Interactions of gender, number and class features on nouns: Evidence from Bosnian/Croatian/Serbian

Zorica Puškar, University of Leipzig

**Problem:** Class II hybrid nouns in Bosnian/Croatian/Serbian (BCS) display two sets of interesting properties: such nouns can bear both natural and grammatical gender, and which gender participates in agreement depends on the number of the noun. While in the singular they invariably trigger natural (masculine) agreement (i), alternation between masculine and feminine obtains in the plural (2). The problem for theories of such nouns comprises two challenges: the Agree mechanism needs to be able to operate on two kinds of gender, and the mechanism needs to allow gender agreement to interact with number. Previous accounts (Wechsler & Zlatić 2000) propose a complex mapping between semantic, syntactic and class features, but ultimately cannot derive the obligatory nature of natural agreement in the singular and optionality in the plural in a unified way. A Minimalist account of such nouns has not yet been proposed.

**Claim:** I provide a Minimalist analysis of hybrid nouns’ agreement combining the formal tools of feature hierarchies, relativised probing and cyclic Agree, which derives plural alternation as intervention effects.

**Data:** What unifies BCS Class II nouns, in addition to the same set of inflections, is that they are all grammatically feminine. Within the class, they can differ in natural gender: some of them are masculine, some are gender variable and the majority are feminine. Masculine Class II nouns trigger only masculine agreement in the singular (i), whereas in the plural agreement varies between masculine and feminine (2).

(i) Moj-*/moj-a nov-i/*nov-a komšij-a je stiga-*/stigl-a.

my-mg/my-fsg new-mg/new-fsg neighbour-mg is arrived-mg/arrived-fsg

‘My new neighbour arrived yesterday.’

(ii) Nov-e komšij-e su stigl-e. / Nov-i komšij-e su stigl-i.

new-fpl neighbourhood-mpl are arrived-fpl / new-mpl. neighbourhood-mpl are arrived-mpl

‘New neighbours arrived yesterday.’

Another group of nouns are gender variable (e.g. budala ‘fool’), and they can be either of either masculine or feminine natural gender, depending on whether they indicate male or female entities. In the singular, they also agree according to natural gender, while alternations obtain in the plural. All feminine Class II nouns consistently trigger feminine agreement. **Issues to explain:** (1) how Class II relates to grammatical feminine gender; (2) how a single noun can have different grammatical and natural gender; (3) why natural gender agreement is preferred in the singular and alternations appear only in the plural.

**Theoretical assumptions:** Agreement patterns depend on the structure of the DP, structural complexity of gender and cyclicity of Agree. (i) Natural and grammatical gender features are located at two different projections of the DP, natural below grammatical, and both are accessible for Agree. Natural gender is located on n-head, which derives a noun by merging with an acategorial root (Acquaviva 2009, Kramer 2014). I assume three nominalizers for Class II nouns – n_m, n_f, n_o, deriving a noun with natural masculine, natural feminine, or without natural gender, respectively. Grammatical gender is located on GenP. GenP is assigned feminine gender for Class II nouns via redundancy rules (Harris 1991, Scheffler 2004), based on the declension class features on n. NumP is located between the two gender-bearing heads. It only hosts plural number, it is not projected in the singular (Krätzer 2007). Summing up, I propose the following DP structure for BCS: [DP [GenP [NumP [nP n [square]]]]]. (ii) I exploit the feature hierarchy approach (Harley & Ritter 2002, Preminger 2014) to claim that natural gender is featurally more complex than grammatical. I assume that natural gender is a complex that contains a gender feature embedding an animacy feature [gen:m/f[anim:+]], whereas the grammatical gender feature contains only gender ([gen:m/f/]). (iii) I use the relativised probing model as a way to specify what kind of gender is being probed for. Gender probe in BCS is relativised (Bejar 2003) for the more complex, natural gender ([*gen:[] anim:[x]]). Its valuation is only successful if there is a goal with features of identical complexity. If the probe cannot find a goal with natural gender, a second cycle of Agree is initiated (Bejar 2003), the probe’s features are reduced [*gen:[]], allowing it to be valued by the less complex grammatical gender. (iv) Number and gender agreement are performed by two separate Agree operations (Bejar 2003, Preminger 2014), triggered by separate probes on the same head. Their order of application is underspecified (Georgi 2014, Müller 2009). This leads to two possible orders of Agree operations: Gender Agree (GAgree) >> Number Agree (NAgree), or NAgree >> GAgree. (v) I assume that once the initial Agree operation on a probe has applied, the next Agree on the same head needs to minimise its search domain. Thus, after the first Agree, any subsequent Agree
operation can only target phrases higher than the goal targeted by the previous Agree. This extends the proposals on locality and economy constraints on Move (Shortest Move (Richards 2001) or Approach the Probe Principle (Branigan 2012, 2013)) that restrict multiple Move operations of a single probe to apply as close to the probe as possible. (vi) Failed Agree results in default feature valuation (Preminger 2014).

Analysis: Masculine nouns have natural masculine gender on nP[gen:m[anim:+]] and grammatical feminine on GenP[gen:f]. In the plural, if GAgree >> N Agree, the gender probe targets the lower, more complex natural gender on nP (recall (ii) and (iii)). The subsequent number probe targets the NumP[xpl], resulting in natural masculine plural agreement (3). Under the order N Agree >> GAgree, the first N Agree operation targets the NumP. The next probe on the same head can only search within the domain established by the previous Agree, i.e. phrases above NumP (v). GAgree thus cannot reach natural gender on nP. This initiates the second cycle of Agree, where the probe is reduced (iii), and now can be valued by the grammatical gender on GenP (4). This derives the alternations between natural and grammatical gender in the plural.

(3) GAgree >> N Agree (natural gender)  (4) N Agree >> GAgree (grammatical gender)

In the singular, if GAgree >> N Agree, GAgree targets nP, valuing the probe with natural gender. Since the NumP is not projected in the singular (i), N Agree fails to find a target, leading to default singular valuation, via fallible Agree (vi) (5). The reverse order yields the same result, as no intervention effects arise in the absence of number. Natural gender agreement is thus the only option in the singular. The same mechanism accounts for gender variable nouns, which can optionally be derived by any of the three nominalizers in (i). Natural gender is always available in the singular as there is no intervening Num head. In the plural, agreement with NumP can delimit the search space for GAgree, leading to natural vs. grammatical gender alternations depending on the order of Agree operations. I will also show that agreement with natural feminine nouns proceeds as in (3) and (4), differing only in the natural feminine gender on nP, both orders yielding feminine agreement.

Conclusion: Hybrid nouns provide evidence that slots for two gender features are necessary on the DP. Natural gender is determined by uniting the conceptual properties of roots and nominal categorising head they can merge with via licensing conditions on possible n-root combinations (Acquaviva 2009, Kramer 2014). Grammatical gender is then derived from the formal properties of the nominaliser. Absence of intervention effects in the singular serves as strong evidence for treating singular as the absence of number. Obligatoriness of natural gender agreement in the singular is implemented through relativised probing. In the absence of natural gender, cyclic Agree allows the grammar to accept the less preferred, but nevertheless available grammatical gender. Gender alternation is a result of different orders of Agree operations and number intervention.