

Gender in declension: Insights from mixed agreement in Russian*

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1 Introduction

Mixed gender agreement in Russian

- In Russian, certain grammatically masculine nouns can trigger feminine agreement if they denote a female individual.
- Mixed agreement is subject to case number restrictions: It is allowed only in some case and number forms; compare (1) and (2).

- (1) Xoroš-**yj** / xoroš-**aja** vrač prišël. (2) Ja vižu nov-**ogo** / *nov-**uju** vrač-a.
 good-M good-F doctor.NOM.SG came I see new-M.ACC new-F.ACC doctor-ACC.SG
 ‘The good doctor (just) came.’ ‘I see the new doctor.’

- On the basis of two novel empirical observations, I will show that the restriction is not due to agreement per se. It results from the inability to realize inflection on a noun in the presence of an additional gender feature.

Gender and declension

- Nominal inflection in Russian is determined by declension class of a noun.
- Russian has 3 genders and 4 declensions (Karcevskij (1932), Corbett (1982), Timberlake (2004)). There is no one-to-one correspondence between them.
- Case number restrictions show that exponents that are traditionally viewed as expressing class are illegitimate in the presence of an additional gender feature.
- This indicates that declension classes are formed from bundles of features, and one of them is gender (see Roca (1989), Harris (1991), Wiese (2004), Wunderlich (2004), Caha (2019, 2020)).
- In Russian, declensions arise from the combination gender ($[\pm\text{fem}]$) and an idiosyncratic feature of a root ($[\pm\alpha]$).

(3) Declension in Russian

I	$[-\text{fem}][+\alpha]$
II	$[\text{+fem}][-\alpha]$
III	$[\text{+fem}][+\alpha]$
IV	$[-\text{fem}][-\alpha]$

Morphological ineffability

- Case number restrictions are due to a feature conflict: Feminine gender responsible for semantic agreement contradicts grammatical masculine feature that is expressed by the class inflection.
- Morphological ineffability arising from conflicting features is a robust pattern cross-linguistically (among others see Groos & van Riemsdijk (1981), Schütze (2003), Citko (2005), Dalrymple et al. (2009), Asarina (2011), Bjorkman (2016), Hein & Murphy (2019), Coon & Keine (2020)).
- Morphological realization that is based on the Subset Principle (Halle, 1997) cannot fail to provide an exponent due to an additional feature.
- I propose that ineffability is best derived if (a) the Subset Principle holds for a node and inserted vocabulary item throughout the derivation; (b) nodes remain accessible for further operations after Vocabulary Insertion (cf. Dobler et al. (2011), Piggott & Travis (2017), Martinović (2019)).

*Novel data on mixed agreement in Russian come from 5 native speakers. I am very grateful for their help. I also would like to thank Maria Kouneli and Gereon Müller for comments and suggestions.

2 Mixed agreement in Russian

2.1 Background

- In Russian, some profession-denoting nouns are grammatically masculine, but allow for feminine agreement if the referent is female (see Panov (1968), Mučnik (1971), Skoblikova (1971), Crockett (1976), Graudina et al. (1976), Corbett (1991), and Gerasimova (2019)).

(4) Xoroš-**yj** / xoroš-**aja** vrač prinimaet tol'ko zavtra.
good-M good-F doctor receives only tomorrow
'The good doctor is available only tomorrow.'

(5) Vrač prišël / prišl-**a**.
doctor came.M came-F
'The doctor came.'

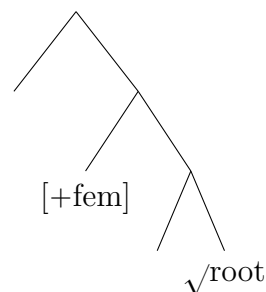
- Different agreement probes can bear different gender features:

(6) Xoroš-**yj** vrač prišl-**a**.
good-M doctor came-F
'The good doctor came.'

- Analyses of this phenomenon agree that there is an additional feminine gender feature in the noun phrase but differ with respect to where this feature is introduced.

- It may be on a dedicated functional projection (see Asarina (2009), Pesetsky (2013)),
- on the D head (see Pereltsvaig (2006), Steriopolu & Wiltschko (2010), King (2015), Lyutikova (2015), Steriopolu (2018)),
- on the Num head (see Landau (2016)),
- on the noun (as in Smith (2015, 2017), Puškar (2017, 2018), Salzmann (2018)),
- or on a nominal modifier directly (see Matushansky (2013), Čaha (2019)).

(7) Semantic gender



- Higher position of the feminine gender is often motivated by the following restrictions:
 - First, feminine agreement is not possible with low classifying adjectives.

(8) General'n-**yj** / *gerenal'n-**aja** direktor opiat' kričit.
general-M general-F director again yells
'The executive director is again yelling.'

- Second, only the switch from masculine agreement on lower modifiers to feminine agreement on higher probes is allowed.

(9) a. ?Et-**a** nov-**yj** vrač vsë pereputal-a.
this-F new-M doctor everything mix.up-F
'This new doctor mixed everything up.'

b. *Et-**ot** nov-**aja** vrač vsë pereputal.
this-M new-F doctor everything mix.up.M
'This new doctor mixed everything up.'

- In what follows I will introduce a different type of restrictions on feminine agreement.

2.2 Case number restrictions

- Russian has 6 cases and 2 numbers. Feminine agreement is possible only in some of these forms.
- As shown above, feminine agreement is allowed in the nominative singular form.

(10) Xoroš-**aja** vrač prišl-**a**.
 good-F.NOM doctor came-F
 ‘The good doctor came.’

- Feminine agreement is ruled out if the noun is in singular and has any case other than nominative.
- Examples below show ungrammaticality of feminine agreement with a singular noun in the accusative, genitive, dative, locative, and instrumental case form.

(11) a. vižu nov-**ogo** / *nov-**uju** vrač-a
 see new-M.ACC new-F.ACC doctor-ACC
 ‘see the new doctor’
 b. net nov-**ogo** / *nov-**oj** vrač-a
 no new-M.GEN new-F.GEN doctor-GEN
 ‘The new doctor is absent.’
 c. k nov-**omu** / *nov-**oj** vrač-u
 to new-M.DAT new-F.DAT doctor-DAT
 ‘to the new doctor’
 d. o nov-**om** / *nov-**oj** vrač-e
 about new-M.LOC new-F.LOC doctor-LOC
 ‘about the new doctor’
 e. s nov-**ym** / *nov-**oj** vrač-om
 with new-M.INSTR new-F.INSTR doctor-INSTR
 ‘with the new doctor’

- Gender agreement in Russian is mainly restricted to singular forms, but *ob-a/e* ‘both-M/F’ shows it in plural as well.
- Gender is marked by the vowel that precedes regular case and number exponents:

(12) *ob-o-ih* ‘both-M-LOC.PL’ vs. *ob-e-ih* ‘both-F-LOC.PL’
ob-o-im ‘both-M-DAT.PL’ vs. *ob-e-im* ‘both-F-DAT.PL’

- As observed by Pesetsky (2013), ‘both’ agrees in semantic feminine gender with a plural noun marked for cases other than nominative:

(13) a. vižu ob-**o-ix** / ob-**e-ix** vrač-**ej**
 see both-M-ACC.PL both-F-ACC.PL doctor-ACC.PL
 ‘see both doctors’
 b. net ob-**o-ix** / ob-**e-ix** vrač-**ej**
 no both-M-GEN.PL both-F-GEN.PL doctor-GEN.PL
 ‘Both doctors are absent.’
 c. k ob-**o-im** / ob-**e-im** vrač-**am**
 to both-M-DAT.PL both-F-DAT.PL doctor-DAT.PL
 ‘to both doctors’
 d. ob ob-**o-ix** / ob-**e-ix** vrač-**ax**
 about both-M-LOC.PL both-F-LOC.PL doctor-LOC.PL
 ‘about both doctors’

e. s ob-**o**-imi / ob-**e**-imi vrač-ami
 with both-M-INSTR.PL both-F-INSTR.PL doctor-INSTR.PL
 ‘with both doctors’

- The availability of feminine agreement in the nominative plural form cannot be tested, ‘both’ (as some numerals) requires the genitive singular form of the noun then.

(14) Ob-**a** / *ob-**e** vrach-a prishli.
 both-M both-F doctor-GEN came
 ‘Both doctors came.’

Summary: Feminine agreement is possible in SG NOM and in PL –NOM.

- These restrictions are occasionally mentioned in the literature (see Pereltsvaig (2006), Matushansky (2013), and Gerasimova (2019)). Pesetsky (2013, 140) and King (2015) aim to account for them.
 - King (2015) suggests that the semantic gender feature is introduced in the D head that is absent in oblique case forms.

Problems:

- * Absence / presence of the D head in the required forms is not supported by data.
- * Semantic agreement is possible with oblique cases in the plural.
- Pesetsky (2013) suggests that ungrammaticality has two sources:
 - (a) In some cases feminine agreement is ungrammatical because an attempt to realize [+fem] on class I noun leads to the realization failure.
 - (b) In other forms the modifier has no access to the feminine feature.

Problems:

- * The analysis misses the generalization that all ungrammatical examples are due to the conflict in morphology, and this conflict is resolved by a syncretic exponent in all contexts, where the feminine agreement is allowed.
- * Incompatibility between the declension class of profession-denoting nouns that trigger mixed agreement and the feminine feature is assumed rather than derived.
- I will present two novel observations showing that:
 - **Ungrammaticality stems from the form of the noun, not agreement.**

2.3 Syncretism

- The difference between the forms where semantic agreement is allowed and the forms where it is ungrammatical lies in their morphological makeup.
- Four nominal declensions can be distinguished in Russian (see Karcevskij (1932), Timberlake (2004), and also Corbett (1982) for an extensive discussion of different classifications).

- Class I includes only grammatically masculine nouns.
- Class II predominantly consists of feminine nouns but also includes a small group of animate masculine nouns.
- Class III includes only feminine nouns.
- Class IV (sometimes labeled IB) consists of neuter nouns.

(15) Gender and declension in Russian

I	MASC
II	FEM, some animate MASC
III	FEM
IV	NEUTR

- Nouns that trigger mixed agreement belong to class I, i.e., to the declension class, where all nouns are morphologically masculine.
- Feminine semantic agreement is restricted to forms where exponents of class I are syncretic to exponents of a class that contains feminine nouns.
- Tables below present nominal inflectional exponents in Russian.¹

(16) Nominal inflection: SG, animate

	I MASC	II FEM, MASC	III FEM	IV NEUTR
NOM	∅	a	∅	o
ACC	a	u	∅	o
GEN	a	i	i	a
LOC	e	e	i	e
DAT	u	e	i	u
INSTR	om	oj	ju	om

(17) Nominal inflection: PL, animate

	I MASC	II FEM, MASC	III FEM	IV NEUTR
NOM	i	i	i	a
ACC	ov	∅	ov	∅
GEN	ov	∅	ov	∅
LOC	ax	ax	ax	ax
DAT	am	am	am	am
INSTR	ami	ami	ami	ami

- In the singular:

– Class I is syncretic to III in the nominative.

* All nouns in class III end in the soft consonant in the nominate singular, but palatalization is a property of class III roots, not an exponent.

* It appears before other suffixes: *postel'* 'bed' → *postel'-jax* 'bed-LOC.PL; *postel'* 'bed' → *postel'-k-a* 'bed-DIM-NOM' (see Appendix A for further examples).

– Locative exponents in I and II are segmentally identical but differ in their accentual properties: The class II exponent is underlyingly stressed, the class I exponent is not (see Melvold (1989)).²

– Class I is syncretic to IV in the genitive, locative, dative and instrumental, but class IV does not include feminine nouns.

- In the plural:

– I, II, and III are syncretic in the nominative.

– Classes I and III are syncretic in the accusative and genitive.

– Inflection does not differentiate between classes in LOC, DAT, INSTR.

Conclusion: The correlation indicates that the restrictions are due to the inflection on the noun.

2.4 Ellipsis

- The case number restrictions do not hold under ellipsis:

- (18) a. Vse pacienti žalovali's' na nov-**ogo** / nov-**uju**.
 all patients complained on new-M.ACC new-F.ACC
 'Context: The previous doctor was great, while} all patients complained about the new one.'
- b. O nov-**om** / nov-**oj** my ničego ne znajem.
 about new-M.LOC new-F.LOC we nothing not know
 'Context: The previous doctor was great, while} we don't know anything about the new one.'

¹ Tables here do not describe inflection of exceptions such as *stremja* 'stirrup', *put'* 'way', and some others. They are discussed in Appendix B.

² See also Zaliznjak (2010) for the same contrast between these two exponents in Old Russian, and Müller (2004) for the suggestion that these are different affixes on the basis of other, theoretical, considerations

- Assuming that the elided part of the sentence is syntactically present but exempt from Vocabulary insertion (see Merchant (2001), van Craenenbroeck & Merchant (2013), and Saab (2019) on nominal ellipsis), this shows that **it is insertion of a nominal form that causes ungrammaticality**.

Conclusion: Ungrammaticality arises from Vocabulary insertion of nominal inflectional exponents.

3 Analysis

3.1 Gender in declension

- Contexts with semantic gender agreement differ by the presence of an additional feminine feature in the noun phrase.
- This feminine feature renders realization class exponent impossible unless an exponent is syncretic to a class with feminine nouns (i.e., if it is underspecified for gender).
- The data can be accounted for if insertion of class exponents targets gender (among other features).
- This is the case if declensions are decomposed into simpler features and gender is one of them (see Roca (1989), Harris (1991), Wiese (2004), Wunderlich (2004), Caha (2019, 2020)).
- A stronger claim: These data cannot be accounted for under alternative approaches to gender and declension.
 1. *Gender* → *declension*
 Vocabulary insertion targets class features. Declension and gender can be related only indirectly, e.g., by implicational redundancy rules (see Corbett (1982, 1991), Aronoff (1994), Alexiadou (2004), Müller (2004), Alexiadou & Müller (2008), Kramer (2015), Gouskova & Bobaljik (2021)).
 2. *Very few gender in declension*
 Gender participates in class inflection but its usage is restricted to a few exponents (see Halle (1992, 1994), Halle & Vaux (1998), Calabrese (2008), and to some extent Kučerová (2018)).
- Implicational redundancy rules used to connect declension and gender in these approaches are by their nature feature-filling, i.e., they do not insert two class features (see Halle (1994), Aronoff (1994, 74), Kramer (2015, 239)).
 - Otherwise, elsewhere rules like $[N, -\text{Plural}] \rightarrow [\text{class I}]$ (see Aronoff (1994, 74)) cannot exist.
- If in all cases only one class feature can be inserted and vocabulary insertion targets this class features, there is no source for ungrammaticality.
- If redundancy rules can supply two class features after all, then in order to resolve between conflicting class features an exponent must be unspecified for class altogether. This fails to derive the distribution of exponents in forms where class I is syncretic to class III and class II is syncretic to class IV because both syncretic exponents must be unspecified for class.
- More generally, this indicates that approaches employing primitive class features are poorly equipped to capture transparadigmatic syncretism.

On gender

- I assume that there are two binary gender features $[\pm\text{masc}]$ and $[\pm\text{fem}]$.
- Only $[\pm\text{fem}]$ is relevant for insertion of declension class exponents.

(19) Gender features in Russian

FEM		[+fem][−masc]
MASC		[−fem][+masc]
NEUTR		[−fem][−masc]

On declension class

- Class I with masculine nouns and class IV with neuter nouns are $[-\text{fem}]$. Classes II and III with feminine nouns are $[\text{+fem}]$.
- Gender is accompanied by an idiosyncratic feature of a nominal root that is indicated as $[\pm\alpha]$.
- Classes I and III share $[\text{+}\alpha]$. Classes II and IV have $[-\alpha]$.
- Exponents syncretic between classes are underspecified for features that distinguishes between them.
 - Affixes shared by class I and III are underspecified for gender and bear only $[\text{+}\alpha]$.
- Albeit the features used in the decomposition are different, the produced natural classes match those suggested by Müller (2004), Alexiadou & Müller (2008). They are argued to be best suited for capturing syncretism between declensions and produce the least possible number of exponents.

(20) Class feature specifications in Russian

Class	Gender of nouns	Decomposition
I	MASC	$[-\text{fem}][\text{+}\alpha]$
II	FEM, some animate MASC	$[\text{+fem}][-\alpha]$
III	FEM	$[\text{+fem}][\text{+}\alpha]$
IV	NEUTR	$[-\text{fem}][-\alpha]$

- Class II that bears $[\text{+fem}]$ feature contains a small group of animate masculine nouns.³
- I suggest that this is an instance of deponency (see Embick (2000), Stump (2007), Müller (2013)).
 - There is a mismatch between morphological and syntactic behavior of these noun, i.e., they are syntactically masculine but show feminine morphology.
 - Cf. deponent verbs in Latin that are morphologically passive but active syntactically.
- Following one of the approaches to deponency in Embick (2000), class II masculine nouns do not have gender features in syntax.
- $[\text{+fem}]$ feature is inserted at PF together with the phonological and morphological features of a root.
- Masculine agreement in syntax arises as a default for animate nouns (see Corbett (1991), Corbett & Fraser (1999), Anagnostopoulou (2017), Adamson & Šereikaitė (2019) for cases where masculine is shown be a default gender for animate nouns).

Further evidence: augmenative *išč* (Švedova (1980, 213), Timberlake (2004, 146))

- Combined with feminine noun, it gives nouns of class II:⁴

- (21) a. king-a (FEM, class II) ‘book’ → *kniž-išč-a* (FEM, class II)
 b. *graz’* (FEM, class III) ‘mud’ → *gr’az’-išč-a* (FEM, class II)

- Combined with masculine or neuter (i.e., $[-\text{fem}]$), it produces nouns of class IV.

- (22) a. *gorod* (MASC, class I) ‘city’ → *gorod-išč-e* (NEUTR, IV class)
 b. *selo* (NEUTR, class IV) ‘village’ → *sel-išč-e* (NEUTR, class IV)

- Assuming that the suffix is specified for $[-\alpha]$, the class of the derived noun is this abstract feature combined with the gender of the original noun:

- (23) $[\text{+fem}]$ and $[-\alpha]$ → class II;
 $[-\text{fem}]$ and $[-\alpha]$ → class IV.

³ Class II also includes so-called common gender nouns. They are discussed in Appendix C.

⁴ In colloquial Russian, suffix *išč* attached to feminine nouns produces either feminine class II nouns (as in (21)) or neuter class IV nouns, cf. *kniž-išč-e*, *gr’az’-išč-e*. I suggest that variation is due to optional gender features $[-\text{fem}][\text{+masc}]$ on the suffix. If they are present, declension of a derived noun is fully determined by features of the suffix.

3.2 Morphological ineffability

Syncretism and underspecification

- When class I nouns trigger feminine agreement, they bear the usual [+masc][−fem][+α] features and also semantic gender [−masc][+fem].
- Values of FEM feature **contradict** each other, which leads to realization failure.
- Patterns like this have been observed cross-linguistically for different types of phenomena; see, e.g., Groos & van Riemsdijk (1981) on matching in free relatives, Taraldsen (1981) on topicalization, Zaenen & Karttunen (1984), Dalrymple et al. (2009), Asarina (2011) on right node raising, Schütze (2003), Bhatt & Walkow (2013), Bjorkman (2016), Coon & Keine (2020) on predicative agreement with multiple targets, Citko (2005), Hein & Murphy (2019) on ATB-movement.
- Conflicting features can be resolved by a syncretic exponent underspecified for [±fem] (and compatible with [+α]) or by ellipsis.
- Class I has [+α], but vocabulary items specific for this class have [−fem] as well. Lexical items that are syncretic between I and III are underspecified for the gender feature.

(24) Nominal inflection: SG, animate

	I [−fem][+α]	II [+fem][−α]	III [+fem][+α]	IV [−fem][−α]
NOM	∅	a	∅	o
ACC	a	u	∅	o
GEN	a	i	i	a
LOC	e	é	i	e
DAT	u	e	i	u
INSTR	om	oj	ju	om

(25) Nominal inflection: PL, animate

	I [−fem][+α]	II [+fem][−α]	III [+fem][+α]	IV [−fem][−α]
	i	i	i	a
	ov	∅	ov	a
	ov	∅	ov	∅
	ax	ax	ax	ax
	am	am	am	am
	ami	ami	ami	ami

- Exponents are syncretic between I and III in the nominative singular and in the accusative and genitive plural, i.e., they are specified for [+α] but not for the gender feature.
- For the sake of simplicity, I will abstract away from a decomposition of case features; see Müller (2004), Wiese (2004), Caha (2019) for some options.

- (26) a. /∅/ ↔ [nom][−pl][+α];
 b. /ov/ ↔ [acc/gen][+pl][+α];

- This is also the case in the locative, dative, and instrumental plural forms, where the vocabulary items don't differentiate between classes.

- (27) a. /ax/ ↔ [loc][+pl];
 b. /am/ ↔ [dat][+pl];
 c. /ami/ ↔ [instr][+pl];

- Exponents are also syncretic in the nominative plural but there is no data showing whether this form resolves the gender feature conflict.
- The remaining exponents are specific for I or syncretic to IV that are both [−fem].

- (28) a. /u/ ↔ [dat][−pl][−fem].
 b. /om/ ↔ [instr][−pl][−fem].

Subset Principle

- Distributed Morphology: Structures produced in syntax undergo morphological realization in a post-syntactic component (see Halle & Marantz (1993, 1994), Harley & Noyer (1999), Siddiqi (2010)).
- Vocabulary insertion proceeds according to the Subset Principle (Halle, 1997).

(29) The Subset Principle:

- a. **Compatibility:** The item matches all or a subset of the grammatical features.
- b. **Specificity:** Where several vocabulary items meet the conditions for insertion, the item matching the greatest number of features must be chosen.

- Vocabulary Insertion that is based on the Subset Principle cannot fail because of the presence of an additional feature. Consider the following case:

– $\begin{matrix} N_1 \\ [+α][-β] \end{matrix}$ $I_1 \leftrightarrow [+α][-β]$ I_1 is inserted into N_1

– $\begin{matrix} N_2 \\ [+α][-β][f] \end{matrix}$ There no more specific item $I_2 \leftrightarrow [+α][-β][f]$.

– I_1 is inserted: Its features match a subset of features on N_2 , identity of $[f]$ plays no role.

- Most of the existing approaches share following ideas (see Asarina (2011), Bjorkman (2016), Coon & Keine (2020)):

- Conflicting features are in two feature structures co-existing on one node: $\begin{matrix} n \\ [+fem][-fem] \end{matrix}$
- Vocabulary Insertion applies to each feature structure.
- Well-formedness constraint: A derivation converges if outputs of Vocabulary insertion are phonologically identical and fails otherwise.

- A different type of approach is developed by Hein & Murphy (2019).

- Feature sets that are to appear on one node are subject to intersection.
- The value for a conflicting feature is absent in the unified structure: $[+fem] \cap [-fem] \Rightarrow [fem]$
- Vocabulary Insertion of an item that is specified for this feature then introduces a new feature and thereby violates the Subset Principle.
- The analysis runs into problems if there is a default maximally underspecified Vocabulary item because it can be always inserted without introducing new features.

- Under mixed gender agreement in Russian, a noun does not have two full feature structures. Asarina (2011) proposes that all features from the first feature structure except for conflicting features must be duplicated to the second feature structure.

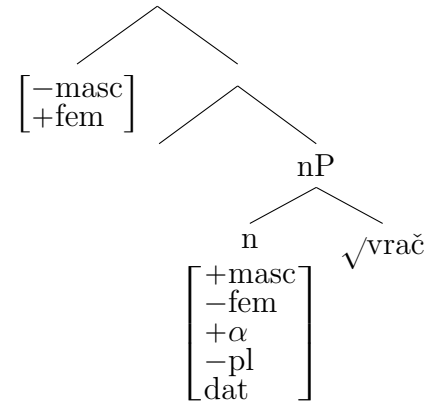
$$(30) \begin{bmatrix} -fem \\ +masc \\ +\alpha \\ -pl \\ instr \end{bmatrix} \begin{bmatrix} +fem \\ -masc \end{bmatrix}$$

- Some of nominal features originate in dedicated functional projections, they are alone in their feature structure on such projections, i.e., there can be no general requirement on completeness of feature structures.

Features in the noun phrase

- In Russian, nouns are specified for case, number, ‘class’ (i.e., gender and $[\pm\alpha]$), and sometimes animacy. All these features are expressed by a single Vocabulary item.
- According to the standard assumptions, Vocabulary Insertion targets syntactic terminals. Nominal features must be gathered on one node before Vocabulary Insertion. I assume that it is the n head.

- Gender originates on n (see Kramer (2015, 2016b)). Similarly, $[\pm\alpha]$ originates on n .
- Other nominal features – case and number are merged higher in the structure (see Ritter (1991) on number), n probes for their values.
- Semantic gender feature is also introduced higher in the structure (see Asarina (2009), Pereltsvaig (2006), Steriopolo & Wiltschko (2010), Pesetsky (2013), King (2015), Lyutikova (2015), Landau (2016), Steriopolo (2018)).
- Since n already has a valued gender feature, it does not agree with semantic gender.
- Spell-Out and correspondingly morphological realization applies to phases, and nP constitutes a phase (see Marantz (2007), Embick (2010) among others).



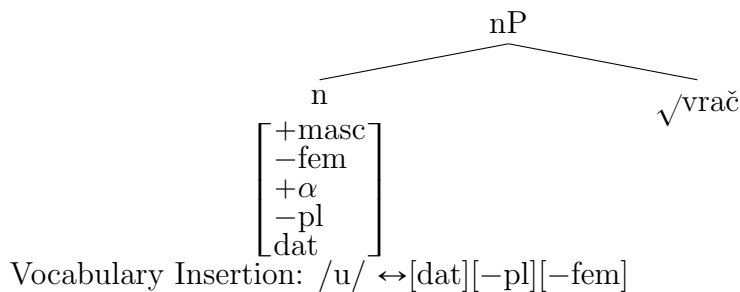
Proposal

- Morphological ineffability is derived as follows.

Step 1:

- nP phase is spelled out. Vocabulary Insertion applies.
- After Vocabulary Insertion, the structure remains accessible for further operations (cf. Dobler et al. (2011), Piggott & Travis (2017), Martinović (2019)).

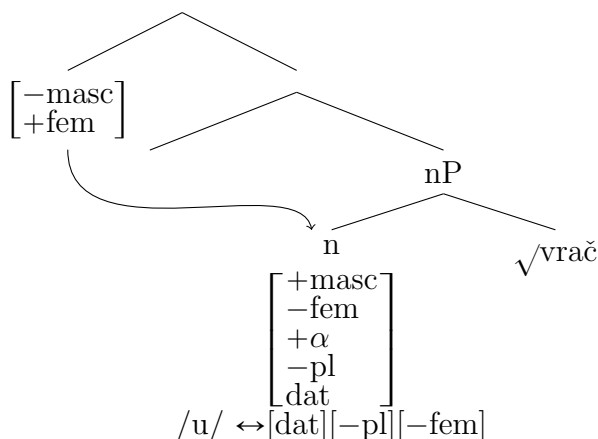
(32) VI in n



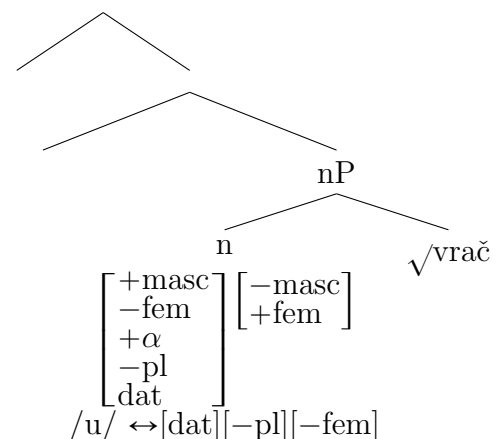
Step 2

- The next phase is spelled out. It contains a node with semantic gender features. They lower onto n (see Embick & Noyer (2001)). Lowering is followed by Fusion of the heads (cf. Kramer (2016a)).

(33) Lowering



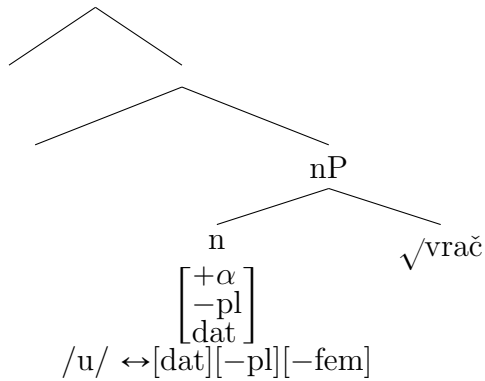
(34) Fusion



Step 3

- Two feature structures cannot co-exist of one node. Conflicting features within one feature structure are also not tolerated (see Stump (2001, 41)).
- Unification of two feature structures applies by their intersection. Conflicting features are absent in the resulting structure (cf. Hein & Murphy (2019))

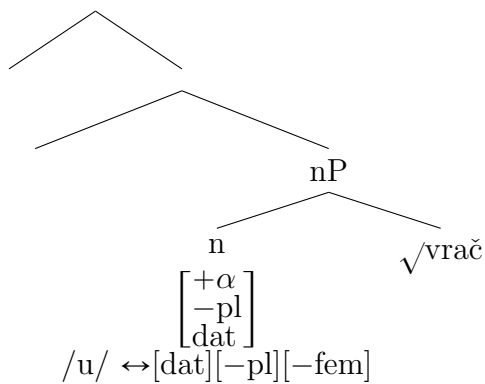
(35) Intersection



Step 4

- Subset Principle governs Vocabulary Insertion but also must hold between the inserted exponent and its node throughout the derivation.
- After the unification of feature structures on n in (36), features of inserted exponent are not a subset of features on the node.
- This makes the derivation illicit.

(36) Subset Principle violated \Rightarrow Derivation crashes

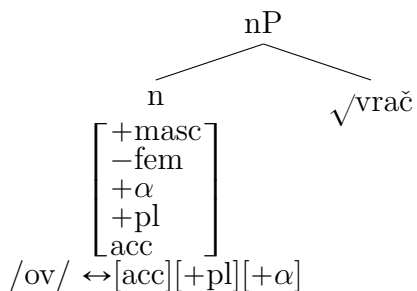


- In nutshell: Vocabulary insertion into $n >$ Incorporation of semantic gender leads to a change of features on $n >$ Subset Principle violated.

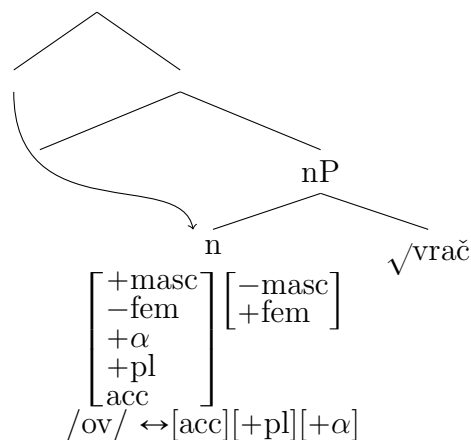
Resolution by syncretism

- If inserted exponent is syncretic to a class with feminine nouns, it is underspecified for gender.
- The Subset Principle still is satisfied after intersection of feature sets.

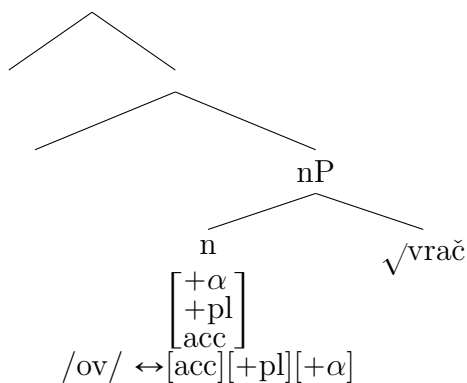
(37) VI in *n*



(38) Lowering and Fusion



(39) Intersection, Subset Principle is still satisfied



4 Conclusion

Summary

- The case number restrictions arise due to the conflict between the grammatical [-fem] and the semantic [+fem] gender features.
- Contradicting features make insertion of a vocabulary item specified for one of them illicit and lead to ineffability in morphology.
- The conflict can be resolved by a syncretic underspecified exponent or by ellipsis under which Vocabulary insertion does not apply.

Implications for declension class

1. Declension is **decomposed into gender and a formal feature of a root** (here, [$\pm\alpha$]).
2. Inflectional exponents have **direct access** to gender features.
3. Nominal declensions in Russian have the following feature specifications:

(40) Declension in Russian

I		[-fem][+α]
II		[+fem][-α]
III		[+fem][+α]
IV		[-fem][-α]

Implications for morphological component

- After Vocabulary Insertion, nodes are accessible for further morphological operations.
- The Subset Principle holds between the inserted vocabulary item and its node throughout the derivation.

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Appendices

A: Palatalization of class III roots

- Although all nouns in class III end in the soft consonant in the nominate singular, palatalization is not an exponent but a property of class III roots. It appears before other suffixes.
- Examples in (41) show that locative *ax* retain [\pm palatalized] feature of the final consonant of the root. The palatalization of a consonant that is before vowel is represented by *j*.
- Examples in (42) show that diminutive *-ka* preserves palatalization of final *n* and *l* (and it de-palatalizes other consonants). The palatalization of a consonant that is before other consonant is represented by an apostrophe.

- (41) a. Class II, [–palatalized]: *pčel-a* ‘bee-NOM’ → *pčěl-ax* ‘bee-LOC.PL’
 b. Class II, [+palatalized]: *kastrjul-ja* ‘pot-NOM’ → *kastrjul-jax* ‘pot-LOC.PL’
- (42) a. Class II, [–palatalized]: *pčel-a* ‘bee-NOM’ → *pčěl-k-a* ‘bee-DIM-NOM’

b. Class II, [+palatalized]: *kastrjul-ja* ‘pot-NOM’ → *kastrjul’-k-a* ‘pot-DIM-NOM’

- Both affixes also preserve palatalization of class III roots.

(43) Class III, [+palatalized]: *postel’* ‘bed’ → *postel’-jax* ‘bed-LOC.PL’

(44) Class III, [+palatalized]: *postel’* ‘bed’ → *postel’-k-a* ‘bed-DIM-NOM’

B: Exceptions

- Exceptions can be divided into three groups:

1. Ten neuter nouns (*stremja* ‘stirrup’, *bremja* ‘burden’ etc.) take an exceptional exponent /a/ in the nominative and accusative singular, class III exponent /i/ in the genitive, locative, and dative singular, and class IV exponents in other forms. These nouns also augment /Vn/ to their stem in all forms except for the nominative and accusative singular.
2. *Put’* ‘way’ is masculine but it is traditionally viewed as belonging to class III. It also takes synthetic class I and IV exponent /om/ in the instrumental.
3. There is certain variability in the nominative and in the genitive plural forms: Some class I nouns take /a/ and /ø/, while some class IV nouns use /i/ and /ov/ in the nominative and in the genitive correspondingly; a few class II nouns ending in a palatalized consonant show /ov/ instead of /ø/ in the genitive plural.

- Possible approach:

1. Following Caha (2019, 270-273), I assume that neuter nouns such as *stremja* ‘stirrup’ and *bremja* ‘burden’ belong to class IV but have two different exponents: exponent /a/ in the nominative and accusative, exponent /i/ in the genitive, locative, and dative. Nominative and accusative also lack /Vn/ augment that is added to roots of these nouns in other forms. I assume that this is because /a/ is a special exponent that is contextually specified as being used with these ten nouns, and it realizes case and number as well as features responsible for insertion of an augment in other forms.
2. Contrary to traditional approaches I suggest that noun *put’* ‘way’ belongs to class I. The difference between *put’* and regular class I nouns can be reduced to one exponent /i/ that appears in the genitive, dative, and locative singular. This as well as the use of /i/ with neuter nouns discussed above can be derived by introducing an exponent that is used in the context of these eleven roots.
3. Variation in nominative and genitive plural forms can be captured by Readjustment Rules that overwrite original feature specifications and allow to use inflection from other declensions. Such rules can refer to semantic or phonological properties of roots; see Timberlake (2004) identifying some groups of exceptions by their semantics and Pertsova (2015) showing the influence of phonological factors.

C: Common gender nouns

- Class II also includes so-called common gender nouns. In nutshell, these are animate nouns that have no inherent gender. Depending on a context, they can have either a male or a female referent and can trigger masculine or feminine agreement respectively.
- This property can be accounted for if common gender nouns are like animate masculine class II nouns in that they are unspecified for gender in the lexicon.
- If a referent is female, they as doctor-type nouns receive [+fem] feature in syntax and can trigger feminine agreement.

- If a referent is male, there is no gender feature introduced in syntax, masculine agreement is inserted as a default, and [+fem] feature is supplied in morphology and used for inflection.
- In detail, however, properties of common gender nouns appear to be more complex, potentially not uniform across them and require additional empirical studies; cf. Švedova (1980, 464-466), Matushansky (2013), Steriopolo (2018) for contradictory claims on whether such nouns can trigger gender agreement that is opposite to the semantic gender of their referent and on whether they can trigger mixed gender agreement so that different agreement probes receive different genders.