Judge vs. fool: Restrictive use of a noun predicts hybrid agreement

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- Empirical focus: nouns in Serbo-Croatian which denote humans of any gender and can control either feminine or masculine agreement, depending on the gender of their referent and/or grammatical gender.
- a. dobra knjiga / tetka / krava / budala good.F book / aunt / cow / fool
 'good book / aunt / cow / punk'
 - b. dobar *knjiga / *tetka / *krava / ??budala good.M book / aunt / cow / fool 'good book / aunt / cow / punk' (singular, f

(singular, feminine only)

- Empirical focus: nouns in Serbo-Croatian which denote humans of any gender and can control either feminine or masculine agreement, depending on their grammatical gender and/or gender of their referent.
- (2) a. dobra ?sudija / ??skeledžija / *deda good.F judge / ferryman / grandpa 'good judge / ferryman / grandpa'
 - b. dobar sudija / skeledžija / deda good.M judge / ferryman / grandpa 'good judge / ferryman / grandpa' (singular, variation present)
 - Theoretical focus: What factors does the agreement depend on? How can we exactly predict it?

Problem:

These nouns belong to a declension class that comprises mainly grammatically feminine nouns.

CLASS	Example	Ending	Gender
Ι	<i>otac-</i> Ø 'father', <i>krov-</i> Ø 'roof'	-Ø	masculine
II	<i>sel-o</i> 'village', <i>mor-e</i> 'sea'	-o or -e	neuter
III	<i>majk-a</i> 'mother', <i>kuć-a</i> 'house' <i>vladik-a</i> 'bishop' <i>deda</i> 'grandpa'	-a	feminine masculine
IV	<i>ljubav-</i> ∅ 'love'	-Ø	feminine

Table 1: SC declension class and gender

Problem:

- Unclear empirical picture on availability of masculine agreement.
- To date, no systematic predictive classification of Class III nouns based on the agreement they can trigger, despite extensive previous work (see Stevanović 1989; Corbett 1991; Wechsler & Zlatić 2003; Despić 2017; Puškar 2018, c.f. Arsenijević 2018; Murphy et al. 2018).
- Singular-plural contrast: both agreement options available in the singular, plural overwhelmingly feminine (grammatical gender) agreement.

Empirical proposal:

- A systematic classification of human nouns belonging to declension Class III into 4 subclasses.
- Patterns of the problematic nouns confirmed in an experimental study.

Formal proposal:

- Agreement depends on the strength/source of the gender presupposition of a noun,
- which further depends on the availability of restrictive use, mediated by the respective structural representations.

2. Data: Class III human-denoting nouns

3. Data: Experiment

4. Analysis

- Note: We focus only on the agreement patterns and variation in the singular. All the nouns in the group control feminine agreement in the plural.
- Class IIIa: Nouns restricted to female referents obligatorily trigger feminine agreement, which is both grammatical and notional gender agreement:
- (3) dobra sestra / *dobar sestra good.F.SG sister good.M.SG sister 'good sister'
 - Lexical gender presuppositions; they denote a set whose characteristic property includes being female (building on Murphy et al. 2018; Arsenijević 2021).

- Class IIIb: nouns whose lexical meaning is restricted to male individuals obligatorily control masculine agreement in the singular:
- (4) a. dobar deda / *dobra deda good.M.SG grandfather good.F.SG grandfather 'good grandfather'
 - b. *dobri dede / dobre dede good.M.PL grandfathers good.F.PL grandfathers 'good grandfathers'
 - In the plural, these nouns control F agreement (4b).
 - Lexical gender presuppositions; they denote a set whose characteristic property includes being male.

- **Class IIIc** hitherto lacks a predictive all-encompassing subcategorization.
- We started by extracting all nouns ending in *-a* marked as M/F from the Reverse Dictionary of the Serbian Language (Nikolić 2000).
- Their patterns were then examined in the srWaC corpus (Ljubešić & Kubička 2016).
- Performed a preliminary classification.
- Those that were not as clear-cut were examined further experimentally.

- ClassIIIc1 nouns like komšija 'neighbour' cannot refer to a woman, but can sometimes figure as generic;
- feminative counterpart *komšinica* 'female neighbour' available (5b) (c.f. Bobaljik & Zocca 2011; Merchant 2014; Sudo & Spathas 2020);
- Singular agreement: M.
- (5) a. dobar / *dobra komšija good.M.SG good.F.SG neighbour 'good neighbour'
 - b. dobra / *dobar komšinica good.F.SG good.F.SG neighbour (F)
 'good female neighbour'

 Assumption: derived feminative counterpart triggers strong female presupposition, *komšija* induces a male bias through competition (i.e. antipresupposition, c.f. Percus 2006; Sauerland 2008).

- Other nouns like sudija 'judge', knjigovođa 'bookkeeper', psihopata 'psychopath', uhoda 'stalker', budala 'fool', baraba 'punk' are not as clear-cut.
- They lack feminative counterparts.
- Some of them (prototypically) have male reference, some allow female too, and some handle masculine agreement in the singular much more difficult (than e.g. *neighbour*-type nouns above).
- Subtle differences arise when they are sorted out based on some semantic traits, e.g. professions, loanwords, or expressive meaning.

- Class IIIc2 nouns vary from being degraded to being more easily accepted with F agreement, as with *skeledžija* 'ferryman' (6a), and *sudija* 'judge' (6b):
- Such nouns are also expressive, either hypocoristic or borrowed (i.e. derived by borrowed suffixes such as -ija).
- (6) a. ??vesela / veseli skeledžija cheerful.F.SG / cheerful.M.SG ferryman 'cheerful ferryman'
 - b. (?)vesela / veseli sudija cheerful.F.SG / cheerful.M.SG judge 'cheerful judge'
 - Assumption: They trigger presuppositions whose source is associated with the prototypical referent for the noun.
 - In SC, for all human denoting nouns by default male, see Arsenijević 2018, but it can be weakened by a cultural bias.

- ClassIIIc3 nouns like baraba 'punk' and budala 'fool' are characteristically limited to expressive, or epithet, use and strongly prefer F agreement:
- (7) a. pijana budala / baraba drunk.F.SG fool / punk
 'drunk fool / punk'
 - b. ??pijani budala / baraba drunk.M.SG fool / punk 'drunk fool / punk'
 - Assumption: as epithets, these nouns fail to receive a restrictive interpretation when heading arguments.

- Unlike regular referential DPs, which carry a description which restricts the reference domain, the description that epithets carry is attributed to the referent (whether as conjoined assertion or accommodated presupposition, see e.g., Patel-Grosz 2015). Crucially, this implies that their grammatical gender is dissociated from gender presuppositions.
- (8) Juče sam srela Jovanu i taj yesterday AUX.1.SG met Jovana and that.M.SG.NOM terminator od žene mi je terminator.M.SG.NOM of woman.F.SG.GEN CL.1.SG.DAT AUX.3.SG zamalo slomio ruku.

broke arm

'Yesterday I met Jovana and that terminator of a woman almost broke my arm.'

Data: Class III animate nouns

- Class IIId: animate gender-generic nouns (*riba* 'fish', *žirafa* 'giraffe', *osoba* 'person', or *beba* 'baby');
- masculine agreement completely disallowed;
- with male referents, they seem to obscure their gender and establish reference in gender-generic terms.

	Gender presupposition	Presupposed gender	feminative counterpart	restrictive use	Agreement in sg
Class IIIa (<i>sister</i>)	strong (lexical)	F	lexical	+	F
Class IIIb (grandpa)	strong (lexical)	М	lexical	+	М
Class IIIc1 (neighbour)	strong (antipresupp.)	М	derived	+	М
Class IIIc2 (<i>judge</i>)	moderate (cultural)	M/(F)	none	+	M/(F)
Class IIIc3 (<i>fool</i>)	none (epithet)	none	none	-	F
Class IIId (<i>person</i>)	weak (cultural)	F	none	+	F

Table 2: Class III human-denoting nouns

Our central hypothesis:

- Different sources of gender presuppositions in animate nouns of Class III may trigger conflicting presuppositions (which then need to be resolved);
- nouns which cannot be restrictively used, cannot trigger gender presuppositions;
- without gender presuppositions, no clash emerges, so the only option is agreement with declension class (grammatical F gender).

2. Data: Class III human-denoting nouns

3. Data: Experiment

4. Analysis

Experiment – Design

- **Hypothesis:** lack of restrictive interpretation ⇒ lack of M gender agreement (The (in)ability to receive restrictive interpretations is the property that explains the variation in agreement among the gender-generic nouns.)
- Variables:
 - Independent:
 - 1. Type of noun: Class IIIc2 (regular) and Class IIIc3 (non-restrictive),
 - 2. Number on the noun: Sg, Pl,
 - 3. Agreeing category: attribute, participle within a verbal predicate,
 - 4. Agreeing value of gender: M and F;
 - Dependent: Likert scale acceptability judgments.

Properties of the stimuli:

- 2 kinds of nouns, 6 per level of the variable Type
- ⇒ 6 Class IIIc2 (knjigovođa 'bookkeeper', sudija 'judge', pivopija 'beer-drinker', psihopata 'psychopath', ubica 'killer', poslovođa 'foreman/manager')
- ⇒ 6 Class IIIc3 nouns (uhoda 'stalker', lenština 'idler', budala 'fool', baraba 'punk', krvopija 'bloodsucker', štetočina 'pest').
- Example sentence frame:
- (9) To je iskusna poslovođa. that AUX.3.SG experienced.F.SG manager 'That is an experienced manager.' (Agreeing category: attribute)
 (10) Ubica is prilining by a starsh
- (10) Ubica je prikrivala strah. murderer AUX.3.SG hide.PRT.F.SG fear
 'The murderer was hiding the fear.' (Agreeing category: participle)

Experiment – Design

- Stimuli: 192 sentences, 96 critical (per list, with two lists) and 96 fillers
- Participants: Fifty-eight monolingual native speakers of Serbo-Croatian living in Niš or its neighbourhood
- Procedure: read the sentence and judge the degree to which the sentence feels natural (1-bad to 5-good on a Likert scale).

- We fitted the Linear Mixed Model to the Likert scale judgments as the dependent variable, the four fixed effects (gender agreement, number, agreeing category and noun type) and the participants as a random effect.
- Imer(Judgment Class * Number * Category * Type * (1 | Part), data = AgrLik)
- All the effects were confirmed to be highly significant (Category was at p = .0005, all the others p < .0001).
- All the interactions were highly significant too (Category: Class at p = .008, all the others p < .0001).
- Crucially, both the effect of the variable Type and its interaction with the variable Class (i.e. with the agreement pattern) were at p < .0001 (t = -23.145, Est. = -1.96; t = 28.005, Est. = 3.353, respectively).

Mean values:

	Adj				V			
	SG		PL		SG		PL	
	М	F	М	F	М	F	М	F
regular (<i>judge</i> -type)	<u>4.19</u>	<u>2.96</u>	1.75	4.47	<u>4.48</u>	<u>3.56</u>	2.75	4.53
n-restr. (<i>fool</i> -type)	<u>2.23</u>	<u>4.35</u>	1.65	4.44	<u>3.57</u>	<u>4.51</u>	2.30	4.45

Table 3: Mean values

- Class III nouns denoting humans, and triggering no strong gender presuppositions, come in two distinct subclasses:
 - 1. Ns that can be used both restrictively in referential expressions and nonrestrictively in predicates and epithet-like constructions, preferring M agreement in the singular,
 - 2. Ns only in the epithet-like use, preferring F agreement in singular.
- Plural prefers F agreement in general.
- An Agreement Hierarchy effect (Corbett 1979): Agreement with the verb shows weaker acceptability contrasts between M and F; agreement with the verbal participle is generally judged better than with attributive adjectives.

2. Data: Class III human-denoting nouns

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Gender presuppositions: Nouns

Following Arsenijević (2021), we identify 4 possible sources of gender presuppositions, with different levels of strength¹:

- 1. Lexical semantics of the noun (deda 'grandpa' or sestra, 'sister') strong.
- Availability of a feminine counterpart derived from the noun (komšija 'neighbor' vs. komšinica 'female neighbor') - strong.
- Cultural construct based on the prototype, M for humans and some animals (pas 'dog'), F for other animals (ptica 'bird') – moderate.
- Declension class Classes I and II trigger weak masculine and neuter presupposition, and Class III weak feminine antipresupposition – weak.

¹(see also Heim 1991; Sauerland 2008; Schlenker 2012)

Gender presuppositions: Lexical – strong

- Lexical semantics of the noun triggers strong presuppositions (*deda* 'grandpa', *vladika* 'bishop' vs. *sestra*, 'sister', *dadilja* 'nanny').
- We assume this type of presupposition to be triggered by (features on the) the root (or other base) of the noun.



- Similar to Bobaljik and Zocca's (2011) nobility and kinship nouns, Merchant's (2014) nonalternating nouns or Sudo & Spathas' (2020) Class I nouns in Greek.
- In Sudo & Spathas (2020) terms, these nouns have gender inferences in both presuppositional and assertive dimensions of meaning.

Gender presuppositions: Lexical antipresupposition

- Availability of a feminine counterpart derived from the noun triggers a strong masculine presupposition on the noun.
- Komšija 'neighbor' triggers masculine antipresupposition (c.f. Percus 2006; Sauerland 2008) due to the availability of komšinica 'female neighbor'.



See also Sudo and Spathas' (2020) Principle of Gender Competition.

Gender presuppositions: Cultural construct - moderate

- Every noun represents a kind and as such, it has a prototype which in turn carries a particular, culturally determined, gender.
- We assume that *judge*-type nouns are characterised like this. They are basically just generic [human] but not necessarily explicitly [M] (see also Arsenijević 2021; Adamson & Anagnostopoulou 2024; Puškar-Gallien to appear).
- Such a moderate type of presupposition can be overridden if a stronger one is available.
- Thus if a judge, bookkeeper or a customer is a female person, some speakers will allow [F] agreement, depending on their conception of a typical referent.

(15)*n*P_[CLIII, HUMAN, ANIMATE] /sudii-

Gender presuppositions: Declension class

- Declension class all Class I animates are lexical masculines, all Class II neuters, and Class III is open for all genders (see Arsenijević 2021).
- Classes I and II trigger weak masculine and neuter presupposition, and Class III weak feminine antipresupposition.
- This source is the weakest and never shows on nouns, but does on adjectives and verbs, which carry no other sources.

Gender presuppositions: Nouns

- Note that in the representations above, we used the shorthand "CLIII" to denote Class III features, present on all the nouns from this group.
- The analysis is compatible with these features being a primitive present in the syntax (Arsenijević 2021), or derived from multiple features, one of which is gender (see e.g. Puškar 2018; Caha 2021; Privizentseva 2024).
- In the latter case, the feature that triggers the relevant presupposition would be the one that participates in agreement and surfaces in agreement morphology on the Goals (nominal modifiers, participles, etc.).

Gender presuppositions: Nouns

To recap, the following elements introduce different types of presuppositions:

- root/base introduces a strong (lexical) feminine or masculine presupposition
- lexical competition introduces a strong antipresupposition
- [human] introduces a moderate male presupposition
- declension class introduces a weak (anti)presupposition

Gender presuppositions: Agreeing items

- Agreement simply copies the relevant features from the goal.
- Declension class/gender on the agreeing item triggers a gender presupposition for animate referents (see Arsenijević 2021 and Sudo & Spathas 2020:26 for discussion).
- When a different, stronger gender presupposition is available, a conflict emerges at LF.
 - (16) moj-a ded-a my-**III grandpa**-III
- In (16) declension class on the adjective triggers a weak feminine, and lexical meaning on the noun a strong masculine presupposition.

Gender presuppositions: Agreeing items

- This triggers a repair mechanism in the syntax (see Appendix for possible technical implementations).
- The marking that triggers the weak clashing presupposition on the agreeing item is replaced by the default specification (i.e. Class I (M)):
 - (17) moj-∅ ded-a my-**I grandpa**-III
- This is how Class IIIb (grandpa), Class IIIc1 (neighbour) and ClassIIIc2 (judge) nouns agree.
- In case *judge* refers to a woman, and the speaker construes prototypical judges as being either male or female, no clash between a weak (declension class) and a moderate (female) presupposition will arise
 ⇒ F agreement may be accepted.

Expressivity

- Recall that Class IIIc nouns are all expressive (Caha 2021; Arsenijević 2021).
- Class IIIc1 (*neighbour*) and class IIIc2 (*judge*) nouns are either hypocoristic or borrowed (i.e. derived by borrowed suffixes such as -*ija*).
- Hypocoristic and borrowed morphemes are adjuncts to category head n hence these nouns retain animacy / humaneness (see e.g. Kramer 2015 for diminutives).



Expressivity

- Class IIIc3 (fool-type) nouns are pejoratives.
- We analyze pejoratives as inanimate *renominalizers*. When bearing animate or human meanings, they can be used only predicatively, never referentially (unless desemanticized into a (nick)name).
- As non-referential, these nouns never trigger any presuppositions whatsoever, hence no presupposition conflict is possible, and the copied agreement classifier features converge at LF.



Alternative: epithets as pronouns, see Patel-Grosz (2015).

	Gender pre- supposition	Source	Presupposed gender	feminative counterpart	restrictive use	Agreement in sg
Class IIIa (<i>sister</i>)	strong (lexical)	root	F	lexical	+	F
Class IIIb (<i>grandpa</i>)	strong (lexical)	root	М	lexical	+	Μ
Class IIIc1 (<i>neighbour</i>)	strong (antipresupp.)	lexical competition	Μ	derived	+	Μ
Class IIIc2 (<i>judge</i>)	moderate (functional)	human denotation	M/(F)	none	+	M/(F)
Class IIIc3 (<i>fool</i>)	weak	decl. class	none (non-restr.)	none	-	F

Table 4: Class III human-denoting nouns

Summary and conclusions

- Class III nouns in SC comprise several subclasses:
 - Class IIIa: female
 - Class IIIb: expressive hypocoristic
 - Class IIIc1: weak expressive (hypocoristic or borrowed) with a gender counterpart
 - Class IIIc2: weak expressive (hypocoristic or borrowed)
 - Class IIIc3: expressive pejorative
- There are several sources of gender presuppositions in SC:
 - root/base introduces a strong (lexical) feminine or masculine presupposition
 - lexical competition introduces a strong antipresupposition
 - [human] introduces a moderate male presupposition
 - declension class introduces a weak (anti)presupposition

Summary and conclusions

- Presuppositions within the same DP may clash when a feature triggers a presupposition that is in conflict with the common ground.
- This is when a repair is initiated: the conflicting feature is replaced with the default (realised as masculine with weak/animate human expressives).
- The class that never triggers any presuppositions never enters a conflict, hence a repair is never needed (pejoratives).
- It is, however, possible, with some degradation, when the male presupposition is part of the common ground.
- Human plurals refer to pluralities, consisting of gendered individuals, with homogeneous or mixed gender values; as such the plural form does not have a fixed gender.

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Appendix

Clash resolution (Arsenijević 2021)

- Gender can be fully derived based on declension class in SC.
- Gender is independently attestable in semantics, but only for animate nouns. Declension classes are attested in morphology, in the endings which different nouns take for the same case form.
- Agreement proceeds as follows (Arsenijević 2021:32f.):
 - Syntax first determines the syntactic domain for the controller of agreement.
 - It inserts copies of a declension class value from this domain onto the agreeing item (by copying the features of the projecting noun).
 - Structure is spelled out and interpreted at PF and LF.
 - In contexts in which the declension class is interpretable, it triggers presuppositions at LF.
 - When these presuppositions clash with stronger ones that are active in the discourse, the derivation crashes.
 - Upon a crash, syntax may replace the declension class with the default and spell it out again. If no clash emerges, the derivation converges.

Clash resolution (Arsenijević 2021)

(20)



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Judge vs. fool

Clash resolution (Arsenijević 2021)

- In (20a), feature [human] causes declension class feature to trigger gender presuppositions at LF.
- Gender presupposition triggered by class III is female.
- This presupposition clashes with the presupposition independently available about the referent.
- The derivation crashes. As an attempt of repair, syntax now spells the structure out with the default declension class I on the agreeing item. This declension class triggers a male or gender-unspecified presupposition and the derivation converges.
- Marked features deleted, resulting in default specification.

- Puškar (2017, 2018) derives agreement in natural vs. grammatical gender by a combination of hierarchical representation of φ-features (Harley & Ritter 2002), relativized probing and separate probing for gender and number (Béjar & Řezáč 2009), free order of agreement operations (Müller 2009) and locality restrictions on agreement.
- Masculine agreement of ClassIIIb nouns is derived as in (22) and feminine agreement of the entire class as in (24).

(21) Vladik-e su stigl-i. bishop-PL are arrive.PRT-M.PL 'Bishops have arrived.' (23) Vladik-e su stigl-e. bishop-PL are arrive.PRT-F.PL 'Bishops have arrived.'



- The model captures agreement variation in the plural through an intervention effect of number. Our experiment showed that agreement in the plural is overwhelmingly F, while variation may appear in the singular.
- In order to derive variation in the singular, additional assumption required: Number is present as a feature in the singular as well and may block agreement.
- Syntax may freely produce M or F agreement, based on the order of Agree operations.
- Results would have to be pragmatically evaluated and subject to a filter such as *Maximise Presupposition*! (or a variant thereof, see Heim 1991; Percus 2006; Sauerland 2008; Schlenker 2012).

• The revised version of gender representation (Puškar-Gallien to appear):



- \blacksquare Strong lexical gender presupposition: [CL, ANIM, HUM, F] \rightarrow F
- \blacksquare Strong lexical gender presupposition: [CL, ANIM, HUM] \rightarrow M
- \blacksquare Moderate masculine presupposition: [CL] \rightarrow M
- \blacksquare Weak declension class/grammatical gender presupposition: [CL, F] \rightarrow F

Clash resolution (Adamson & Anagnostopoulou 2024)

- Natural gender features would be represented as *i*F, grammatical gender features as *u*F.
- Proposed feature hierarchy for BCMS:



- (27) Vocabulary Item Schema
 - $a. \qquad [{\rm FEM}][{\rm ANIM}][{\rm MASC}][{\rm INDIV}] \leftrightarrow ``{\sf F} \ inflection''$
 - $b. \quad [{\rm ANIM}][{\rm MASC}][{\rm INDIV}] \leftrightarrow ``M \text{ animate inflection''}$
 - c. $[INDIV] \leftrightarrow$ "M inanimate inflection"
 - $\mathsf{d}. \quad \bar{\emptyset} \leftrightarrow ``\mathsf{N} \text{ inflection''}$

Clash resolution (Adamson & Anagnostopoulou 2024)

- The animate and human nouns under our scrutiny would have uninterpretable feminine gender and interpretable feminine or masculine.
- One possibility would be to assume that only interpretable features trigger gender presuppositions.
 - (28) judge (male)
 - a. $i[\text{ANIM}][\text{MASC}][\text{INDIV}] \leftrightarrow \mathsf{M}$ presupposition
 - b. $u[\text{FEM}][\text{ANIM}][\text{MASC}][\text{INDIV}] \leftrightarrow \mathsf{F}$ inflection
 - (29) *judge* (female)
 - a. i[FEM][ANIM][MASC][INDIV] \leftrightarrow F presupposition
 - b. $u[\text{FEM}][\text{ANIM}][\text{MASC}][\text{INDIV}] \leftrightarrow \mathsf{F}$ inflection
 - (30) fool (male)
 - a. $i[INDIV] \leftrightarrow M$ presupposition?
 - b. $u[\text{FEM}][\text{ANIM}][\text{MASC}][\text{INDIV}] \leftrightarrow \mathsf{F}$ inflection

Clash resolution (Adamson & Anagnostopoulou 2024)

- Nothing in principle prevents *fool* from having interpretable masculine gender features.
- Same as with Puškar (2018), and as aknowledged by the authors, not all options will be well-formed and will not converge either at PF or at LF.
- Thus the variation would not come from multiple possibilities for agreement, but rather from multiple possibilities of gender feature specifications on the noun (which would then be copied by the adjective, and the combinations would have to be filtered out by pragmatics).
- Some version of the mechanism of feature resolution to resolve the conflict?