Declension tracks gender: Insights from mixed agreement in Russian

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Despite close connections between nominal declension class and gender, they are usually represented by the distinct sets of features (Aronoff (1994), Halle (1992, 1994), Alexiadou (2004), Alexiadou & Müller (2008), Kramer (2015), Kučerová (2018). On the basis of the restrictions on semantic gender agreement in Russian, I argue that nominal inflection targets gender features directly and the sets of inflectional exponents called declensions arise from the combination of gender and some idiosyncratic features on roots (as in Roca (1989), Harris (1991), see also Caha (2019)).

Mixed agreement: In Russian, some profession-denoting nouns are morphologically masculine, but optionally trigger feminine agreement if a referent is female; see (1). In the singular, feminine agreement is restricted to the nominative; see (2) that shows ungrammaticality with the dative. While Russian generally does not have gender agreement in the plural, *oba* 'both' display gender in the plural. As shown in (3), feminine agreement is possible with oblique plural nouns. Semantic agreement in the nominative plural cannot be tested because 'both' (as some numerals) requires the singular genitive form then. While these data are already familiar (Panov (1968), Pesetsky (2013), Gerasimova (2019), i.a.), in what follows I will present two novel observations.

(1) xoroš-yj/aja vrač
    good-M/F doctor

(2) xoroš-emu/*ej vrač-u
    good-M.DAT/*F doctor-DAT

(3) ob-o/e-im vrač-am
    both-M/F-PL.DAT doctor-PL.DAT

Syncretism: Feminine agreement is restricted to forms where the exponents on the noun are syncretic to the declension class that includes feminine nouns. Russian has four declension classes. 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 and class IV consists of neuter nouns. The hybrid nouns as in (1)-(3) belong to class I. As shown in Table 1, inflection of class I is syncretic to class III (that includes only feminine nouns) in the nominative singular and in the plural forms. These are the forms where the semantic feminine agreement is allowed. One might also note that the exponents of the locative case are segmentally identical in I and II (that includes feminine nouns). They however differ in their accentual properties: The class II exponent is underlyingly stressed, while the class I exponent is not (Melvold (1989)). This correlation between the number case restrictions and the morphological makeup of the noun shows that the restrictions on agreement are morphological and stem from the inflection on the noun.

	SG				PL			
	I	II	III	IV	I	II	III	IV
NOM	ø	a	ø	o	i	i	i	a
ACC	a	u	ø	o	ov	ø	ov	a
GEN	a	i	i	a	ov	ø	ov	ø
LOC	e	e	i	e	ax			
DAT	u	e	i	u	am			
INSTR	om	oj	ju	om	ami			

Table 1: Declension of animate nouns

Ellipsis: The case number restrictions don't hold under ellipsis. The elided noun is dative singular in (4), but feminine agreement is allowed (in contrast to (2)). Assuming that ellipsis is absence of Vocabulary Insertion (Merchant (2001)), this shows that insertion of the nominal form causes ungrammaticality.

(4) Ja pojdu tol'ko k xoroš-ej [_].
    I will.go only to good-F.DAT
    {Context: Don't recommend me the bad doctors.}
    I will go only to a good one (f.).'

Gender and declension: The vast majority of approaches to mixed agreement (Pereltsvaig (2006), Asarina (2009), Steriopolo & Wiltschko (2010), Pesetsky (2013), Lyutikova (2015), Smith (2015, 2017), Landau (2016), Steriopolo (2018)) posit an additional semantic gender feature in the nominal

projections. Combined with the conclusion that the number case restrictions are morphological, this strongly suggests that Vocabulary Insertion of nominal inflection is conditioned by gender rather than just by class. Current approaches to declension (Embick (2010), Kramer (2015)) cannot derive this dependency because there exponents are specified for class features that are distinct from gender. Possible correlations between them follow from implicational rules of the type 'Insert II in the context of [+fem]' (Kramer (2015, 239)), but the restrictions cannot be reduced to the inability to insert a class feature because this would lead to ineffability in all cases of semantic agreement.

What is declension: I would like to propose that the number case restrictions can be derived if declension is decomposed into gender ([±fem]) and an idiosyncratic feature of a lexical item ([±α]) (see Halle (1992), Müller (2004) for other decompositions of class). Specifications of the classes in Russian are in Table 2. I suggest that feminine nouns are [+fem], masculine nouns are [−fem][+masc], and neuter nouns are [−fem][−masc]. Then, class I with masculine nouns and class IV with neuter nouns share [−fem], and classes II and III have [+fem]. I assume that animate masculine nouns in II have [+fem], but due to their lexical semantics also have [+anim][+masc]. Classes are not specified for [±masc], so this cannot raise complications.

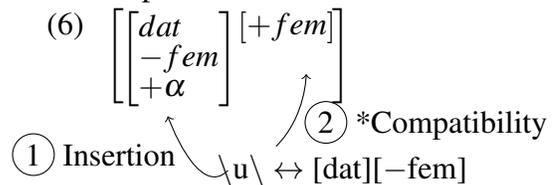| I	[−fem][+α]
II	[+fem][−α]
III	[+fem][+α]
IV	[−fem][−α]

Table 2: Class

Morphological conflicts: Hybrid nouns have [−fem][+α] features and also [+fem] if they denote a female. Following Schütze (2003), Citko (2005), Asarina (2011), Bhatt & Walkow (2013), Hein & Murphy (2019), and Coon & Keine (2020), contradictory features on one node are tolerated by syntax but problematic for Vocabulary Insertion. The conflict can be resolved only by a syncretic form underspecified for the contradicting features. Thus, semantic agreement is allowed only if a vocabulary item is underspecified for gender and compatible with [+α]. This is the case in the nominative singular and in the accusative and genitive plural: Each form is syncretic between I and III that are both [+α] but have different gender features (see (5a-b), case features simplified). This is also the case in the locative, dative, and instrumental plural

(5) a. \ø\ ↔ [nom][+α];
    b. \ov\ ↔ [acc/gen][+α];
    c. \am\ ↔ [dat][+pl];
    d. \u\ ↔ [dat][−fem].

forms, where the vocabulary items don't differentiate between classes; see (5c). The remaining singular exponents are specific for I or syncretic to IV that is specified for [−fem]; see (5d).

Ineffability: As noted by Asarina (2011), morphological realization that is based on the Subset Principle Halle (1997) cannot fail due to the presence of additional features. Approaches that aim to solve this issue either don't exclude insertion of a default exponent (e.g., Asarina (2011)) or involve an OT-like system of ranked and fallible constraints that arguably should not be present in DM (e.g, Coon & Keine (2020)). The analysis in (6) does not suffer from these drawbacks. I assume that the contradicting features are contained in different feature structures present on the same node. Vocabulary Insertion targets one of the structures; here it is the structure with most features. The result is ineffable because the inserted exponent is incompatible with the second feature structure and due to the ban on deletion of lexical material it cannot be altered.

(6)
$$\left[\begin{bmatrix} dat \\ -fem \\ +\alpha \end{bmatrix} [+fem]\right]$$

① Insertion   ② *Compatibility
\u\ ↔ [dat][−fem]

Augmentative: Further evidence for class decomposition in Table 2 comes from the augmentative suffix *iš'*. If it is attached to a feminine noun (independently of its class), the derived noun inflects as class II; if the original noun is masculine or neuter (i.e., [−fem]), the derived noun belongs to class IV (Švedova (1980, 213), Timberlake (2004, 146)). Assuming that the suffix is specified for [−α], the class of the derived noun follows directly from this abstract feature combined with the gender of the original noun: [+fem] and [−α] → class II; [−fem] and [−α] → class IV. The account of this pattern requires additional stipulations if class is treated as a primitive feature distinct from gender.

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