing that the noun was referring to female human.

In the survey I examined gender agreement for various combinations of:
　adnominals:
　　determiners: possessive, demonstrative pronouns;
　　high adjectives;
　　low adjectives;
　verb inflected for past tense.

All combinations used are listed in (8).

(8)

#	det	high adj.	low adj.	
1.	*det*	*high adj.*	*low adj.*	our hard-working executive **supervisor** organized
2.	*det*	*high adj.*		our hard-working **supervisor** organized
3.	*det*		*low adj.*	our executive **supervisor** organized
4.	*det*			our **supervisor** organized
5.		*high adj.*	*low adj..*	hard-working executive **supervisor** organized
6.		*high adj.*		hard-working **supervisor** organized
7.			*low adj.*	executive **supervisor** organized
8.	(no adnominals)			**supervisor** organized

det = determiner (possessive/demonstrative pronoun)

Respondents were asked to read a compound sentence:
The first clause provided context that explicitly indicated the gender of the human denoted by the subject in the second coordinate clause. The second clause contained the noun phrase and the verb in past tense with gaps instead of endings. Native speakers were asked to write the adnominals and the verb with the endings in the textbox so that the sentence was complete.

(9)　Vsju noch' Tane ne udalos' somknut' glaz: nash_ otvetstvenn_ proektn_ menedzher gotovil_ prezentaciju reklamnoj kampanii dlja radioholdinga.
　　All night long Tanya didn't have a chance to get a wink of sleep: our responsible project manager was preparing a presentation of promotional campaign for the radio corporation.

(10)　a. nash　otvetstvennyj　proektnyj　gotovil
　　　　our-M　responsible-M　project-M　was preparing-M
　　　b. nash　otvetstvennyj　proektnyj　gotovila
　　　　our-M　responsible-M　project-M　was preparing-F

3.1 The Results:

In **68%** of answers speakers used adnominals in masculine while verb was feminized.

(11) *nash   otvetstvenn-yj   proektn-yj   menedzher   gotovil-a   prezentaciju*
    our-M   responsible-M   project-M   manager.M   was preparing-F   presentation

Agreement with the formal features of noun was in **25%** of answers.

(12) *nash   finansov-yj   analitik   predstavil   prognoz cen na neft'*
    our-M   financial-M   analyst.M   presented-M   forecast for oil prices

Purely feminine agreement is possible only for types 1, 2, 3 and 5 of combinations (8).
At least one modifier was feminine in 5% of answers.

(13) *vash-a   uchen-yj   sekretar'   organizoval-a konferenciju*
    your-F   academic-M   secretary-M   organized-F   conference

Determiners were demonstrating feminine agreement significantly more often when high adjective was also feminine.

(14)   a. feminine determiner + masculine high adj.   9 answers (2,19%)
     nash-a   talantliv-yj   povar
     our-**F**   talented-**M**   cook.**M**
    b. feminine determiner + feminine high adj.   20 answers (4,4%)
     nash-a   talantliv-aja   povar
     our-**F**   talented-**F**   cook.**M**

⇨ **native speakers preferred to use the pattern within which there was no gender mismatch between determiner and high adjective**.

4. The Comparison

(Muchnik 1971) – questionnaire-based research. The questionnaire distributed in 1963.
3780 participants. Several lexical variants of "high adjective + noun" and "noun + verb" combinations.
How would you say referring to woman: "nice-M doctor" or "nice-F doctor"?

(Graudina et al. 1976) – frequency-based stylistic dictionary of variants.
Statistical research; data from newspaper corpus from 60s-70s. The frequency distribution of agreement patterns provided separately for attributive agreement with high adjectives and for predicate agreement.

Data from (Muchnik 1971) and (Graudina et al. 1976) does not differ significantly concerning attributive agreement. Statistics for predicate agreement are significantly different.

    (Muchnik 1971) provides data from spoken language while Graudina (1976) analyzed written discourse.   **OR**

    The frequency of feminine agreement could have risen.
    (Muchnik 1971): The younger the respondent was the more chance there was that he/she would stick to feminine agreement pattern.

(15)

Born …	*vrach* doctor.M.NOM.SG	*prishel* arrived-M.SG	*vrach* doctor.M.NOM.SG	*prishla* arrived-F.SG	hesitant
before 1910	49.8		42.2		8.0
1910 – 1919	44.1		45.2		10.7
1920 – 1929	38.1		51.0		10.9
1930 – 1939	36.7		53.7		9.6
1940 – 1949	37.3		53.1		9.6

(16)

			(Muchnik 1971) 60s	(Graudina et al. 1976) 60s-70s	*Current survey*
a.	novyj new-M.NOM.SG	vrach doctor.M.NOM.SG	69.9%	69.05%	92.14%
b.	novaja new-F.NOM.SG	vrach doctor.M.NOM.SG	25%	30.96%	7.86%
c.	vrach doctor.M.NOM.SG	prishel arrived-M.SG	38.6%	4.57%	25.21%
d.	vrach doctor.M.NOM.SG	prishla arrived-F.SG	51.7%	95.43%	74.79%
e.	moj my-M.NOM.SG	vrach doctor.M.NOM.SG	-	-	91.16%
f.	moja my-F.NOM.SG	vrach doctor.M.NOM.SG	-	-	8.84%

⇨ In 50 years the distribution of masculine and feminine agreement within verbs and high adjectives has significantly changed. The percent of agreement with formal features of the noun has increased.

Analysis with the idea of the feminizing head. Note that the frequency of feminine attributive agreement has significantly dropped (16a-b).

Hypothesis I. The structural threshold below which Ж cannot merge has moved upwards and feminine agreement became unacceptable for high adjectives.

    Feminine agreement should still be possible for higher constituents inside the noun phrase, namely determiners.

    However, the frequency of agreement patterns for demonstratives and possessive pronouns does not differ significantly from the distribution for high adjectives (16e-f).

Perhaps, the feminizing head is moving even higher, to a position above determiners.

    The idea of Ж becomes unjustified because within such analysis there is only one position where it may appear.

    However, for high adjectives feminine agreement is not strictly prohibited. The analysis based on the structural threshold movement is rejected.

**Hypothesis II.** The location of the feminizing head does not change.

The frequency decline of feminine adjectival agreement may correlate with the general decline in choosing gender mismatch strategy.

    The comparison with data from (Graudina et al. 1976]) concerning predicate agreement shows that the frequency of feminization is declining.

It remains unclear why determiners and high adjectives demonstrate feminine agreement to the same extent.

    We have already noticed that determiners and high adjectives rarely disagree (14);

    This probably means that demonstrative and possessive pronouns and high adjectives have the same effect as two high adjectives regarding referential agreement (5a).
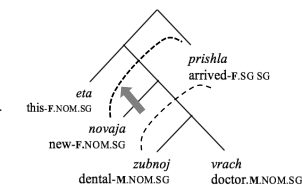
Remaining questions:

> Should the gender mismatch between determiner and high adjective be considered ill-formed? (There is not enough data to make a conclusion from the results of Survey 1)

> Can we postulate a tendency of decreasing frequency for the referential agreement?

5. Survey 2

The second experiment examined how speakers estimate the acceptability of different gender agreement patterns. The data was collected from 57 respondents from the first experiment. The task involved evaluating the acceptability of sentences constructed by the same model that was applied in the first experiment using a five-point Likert scale.
The examined patterns are:
> grammatical agreement (A)
> attributive feminine agreement (B)
>   + feminized low adjectives (B')
> referential agreement (C)
> ill-formed agreement patterns (D)

In this experiment the same combinations of adnominals were used (8).

5.1 The Results

Referential agreement is the most acceptable agreement pattern.

(17) *nash   otvetstvenn-yj   proektn-yj   menedzher   gotovil-a   prezentaciju*
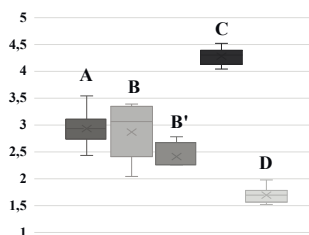   our-M responsible-M   project-M   manager.M   was preparing-F   presentation

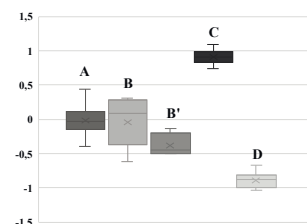

Fig. 1. Boxplot for different patterns

Fig. 2. Boxplot for different patterns (z-score)

Grammatical agreement and feminine agreement within determiners and high adjectives are both less acceptable. The difference between the scores of these two patterns appeared to be non-significant.

(18)   *nash   finansov-yj   analitik   predstavil   prognoz cen na neft'*
        our-M   financial-M   analyst.M   presented-M   forecast for oil prices

(19) a. *vash-a   uchen-yj   sekretar'   organizoval-a   konferenciju*
         your-F   academic-M   secretary-M   organized-F   conference

   b. *trudoljubiv-aja   sekretar'   organizoval-a   konferenciju*
       hard-working-F   secretary-M   organized-F   conference

   c. *vash-a   trudoljubiv-aja   sekretar'   organizoval-a   konferenciju*
       your-F   hard-working-F   secretary-M   organized-F   conference

Gender mismatch for determiner and high adjective is significantly less acceptable than the pattern when both determiner and high adjective are feminine.

(20) a. *nash-a   talantliv-yj   povar*   *less acceptable*
         our-F   talented-M   cook.M

   b. *nash-a   talantliv-aja   povar*   *more acceptable*
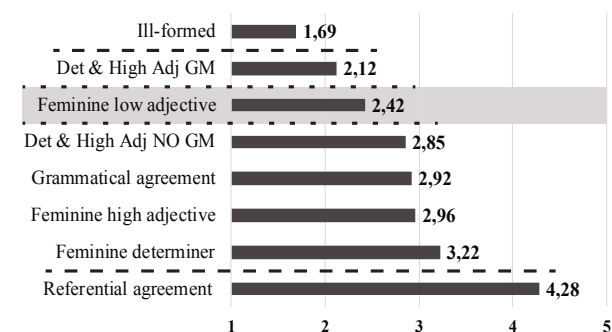   our-F   talented-F   cook.M

Fig. 3. The mean scores for different patterns[1]

The acceptability score of feminine low adjective is significantly higher than the lowest possible score. It is:
> significantly more acceptable than ill-formed;
> significantly less acceptable than referential agreement for the determiner.

6. Discussion

6.1. Modelling the gender mismatch

Determiners and high adjectives demonstrate feminine agreement to the same extent.

> Demonstrative and possessive pronouns and high adjectives have the same effect as two high adjectives regarding referential agreement.

(21) a. *interesnyj*   *novyj*   *vrach*
         interesting-**M**.NOM.SG   new-**M**.NOM.SG   doctor.M.NOM.SG

   b. *moja*   *zamechatel'naja*   *redaktor*
       my-**F**.NOM.SG   wonderful-**F**.NOM.SG   editor.M.NOM.SG

   c. *?interesnaja*   *novyj*   *vrach*
       interesting-**F**.NOM.SG   new-**M**.NOM.SG   doctor.M.NOM.SG

   d. *?moja*   *zamechatel'nyj*   *redaktor*
       my-**F**.NOM.SG   wonderful -**M**.NOM.SG   editor.M.NOM.SG

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[1] As the result of the experiment we analyzed the acceptability judgements of the stimuli and calculated the average acceptability scores. To eliminate some of the potential scale bias *z-score transformation* was applied to each participant's response. However, results of the statistical tests were same for bare data and for z-score transformed data.
To group the patterns *Student's t-test* was applied to the sets of acceptability scores for different agreement patterns. T-test shows whether the mean differences between the sets are significant.

Within the analysis by (Pesetsky 2013):

> The merge of Ж between two adnominal constituents (excluding low adjectives) is troublesome. The number of possible positions for the feminizing head is decreasing till two: right above low adjectives and above DP. => The gender switch occurs at the level of DP.

⇨ **The idea of feminizing head becomes superfluous. Referential agreement corresponds DP projection, which functions as referential semantics domain, where gender switch occurs. This idea is implied in approach suggested by Lyutikova (2015) and Pereltsvaig (2015).**

(Pesetsky 2013): the advantage of the feminizing head approach leans upon the idea of optionality of the head that introduces semantic features. The account is not connected to the semantics of feminine gender or the morphology.

The current study has shown that the phenomenon of gender mismatch in Russian correlates with the referential domain. => Semantic component cannot be detached from the analysis of such phenomenon.

6.2. Low adjectives

Feminized low adjective is more acceptable than the violation of constraint "*adnominal cannot trigger referential gender if higher adnominals or predicate are masculine*".

> Grammatical effect may lower the acceptability, but it does not make the sentence fully unacceptable as in the case of ill-formed clauses.

6.3. Production vs. judgement

Although grammatical agreement and feminine attributive agreement had significantly different frequencies in the production experiment, they had statistically equal acceptability scores.

> This raises interesting methodological issues about experimental studies based on production vs. judgment.

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