

**Noun class, gender, and the workings of Agree:  
Evidence from agreement with conjoined subjects in Xhosa\***

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**Abstract.** This paper begins as a reply to Taraldsen et al (2018), wherein it is argued that shared gender features do not underlie singular/plural noun class pairs in Xhosa. Taraldsen et al's claim is based on the fact that when singulars of a given noun class are conjoined, subject agreement typically shows default gender features rather than those of the relevant plural class. My paper shows that similar phenomena are found in Slavic languages which have more canonical gender systems (masculine, feminine, neuter), and that an existing analysis (Boskovič 2009) easily explains the Xhosa facts that Taraldsen et al report. My paper then explores conjoined plurals, showing how a pattern of LCA (last conjunct agreement) with preverbal subjects reported in Mitchley (2015) parallels Serbo-Croatian and is also amenable to an analysis in Boskovič (2009). However, I also show that supplementary research of my own reveals a complex pattern of preferences determining agreement with conjoined plurals, for the speakers in my study, which would not be expected under Boskovič's approach, or under recent approaches of Marušič et al (2015), Nevins & Marušič (to appear), and Murphy & Puškar (2017). I argue for a novel analysis under which multiple gender values are copied from all conjuncts to T's uPhi, if &P is raising to preverbal position, and then those values are reduced to one by impoverishment, informed by interacting hierarchies of preference. For the speakers in my study these hierarchies favor (i) FCA > LCA > default, and (ii) agreement with least marked > most marked noun classes. Lastly, I argue from default agreement patterns and their exceptions that [human] is the only interpretable content to the noun class system.

## **1. Introduction**

### **1.1 The challenge of Xhosa conjoined singulars for a gender approach to noun class**

It is standard practice in the Bantu linguistics literature to label singular and plural noun classes distinctly, by means of a numbering system dating to Bleek (1862) and Meinhoff (1906) (see the Swahili examples in (1)).<sup>1</sup>

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\* Many thanks to Loyiso Mletshe and his students at University of the Western Cape for the Xhosa data. Though omitted from this paper for reasons of length, thanks also to linguistics students at University of Kwa Zulu-Natal for Zulu data, and to Eunice-Jay Chilimanzi for Shona data. Thanks to Michael Diercks, Chacha Mwita, Andrew Nevins, Ron Simango, and Jochen Zeller for helpful discussions.

<sup>1</sup> Glosses and abbreviations: Arabic numbers = noun classes (number + gender) unless followed by s or pl in which case they are person features. Many Xhosa nouns have an inner and outer prefix, both identified by class. CONJ= conjoint (non-final) verb form; DEF = definite; DISJ = disjoint verb form; fem = feminine; FCA = first conjunct agreement; LCA= last conjunct agreement; masc = masculine; neut = neuter; Prt = participle; FV = final vowel; LOC = locative marker; PRES = present tense, PAST = past tense; PL = plural; SA = subject agreement.

- (1) a. m-toto/wa-toto  
1-child/2-child  
'child/ren'
- b. m-ti/mi-ti  
3-tree/4-tree  
'tree/s'
- c. gari/ma-gari  
5car/6-car  
'car/s'
- d. ki-tabu/vi-tabu  
7-book/8-book  
'book/s'
- e. n-dizi/n-dizi  
9-banana/10-banana  
'banana/s'
- etc.

However, odd and even pairings of the Bleek/Meinhoff's classes 1-10+ are also commonly viewed as the singulars and plurals for a smaller number of genders, as in (2) (Carstens 1991, 2008, Corbett 1991, Corbett & Mtenje 1987, Watkins 1937 among others).

(2) Bantu Genders (Carstens 1991)

Gender A: stems of Classes 1/2  
Gender B: stems of Classes 3/4  
Gender C: stems of Classes 5/6

Gender D: stems of Classes 7/8  
Gender E: stems of Classes 9/10  
Etc.

Carstens (1991) proposes that gender is a lexical property of Bantu nouns. Noun class prefixes are gender-specific spellings out of singular/plural features as shown in (3), fed by N combining syntactically with the head of the functional category NumP.

(3) Sample Spell-Out rules yielding Swahili Noun Class Prefixes

[Singular]  $\longleftrightarrow$  /m-/ /\_\_N<sub>[Gender A]</sub>                      [Plural]  $\longleftrightarrow$  /wa-/ /\_\_N<sub>[Gender A]</sub>

[Singular]  $\longleftrightarrow$  /ki-/ /\_\_N<sub>[Gender D]</sub>                      [Plural]  $\longleftrightarrow$  /vi-/ /\_\_N<sub>[Gender D]</sub>

The viability of this view is challenged in the recent approach of Taraldsen et al (2018) to agreement with conjuncts in Xhosa. Bantu conjunct agreement phenomena are also discussed to varying extents in Corbett (1983, 1991, 2006), Corbett & Mtenje (1987), De Vos & Mitchley (2012), Diercks et al (2015), Givon (1970), Marten (2000, 2005), Roberts & Wolontis (1974),

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In examples, DPs and agreement with them are matched up by underlining or bolding. Default is italicized, and indeterminate cases are in plain text. Examples are not marked for tone.

Schadeberg (2001), Simango (2012), and Voeltz (1971), Mitchley (2015). These studies all show that coordinated singular noun phrases (henceforth DPs) may and sometimes must be accompanied by default subject agreement in Bantu languages, typically taken from plural noun classes 8 and/or 10<sup>2</sup> for non-humans and class 2 for human-denoting nouns, regardless of their intrinsic classes (see (4)) and (5)).<sup>3</sup>

- (4) a. Mbale na ka-temo v-a-sow-a. [ciNsenga; Simango 2012: 178]  
 9.plate and 12-axe 8SA-PAST-miss-FV  
 'The plate and the axe are missing.'
- b. U-m-nqathe ne-qanda zi-se tafile-ni. [Xhosa; Mitchley 2015:115]  
 3-3-carrot and.5-egg 8SA/10SA-LOC table-LOC  
 'The carrot and the egg are on the table.'
- c. U-mu-bíirá ní-í-ri-gena m-bí-síir.e. [Kuria; from Diercks et al 2015:31]  
 3-3-ball and-5-5-stone FOC-8SA-disappear.PAST.FV  
 'The ball and the stone disappeared.'
- (5) a. U-m-fundi ne-polisa ba-ya-balek-a. [Xhosa; Mitchley 2015:115]  
 1-1-student and.5-policeman 2SA-PRES-RUN-FV  
 'The student and the policeman are running.'
- b. Li-doda na m-simbi w-e-fwik-a mailo. [ciNsenga; Simango 2012:179]  
 5-man and 1-girl 2SA-PAST-arrive-FV yesterday  
 'The man and the girl arrived yesterday.'
- c. A xi-kelema ni buchara vo vulavula. [Xitsonga; Mitchley 2015:65]  
 DEF 7-scoundrel and 9.butcher 2SA-PRES talk  
 'The scoundrel and the butcher are talking.'

That subject agreement should exhibit default values in such cases is not surprising since the conjuncts involved do not have gender features in common. But this pattern has been reported

<sup>2</sup> Agreement for classes 8 and 10 is homophonous in Xhosa, hence the indeterminate gloss in (4)b. Hereafter for simplicity I gloss the prefix as class 8. In Bantu languages where the two are distinct, class 8 is a frequent default agreement with non-human-denoting nouns.

<sup>3</sup> The examples in (5) include singular human-denoting nouns drawn from classes 1, 5, 7, and 9. Conjoined plurals will be discussed in §3. Though classes 1/2 contain almost exclusively human-denoting nouns, many such nouns are also found in the other Xhosa classes. When not conjoined, they control the same class-specific agreement as non-human-denoting nouns of the same classes. See Corbett & Mtenje (1987) for a proposal that the class 2 vs. 8 gender resolution strategies are semantic. I discuss this in §7.

to hold even where conjuncts are drawn from the same singular noun class and thus each conjunct, if pluralized, would control an identical plural agreement form (see Bosch 1988, Corbett 1991, 2006, Simango 2012, Mitchley 2015, and Taraldsen et al 2018 on these generalizations). The unexpected pattern is exemplified in Xhosa (6)a, (7)a, and (8)a for coordinated singular nouns with matching genders. The contrasting pattern of agreement with individual (non-conjoined) plural nouns of the same putative gender is shown in (6)b-c, (7)b, and (8)b, where successful agreement and its controllers are underlined (all examples taken from Taraldsen et al 2018). Note especially (8)b, a representative example demonstrating that human-denoting nouns control the agreement that matches their noun class morphology and not that of Gender A, unless such nouns are conjoined as in (8)a.<sup>4</sup>

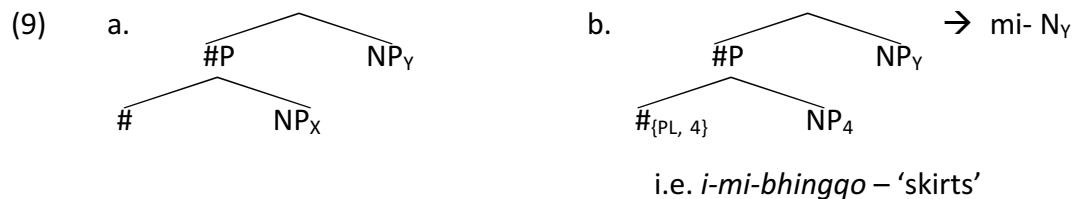
- (6) a. u-m-bhingqo no-m-nqathe zi/\*i-se tafile-ni.  
 3-3-skirt and-3-3-carrot 8SA /\*4SA-LOC table-LOC  
 'A skirt and a carrot are on the table.'
- b. I-mi-bhingqo i-se tafile-ni.  
 4-4-skirt 4SA-LOC table-LOC  
 'The skirts are on the table.'
- c. I-mi-nqathe i-se tafile-ni.  
 4-4-carrot 4SA-LOC table-LOC  
 'The carrots are on the table.'
- (7) a. I-li-tye ne-qanda zi/\*a-khataza i-n-taka.  
 5-5-stone and.5-egg 8SA /\*6SA -annoy 9-9-bird  
 'The stone and the egg annoy the bird.'
- b. A-ma-tye/a-ma-qanda a-/\*zi-khataza i-n-taka.  
 6-6-stone/6-6-egg 6SA /\*8SA-annoy 9-9-bird  
 'The stones/eggs annoy the bird'
- (8) a. U-m-gewu no-m-lwelwe ba/\*i-sebenza ndawonye.  
 3-3-criminal and.3-3-cripple 8SA /\*4SA-work together  
 'A criminal and a cripple are working together.'

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<sup>4</sup> Conjoined human-denoting nouns from singular classes 7 and 9 are exceptional in that speakers accept class 8/10 agreement with them in Xhosa, unlike most human-denoting singulars. More on this in §7.

- b. I-mi-gewu /i-mi-lwelwe i-sebenza ndawonye.  
 4-4-criminal/4-4-cripple 4SA-work together  
 'The criminals/cripples work together'

Taraldsen et al (2018) argue that these facts cast doubt on the proposals in (1) and (2). They reason that if, for example, class 3 and class 4 are the singulars and plurals respectively of nouns belonging to the same gender, that gender should be contributed by conjoined class 3 nouns. Given this, under the gender hypothesis, we should expect subject agreement with the conjunction to be drawn from class 4, they claim. Taraldsen et al (2018) propose instead that traditional pairings of singular and plural noun classes have no shared gender features. The features of each Bleek/Meinhoff class are contributed by a silent classifier-like noun which is specifier to the overt noun. The general structure is shown in (9)a, where #P is a number projection dominating the silent noun NP<sub>x</sub> in Spec of an NP<sub>Y</sub> headed by the overt noun. # inherits the class feature of NP<sub>x</sub>. The representation of a class 4 noun is shown in (9)b (from Taraldsen et al 2018: 13).<sup>5</sup>



Summing up, class 3 nouns only have the class 3 features which are contributed by their specifiers, according to Taraldsen et al; class 4 nouns have only class 4 features, and so on, for nouns of all classes. Singular and plural classes do not have gender features in common. It follows that conjoined class 3 nouns cannot control class 4 agreement, nor can any conjoined

<sup>5</sup> Taraldsen et al (2018) develop this analysis for classes 4 and 6 and then generalize it to all classes including singulars, ultimately concluding that all class prefixes are classifiers.

singular nouns control agreement associated with their plural class. The schema in (2) is thus incorrect.

Taraldsen et al's approach does not reflect the consistent and predictable singular/plural correspondences that are exemplified in (1). In this paper, I propose an alternative that accomplishes this by maintaining the genders in (2). My approach has the additional advantage of relating the Xhosa facts to similar phenomena outside of the Bantu language family. By adding an exploration of conjoined plurals, I further the evidence that noun class and gender are one and the same, and provide new insights into the mechanics of agreement. Lastly, my approach yields some novel perspectives on the relationship between grammatical and semantic gender.

## **1.2 Structure of the paper**

In §2 I show that there are parallels to the problematical Xhosa data in Serbo-Croatian and Slovenian -- languages with canonical gender systems -- and describe how prior research on these languages accounts for the facts. §3 discusses agreement with conjoined Xhosa plurals reported in Mitchley (2015), showing that they also have parallels in Serbo-Croatian, and that a successful existing account in Boskovič (2009) extends easily to the Xhosa data. §4 presents additional agreement patterns from my own research on conjoined plurals in Xhosa, capturable under the assumption that three hierarchies of preference are reflected in agreement with [+human] preverbal conjuncts, for these speakers: (i) class 2 > class 6, (ii) class 2 > class 4, and (iii) First Conjunct Agreement > Last Conjunct Agreement > default agreement. §5 presents an analysis of these facts based on a modification of Boskovič (2009). I assume with Boskovič that in order for a conjunction of DPs to raise to Spec, TP, uPhi of T must probe the whole, including

each conjunct. But while Boskovič argues that the gender of the first conjunct deletes when T probes the second conjunct to yield LCA with preverbal conjuncts in Serbo-Croatian, I propose instead that T's  $\text{uPhi}$  acquires multiple gender features. Since it can express only one, impoverishment rules delete all but a single gender value on T, in accordance with language- (and speaker-) particular preference hierarchies. §5 also relates the preference hierarchies to markedness. §6 shows that contrasting approaches to conjunct agreement advocated in Marušič et al (2015), Nevins & Marušič (to appear), and Murphy & Puškar (2018) cannot be extended to the Xhosa facts in any obvious way. §7 proposes that default agreement and its exceptions is an important diagnostic for gender (un)interpretability, and provides an analysis in terms of the  $n$  approach to gender of Kramer (2015). §8 concludes.

## 2. Explaining default agreement with matching singular conjuncts

Failures of expected plural agreements with conjunctions of singulars are not restricted to Bantu; other languages with grammatical gender exhibit similar phenomena. Corbett (1983) shows that in Slovenian, while conjoined feminine nouns take plural feminine agreement, and conjoined masculine nouns take plural masculine agreement, conjoined singular neuter nouns also take plural masculine agreement (see (10), from Corbett (1983: 188).

(10) to drevo (neut) in gnezdo (neut) na njem mi bosta ostala (masc dual) v spominu.  
 that tree and nest on it to-me will remain in memory

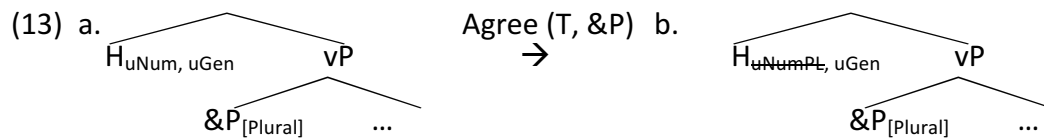
Corbett (1983, 1987) and Boskovič (2009) report similar facts for Serbo-Croatian. As (11) (from Boskovič 2009: 483) shows, coordinated neuter singulars cannot be accompanied by plural neuter agreement on the verb.

(11) \*Jedno tele i jedno pašče su juče prodana.  
 one calf.neut and one dog.neut are yesterday sold.pl.neut

In both Slovenian and Serbo-Croatian, conjoined singular neuter nouns like those in (10) and (11) pattern with conjoined singular nouns whose gender mismatches. Only plural masculine agreement is allowed in such cases, as shown in (12) (from Bosković 2009: 451).

- (12) a. \*Juče su uništena jedno selo i jedna varošica.  
 yesterday are destroyed.pl.neut one village.neut and one town.fem
- b. \*Juče su uništene jedna varošica i jedno selo.  
 yesterday are destroyed.pl.fem one town.fem and one village.neut
- c. Juče su uništeni jedna selo i jedno varošica.  
 yesterday are destroyed.pl.masc one village.neut and one town.fem
- d. Juče su uništeni jedna varošica i jedno selo.  
 yesterday are destroyed.pl.masc one town.fem and one village.neut

Marušič et al (2007) and Bosković (2009) propose that Conjunction Phrase, henceforth &P, is generally specified for number features only. When a uPhi probe on a head H (such as Serbo-Croatian Participle) probes &P for number and gender values, it succeeds in obtaining the plural number value alone. Default resolution rules therefore come into play not just when the genders of conjuncts mismatch, but also when they match.<sup>6</sup>



This assumption extends nicely to the Bantu phenomena in (4)-(8). Assuming Bantu noun class agreement reflects both number and gender, it follows that Bantu T searches for both kinds of feature-values. Since the relation Agree ( $T_{uNum, uGen}, \&P$ ) can value only the uNumber feature of

<sup>6</sup> §7 modifies this approach to explain the success of feminine plural agreement with conjoined feminine singulars in Serbo-Croatian, and related phenomena in Xhosa; in §3 I show that probing of and agreeing with a conjunct is possible if it does not mismatch the plurality of &P (following Bosković 2009). What's important for present purposes is that conjunctions of singulars in other languages with grammatical gender show the same opacity to agreement as in Xhosa, undermining Taraldsen et al's rejection of the gender-based approach to noun class.



T, alternative strategies must provide a gender value.<sup>7</sup> The Bantu languages exemplified in (4) and (5) employ a default class 8 value (= plural Gender D, in Carstens's system) for conjoined singular non-human-denoting nouns in this situation, and class 2/Gender A for humans (though see note 3 and §7).

Summing up, an existing analysis of comparable phenomena in languages with canonical gender systems has no problem extending to the Bantu facts. There is no reason to throw out the baby with the bathwater by rejecting the useful hypothesis that shared genders underlie systematic pairings of singular and plural classes.

### 3. Adding plural conjuncts: partial agreement

#### 3.1 Last conjunct agreement (LCA)

While Taraldsen et al (2010) discuss only agreement with conjoined singulars, conjoined plurals also exhibit relevant agreement asymmetries. Like conjoined singulars, conjoined plurals show parallels to Serbo-Croatian which support the account I have presented.

Mitchley (2015) shows that when Xhosa plurals of mismatching classes are conjoined, the dominant pattern for the four speakers in her study is for subject agreement to reflect the class of the last conjunct:

- (14) a. I-zi-caka na-ba-pheki ba-ya-pheka.  
 8-servant and.2-2-cook 2SA-DISJ-cook  
 'The servants and the cooks are cooking.'
- b. A-ba-pheki ne-zi-caka zi-ya-pheka.  
 2-2-cook and.8-8-servants 2SA-DISJ-cook  
 'The cooks and the servants are cooking.'
- (15) a. A-ma-dada ne-zi-khova zi-ya-bhabha.  
 6-6-duck and.8-8-owl 8SA-DISJ-fly  
 'The ducks and the owls are flying'

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<sup>7</sup> Under the assumptions of Chomsky (2000), this could leave an unvalued uninterpretable feature, leading the derivation to crash. In contrast, Preminger (2014) argues that default strategies and reduced agreement indicate that agreement may licitly fail – an approach consistent with the conjunct agreement facts.

- b. I-zi-khova na-ma-dada a-ya-bhabha.  
 8-8-owl and.6-6-duck 6SA-DISJ-fly  
 'The owls and the ducks are flying.'

Mitchley points out that a last conjunct agreement (henceforth LCA) analysis extends to cases where both conjuncts are drawn from the same plural class, giving rise (misleadingly, she suggests) to the appearance that there is subject agreement with the whole (see (16), from Mitchley 2015: 116).

- (16) a. I-mi-pu ne-mi-bhobho i-se rumi-ni.  
 4-gun and.4-4-pipe 4SA-loc room-LOC  
 'The guns and the pipes are in the room.'
- b. A-ma-sele na-ma-dada a-ya-qubha.  
 6-6-frog and.6-6-duck 6SA-DISJ-swim  
 'The frogs and the ducks are swimming.'
- c. A-ma-polisa na-ma-gqwetha a-ya-sebenza.  
 6-6-policeman and.6-6-lawyer 6SA-DISJ-work  
 'The policemen and the lawyers are working.'
- d. I-zi-tyebi ne-zi-bhanxa zi-ya-funda.  
 8-8-rich.person and.8-8-fool 8SA-DISJ -study  
 'The rich people and the fools are studying.'

Why, though, should agreement with preverbal subjects target the last conjunct? Though it is linearly nearer to the agreement marker than is the first conjunct, there is much evidence that linear order plays no role in syntactic processes. Further, Boskovič (2009) provides evidence that the *head* of the last conjunct controls LCA in Serbo-Croatian, even if it is separated from the verb by another nominal with contrasting gender and number features (see (17)).

- (17) Sve varošica i sva sela **Poljice** su lijepa /\***lijepe**.  
 all towns.fem and all villages.neut Poljice.fem are beautiful.pl.neut/beautiful.pl.fem  
 'All towns and all villages named Poljice are beautiful.'

Xhosa LCA reveals the same pattern of insensitivity to all but the head of the last conjunct, even if a non-head is linearly closer (see (18)).

- (18) a. A-ma-qanda nezi-tya z-**a-ba-fazi** zi-/\*ba-nyamelele.  
 6-6-eggs and.8-8plates 8-of.2-2women 8SA-/2SA-be.missing  
 'The eggs and the women's plates are gone.'

- b. l-zi-tya na-ma-ganda a-ba-fazi a/\*ba-nyamelele.  
 10-plates and 6-6eggs 6.of.2-women 6SA /\*2SA-be.missing  
 'The plates and the women's eggs are gone.'

The evidence in (17) and (18) indicates that the controller of LCA is hierarchically determined.

The puzzle is to establish why the last conjunct is a licit controller, despite cross-linguistic evidence that first conjuncts are structurally higher (Munn 1993, 1999 among others).

Several recent studies address the phenomenon of closest conjunct agreement, including Boskovič (2009), Marušič et al (2015), Nevins & Marušič (to appear), Murphy & Puškar (2018) among others. In what follows I describe the approach of Boskovič (2009), showing how it can account for the Xhosa facts introduced so far. I then present in §4 some additional patterns of Xhosa conjunct agreement that my own research with eight Xhosa speakers has revealed. In §5 I propose modifications to Boskovič's approach to accommodate them. §6 shows why alternative approaches developed in Marušič et al (2015), Nevins & Marušič (to appear), Murphy & Puškar (2018) are less successful. §7 gives an analytical treatment of default agreement and its exceptions.

### 3.2 Boskovič (2009) on LCA

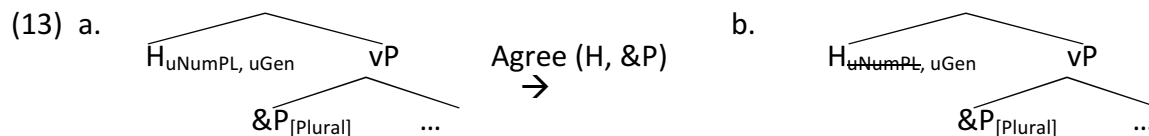
Boskovič (2009:458-9) shows that both first and last conjunct agreement are possible with conjoined plurals in Serbo-Croatian, depending on the syntactic context. First conjunct agreement (FCA) is found with post-verbal subjects in [VS] contexts, and LCA in [SV] contexts:

- (19) a. Juče su uništена svа sela i sve varošice.  
 yesterday are destroyed.pl.neut all villages.neut and all towns.fem
- b. Juče su uništene sve varošice i sva sela.  
 yesterday are destroyed.pl.fem all towns.fem and all villages.neut
- c. \*Juče su uništene sva sela i sve varošice.  
 yesterday are destroyed.pl.fem all villages.neut and all towns.fem

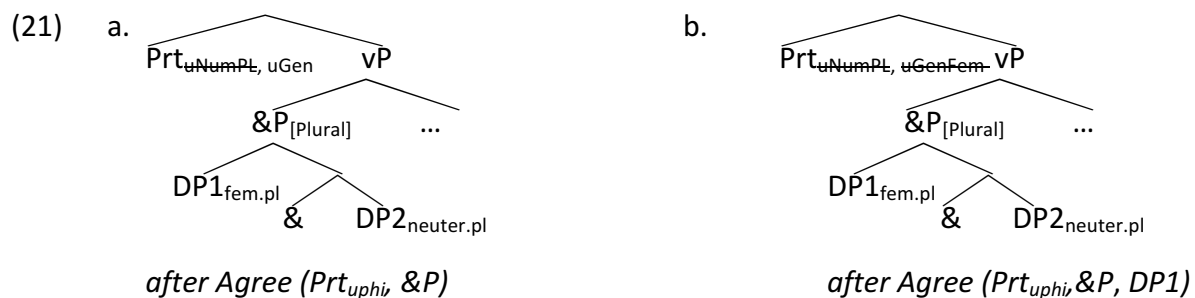
d. \*Juče su uništena sve varošice i sva sela.  
 yesterday are destroyed.pl.neut all towns.fem and all villages.neut

- (20) a. Sva sela i sve varošice su (juče) uništene.  
 all villages.neut and all towns.fem are yesterday destroyed.pl.fem
- b. Sve varošice i sva sela su (juče) uništena  
 all towns.fem and all villages.neut are yesterday destroyed.pl.neut
- c. \*Sva sela i sve varošice su (juče) uništena.  
 all villages.neut and all towns.fem are yesterday destroyed.pl.neut
- d. \*Sve varošice i sva sela su (juče) uništene  
 all towns.fem and all villages.neut are yesterday destroyed.pl.fem

Let us return to (13), repeated below, and see how it can extend to these cases under Bosković's approach.



Following Munn (1993, 1999) among others, the first conjunct is structurally higher than the second (see (21)a). Bosković proposes that upon obtaining a value only for number from &P, the Serbo-Croatian participial head (Prt) can either exhibit the default gender value (masculine) or search further and obtain a gender value from the first conjunct, as shown in (21)b. This is a kind of Multiple Agree (Hiraiwa 2001), in Bosković's account, and only succeeds if the number feature of DP1 is plural, since &P is plural and Prt will Agree with them both.<sup>8</sup>



<sup>8</sup> For Bosković, the fact that DP1 must be plural is evidence that the relevant uPhi probe is not a “split” probe that can obtain a number value from one goal and a gender value from another.

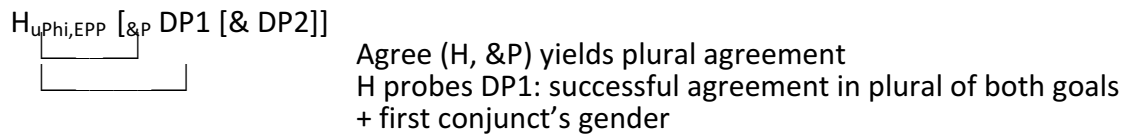
This derivation yields successful FCA in Serbo-Croatian [VS] constructions as exemplified in (19). Turning now to [SV] constructions, Boskovič argues that FCA is incompatible with the circumstance in which the participle (Prt) has an EPP feature, raising &P. His explanation is based on the fact that first conjuncts are extractible in Serbo-Croatian, and on the assumption that valutors determine pied-piping. These factors give rise to an ambiguity as to what can potentially undergo raising when the probe acquires values from two goals (in (21), &P and DP1): given that both are valutors of agreement on Prt and each is capable of raising, both are in principle eligible to pied-pipe and satisfy an EPP feature of the probe. The ambiguity leads to a failure of either one to be able to raise, adapting McGinnis's (1998) lethal ambiguity idea.

Following a proposal of Bejar (2003) that inability to pied-pipe leads to a failure to value, the Prt head needs to probe for gender again. When the probe's  $u\Phi$  is valued by the second conjunct, the gender value of the first conjunct does not conflict because it has undergone deletion -- an option that Boskovič proposes is both available and necessary because grammatical gender is uninterpretable, in Boskovič's view. In contrast, number features are interpretable so cannot delete; hence the requirement of matching plurality.

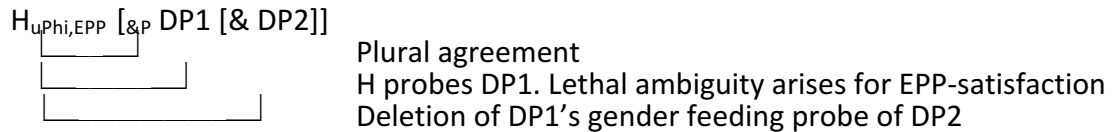
Upon probing of DP2 by Prt, valuation is successful, according to Boskovič, because no ambiguity exists regarding what can raise: only &P can do so, since DP2 of a conjunct cannot extract, and the deletion of DP1's gender feature eliminates it as a valutor. The upshot is that a preverbal &P is accompanied by either default/semantic agreement or LCA; never FCA.

I summarize these proposals of Boskovič's for Serbo-Croatian (SC) FCA and LCA in (22).

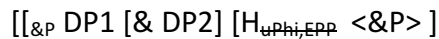
(22) a. Multiple Agree with &P and DP1 yields FCA with post-verbal conjunct



b. H with EPP-feature probes &P, DP1, DP2, yielding LCA.



c. DP2 cannot raise in SC. DP1 is ineligible after deletion of its gender, so &P raises.



### 3.3 Applying Boskovič (2009) to Xhosa LCA

Unlike in Serbo-Croatian, there is no agreement with in situ subjects in Xhosa. As in many Bantu languages, agreement and movement to preverbal subject position are strongly linked (Baker 2003, Collins 2004, Carstens 2005, and Baker 2008). Thus only default agreement is possible with a vP-internal subject (see (23)a,b and Carstens & Mletshe 2015 for details, but see also §4.2 on conjoined right-dislocated subjects).

(23) a. I-ncwadi i-fik-ile. [Xhosa; Carstens & Mletshe 2015:118-19]  
 9-9letter 9SA-arrive-DISJ  
 'A letter arrived.'

b. Ku-fik-e i-ncwadi.  
 17SA-arrive-CONJ 9-9letter  
 'A letter arrived.'

Turning to LCA with Xhosa preverbal conjoined subjects, there is evidence that DP1 may raise out of a conjunction in Xhosa, just as in Serbo-Croatian. On the basis of Lubukusu data, Safir, Sikuku, & Baker (2013) argue that first conjunct raising underlies a very common Bantu comitative construction illustrated in (24)b. The post-verbal expression in this construction functions as if it were part of a conjoined subject in (24)a, in that a reciprocal morpheme on the

verb is interpreted as bound by a conjunction of the two DPs though they are separated in surface syntax:

- (24) a. [O-mu-hayi ne e-twika] bi-a-bon-an-a.  
 1-1-hunter with 9-giraffe 8SA-see-RECIP-FV  
 'The hunter and the giraffe saw each other.'
- b. [O-mu-hayi] a-a-bon-an-a [ne e-twika].  
 1-1-hunter 1SA-see-RECIP-FV with 9-giraffe  
 'The hunter and the giraffe saw each other.'

Safir, Sikuku, & Baker (2013) propose the representation in (25) for (24)b (adapting their (13a)):

(25) [<sub>TP</sub> [<sub>DP<sub>sg</sub></sub> hunter] [T... [<sub>VP</sub> [<sub>DP<sub>pl</sub></sub> <hunter> [ne giraffe]] [<sub>v'</sub> v [<sub>VP</sub> see each other] ] ] ] ]

Examples (26)a,b provide the crucial evidence that Xhosa is like Lubukusu in that a first conjunct may raise, stranding the second. On this basis, we saw that FCA with preverbal subjects is ruled out in Bosković's approach to Serbo-Croatian; LCA surfaces instead.

- (26) a. U-m-ntwana no-m-fundi ba-bon-ene. [Xhosa]  
 1-1-child and.1-1student 2SA-see-RECIP  
 'The child and the student saw each other.'
- b. U-m-ntwana u-bon-ene no-m-ntwana.  
 1-1-child 1SA-see-RECIP and.1-1-child  
 'The child and the student saw each other.'

Summing up, the coordinate structure constraint is violable in that first conjuncts can be moved in Bantu languages where this has been studied, leaving the second conjunct behind. For speakers who accept only LCA for preverbal conjoined subjects in Xhosa, Bosković's account nicely explains the facts under the assumption that when a probe (here uPhi of T) linked to an EPP-feature agrees with both &P and the first conjunct, ambiguity over which should move cancels the relation, and the probe moves on to agree with the second conjunct.

## 4 Other patterns

### 4.1 Patterns of agreement with conjoined preverbal [+human] subjects

Mitchley (2015) notes finding a few exceptions to the general pattern of LCA with plural conjuncts in preverbal position. In research that I conducted with eight Xhosa speakers using a fill-in-the-blank task, I encountered quite a lot of variation. In what follows I focus on plural human-denoting nouns, henceforth [+human], which afford the greatest range of possible contrasts. This is because there are few [-human] nouns in classes 1/2 (and my data on them is currently sparse), and because there is syncretism between two plural classes (8 and 10) from which the default agreement for non-humans is also drawn, hence a three-way syncretism. In contrast, [+human] nouns are spread among all of noun classes 1-10, and default agreement with them is homophonous only with class 2.

A first point of contrast with Mitchley's findings is that I found FCA to be a robust alternative to LCA, in preverbal contexts.<sup>9</sup> Examples (27)a-c are cases in which a single speaker offered both FCA and LCA as acceptable options. (28) shows the option of default class 2 agreement with mismatched [+human] preverbal conjoined subjects, from a different speaker who favored this option.

- (27) a. A-ma-gqirha ne-**mi-gewu**      a-/i-sebenza      ndawonye.  
6-6-doctor    and.4-4-criminals    6SA/4SA-DISJ-work    together  
'The traditional doctors and the criminals are working together.'
- b. I-mi-gewu    **ne-z-anuse**      i/zi-ya-cul-a.  
4-4-criminals and.10-10-diviner    10SA/4SA-DISJ-sing-FV  
'The criminals and the diviners are singing.'

---

<sup>9</sup> My speakers and Mitchley's all come from the Eastern Cape, and were of an age to be found in the student populations of Rhodes University and University of the Western Cape where our studies were conducted. I must leave open the reason for the differences we found. I also administered the same questionnaire to a native speaker of Shona, who consistently offered LCA with preverbal conjoined subjects, like Mitchley's Xhosa speakers.



- c. A-ma-polisi **neen-tombi** a-/zi-ya-cul-a.  
6-6-police and.10-girl 6SA/10SA-DISJ-sing-SA  
'The police and the girls are singing.'
- (28) a. A-ma-banjwa ne-zi-qwala ba-sebenz-a ndawonye.  
6-6-prisoners and.10-10-cripples 2SA-work-FV together  
'The prisoners and the cripples are working together.'
- b. I-mi-gewu ne-za-nuse ba-ya-cul-a.  
4-4-criminals and.10-10-diviners 2SA-DISJ-sing-FV  
'The criminals and the diviners are singing.'

Secondly, it is important to note that the choice between FCA and LCA seems in many cases to be driven by the noun classes of both conjuncts.

All eight speakers in my study chose class 2 agreement whenever the first conjunct was class 2 (see (29)).

- (29) A-ba-ntwana nee-n-tombi ba-ya-cula. [FCA chosen by 8 out of 8 speakers]  
2-2-children and.10-10-girls 2SA-DISJ-sing-FV  
'The children and the girls are singing.'

For a conjunction of the form [class 10 +class 2], class 10 FCA was selected by five speakers, and class 2 LCA by three speakers, as shown in (30)a. This is significant given that class 2 is both the class of the second conjunct and the default agreement for [+human] nouns. When a class 10 first conjunct paired with a class 6 or class 4 noun as second conjunct, FCA was also strongly preferred. LCA was chosen by only a single speaker in each case (not the same speaker), and just one speaker chose default class 2 (see (30)b,c).

- (30) a. I-in-tombi **na-ba-ntwana** zi/ba-ya-cul-a. [FCA>LCA 5:3]  
10-10-girls and.2-2-children 8SA/2SA-DISJ-sing-FV  
'The young ladies and the children are singing.'
- b. I-in-tombi **na-ma-polisa** zi/a/ba-ya-cul-a. [FCA>LCA & default 6:1:1]  
10-10-girls and.6-6-police 8SA/6SA/2SA-DISJ-sing-FV  
'the young ladies and the policemen are singing.'
- c. I-in-tombi ne-mi-gewu zi/ba/i-ya-cula. [FCA>default>LCA 5:2:1]  
10-10-girls and.4-4-criminals 8SA/2SA/6SA-DISJ-sing-FV  
'the young ladies and the policemen are singing.'

Faced with a conjunction of a class 8 noun and a class 2 noun, six out of eight speakers chose class 8 FCA over class 2 agreement (henceforth I exemplify the dominant agreement pattern).

- (31) I-za-nuse na-ba-ntwana zi-ya-cul-a. [FCA >LCA 6:2]  
 8-8-mediums and.2-2-children 8<sub>SA</sub>-DISJ-sing-FV  
 'The young ladies and the children are singing.'

In all other conjunctions of the form [8+n], FCA was also favored. I illustrate with a conjunction of [8+6] nouns in (32).

- (32) I-z-anuse na-ma-gqirha zi-sebenza ndawonye [FCA>default>LCA]  
 8-8-mediums and.6-6-doctors 6<sub>SA</sub>-work-FV together  
 'The mediums and the traditional doctors are working together.'  
 [results: FCA x 4, FCA or default x 2, LCA x 1]

Similarly, when a class 6 first conjunct was combined with a second conjunct of any class but 2 (thus 4, 8, or 10), class 6 FCA was preferred. Out of twenty-four possible combinations of this kind (6+n ≠ 2), it was selected as the sole option in thirteen. In three more cases, it was offered as an equal alternative to another option: LCA (twice) or default (once), totaling sixteen cases in all where it was selected as the only choice or one of two options. LCA was offered by only three speakers as the sole preference, and there were five choices of default class 2 indicated. I exemplify the prevalent pattern of agreement with [6+8] and [6+10] combinations, below.

- (33) a. A-ma-gqirha ne-z-anuse a-sebenz-a ndawonye. [FCA>default>LCA]  
 6-6-doctors and.8-8diviners 6<sub>SA</sub>-work-FV together  
 'The traditional doctors and the diviners are working together.'  
 [results: FCA x 5, default x 1, FCA or default x1, LCA x 1]
- b. A-ma-polisa ne-en-tombi a-ya-cul-a. [FCA>LCA>default]  
 6-6-police and.10-10-girls 6<sub>SA</sub>-DISJ-sing-FV  
 'The policemen and the young ladies are singing.'  
 [results: FCA x 4, LCA x 2, FCA or LCA x 1, default x 1]

However, when a class 6 noun was the first conjunct and class 2 the second, class 2 agreement was the choice of six out of eight speakers. First conjunct agreement was the choice of one speaker, and an additional speaker offered both FCA and LCA options, as shown in (34).

- (34) A-ma-polisa na-ba-ntwana ba-ya-cul-a. [LCA chosen by 6 out of 8 speakers]  
 6-6-polisa and.2-2-children 2SA-DISJ-sing-FV  
 'The policemen and the children are singing.'

Class 2 agreement was also favored in the case of a class 4 first conjunct + a class 2 second conjunct: five speakers chose class 2 subject agreement, one chose class 4, one said either was acceptable, and the eighth speaker suggested *zi-* (class 8/10/[-human] default):

- (35) I-mi-gewu na-ba-ntwana ba-ya-cul-a. [LCA > FCA & [-human] default 5:2:1]  
 4-4-criminals and.2-2-children 2SA/4SA/8SA-DISJ-sing-FV  
 'The criminals and the children are singing.'

Of course, class 2 *ba-* agreement in such cases could be interpreted as default agreement, as it can in a case of apparent FCA like (29). However, the low incidence of *ba-* offered for examples in which neither conjunct is class 2 argue that default agreement is the least preferred option with conjoined [+human] nouns (see for example discussion of (33), and (30)b,c). This makes a default account of examples including class 2 conjuncts less likely than the FCA and LCA accounts (and see §5.2 for detailed discussion of default).

The most variable results accompanied conjunctions in which the first conjunct was from class 4. For example, a conjunction of classes [4+6] nouns yielded two instances of FCA, two instances of LCA, three of default class 2 agreement, and one speaker who offered both FCA and default:

- (36) I-mi-gewu na-ma-gqirha \_\_\_ -sebenz-a ndawonye. [default > FCA & LCA]  
 4-4-criminals and.6-6-doctors \_\_\_ -work-FV together  
 'The criminals and the traditional doctors are working together.'  
 [Results: FCA x 2, LCA x 2, default x3, default and FCA equally good x 1]

Class [4+10] conjunctions yielded two instances of FCA, three of LCA, and three selections of default *ba-*, as shown in (37). Results for class [4+8] conjunctions were much the same.

- (37) I-mi-gewu ne-en-tombi \_\_\_ -ya-cul-a. [default & LCA > FCA]  
 4-4-criminals and.10-10-girls \_\_\_ DISJ-sing-FV  
 'The criminals and the young ladies are singing.'  
 [Results: FCA x 2, LCA x 3, default x3]

For conjunctions of [6+4] nouns speakers favored FCA, though default was a close second:

- (38) A-ma-gqirha ne-mi-gewu                a-ya-sebenz-a.                                        [FCA>default >LCA]  
6-6-doctors and.4-4-criminals    6SA -DISJ-work-FV  
'The traditional doctors and the criminals are working.'  
[Results: FCA x 4, default x 3, FCA or LCA x 1]

Over all, the speakers in my study of [+human] plural conjuncts from mismatching noun classes preferred FCA. There were twenty combinations (2+4, 4+2, etc. through all possible combinations), on which eight speakers gave judgments. Thus, speakers offered agreement choices in one hundred and sixty cases. Since LCA and FCA are identical for [8+10] and [10+8], I leave these sixteen cases out of my calculations, considering only the balance between LCA, FCA, and default on 144 cases. Out of all cases of conjunct agreement, FCA was the sole choice offered 77% of the time (77:31). Here is the full set of numbers in Table 1 below:

**Table 1: Agreement choices for mismatching plural conjuncts ≠ [8+10] and [10+8]**

FCA	LCA	FCA or LCA	Default	FCA or default	LCA or default
77	31	10	19	4	3

Even if we were to exclude from the tally twenty-eight instances in which speakers chose the first conjunct when it was class 2 (given ambiguity as to whether FCA or default agreement was involved), speakers chose FCA over LCA in 49:31 cases or 61% of the time. Only when the first conjunct is from class 4 does LCA have an edge over FCA, as shown in Table 2.

**Table 2: Agreement choices for [4+n]**

FCA	LCA	FCA or LCA	Default	FCA or default	LCA or default
6	12	0	9	2	0

In contrast, when the first conjunct is class 6, LCA is only favored if the second conjunct is class 2 (see (33) and (38) versus (34)).

I conclude that the class features of both conjuncts play a role in determining the choice between FCA and LCA. This is a necessary conclusion, in order to allow the choice of LCA when the noun class features of the conjuncts are [6+2] or [4+2], versus FCA when the conjuncts are of classes [2+n], [8+n], [10+n], [6+n ≠ 2] – basically all combinations save those excluded above, or having a class 4 first conjunct in which case the pattern is LCA >default>FCA.

#### 4.2 Hierarchies of preference

Most of the facts can be captured by positing three hierarchies of preference (HoPs) that guide the choice of LCA, FCA, and default agreement for conjoined [+human] preverbal subjects, for the speakers in my study. If the conjuncts are [6+2] or [4+2], we have seen that the class 2 features of the second conjunct favor it as the source of gender value for the uPhi probe.

Otherwise, FCA is preferred over LCA, and default is the least preferred option. Future research is needed to determine the extent to which these preferences are violable. I instructed speakers to inform me when there were multiple acceptable options, but I did not collect grammaticality judgments on choices that they did not select.

(39) Hierarchies of preference in Xhosa agreement with conjoined plural [+human] preverbal subjects:

- (i) 2>4
- (ii) 2>6
- (iii) FCA>LCA>default

Since (i) and (ii) bleed (iii), we could assume that they apply before (iii).

An alternative would be to give markedness values to noun classes and their agreements, with class 4 the most highly marked plural class (at least for [+humans]), followed

by class 6, and class 2 the least marked. Assuming LCA also has a higher markedness value than FCA for the speakers in my study, the desired results can be obtained by assuming that both markedness scales inform the choice of agreement, and that the class hierarchy trumps the FCA>LCA hierarchy. The avoidance of class 4 FCA illustrated in Table 2 favors an approach along these lines. Additional evidence on this question will be drawn from a closer look at the distribution of default agreement, to be discussed in §5.2.

In §5.1 I will propose a modification of Bosković (2009) to accommodate the facts described in this section including the HoPs in (39), and §6 shows that several other accounts of closest conjunct agreement lack the ability to permit preferences of this kind. But first I complete this profile of Xhosa conjunct agreement by describing agreement with conjoined right-dislocated subjects.

#### 4.3 FCA with post-verbal subjects

§3.2 reported that there is no agreement with in situ subjects in Xhosa comparable to what is found in Serbo-Croatian. There is, however, agreement with right-dislocated conjoined subjects. The choice is always FCA, as in (40)a and (40)b. (40)c and (40)d show that LCA is impossible. (40)e and (40)f show that default class 2 agreement is also ruled out.

- (40) a. A-ya-cul-a      a-ma-polisa    nee-n-tombi.  
           6<sub>SA</sub>-DISJ-sing-FV 6-6-police    and.10-10girls  
           ‘The policemen and the girls are singing.’
- b. Zi-ya-cul-a      i-in-tombi      na-ma-polisa.  
           10<sub>SA</sub>-DISJ-sing-FV 10-10-girls    and.6-6-police  
           ‘The girls and the policemen are singing.’
- c. \*Zi-ya-cul-a      a-ma-polisa    nee-n-tombi.  
           10<sub>SA</sub>-DISJ-sing-FV 6-6-police    and.10-10girls  
           [Intended: The policemen and the girls are singing.]

- d. \*A-ya-cul-a i-in-tombi na-ma-polisa.  
 6SA-DISJ-sing-FV 10-10-girls and.6-6-police  
 [Intended: The girls and the policemen are singing.]
- e. \*Ba-ya-cul-a i-in-tombi na-ma-polisa.  
 2SA-DISJ-sing-FV 10-10-girls and.6-6-police  
 [Intended: The girls and the policemen are singing.]
- f. \*Ba-ya-cul-a a-ma-polisa nee-n-tombi.  
 2SA-DISJ-sing-FV 6-6-police and.10-10girls  
 [Intended: The policemen and the girls are singing.]

The verb in these examples is in the so-called disjoint form, meaning that nothing follows the verb within vP (Buell 2004); this is a well-established diagnostic that post-verbal subjects are right-dislocated. Were a conjoint (non-final) verb form to appear, it would necessarily bear default class 17 agreement as noted in §3.2 and exemplified in (41)a. The conjoint form indicates that the subject remains very low in the structure. Carstens & Mletshe (2015) analyze this construction as involving an empty Spec, TP and no probing by uPhi of T. I follow Julien (2002) in assuming the verb raises as high as the suffixal morphology it bears, in this case the indicative *-a* head of MoodP. The result is (41)b.

- (41) a. Ku-cul-a a-ba-fana ne-en-tombi  
 17SA-DISJ-sing-FV 2-2-boys and.10-10girls  
 ‘The boys and the girls are singing.’
- b. [TP ku-T [MoodP cul-a<sub>Mood</sub> [VP abafana nentombi <v> [VP <V> ]]]  
 17SA sing-FV.INDIC 2boys and.10girls

It has been argued that the attachment site of right-dislocated subjects is vP-level (see Buell 2008, Cheng & Downing 2009, Zeller 2012); under this assumption, the raised verb in cases like (40) c-commands the post-verbal subject even though it is ex situ, as shown in (42).<sup>10</sup>

- (42) a. A-ya-cul-a a-ma-polisa nee-n-tombi  
 6SA-DISJ-sing-FV 6-6-police and.10-10girls  
 ‘The policemen and the girls are singing.’

<sup>10</sup> My thanks to Jochen Zeller (personal communication) for pointing this out to me.

- b. [TP a-ya [<sub>MoodP</sub> cul-a<sub>Mood</sub> [<sub>VP</sub> [<sub>VP</sub> <SU <V> [<sub>VP</sub> <V> ]]]] amapolisa nentombi]]  
 6SA-DISJ sing-FV.INDIC 6police &10girls

I will propose in §5.3 that the right-dislocated subject does not raise through Spec, TP. I leave further discussion until then. What is relevant for the moment is that agreement is possible with post-verbal conjoined subjects in Xhosa, and it can only be FCA. In this, Xhosa's right-dislocated subjects align with in situ post-verbal subjects of Serbo-Croatian and Slovenian as described in Boskovič (2009), Marušič et al (2007).

## 5 Analysis

### 5.1 Modifying Boskovič (2009) for preverbal subjects

Recall that three HoPs are displayed in the choice between LCA and FCA in SV contexts, for the speakers in my study, as shown in (39) (repeated below).

(39) Hierarchies of preference in Xhosa agreement with conjoined, preverbal subjects:

- (i) 2>4
- (ii) 2>6
- (iii) FCA>LCA>default

I leave aside for the the moment the issue of deriving these from markedness relations; they express descriptive generalizations that must be captured.

The HoPs indicate that, in the grammars of these speakers, the genders of the two conjuncts must be compared before a choice is made of which to agree with. It therefore cannot be correct that the features of the first conjunct are systematically deleted as a necessary condition for &P raising to Spec, TP in Xhosa, as Boskovič (2009) argues to be the case in SC (see also Marušič et al 2015, Nevins & Marušič to appear, Murphy & Puškar 2018 for evidence from FCA with preverbal subjects that the features of both first and last conjuncts remain "active" in SV contexts in Slavic languages). Nor can it be the case that the disfavored class 4 or 6 feature of a first conjunct is always deleted, in conjuncts [4+n] and [6+n]. FCA with



class 4 first conjuncts is not the choice of most speakers but it is available, and FCA with class 6 is preferred, unless the second conjunct is class 2. Thus to best capture the results, both features must be considered active, and taken into account.

I propose instead that in order for &P to raise, as opposed to the first conjunct alone (recall that (26)b shows this to be an option),<sup>11</sup> T's uPhi must probe all of &P, including both conjuncts.

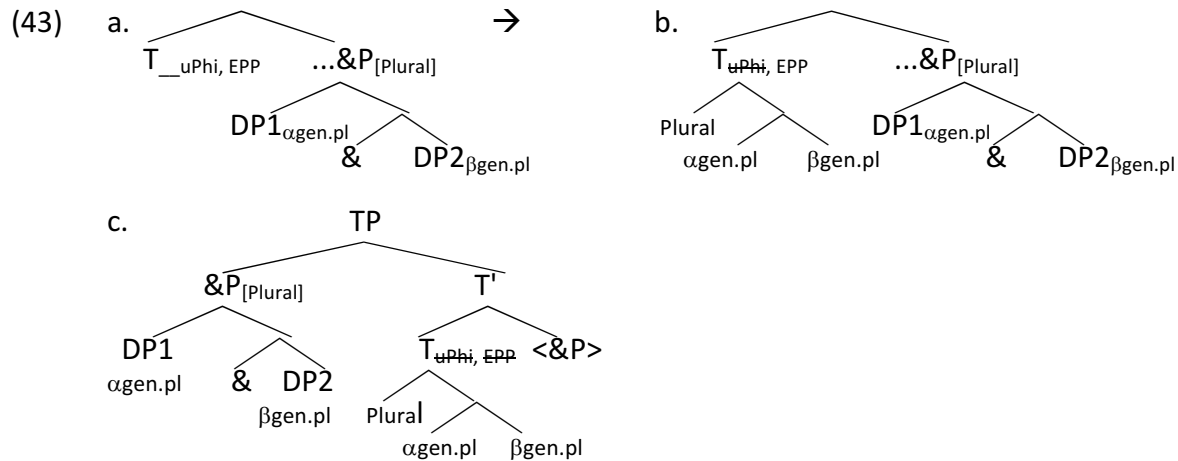
Where singulars are concerned, the probing of conjuncts is vacuous – it returns no values, because of mismatch of the conjuncts' singular number features with &P, as Bosković (2009) proposes. We can think of this as the outcome of two connected factors, building on Bosković's account: (i) &P's subparts cannot be accessed save through Multiple Agree, which requires matching; and (ii) the number features of & and of the conjuncts are interpretable, hence cannot be selectively ignored or deleted.

But where plurals are concerned, this problem does not arise. Multiple Agree succeeds since all constituents are plural. As purely formal features, the differing gender features of the conjuncts seem to pose no obstacle to Multiple Agree. Xhosa T copies &P's number, and the number and gender features of both DP1 and DP2.<sup>12</sup> This provides a kind of snapshot of the features of the conjuncts on the probe. The gender features' relative left-to-right positions in the uPhi bundles below crucially signal the hierarchical and linear relations among conjuncts.

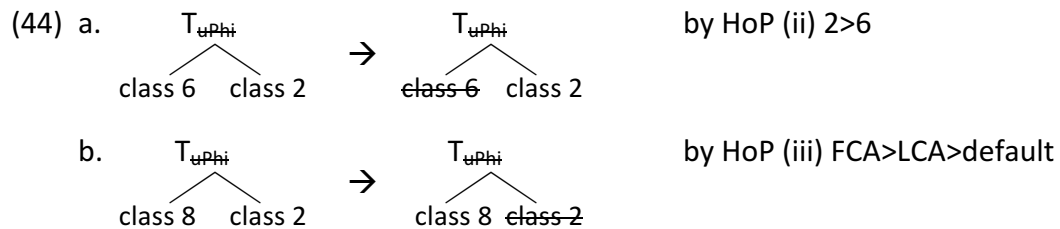
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<sup>11</sup> Given the conclusions of this section, it isn't clear to me whether a language needs to have the option of first conjunct extraction in order to derive LCA; perhaps raising &P always and only requires Agree with all conjuncts, and language- and speaker-particular variability reflects preferences/tendencies like (39) (see above citations on Serbo-Croatian and Slovenian). I leave this question open to cross-linguistic exploration.

<sup>12</sup> See also Citko (2018) for an approach copying features of both conjuncts onto the probe.



Because T can express only a single gender feature, an impoverishment operation (Bonet 1991) must delete one of them.<sup>13,14</sup> The Hierarchies of Preference determine which gender feature is retained, as shown in (44) (for simplicity I omit number, which is irrelevant to this process).



## 5.2 Default agreement with preverbal conjoined subjects

It remains to consider in detail the distribution of default class 2 agreement with conjoined plurals, matching neither conjunct.

There were twelve combinations on my questionnaire in which neither conjunct was class 2, and eight speakers offering agreement choices on them, yielding a total of 96 chances

<sup>13</sup> See also Murphy & Puškar (2018) for an application of impoverishment to deriving the features of agreement with conjuncts. In their account, impoverishment reduces multiple gender values on &P itself, to arrive at the least marked.

<sup>14</sup> While I will not discuss conjunctions of more than two DPs and hence medial conjuncts, HoPs and impoverishment may simply eliminate their features, or perhaps they are inaccessible adjuncts to parts of &P. I leave this to future research.

for default agreement to be the unambiguous choice. Of my eight speakers, one offered default class 2 agreement in every single case of conjoined plurals. With this speaker included, default agreement with mismatching conjuncts where neither one is class 2 occurred in 20 instances out of 96 as either the only choice or an option, hence 21% of the time. I show the distribution of default agreement in Table 3.

**Table 3: Default agreement on combinations in which no conjunct = class 2 (eight speakers)**

4+6	4+8	4+10	6+4	6+8	6+10	8+4	8+6	8+10	10+4	10+6	10+8
3	3	3	3	1	1	2	1	0	2	1	0

With the atypical speaker excluded from calculation, default class 2 agreement with mismatched conjuncts was offered in just 10 cases, either as the only option or as an alternative to FCA, by the remaining speakers (10.5% of the total), as shown in Table 4.

**Table 4: Default agreement for combinations in which no conjunct = class 2, excluding the default-only speaker (seven speakers)**

4+6	4+8	4+10	6+4	6+8	6+10	8+4	8+6	8+10	10+4	10+6	10+8
2	2	2	2	0	0	1	0	0	1	0	0

A pattern clearly emerges here. Six of the cases in which default was chosen had a class 4 noun as the first conjunct: [4+6] x 2 speakers, [4+8] x 2, [4+10] x 2 (one speaker was consistent in choosing *ba*; the others involved different speakers across examples). Three more cases had class 4 as the second conjunct: [6+4] x 2 speakers, [8+4] x 1, [10+4] x 1.

It seems, then, that not only is FCA strongly avoided when a class 4 or 6 noun is the first conjunct and the second is class 2; it is also the case that, for all but one of my speakers, default class 2 agreement is avoided in that it is a strategy that comes into play only as the choice of a

minority of speakers, mainly in conjunctions involving class 4 nouns. It seems reasonable to conclude that speakers offering default agreement were choosing to avoid agreeing with a class 4 conjunct, and in a couple of cases, perhaps also avoiding a class 6 alternative, since [4+6] and [6+4] together accounted for 4/10 cases, and all speakers otherwise preferred FCA or LCA (in that order of preference).

Given this pattern of facts I propose that, underlying HoPs (i) and (ii) and the pattern of default choice, there are markedness relations among the classes, at least with respect to the distribution of [+human] nouns and agreement with them. Class 4 is the most marked, followed by class 6, then 8 and 10, and lastly class 2, which contains almost exclusively human-denoting nouns. Including the singular classes in the ranking, we arrive at (45).<sup>15</sup>

(45) Markedness hierarchy of classes of [+human] nouns:

Lowest      1/2      >      7/8, 9/10      >      5/6      >      3/4      Highest

Consistent with the high markedness of classes 3/4 for [+human] nouns is the low incidence of such nouns in these classes. I have found very few [+human] nouns in classes 3/4, far fewer than in classes 1/2, and they refer to what could be viewed as low status individuals (apart from *umlonji/imilonji* - 'singer/s', a noun unfamiliar to most of my speakers, I know of only the terms for criminals and cripples). On the other hand, there are many [+human] nouns in classes 5/6, just as there are in classes 9/10, and class 10 is not disfavored at all as a controller of conjunct agreement for [+human] nouns. It might be that class 5/6 [+human] nouns are somewhat special in both positive and negative directions. They include terms for heroes, warriors, clever people, wives, and princesses, along with many profession names (lawyer, traditional doctor,

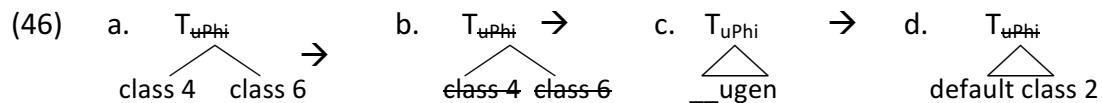
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<sup>15</sup> See Ferrari (2005) for a markedness approach to Bantu class, along rather different lines.

police) and the names for ethnicities such as *amaXhosa* - 'the Xhosa nation', but also words for prisoners and thieves. The semantics of noun classes is a disputed and perennially vexing question; I leave such issues aside (though (un)interpretability is taken up in §7).

Summing up, for the Xhosa speakers in my study there seem to be several broad tendencies operating and sometimes competing, in the choice of conjunct agreement: (i) avoid agreement with a conjunct of a highly-marked noun class, (ii) avoid agreement with the second conjunct, and (iii) avoid default.

I propose that if a speaker selects default agreement, it means that there is deletion of both gender values, rendering ugender of the probe unvalued. This leads to default insertion:



This paper will not attempt to lay out precisely the interactive alternative rankings among preferences for the eight speakers in my study. My goal in this section has been a more restricted one -- to identify the factors informing choices among LCA, FCA, and default, in order to construct a viable account of their general distribution and of where in the structure the features are located when those choices are made. The evidence supports impoverishment applying to all conjuncts' features after they are transferred onto the probe itself, with HoPs based upon markedness motivating the choices. Taking into account variations among the speakers in my study, and the patterns reported for speakers in Mitchley's (2015) study, it's quite clear that preferences are fluid.

I turn now to the account of FCA with post-verbal subjects, on which judgments are consistent, across examples and speakers.

### 5.3 FCA with post-verbal subjects

Recall that while the HoPs are predictive of agreement patterns where preverbal conjuncts are concerned, only FCA is possible with right-dislocated post-verbal subjects in Xhosa (see (40), repeated below). Following Boskovič (2009), I propose that this is because only an EPP feature causes T to probe beyond DP1, and right-dislocated subjects never raise to Spec, TP. Given that T can obtain a number value from &P and a gender value from the plural DP1 of a post-verbal subject, there is no morpho-syntactic motivation for it continue to probe when an EPP feature is absent, and I assume that this is therefore blocked by economy considerations. There is also no reason for resorting to default agreement, which we have seen to be a dispreferred option.

- (40) a. A-ya-cul-a      a-ma-polisa      nee-n-tombi.  
6<sub>SA</sub>-DISJ-sing-FV    6-6-police      and.10-10girls  
'The policemen and the girls are singing.'
- b. Zi-ya-cul-a      i-in-tombi      na-ma-polisa.  
10<sub>SA</sub>-DISJ-sing-FV    10-10-girls      and.6-6-police  
'The girls and the policemen are singing.'
- c. I-ya-cula      i-mi-gewu      na-ma-gqwetha.  
4-<sub>SA</sub>-DISJ-sing-FV    4-4-criminals      and.6-6-lawyers  
'The criminals and the lawyers are singing.'
- d. \*Zi-ya-cul-a      a-ma-polisa      nee-n-tombi.  
6<sub>SA</sub>-DISJ-sing-FV    6-6-police      and.10-10girls  
'The policemen and the girls are singing.'
- e. \*A-ya-cul-a      i-in-tombi      na-ma-polisa.  
6<sub>SA</sub>-DISJ-sing-FV    10-10-girls      and.6-6-police  
'The girls and the policemen are singing.'
- f. \*Ba-ya-cul-a      i-in-tombi      na-ma-polisa.  
2<sub>SA</sub>-DISJ-sing-FV    10-10-girls      and.6-6-police  
'The girls and the policemen are singing.'
- g. \*Ba-ya-cul-a      a-ma-polisa      nee-n-tombi.  
6<sub>SA</sub>-DISJ-sing-FV    6-6-police      and.10-10girls  
'The policemen and the girls are singing.'
- h. \*Ba-ya-cula      i-mi-gewu      na-ma-gqwetha.  
4-<sub>SA</sub>-DISJ-sing-FV    4-4-criminals      and.6-6-lawyers  
'The criminals and the lawyers are singing.'

If Xhosa post-verbal subjects were hypothesized to raise to Spec, TP before right-dislocating, we would expect T to Agree with both conjuncts, and undergo impoverishment in accordance with the HoPs. The same patterns of agreement would be predicted as for preverbal subjects, including LCA with [4+2] and [6+2] conjunctions, and a mixture of results when a class 4 noun is conjoined with nouns of other classes, including some instances of default class 2. I assume instead with Carstens & Mletshe (2015) that Xhosa Spec, TP may be empty.

In line with proposals of Baker (2003), Carstens (2005) among others, Carstens & Mletshe (2015) link EPP and phi-agreement to one another as properties of "robust" Xhosa T, the alternative being a radically defective T which lacks both of these features and moreover cannot value uCase; this defective T pairs with a similarly defective v, yielding a particular constellation of properties in active VS(OO) constructions. The facts of agreement with right-dislocated conjoined subjects in Xhosa argue for the novel conclusion that even the robust agreeing T may lack EPP and a specifier.<sup>16</sup> This is a conclusion that has rarely emerged from studies of other agreement and movement phenomena in Bantu, though see Van der Wal (2015) for discussion of what she calls Agreeing Inversion constructions, featuring subject agreement with in situ subjects in Makhuwa and Matengo.

#### **5.4 Plural [-human] conjuncts**

For the sake of completeness, this subsection provides a brief description of agreement with plural [-human] DPs based on the same eight speakers' judgments. Regretably, I have no data on conjunctions in which one DP is a [-human] noun of class 2 (or more precisely 2a, which has

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<sup>16</sup> See Zeller (in progress) for a similar conclusion based on agreement with conjuncts in Zulu.

all the same agreements but different nominal prefixes; see §7). For this reason, I must restrict my description to what happens in conjunctions involving classes 4,6,8, and 10.

As was true of [+human] nouns, the speakers in my study permitted only FCA with right-dislocated [-human] nouns:

- (47) a. I-phel-ile                      i-mi-funo na-ma-qanda.  
 4<sub>SA</sub>-be.finished-DISJ      4-4-greens and.6-6-eggs  
 'The greens and the eggs are finished.'
- b. A-phel-ile                      a-ma-qanda      ne-mi-funo.  
 6<sub>SA</sub>-be.finished-DISJ      6-6-eggs              and.4-4-greens  
 'The eggs and the greens are finished.'
- c. \*I-phel-ile a-ma-qanda ne-mi-funo.
- d. \*A-phel-ile i-mi-funo na-ma-qanda.
- e. \*Zi-phel-ile a-ma-qanda ne-mi-funo.

The eight speakers selected *zi-* agreement for most preverbal mismatched conjunctions (see (48)), and this is not too surprising since *zi-* serves as the subject agreement marker for classes 8 and 10 as well as default agreement for conjunctions of [-human] nouns.

- (48) a. I-zi-tulo      ne-e-tafile              zi-phandle.  
 8-8-chair and.10-10table      8/10<sub>SA</sub>-outside  
 'The chairs and the tables are outside.'
- b. I-in-gwe              ne-em-vubu              zi-phandle.  
 10-10-leopard and.10-10hippo      8/10<sub>SA</sub>-outside  
 'Leopards and hippos are outside.'

The speaker who chose default *ba-* agreement for all conjunctions of mismatched [+human] nouns chose *zi-* agreement for all conjunctions of [-human] nouns.

For preverbal conjunctions [4+6], two speakers chose FCA, one chose LCA, four chose default *zi-*, and one offered both FCA and *zi-* as options (see (49)). For conjunctions of [6+4], the numbers were identical and the speakers offering them were nearly the same, though there was a flip in the judgment patterns between two of the eight speakers.



(49) I-mi-nqathe **na-ma-qanda** i-/**ba**-/zi-se tafile-ni. [default>FCA>LCA 4:2:1]  
 4-4-carrot and.6-6-egg 4SA-be 9-table-LOC  
 'The carrots and the eggs are on the table.'

This is very like the pattern for [4+6] conjunctions of [+human] nouns where the choices were [default>FCA>LCA 3:2:2], with the eighth speaker offering default or FCA as both acceptable.

With a [6+4] [+human] conjunct FCA was preferred, but not by much: [FCA>default>LCA 4:3:1].

In other combinations of classes, it is difficult to judge whether *zi-* is default or agreement with a class 8 or 10 conjunct for a given example or speaker. In the interests of consistency, I will treat *zi-* as agreement and underline it in such cases if it is selected by more than half of the speakers, though my margin notes will serve as a reminder of this ambiguity.

For conjunctions of the form [4+8], two speakers chose FCA and the rest *zi-* (see (50)). In the case of [6+8], every speaker chose *zi-*, though two indicated that FCA would be an acceptable alternative.

(50) a. I-mi-nqathe **ne-zi-tya** zi-se tafile-ni. (LCA/default: six speakers)  
 4-4-carrot and.10-10-plate 8SA-be 9-table-LOC  
 b. I-mi-nqathe ne-zi-tya i-se tafileni. (FCA: two speakers)  
 4-4-carrot and.10-10-plate 4SA-be 9-table-LOC  
 'The carrots and the plates are on the table.'

Conjunctions of [4+10] and [6+10] also resulted in *zi-* agreement (see (51)) for all but the same two speakers who chose FCA for [4+8] and [6+8] combinations.

(51) a. I-mi-funo ne-em-botyi i-phel-ile. (FCA: two speakers)  
 4-4-greens and.10-10-beans 4SA-be.finished-DISJ  
 b. I-mi-funo **ne-em-botyi** zi-phel-ile. (LCA/default: six speakers)  
 4-4-greens and.10-10-beans 8/10SA-be.finished-DISJ  
 'The greens and the beans are finished.'

Where the first conjunct was taken from class 8 or 10 and the second from class 6 or 4, two out of eight speakers chose LCA in class 6 or 4 (see (52)). The remaining six speakers chose *zi-*. The two speakers choosing LCA were not the same in the two cases.

- (52) a. *l-zi-tya*    *n e-mi-nqathe*    *i-se*    *tafile-ni*    (LCA: two speakers)  
           8-8-plates    and.4-4-carrots    4<sub>SA</sub>-be    9-table-LOC
- b. *l-zi-tya*    *ne-mi-nqathe*    *zi-se*    *tafile-ni*    (FCA/default: six speakers)  
           8-8-plates    and.4-4-carrots    8<sub>SA</sub>-be    9-table-LOC  
           'The plates and the carrots are on the table.'

These results show us that FCA, LCA, and default agreement are available options for preverbal conjunctions of [-human] nouns.

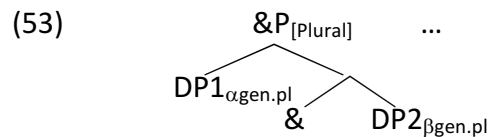
It is difficult to be sure of the significance of the mixed results for conjunctions [4+6] and [6+4], since these are the only combinations for which *zi-* cannot be analyzed as agreement with one of the conjuncts. To put it another way, we cannot tell whether there is something special about these two classes where [-human] conjuncts are concerned the way we could for [+humans], for lack of parallel cases in other noun classes that differ from the default, to serve as a basis for comparison. Future research is needed to explore this question further, especially since the number of examples in my study of [-human] nouns was quite small compared to my example set involving [+human] nouns. It also remains to explore the interactions of [-human] nouns from classes 1a/2a with the full range of other classes.

## 6 Other accounts of closest conjunct agreement: a comparison

### 6.1 Introduction

Several recent approaches to conjunct agreement are designed in such a way that they can capture variation between FCA and LCA for conjoined subjects in preverbal position, and the restriction to FCA for postverbal subjects. Like the approach of Boskovič (2009) that I have adopted with modification, these approaches also follow Munn (1993, 1999) in assuming that

the first conjunct is structurally higher than the second (see (53)). Though the details of implementation vary, all assume that &P is plural (or in some languages optionally dual), but lacking in intrinsic gender features. All assume that for a probe to agree with the gender of a conjunct, that conjunct must match &P in plurality.



## 6.2 Distributed Agree

Marušič et al (2015), Nevins & Marušič (to appear) adopt the *Distributed Agree* approach of Arregi & Nevins (2012) under which agreement occurs in two stages. Agree-Link establishes a probe-goal relationship, and it is always syntactic, thus sensitive only to hierarchical relations. On the other hand, Agree-Copy, which transfers values from the goal to the probe, can take place in PF, and may precede or follow linearization.

Where agreement with conjuncts is concerned, Marušič et al (2015) argue that Agree-Link establishes a probe-goal relation between an agreeing head H and &P (their BoolP). The Agree-Copy operation, upon obtaining only a number value from &P, may either adopt a default gender value (the No-Peeking option) or avoid default agreement by looking into &P to obtain a gender value from a conjunct.

The timing of Agree-Copy plays a critical role in the case of preverbal conjuncts, in Marušič et al's account. If Agree-Copy takes place before linearization, the highest and thus first conjunct will supply the gender value (see (54)). On the other hand, post-linearization Agree-Copy reaching into &P for a gender value will find the head of the closest preverbal conjunct. For preverbal subjects, this will be the head of the last conjunct, yielding LCA as shown in (55)a.

For post-verbal subjects, the highest and the closest conjunct are always the same, so the result will be FCA whether Agree Copy is pre- or post-linearization (55)b.

(54) Agree-Copy before linearization: default gender or agreement with DP1, regardless of word order, because what's visible to syntax is hierarchical structure



(55) Agree-Copy after linearization: default gender or closest conjunct agreement, because hierarchical structure ceases to be visible



This approach is flexible enough to derive LCA and FCA in Xhosa preverbal conjuncts, and correctly predicts that only FCA is possible with post-verbal &P. However, the role played by comparison of the two sets of features in determining whether there is LCA or FCA with Xhosa preverbal subjects is not easily accommodated by Distributed Agree. It would require an unusual and I think implausible kind of look-ahead to ensure that, for example, Agree Copy never applies after linearization in the case of a class 2 first conjunct with a class 10 second conjunct; but applies after linearization for six out of eight speakers when there is a class six first conjunct and class 2 second conjunct. An alternative might be to generate all options and have the HoPs filter out the less desirable combinations, but this seems far less economical than the approach I have advocated.

### 6.3 Murphy & Puškar (2018)

Murphy & Puškar (2018) propose that the head & can in principle obtain multiple gender values from its conjuncts by Agreeing with them, but which values it acquires depends on the order of

application among the operations Merge, Agree Up, and Agree Down. If the order is Agree Up>Merge>Agree Down, Agree Up will apply vacuously before the first conjunct is present, but Agree Down will successfully give &P the gender feature of its second (lower) conjunct. Hence a head that agrees with &P will exhibit LCA. If, on the other hand, the order of operations is Agree Down>Merge>Agree Up, Agree Down will be vacuous, but Agree Up will be successful. &P in this case will bear only the gender feature of its first conjunct, and FCA is predicted for a head that agrees with &P. If Merge applies before both Agree operations, &P will have the features of both conjuncts. If these mismatch, the Impoverishment operation will reduce them to the least marked (which in Serbo-Croatian is masculine). Lastly if both Agree Up and Agree Down apply before Merge, &P will have no gender features. A probe will have to agree with the highest conjunct.<sup>17</sup>

Under this approach, arbitrary differences in the order of operations within &P eliminate the gender of one or the other conjunct from consideration, forcing LCA or FCA in many instances. It is difficult to imagine any way for the Xhosa HoPs to impact the result.

If we were to assume with Murphy & Puškar that & agrees with both conjuncts, and the impoverishment operations that I proposed affect & rather than T, it is not clear how to force the result that the hierarchies of preference are not manifested for post-verbal subjects.

## **7. Default agreement and the question of semantics**

### **7.1 [human] and default choices**

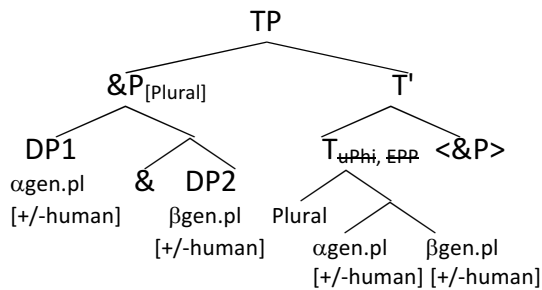
I turn now to the relationship between default agreement and nominal features in Xhosa.

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<sup>17</sup> The order of operations within &P has consequences for the way that agreement with and movement of &P are ordered, because of a derivational consistency requirement. This is largely irrelevant to the Xhosa concerns at hand, so I omit discussion for reasons of length.

Given that the defaults for [+human] and [-human] nouns are distinct, [+/-human] must be a visible and active feature of each noun in Xhosa regardless of the noun's class (as reflected in the agreement it controls when not conjoined).<sup>18</sup> One way of implementing this would be to think of [+/-human] as having morphosyntactic as well as semantic status, rather like number, gender, and person values. We might suppose that it transfers to a probe the same as the other phi-values, as shown in (56) (to be revised). This approach is compatible with the claim that default agreement with conjuncts is semantic (Corbett & Mtenje 1987), construed as a mapping from e.g. [+human] to the *ba-* default in the absence of an accessible grammatical gender feature. The default chosen has lowest markedness for [+human] or [-human] conjuncts.

(56) [+/-human] as an independent morpho-syntactic feature of nouns



An alternative is to attribute [+human] to interpretable flavors of the nominalizer *n*, as in Kramer (2015).<sup>19</sup> As a starting point on this, suppose that each human-denoting noun includes an interpretable [+human] in of gender A (classes 1/2) (see (57)a). In classes 3/4 and 5/6, [+human] nouns could have a stacked structure (see (57)b-d), where the higher *n* is uninterpretable (I turn to classes 7/8 and 9/10 shortly). Markedness effects in the choices of

<sup>18</sup> More economically we could posit only [+human] and its absence. For expository ease, I leave this aside.

<sup>19</sup> See also Fuchs & Van der Wal (2018) for a little *n* approach to Bantu gender.

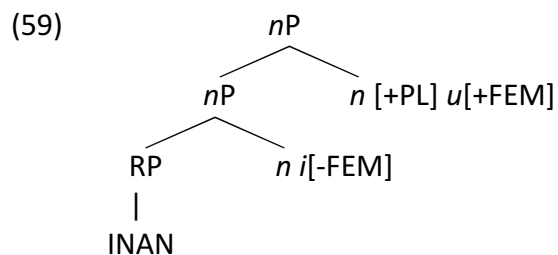
conjunct agreement might originate in greatest-to-least canonicity in the association of [+human] meaning to the class feature of the highest  $n$  (and for another take on this see §7.2).

(57) Varieties of little  $n$  in Xhosa

- a. class 1/2 (gender A)  $in_{[+human]}$   
 class 3/4 (gender B)  $un$   
 class 5/6 (gender C)  $un$
- b. u-m-ntwana/a-ba-ntwana  $[in_{1/2} \vee MNTWANA]$   
 1-1-child/2-2-children  
 'child/ren'
- c. i-butho/a-ma-butho  $[n_{5/6} [in_{1/2} \vee BUTHO]]$   
 5-warrior/6-6-warrior  
 'warrior/s'
- d. u-m-gewu/i-mi-gewu  $[n_{3/4} [in_{1/2} \vee GEWU]]$   
 3-3-criminal/4-4-criminal  
 'criminal/s'

This is similar to a proposal in Kramer (2015) of  $n$ -stacking for Somali masculine singular nouns that are feminine in the plural, despite referring to male individuals (see (58) and (59)). The gender of the higher, feminine plural  $n$  is the one visible for agreement, but the semantic content of the masculine lower  $n$  percolates, as there is no conflicting interpretable semantic value to the higher  $n$ :

- (58) a. ínan 'son, boy (m.)'  
 b. inammó 'sons, boys (f.)'



In the gender systems that are the primary focus in Kramer (2015), her approach provides a way of disassociating male/female semantic content from roots, and a means of changing grammatical gender independently of interpretable gender features.

However, the relationship between [+human] and classes 1/2 must be construed in a way that can accommodate some [-human] nouns in these classes, and relatedly, some curious patterns of exceptions to the general default agreement strategies.

Mitchley (2015) demonstrates that a few Xhosa nouns denoting non-humans are of class 1a/2a including 'train', 'machine', 'scorpion', 'crab', and 'jackal'. Class 1a/2a nouns behave identically to ordinary class 1/2 nouns apart from having *u-/oo-* prefixes in lieu of *umu-/aba-*. When these singulars are conjoined, the strong preference is for class 2 agreement, just like for human-denoting nouns:

- (60) a. U-loliwe no-matshini      ba-/\*zi-se      galaji-ni      [Xhosa]  
 1a-train and.1a-machine    2SA-/\*8SA-LOC    garage-LOC  
 'The train and the machine are in the garage.'
- b. U-nomadukudwane no-nokala    ba-/\*zi-ya-tya.  
 1a-scorpion                    and.1a-crab    2SA/\*8SA-DISJ-eat-FV  
 'The scorpion and the crab are eating.'
- c. U-dyakalasho no-matshini      ba-/\*zi-se      gadi-ni  
 1a-jackal                    and.1a-machine    2SA-/\*8SA-LOC    garden-LOC  
 'The jackal and the machine are in the garden.'

Taraldsen et al (2018) show that letters of the alphabet are Class 1a as well, so a Scrabble player might utter (61)a. Significantly, conjoined letters must control Class 2 agreement when pluralized, or when conjoined (61)b,c.

- (61) a. U-L om-nye    u-se    tafile-ni      [Xhosa]  
 1a-L1-one      1SA-LOC    table-LOC  
 'One L is on the table.'
- b. Oo-L    a-ba-bini    ba-/\*zi-se    tafile-ni  
 2a-L      2-2-two    2SA/\*8SA-LOC    table-LOC  
 'Two Ls are on the table.'
- c. U-L no-M      ba-/\*zi-se    tafile-ni  
 1a-L and.1a-M    2SA/\*8SA-LOC    table-LOC  
 'The L and the M are on the table.'



The facts of (60) and (61) argue that class 2 agreement has no consistent semantic features (contra Mitchley 2015), despite its high level of predictability as the default for [+human].

Another anomaly exists in that for conjunctions of two singular class 7 or two singular class 9 [+human] nouns, speakers often choose the *zi*-agreement that goes with their plurals (see (62) and (63)). This despite the fact that default agreement is typical with conjoined singulars, and as we have seen, for Xhosa [+human] singulars this default is class 2 *ba*-. While *ba*- is an option some speakers identified, it was not especially preferred, and some disallow it.

(62) a. I-s-anuse ne-s-angoma zi-/ba-sebenz-a ndawonye.  
 7-7-diviner and.7-7-healer 8SA-/2SA-work-FV together  
 'The diviner and the healer work together.'

b. I-si-tyebi ne-si-bhanxa zi-/ba-ya-sebenz-a.  
 7-7-rich and.7-7-fool 8SA-/2SA-DISJ-work-FV  
 'The rich man and the fool are working.'

[*zi*- x 3, either/or x 3, *ba*- x 2]

(63) I-n-dadi ne-n-tlebi zi-/ba-ya-cula.  
 9-9-swimmer and.9-9-gossip 8/10SA-/2SA-DISJ-sing-FV  
 'The swimmer and the gossip are singing.'

[either/or x 4, *ba*- x 2, *zi*- x 1]

It is also interesting to note that while *zi*- is the agreement prefix for both classes 8 and 10, it was rarely offered to accompany mismatched conjunctions of singulars [7+9] and [9+7]:

(64) I-n-tombi ne-s-anuse ba-ya-sebenza. [default *ba*- > *zi*- 6:1:1]  
 9-9-girl and.7-7-medium 2SA-DISJ-work-FV  
 'The girl and the medium are working.'

(65) I-s-anuse ne-n-tombi ba-ya-sebenza. [default *ba*- > *zi*- 7:1]  
 7-7-medium and.9-9-girl 2SA-DISJ-work-FV  
 'The medium and the girl are working.'

The genders of class 7 and class 9 nouns thus seem to be distinguished despite syncretism in the agreement that accompanies their plurals. Agreement with singulars of classes 7 and 9 (when not conjoined) is not syncretic (class 7 *si*- vs. class 9 *i*-), like agreement with their plurals;

this is probably an important factor in keeping nouns of these classes from patterning together when it comes to conjunct agreement.<sup>20</sup> The pattern strongly suggests that *zi-* agreement in (62) and (63) is not a default but rather genuine morpho-syntactic agreement in gender D and E respectively.

The sets of Xhosa exceptions exemplified in (60)-(63) have a parallel in Serbo-Croatian, where conjoined feminine singulars typically control feminine plural agreement. In this they contrast with singular neuters, and singulars of mismatching genders, which take default masculine plural. The pattern holds whether the feminine nouns in question denote female individuals or not (see (66) from Murphy & Puškar 2018); hence feminine plural in such instances cannot be semantic agreement, contra Bosković (2009).

(66) [<sub>&P</sub> Zavesa i biljka] su ukrasavale /\*ukrasavala prozor.  
 curtain.f.sg and plantf.sg. are decorate.prt.f.pl /\*decorate.prt.f.sg window  
 'A curtain and a plant decorate the window.'

## 7.2 Interpretability and deletion interacting

### 7.2.1 Default agreement with singulars and deletion of goal features

Following Kramer (2015), suppose that some flavors of a grammatical gender are interpretable and some are not, as follows:

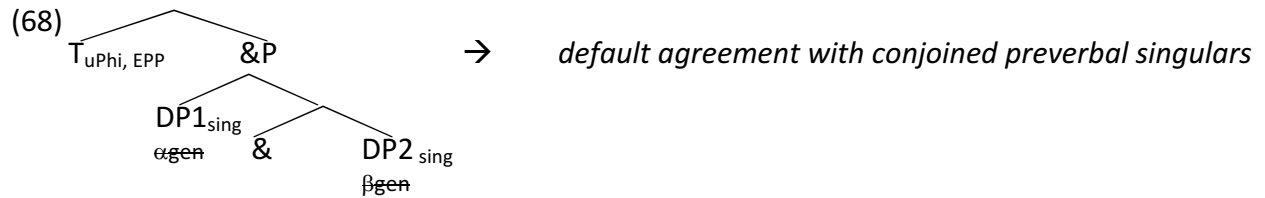
- (67) (i) Serbo-Croatian feminine is interpretable on animate nouns, but not inanimate ones.  
 (ii) Xhosa gender A (class 1/2) is interpretable on [+human], but not [-human] nouns.  
 (ii) Xhosa gender D (class 7/8) and gender E (class 9/10) are interpretable on [+human] nouns *for some speakers only*.

Recall my proposal that for &P to satisfy the EPP, T must probe each conjunct. Given the facts of agreement with conjoined plurals discussed in prior sections, we cannot assume that LCA is due to deletion of the gender of DP1 being a necessary condition for &P to raise to Spec, TP, as

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<sup>20</sup> See Msaka (2019) for arguments that syncretism in Chichewa agreement is a superior identifier of noun classes than are differences in the nominal prefixes that traditionally inform the way classes are identified.

in Boskovič (2009), but let us nonetheless suppose that DP1's gender is deleted *up to interpretability* once probing determines that it cannot serve as goal. If DP1 is singular and thus mismatches &P in plurality, DP1's gender feature deletes in most cases, as does that of singular DP2, yielding default gender agreement with most preverbal singular conjuncts (see (68)).



The problem is, this deletion process cannot tell one instance of a gender from another; it does not distinguish an uninterpretable flavor of gender  $\alpha$  from the interpretable flavor of the same gender. As a result, no gender feature which has any interpretable flavor is ever deleted from a DP. Thus the survival of singular conjuncts' gender features is permitted as a last resort. I suggest that when the gender feature of a singular conjunct cannot be deleted, it is shared with &(P), also a matter of last resort, and transfers with the plural feature of &P onto the probe.

The analysis works to explain why conjoined preverbal class 1 nouns of Xhosa take class 2 agreement, whether they are semantically human or not (see the failure of default class 8 *zi-* agreement with 'train', 'machine' and alphabet letters conjoined in (60) and (61)). It extends straightforwardly to Serbo-Croatian feminine, assuming it also has an interpretable as well as an uninterpretable  $n$ , the latter pairing with roots to yield feminine inanimates.<sup>21</sup>

Turning to the optionality of *zi-* agreement with conjoined class 7 or class 9 [+human] nouns, given that the analysis of other exceptions to the general default patterns relies on

<sup>21</sup> In Serbo-Croatian, masculine serves as default, making it unclear whether, in [DP1<sub>m.sing</sub> + DP2<sub>m.sing</sub> V<sub>masc.pl</sub>] masculine is also interpretable. by the logic of this section, it should be, but I leave this aside.

inability of deletion to differentiate interpretable from uninterpretable flavors, I take this variation to indicate that these pairs of classes (Carstens's genders D and E) have both *un* and *in*<sub>[+human]</sub> available, like classes 1/2 and SC feminine. But unlike them, the [+human] *ins* of 7/8 and 9/10 are optional. In particular, I assume that speakers who can use either *zi-* or default *ba-* agreement with conjunctions [7+7] and [9+9] have two grammars for these genders, one of which does not have *in*<sub>[+human]</sub> in classes 7 and 9 at all. In the latter grammar, the human-denoting nouns of classes 7 and/or 9 perhaps have the stacked structure I proposed in (57) for humans in classes 3/4 and 5/6, as shown in (69).

(69) a. Varieties of little *n* in Xhosa classes 7/8 and 9/10 (genders D and E)

*un*, and *in*<sub>[+human]</sub> for some speakers

b. I-si-tyebi ne-si-bhanxa zi-/ba-ya-sebenz-a.  
 7-7-rich and.7-7-fool 8<sub>SA</sub>-/2<sub>SA</sub>-DISJ-work-FV  
 'The rich man and the fool are working.'  
 [zi- x 3, either/or x 3, ba- x 2]

c. [*un*<sub>7/8</sub> [*in*<sub>1/2[+human]</sub> √XXX]] → default class 2 with conjoined singulars

d. [*in*<sub>7/8[+human]</sub> √XXX] → class 7/8 with conjoined singulars

### 7.2.2 2>4 and 2>6: a speculation on deletion of goal features of conjoined [+human] plurals

Before ending this section, let us revisit the preference patterns of agreement with [+human] plurals -- 2>6, 2>4, and FCA>LCA>default -- in light of what the exceptions to default agreement have revealed about gender interpretability. The question I wish to explore is whether preferential deletion of an uninterpretable gender feature of a first conjunct can account for all the facts.

In (57) (repeated below), I suggested that [+human] nouns outside of class 1/2 have a stacked structure.

(57) Varieties of little *n* in Xhosa

- |    |  |   |   |
|----|--|---|---|
| a. | class 1/2 (gender A)<br>class 3/4 (gender B)<br>class 5/6 (gender C) | <i>in</i> <sub>[+human]</sub><br><i>un</i><br><i>un</i> |   |
| b. | u-m-ntwana/a-ba-ntwana<br>1-1-child/2-2-children<br>'child/ren'      |   | [ <i>in</i> <sub>1/2</sub> √MNTWANA]                          |
| c. | i-butho/a-ma-butho<br>5-warrior/6-6-warrior<br>'warrior/s'           |   | [ <i>n</i> <sub>5/6</sub> [ <i>in</i> <sub>1/2</sub> √BUTHO]] |
| d. | u-m-gewu/i-mi-gewu<br>3-3-criminal/4-4-criminal<br>'criminal/s'      |   | [ <i>n</i> <sub>3/4</sub> [ <i>in</i> <sub>1/2</sub> √GEWU]]  |

An attractive hypothesis is that FCA succeeds for conjoined plurals whenever the uPhi probe encounters a first conjunct whose gender is interpretable, like class 2, or at least, one of its flavors is interpretable, whether instantiated in the case at hand or not. Recall this is motivated for [+human] nouns in classes 8 and 10, so when [+human] nouns of these classes are first conjuncts, the idea accounts for why FCA is preferred. On the other hand, because they are uninterpretable, the *ns* of class 4 and class 6 [+human] nouns are preferentially deleted from DP1 of the &P goal, adapting Boskovič (2009). Assuming the stacked structures in (57), this deletion could be viewed as exposing the class 1/2 [+human] core of DP1, triggering class 2 agreement in cases like (35) and (34), repeated below.

(35) **I-mi-gewu** na-ba-ntwana ba- (i/zi)-ya-cul-a. [LCA>FCA & [-human] default 5:2:1]  
4-4-criminals and.2-2-children 2SA/4SA/8SA-DISJ-sing-FV  
'The criminals and the children are singing.'

(34) A-ma-polisa na-ba-ntwana ba-ya-cul-a. [LCA chosen by 6 out of 8 speakers]  
6-6-polisa and.2-2-children 2SA-DISJ-sing-FV  
'The policement and the children are singing.'

But recall also that class 6 FCA is preferred except when the second conjunct is class 2, as detailed in §5 (see (33), reproduced below). This is one of the reasons why I argued in §5 that

the features of both conjuncts factor into the choice between LCA and FCA, and proposed that probing both conjuncts by T copies their gender features to its uPhi where they are compared, and one set is deleted. If instead class 6 is generally deleted from first conjuncts because it is uninterpretable and that explains the agreement preference pattern 2>6, this pattern is expected to be found systematically across the board. Unless the grammar compares both conjuncts' features as in the analysis I presented in §5, results like (33) are unexpected.

- (33) a. A-ma-gqirha ne-z-anuse      a-sebenz-a ndawonye.      [FCA>default>LCA]  
 6-6-doctors and.8-8diviners 6SA-work-FV together  
 'The traditional doctors and the diviners are working together.'  
 [results: FCA x 5, default x 1, FCA or default x1, LCA x 1]
- b. A-ma-polisa ne-en-tombi      a-ya-cul-a.      [FCA>LCA>default]  
 6-6-police and.10-10-girls 6SA-DISJ-sing-FV  
 'The policemen and the young ladies are singing.'  
 [results: FCA x 4, LCA x 2, FCA or LCA x 1, default x 1]

In sum, it seems that an analysis of agreement preferences for conjoined plurals is *almost* possible under which uninterpretable gender of a first conjunct is preferentially deleted on the goal, as proposed for conjoined singulars. But unresolved puzzles remain which at this point seem intractable. Lacking a solution to them I maintain the analysis of conjoined plurals presented in §5, where markedness hierarchies yield the patterns 2>4, 2>6, and FCA>LCA>default.

## 8. Conclusions and questions for future research

Patterns of agreement with conjuncts show consistencies across languages with grammatical gender and noun class, supporting the conclusion that they are one and the same.

Agreement with conjuncts offers insights on the nature of agreement, and should help us find the best theory of how agreement works. I have argued that it reveals that probes can obtain multiple values for a given gender feature. These are reduced to a single value on the

basis of language-particular and even speaker-particular preferences such as FCA>LCA, avoidance of default, and markedness relations among genders.

I have also argued that nominal expressions in Bantu have [human] features that are morpho-syntactically visible and active, the same as phi-features are. These are associated with nominals regardless of their noun class, with [+human] plausibly an interpretable value for little *ns* of certain genders.

Kramer (2015) suggests that the diagnostic for interpretable gender is a correlation with meaning. On the other hand, Carstens (1991), (2008) argues that the existence of strands of semantic coherence in Bantu classes points to some semantic criteria serving as mapping principles in the assignment of nouns to genders, which are purely uninterpretable formal features; phonological mapping principles also exist, functioning to assign loan words ('mosque(s)' → m/mi-sikiti, etc.).

As such approaches are comparable in their ability to capture associations of gender and meaning, formal diagnostics to confirm that a given gender has interpretability are extremely important. If we take the distribution of default agreement and the survival of the genders of singular conjuncts to be diagnostics, [human] is the sole interpretable content that is motivated for the class system in Xhosa, although there are many classes which have strands of associated meaning (trees in classes 3/4, language names in classes 7/8, etc).

Even conjoined diminutives, in a language like Shona which has a dedicated pair of noun classes for these, take default agreement consistent with their [+/-human] content, as the contrast between (70) and (71) shows. In terms of the proposals for conjoined singulars that I

introduced in §7.2.1, this indicates that the diminutive gender of the singular conjuncts is deleted because they mismatch plural &P, and lack interpretable content.

(70) Ka-sikana ne ka-komana va-/\*ka/\*twa-nyangadik-a. [Shona]  
12-girl and 12-boy 2<sub>SA</sub>/\*12<sub>SA</sub>/\*13<sub>SA</sub>-disappear-FV  
'The tiny girl and the tiny boy have disappeared.'

(71) Ka-mba ne ka-motokari zva-/\*ka/\*twa-nyangadik-a.  
12-house and 12-car 8<sub>SA</sub>/\*12<sub>SA</sub>/\*13<sub>SA</sub>-disappear-FV  
'The tiny house and the tiny car have disappeared.'

The conclusion contrasts with Kramer's analysis of diminutive formation which effects gender change (2015:227-232, and p. 252 note 216 on Bantu), but converges with morpho-syntactic arguments in Carstens (1991) to the effect that diminutive meaning is not in reality a property of the gender that coincides with it in Bantu (thus in current terms, diminutive gender is not interpretable for Carstens 1991). Instead, Swahili nominal morphology *ki/vi* in e.g. *kitoto/vitoto* - 'tiny child/ren', which appears to derive diminutives from their non-diminutive counterparts *mtoto/watoto* - 'child/ren', is never anything but the singular and plural for Swahili class 7/8 (her gender D).<sup>22</sup> For Carstens, there is a null affix with diminutive semantics, which happens to be of this (formal and meaningless) gender/class; and see Creemers et al (2017), Lowenstamm (2015) among others for proposals that (at least some) derivational affixes are roots. Assuming this, we are not lead to expect anything but default agreement appropriate for the [+/-human] status of the diminutive nouns in (70) and (71).

Summing up, if Bantu default agreement and its exceptions diagnose semantic gender, it follows that no strands of shared meaning in Bantu noun classes other than [+/-human] are attributable to interpretable flavors of *n*. It also seems, from the success of gender-appropriate

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<sup>22</sup> All animates belong to classes 1/2 in Swahili, regardless of their noun class prefixes. Thus there is no motivation for assuming any classes besides these have interpretable [+human] semantics.



plural agreement with singular class 1 conjuncts that are not [+human] and with SC feminine nouns that are not [+female], that the interpretability of a gender is relevant to the syntax, but is of somewhat imperfect visibility to grammatical processes. These are conclusions with implications in many areas, and thus warrant further investigation in some detail.

Turning to just a few of my paper's limitations, my exploration of conjoined [-human] nouns was quite limited. Also, I have not attempted to cover conjunctions of [+human] and [-human] nouns, or conjuncts in which DP1 and DP2 mismatch in number. Greater clarity would be welcome on the mechanics by which agreement is valued when the conjuncts are singular class 1(a), class 7, class 9, or SC feminine (which I have attributed to last resort sharing of the undeletable gender feature with &(P). There are seemingly contradictory properties exhibited by classes 8 and 10, and especially by class 6, which complicate an analysis of the choices among FCA, LCA, and the two default agreement markers in terms of deletability of uninterpretable gender features of plural conjuncts.

I end feeling that this paper has raised nearly as many questions as it has answered, leaving much to future research.

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