# Number Mismatch and Ellipsis of Hybrid Nouns: A Case for Post-syntactic Analysis of Concord

Overview. Nominal ellipsis of hybrid nouns (HNs) in Serbian reveals two general points: (i) Formal gender of HNs is not introduced by a syntactic projection GenP, but rather by the √ROOT + *n* complex (e.g., Kramer 2016), and (ii) (at least some) concord is post-syntactic (Kramer 2010, Noyer 1997, Halle and Matushansky 2006, Norris 2015).

Data. As shown in (1)-(2), Serbian regular nouns can be elided regardless of number mismatch. (1)-(2) illustrate this for [masc], but the same contrast holds for [fem] and [neut] regular nouns as well. I follow Merchant (2014) in assuming the structure in (3) (for (1)), where the complement of Num is elided. Note that natural gender is located in *n*. Since there is no feature mismatch between the antecedent and the elided portion, the condition on syntactic/semantic identity is not violated.

(1) Moji stariji **sinovi** navijaju za Zvezdu, a najmlađi ₛᵢₙ navija za Partizan. ✓<PL > S̶G̶>
    My_{M.P.} older_{M.P} sons support for Z but youngest_{M.S} son supports for P
    'My older sons support Red Star, but the youngest one supports Partizan.'

(2) Moj najmlađi **sin** navija za Partizan a stariji ₛᵢₙₒᵥᵢ navijaju za Zvezdu. ✓<SG > P̶L̶>
    My_{M.S.} youngest_{M.S} son supports for P but older_{M.P} sons support for Star
    'My youngest son supports Partizan, but the older ones support Red Star.'

(3) NumP NumP   (4) GenP
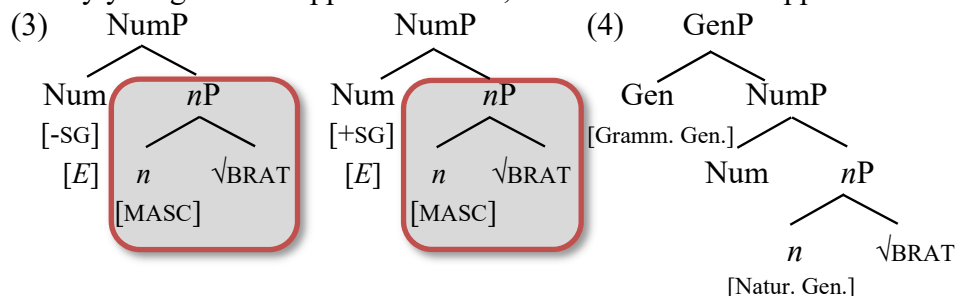
Serbian HNs display an interesting pattern in these contexts. I discuss two types of HNs.

A. HNs like *braća* 'brothers' (Wechsler and Zlatić 2003, Arsenijević 2016, Despić 2017, Puškar-Gallien 2018 etc.) have a double-mismatch between formal and semantic features. While *brat* 'brother' is a regular [masc] [sg] noun, *braća* 'brothers' declines as declension II and, thus, in addition to semantic [masc] and [pl], it has formal [fem] and [sg]. Nominal modifiers obligatorily agree with formal features (Despić 2017), while finite verbs must agree with semantic features.

(5) Moja/(*Moji) **braća** spavaju/(*spava).
    My_{F.S}/(my_{M.P}) brothers sleep_{P}/(sleep_{S})
    'My brothers are sleeping.'

Unlike in (1)-(2), these forms do not tolerate number mismatch in ellipsis. As shown in (6)-(7), while the irregular [pl] antecedent can license a regular [sg] gap, the opposite in not possible. Note that *deca* 'children', which is another HN of this type, is complicated by the fact that in Serbian [neut], [pl] is syncretic with [fem], [sg] in nominative. However, in non-nominative *deca* also displays the contrast in (6)-(7))

(6) Moja starija **braća** navijaju za Zvezdu, a najmlađi ᵦᵣₐₜ navija za Partizan. ✓<PL > S̶G̶>
    My_{F.S.} older_{F.S} brothers support for Z. but youngest_{M.S} brother supports for P. (F.S)
    'My older brothers support Red Star, but the youngest one supports Partizan.'

(7) *Moj najmlađi **brat** navija za Partizan a starija ᵦᵣₐ́ᶜ̧ₐ navijaju za Zvezdu. * <SG > P̶L̶>
    My_{M.S.} youngest_{M.S} brother supports for P but older_{F.S} brothers support for Star (F.S)
    'My youngest brother supports Partizan, but the older ones support Red Star.'

Also, for some speakers, concord with semantic features, otherwise impossible with an overt HN, seems to be possible (see (8)). In addition, the irregular [pl] gap is possible if there is no number mismatch; i.e., the antecedent is also irregular [pl] (see (9)).

(8) Moj   najmlađi **brat** navija za Partizan a   stariji _{braća} navijaju za Zvezdu. ^(?) ✓<SG > ~~PL~~>
  My_{M.S.} youngest_{M.S} brother supports for P but older_{M.P. brothers} support   for Z

(9) Moja starija **braća**   navijaju za Zvezdu, a mlađa _{braća}   za Partizan.   ✓<PL > ~~PL~~>
  My_{F.S.} older_{F.S} brothers support for Z   but younger_{F.S} brothers for Partizan   (F.S) (F.S)

B. Similar happens with some HNs of the *vojvoda* 'duke'/*tata* 'dad' type, which decline as declension II (fem, sg.), but denote males. In [sg], all agreement targets (including prenominal modifiers) agree with semantic [masc] obligatorily (Despić 2017, Puškar-Gallien 2018). In [pl], however, agreement with formal [fem] is obligatory in Serbian (in contrast to Croatian). These nouns also do not tolerate number mismatch in ellipsis. Just like (6)-(7), the irregular [pl] antecedent can license a regular [sg] gap, but not vice versa (see (10)-(11a)). And just like with (9), the otherwise unacceptable semantic concord, becomes possible ((11b), *mlađi* is [masc] [pl]).

(10) Skoro sve   **tate** su došle, samo jedan _{tata} nije.   ✓<PL > ~~SG~~>
   Almost all_{F.P} dads are come only one_{M.S dad} not-is   (F)
  'Almost all dads already came, only one did not.'

(11) a. ^{*?}Najstariji **tata** je već   došao, a mlađe   _{tate}   će doći sutra.   * <SG > ~~PL~~>
      Oldest_{M.S} dad is already came but younger_{F.P dads} will come tomorrow   (F)
        'The oldest dad is already here, and the younger ones will come tomorrow.'
    b. Najstariji **tata** je već   došao, a mlađi   _{tate}   će doći sutra.

Analysis. The ungrammaticality of (6) and (11) indicates that the identity condition is violated. This is unexpected on Cyclic-Agree approaches to concord (e.g., Puškar-Gallien 2018), on which grammatical gender is introduced by GenP located above NumP (see (4)). Number mismatch should be possible with HN ellipsis on such analyses, since the elided part (*n*P) and its antecedent are always identical, given the position of GenP. That is, the feature mismatch of this kind should not have any effect on ellipsis of HN, just like the number mismatch in (1)/(2) does not matter for regular nouns. Following Kramer (2010), Noyer (1997), etc. I propose, within the framework of DM, that concord is a post-syntactic operation of copying of features between Infls of the modifier and the noun (after Infl has been formed by fusion). The contrast in (6)-(7) can be accounted for via (12). (12a) simply states that $\sqrt{\text{BRAT}}+ n + \text{Num}$ is realized as a special (unpredictable) form *brać* (or *dec* in the case of 'children') (see Merchant 2015). (12b) states that an Infl with [fem] and [sg] is added in the context of *brać* (making it effectively a declension II noun). Features from this Infl are copied to the Infl of the modifier. Importantly, the ungrammaticality of (7) gives support to analyses like Merchant (2015), on which ellipsis is not deletion but rather lack of VI. In order for the [fem],[sg] concord to happen via feature copying, rules in (12) have to apply first, but they can apply only if the root $\sqrt{\text{BRAT}}$ undergoes VI, which does not happen in ellipsis, by assumption.

(12) a. $\sqrt{\text{BRAT}}+ n + \text{Num} \leftrightarrow$ *brać* /___ Num [pl]   b. *brać* → *brać*-Infl [fem.sg]

To account for (9), I suggest that in the absence of features provided by un-inserted $\sqrt{\text{BRAT}}$ and *n*, the modifier Infl of *mlađa* 'younger' can copy features from the antecedent Infl. In the case of *tata*, (13) applies (Despić 2017); in the context of [pl], a markedness constraint in (13a) is violated, which results in deletion of semantic gender (13b), prior to feature copying. This explains why [fem],[pl] concord is obligatory in Serbian with these HNs (while (13a) may not hold in Croatian).

(13) a. *[[pl], [gen]_{SEM}, [gen]_{GRAM}, [nom]]/+___]_W b. [gen]_{SEM}→ ∅/ [__ [gen]_{GRAM} [pl] [nom]]

For (13) to apply, sufficient information about the roots triggering them, including their phonological properties, must be available to the PF component, which is never the case in ellipsis.

Implications. Note that a null pro form analysis of these facts seems unlikely, as the actual pronoun used to refer to HNs *must* have semantic features (e.g., *they* for *braća* 'brothers', not *she*). Thus, the grammaticality of examples like (9) would raise issues for such accounts.