The grammar of gender: insights from Bantu

Vicki Carstens
University of Connecticut

1 Introduction & overview

Agreement with conjuncts provides revealing evidence on the workings of grammatical gender, since each conjoined expression bears features relevant to valuing a single probe.

Focus: how it works for 5 genders of Xhosa + additional evidence from closely-related Shona.

This larger # of genders provides evidence beyond what's available in 2-3 gender languages.

The Bantu gender inventory and its semantic underpinnings are different from those of more familiar 2-3 gender languages, but the systems have much in common.

Preview of proposals

• Underlying Bantu noun classes are core *i*nterpretable genders: [human], [animal],[inanimate].

•gender is a feature of "little *n*s" (Kramer 2015), and abundant *n*P-stackings yield
  [$_{nP1}$ *n*1 [$_{nP2}$ *n*2+ROOT]], where *n*2s = *i*gender cores.

•There are some wholly *u*ninterpretable genders in Bantu languages; "default" agreement with gender-matching [$_{\&P}$ sg & sg] provides a formal diagnostic for these.

• So-called default agr is formal, grammatical agr with the *i*gender cores, when *u*shells delete.

•Where a gender has both arbitrary and conceptually related members, morpho-syntax treats them all alike, arguing against *i-* vs. *u-* 'flavors' within any single gender.

•Agreement with mismatched [$_{\&P}$ pl & pl] avoids the wholly *u*-genders, supporting the analysis.

Roadmap
§2 Xhosa basics
§3 Conjoined singulars – agreement asymmetries
§4 Analysis part 1: ingredients
§5 Analysis part 2: deriving the patterns
§6 Extension to Shona diminutives
§7 Conjoined plurals – agreement asymmetries
§8 Default agreement – putting sg and pl together
§9 Conclusions

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2 Xhosa basics

•5 regular singular/plural pairs of noun classes (plus singletons not of concern today).

(1) a. um-ntu/aba-ntu b. um-pu/imi-pu c. ili-so/ame-hlo   d. isi-tya/izi-tya e. in-ja/izin-ja
     1-/2-person   3-/4-gun   5-/6-eye   7-/8-dish   9-/10-dog
     'person/s'   'gun/s'   'eye/s   'dish/es'   'dog/s'

•Paired classes as singulars/plurals of 5+ nominal genders: Carstens (1991), Corbett (1991),
     Corbett & Mtenje (1987), Watkins (1937).

(2) a. <u>Bantu Genders</u> (Carstens 1991)   b.   ...NumP
         Gender A: stems of Classes 1/2
         Gender B: stems of Classes 3/4   Num   ...nP
         Gender C: stems of Classes 5/6   *sing/pl*
         Gender D: stems of Classes 7/8 n+N[Gender α]
         Gender E: stems of Classes 9/10

(3) Nouns get class prefixes via gender-specific number-feature spell-out rules

     [Singular] ⟷ um- /__N[Gender A]   [Plural] ⟷ aba - /__N[Gender A]

     [Singular] ⟷ isi- /__N[Gender D]   [Plural] ⟷ izi - /__N[Gender D] etc.

Strands of meaning posited in historical reconstructions:

Table 1 (from Vossen & Dimmendaal 2020:151)

Singular (number)	Singular (form)	Plural (number)	Plural (form)	Semantics
1	*mù-	2	*βà-	humans
3	*mù-	4	*mì-	trees, plants
5	*lì-	6	*mà-	mixed/cl. 6 liquids
7	*kì-	8	*βį-	mixed
9	*nì-	10	*lį-nì-	animals, mixed
11	*lù-			mixed
12	*kà-	13	*tù-	augmentative, diminutive, etc.
14	*βù-			abstract
15	*kù-			infinitive

In synchronic grammars of many Bantu languages including Xhosa, semantic associations to classes are weaker. There are human-denoting nouns scattered across the classes, non-human-denoting nouns in classes 1/2, trees and plants scattered, etc.

Xhosa semantic generalizations: 1/2main: only humans *umfazi/abafazi* 'woman/women')
  A few consistent mappings   all kinship terms → 1a/2a (*u-mama/oo-mama*)
                                   all alphabet letters → 1a/2a (*u-L/oo-L; u-M/oo-M*)

<u>The heterogenous contents of Xhosa classes</u>: humans, animals, plants, liquids, misc. all scattered; no major semantic category predictive of class, or vice-versa.

(4) <u>Humans</u>: classes 1/2

     a. um-ntwana/aba-ntwana   b. um-fazi/aba-fazi   c. um-hleli/aba-hleli
         1-child/2-child   1-woman/2-woman   1-editor/2-editor
         'child/ren'   'woman/women'   'editor/s'

<u>Humans</u>: classes 3/4 (stigmatized)

     d. um-gulukudu/imi-gulukudu e. um-gewu/imi-gewu f. um-lwelwe/imi-lwelwe
         3-gangster/4-gangster   3-criminal/4-criminal   3-/4-disabled or poor
         'thug/s, gangster/s'   'criminal/s'   'disabled or poor person/s'

Humans: classes 5/6 (no special connotations)

g. i-qhawe/ama-qhawe
5-hero/6-hero
'hero/es'

h. i-gqwetha/ama-gqwetha
5-lawyer/6-lawyer
'lawyer/s'

i. i-sela/ame-sela
5-thief/6-thief
'thief/thieves'

Humans: classes 7/8 (no special connotations)

j. isi-bonda/izi-bonda
7-headman/8-headman
'headman/men'

k. isi-hlobo/izi-hlobo
7-friend/8-friend
'friend/s'

l. isi-anuse/izi-anuse
7-diviner/8-diviner
'diviner/s'

Humans: classes 9/10 (no special connotations)

m. in-tombi/iin-tombi
9-young.lady/10-young.lady
'young lady/ladies'

n. in-gcali/iin-gcali
9-expert/10-expert
'expert/s'

o. im-bongi/iim-bongi
9-poet/10-poet
'poet or praise singer/s'

(5) Animals: classes 1a/2a

a. u-nokala/oo-nokala
1a-crab/2a-crab
'crab/s'

b. u -krebe/oo -krebe
1a-shark/2a-shark
'shark/s'

c. u-dyakalashe/oo-dyakalashe
1a-jackal/2a-jackal
'jackal/s'

Animals: classes 3/4

d. um-khombe/imi-khombe
3-rhino/4-rhino
'rhino/s'

e. um-qhagi/imi-qhagi
3-rooster/4-roosters
'rooster/s'

f. um-thwane/imi-thwane
3-donkey/4-donkey
'donkey/s'

Animals: classes 5/6

g. i-cikilishe/ama-cikilishe
5-lizard/6-lizard
'lizard/s'

h. i-hashe/ama-hashe
5-horse/6-horse
'horse/s'

i. i-hobe/ama-hobe
5-dove/6-dove
'dove/s'

Animals: classes 7/8

j. isi-gcawu/izi-gcawu
7-spider/8-spider
'spider/s'

k. isi-khova/izi-khova
7-owl/8-owl
'owl/s'

l. isi-lwanyana/izi-lwanyana
7-animal/8-animal
'animal/s'

Animals: classes 9/10 (plurality of animals; a fairly predictable mapping)

m. in-ja/iin-ja
9-dog/10-dog
'dog/s'

n. in-dlovu/iin-dlovu
9-elephant/10-elephant
'elephant/s'

o. i-hagu/ii-hagu
9-pig/10-pig
'pig/s'

(6) Inanimates: 1a/2a

a. u-lolilwe/oo-lolilwe
1a-train/2a-train
'train/s'

b. u-matshini/oo-matshini
1a-machine/2a-machine
'machine/s'

c. u-L/oo-L
1a-L/2a-L
'letter L/s'

Inanimates: 3/4

d. um-bhobho/imi-bhobho
3-pipe/4-pipe
'pipe/s'

e. um-pu/imi-pu
3-gun/4-gun
'gun/s'

f. um-thi/imi-thi
3-tree/4-tree
'tree/s'

Inanimates: 5/6

g. i-qhosha/ama-qhosha
5-button/6-6-button
'button/s'

h. i-cepe/ama-cepe
5-spoon/6-spoon
'spoon/s'

i. i-gama/ama-gama
5-word/6-word
'word/s or name/s'

3

Inanimates: 7/8

j.   isi-bane/izi-bane   k.   isi-tya/izi-tya   l.   isi-tyalo/izi-tyalo
     7-lamp/8-lamp   7-dish/8-dish   7-plant/8-plant
     'lamp/s'   'dish/es'   'plant/s'

Inanimates: 9/10

m.   in-to/izin-to   n.   in-cwadi/iin-cwadi   o.   in-daba/iin-daba
     9-thing/10-thing   9-book/10-books   9-news/10-news
     'thing/s'   'book/s'   'news item/s'

(7) Liquids and masses: scattered

a. ama-nzi   b. i-gazi   c. i-oili   g. u-bisi   e. isi-dudu   f. um-chamo   d. i-tyuwa
   6-water   5-blood   9-oil   11-milk   7-porridge   3-urine   9-salt
   'water'   'blood'   'oil'   'milk'   'porridge'   'urine'   'salt'

(8) Clauses   a.   Ndi-ya-**ku**-cinga   ukuba u-hambile uSabelo.   b. Uku-cula **ku**-mnandi.
class 15   1SSM-DISJ-**15OM**-think that   1SM-left 1a-Sabelo   15-sing **15SM**-nice
                    'I think that Sabelo left.'   'Singing is nice.'

Agreement is strictly based on noun class, not semantic features:

(9) a. um-fazi   w-a-fika.   b. in-tombi y-a-fika.   c. i-gwetha l-a-hleka.
         1-woman 1SM-PST-arrive   9-girl   9SM-PST-arrive   5-lawyer 5SM-PST-laugh
         'The woman arrived.'   'The girl arrived.'   'The lawyer laughed.'

(10) a. u-lolilwe w-a-fika.   b. i-posi y -a-fika.   c. ili-tya   l-a-wa   phantsi.
         1a-train 1SM-PST-arrive   9-mail 9SM-PST-arrive   5-stone 5SM-PST-fell down
         'The train arrived.'   'The mail arrived.'   'The stone fell.'

(11) a. aba-fazi/oo-lolilwe ba-a-fika.   b. iin-tombi/iin-cwadi z-a-fika
         2-women/2a-trains 2SM-PST-arrive   10-girls/10-letters 10SM-PST-arrive
         'The women/trains arrived.'   'The girls/letters arrived.'

     c. ama-gwetha/ama-tye a-a-wa.   d. imi-thi/imi-gewu   y-a-wa.
         6-lawyers/6-stones   6SM-PST-fell   4-trees/4criminals 4SM-PST-fell
         'The lawyers/stones fell.'   'The trees/criminals fell down.'

3   Agreement with conjoined singulars

3.1   "Default"/semantic agr with mismatching [sg+sg]: *ba-* and *zi-*

(12) a. Um-gewu ne-polisa   **ba**-sebenza   ndawonye.
         3-criminal and.5-policeman   2SM-pres-work together
         'The criminal and the policeman are working together.'

     b. Um-nqathe ne-qanda **zi**-se   tafile-ni.   [Mitchely 2015:115]
         3-carrot   and.5-egg 8SM-be table-LOC
         'The carrot and the egg are on the table.'

     ♦Recall class 2 is reconstructed as the plural class of humans, class 8 mixed contents♦

Interim conclusion: Xhosa noun class membership is predominantly arbitrary, but agreement
w/mismatched [sg+sg] reveals a human/non-human conceptual division in the system.

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3.2   Cases where a default strategy is puzzling

3.2.1 Singular inanimates [3+3], [5+5] pair with class 8 *zi-* (Taraldsen et al 2018).

(13) a. Um-nqwazi nom-pu √**zi**- /✗**i**-   se   tafile-ni.   [3+3=8; ≠4]
          3-hat   and.3-gun   8SM/ 4SM-are table-LOC
          'A hat and a gun are on the table.'

      b. Imi-nqwazi ✗ zi   /√**i**-se   tafile-ni.   [plural of N$_{cl.3}$ is cl 4: *i*-agr]
          4-hats   8SM/   4SM-be table-LOC
          'The hats are on the table.'

(14) a. Ili-tye   ne-qanda √**zi**-/✗**a**-nyamalele.   [5+5=8, ≠ 6]
          5-stone   and.5-egg 8SM/6SM-disappeared
          'The stone and the egg disappeared.'

      b. Ama-tye ✗ zi   /√**a**-nyamalele.   [plural of N$_{cl.5}$ is cl 6: *a*-agr]
          6-stones   8SM/ 6SM-disappeared
          'The stones disappeared.'

3.2.2 Conjoined humans of [3+3], [5+5] pair with class 2 *ba-*

(15) a. Um-gewu nom-gulukudu √**ba**   /✗**i**-sebenza ndawonye.   [3+3=2, ≠4]
          3-criminal and.3-gangster 2SM/   4SM-work   together
          'A criminal and a gangster are working together.'

      b. I-mi-gewu ✗**ba**/√**i**-sebenza ndawonye.
          4-criminals 2SM/ 4SM -work together
          'The criminals work together.'

(16) a. I-gqirha ne-gosa   √**ba** /✗ a-sebenza ndawonye.   [5+5=2, ≠ 6]
          5-healer and.5-officer 2SM/ 6SM -work together
          'The healer and the officer are working together.'

      b. A-ma-gqirha ✗**ba**/√**a**-sebenza ndawonye.
          6-healers   2SM/6SM-work   together
          'The healers are working together.'

The conclusion of Taraldsen et al (2018): Bantu singular/plural pairings do not share gender features. Each singular and each plural class is a distinct gender.

<u>But</u> this pattern **doesn't** threaten the gender analysis of pairs of classes.

3.2.3 Parallels in languages with canonical 3-gender systems

Well-known parallels in languages with canonical genders – BCS (17) and Slovenian (18),
[$_{\&P}$ neut+neut] takes default masc.

(17) *Jedno tele   i   jedno pašče   su   juče   prodana.
      One   calf.NEUT and one   dog.NEUT are yesterday   sold. PL.NEUT
      Intended: a calf and a dog were sold yesterday.

(18) to   drevo   in   gnezdo   na njem mi   bosta ostala   v   spominu.
      that tree.NEUT and nest.NEUT on it   to-me will   remain.*PL.NEUT/√MASC.DUAL in memory
      'That tree and the nest on it will remain in my memory.'   [$_{\&P}$ neut+neut ≠ neut.pl]

•Marušič et al (2007), Bošković (2009): Conjunct Phrase (&P) has number only; it's a closer goal than its contents. A uPhi probe on a head H obtains from it a plural/dual value alone.

(19) a.

H _uNum+_uGen   vP   Agree (T, &P)   b.   H$_{Pl}$ _uNum+ _uGen   vP

     &P$_{[Pl]}$ ...   →   &P$_{[Pl]}$ ...
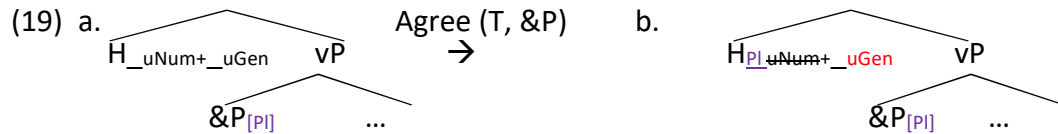
Default/semantic resolution rules follow, whether the genders of conjuncts mismatch or match.

<u>Summary so far</u>: (a) Xhosa noun class patterns with grammatical gender in that some conjunctions of matching singulars trigger default agreement; (b) syntax could explain this.

•Problem: cross-linguistically, agreement in the expected plural is the more general pattern.

3.3   Where regular plural agreement obtains

3.3.1   Conjoined singulars [1+1], [7+7], [9+9] pair with expected plural agreement

Conjoined singular nouns intrinsically of cl. 1 take *ba*-AGR, whether human-denoting or not.

(20)   Um-mi   nom-ongameli   **ba**-ya-ncokola.   [1+1=2]
           1-citizen and.1-president   2SM-DISJ-chat
           'The citizen and the president are chatting.'

(21)   a. U-L   no-M   **ba**- /*zi-se   tafile-ni.   [1+1=2]
              1a-L   and.1a-M   2SM-/*8SM-LOC table-LOC
              'The L and the M are on the table.'

          b. U-loliwe   kunye no-matshini   **ba**-/*zi-ya-hamba<u>.</u>   [1+1=2]
              1a-train   and   and.1a-machine 2SM-/*8SM-DISJ-move
              'The train and the machine are moving.'

Conjoined singulars of class 7 take *zi*-AGR, even if human-denoting:

(22)   Isi-bane nesi-tya   **zi**-nyamalele.   [7+7=8]
           7-lamp and.7-dish 8SM-disappeared
           'The lamp and the dish have disappeared.'

(23)   Is-anuse nes-azi   **zi**-ya-sebenza.
           7-diviner and.7-scientist   8SM-DISJ-work
            'The diviner and the scientist are working.'

Conjoined singulars of class 9 take *zi*-AGR, even if human-denoting:

(24)   In-dlovu   (kunye) nen-gwe   **zi**-ya-lwa.   [9+9=10]
           9-elephant and   and.9-leopard 10SM-DISJ-fight.
           'The elephant and the leopard are fighting.

(25)   In-dadi   nen-tlebi   **zi**-ya-cula.
           9-swimmer   and.9-gossip 10SM-DISJ-sing
           'The swimmer and the gossip are singing.'

Though Xhosa agr for both 8 & 10 = *zi* I propose that [9+9=10] based partly on related Shona, where the two differ. The pattern for [sg+sg] is like that of Xhosa: [3+3], [5+5] take default 8agr.

(26)   Im-bwa ne   in-gwe   **dzi**-ri   panze.   [Shona: 9+9=10]
           9-dog   and 9-leopard   10SM-be outside
           'The dog and the leopard are outside.'

(27)   Chi-ngwa ne   chi-bage **zvi**-ri   pa-tafura.   [Shona: 7+7=8]
           7-bread   and 7-maize   8SM-be   LOC-table
           'The bread and the maize are on the table.'

6

(28) Mu-rume ne   mu-kadzi   **va**-ri   panze.   [Shona: 1+1=2]
      1-man   and 1-woman   2SM-be outside
      'The man and the woman are outside.'

(29) Benzi ne   dinga   Ӽa- /√**va**-ri   ku-shayikwa.   [Shona: 5+5=2]
      5fool and 5dimwit 6SM/ 2SM-be 15-missing
      'The fool and the dimwit are missing.'

(30) Dombo ne   zai   Ӽa /√**zvi**-ri   panze.   [Shona: 5+5=8]
      5stone and 5egg 6SM/ 8SM-be outside
      'The stone and the egg are outside.'

(31) Mu-goti   ne   mu-ti Ӽi   /√**zvi**-ri panze.   [Shona: 3+3=8]
      3-cooking.stick and 3-tree 4SM/   8SM-be outside
      'The cooking stick and the tree are outside.'

3.3.2 More parallels in Slovenian and BCS

Slovenian and BCS [&P fem+fem] and [&P masc+masc] can take matching agr, though
[&P neut+neut] takes default masc.

(32) to   drevo   in   gnezdo na njem mi   bosta ostala   v   spominu.
     that tree.NEUT and nest.NEUT on it   to-me will   remain.*PL.NEUT/√MASC.DUAL in memory
     'That tree and the nest on it will remain in my memory.'   [&P neut+neut ≠ neut.pl]

(33) Jedna krava   i   jedna ovca   su juce   prodane.   [Slovenian]
     one   cow.F.SG and one sheep.F.SG are yesterday sold.F.PL   [&P fem+fem = fem.pl]
     'A cow and a sheep were sold yesterday.'

(34) [&P Zavesa   i   biljka]   su ukrašavale   prozor.   [BCS]
        curtain.F.SG and plant.F.SG are decorate.PRT.F.PL window   *As in Xhosa the particular*
      'A curtain and a plant decorate the window.'   *DPs'semantics don't matter*

•These patterns are at odds with proposal (19) for [neuter+neuter], [3+3], [5+5].

(19) a.   Agree (T, &P)   b.

         H__uNum+__uGen   vP   →   H[Pl uNum+__uGen   vP

   &P[Pl]   …   &P[Pl]   …

• BCS NEUT as absence of gender or [-FEM, -MASC]: Despic 2016, Nevins 2018, Tsimpli & Hulk
     2013, Adamson & Anagnostopoulou 2024 a.o. on why BCS [&P neut+neut] = default masc.pl.

•OK where there is 1 outlier gender, but does not generalize well to Xhosa where there are 2
     (& we'll see in §6 that in Shona, diminutives are a 3rd).

•Bošković (2009): FEM but not NEUT is reflected in agr with conjoined singulars because FEM
     is semantically grounded; percolates to &P (though why in cases like (34) he leaves open).

•Parallels of BCS & Xhosa motivate a unified treatment of when agr w/[sg+sg] succeeds vs fails.

•I'll advocate an approach building on the proposal that the difference is semantically based
     Bošković (2009).

4   Analysis

4.1   Why 1/2, 7/8, 9/10 are different from 3/4, 5/6

- •2 of 3 genders exhibiting grammatical agr with [$X_{\alpha gen.sg}$+$Y_{\alpha gen.sg}$] are defaults: 1/2, 7/8.
- •Defaults show Xhosa has semantic associations: 1/2 [human] and 7/8 [inanimate].
- •Extending the logic, [9+9=10] suggests that 9/10 have a semantic assoc; I assume [animal] (reconstructed & synchronic contents). Thus 1/2, 7/8, 9/10 are a natural class.
- •3/4, 5/6 relevant semantic content? What of 3/4 'trees/plants'?

<u>Figure 1</u>: Proto-Bantu noun class semantics in Denny & Creider (1986): only 1/2, 7/8, 9/10 have concrete semantic associations; the others, abstract shape tendencies.
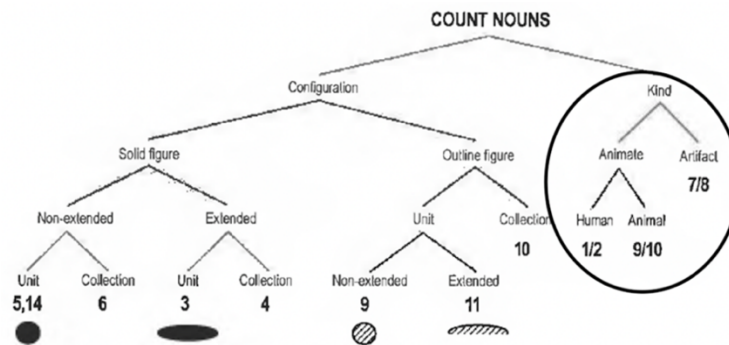
Their evidence: statistically insufficient #s of reconstructed tree and plant terms in 3/4. Similarly, no significant correlation of Xhosa plants/trees to 3/4 in botany works: Bhatt (2013), Wehmeyer & Rose (1983).

Is an abstract shape association a sticking point for plural agr with [3+3] and [5+5], maybe absent individuation, countability (Arsenijevic 2017, Adamson & Anagnostopolou 2024 on BCS and Slovenian neuter as uncountable mass)?

Evidence against this: (a) Most Ns in these Bantu genders name discrete pluralizable entities -- Xhosa 3/4: tree(s), gangster(s), rhino(s), pipe(s)... 5/6: policeman/men, spoon(s), name(s), berry/ies, stone(s)...this and countability specific to individual nouns, not noun classes:

(35) a. um-thi omu-nye   b. imi-thi imi-thathu   c. i-qanda eli-nye   d. ama-qanda ama-thathu
        3-tree 3-one   4-trees 4-three   5-egg   5-one   6-eggs   6-three
        'one tree'   'three trees'   'one egg'   'three eggs'

(36) a. #um-gubo omu-nye   b. e-nye i-komityi yo-m-gubo
        3-flour   3-one   9-one 9-cup   9of.3-flour
        Literally: one flour'   'one cup of flour'

(37) a. #i-gazi   eli-nye   b. i-thonzi (eli-nye) le-gazi
        5-blood 5-one   5-drop   5-one   5-of.5-blood
        Literally: one blood'   'a drop of blood/one drop of blood' [unit counter is cl.5]

(38) a. in-cwadi e-nye   b. in-tombazana e-nye   #i-oili   e-nye
        9-book   9-one   9-girl   9-one   9-oil 9-one
        'one book'   'one girl'   Literally: one oil

(b) 4 and 6 agr are available in "highly individuated plural uses such as....in demonstratives with pointing..." (Arsenijevic 2021: a deficiency of neuter is that it cannot be so-used).

(41) d. La   (ma-nenekazi) ma-hle   e. Le   (imi-gulukudu) im-bi
        6those (6ladies)   6-nice   4those (4-gangsters) 4-bad
        'Those (ladies) are nice.'   'Those (gangsters) are bad.'

(c)   Other evidence of non-defectiveness: Pronominal reference across discourses equally strict across classes:

(39) **I**-gwetha **I**-asondela   kwi-jury. **L**-ashwankathela i-tyala. Ba-**li**-phulaphula ngenyameko.
       5-lawyer **5SM**-approach LOC.9-jury **5SM**-summarized **5**-case 2SM-**5OM**-listen   carefully
       'The lawyer approached the jury. He summarized the case. They listened carefully to him.'

(40) Iin-tombi z-a-thenga ama-hashe. Z-a-zi-nga-kwazi   uku-wa-khwela.
       10-girls   10SM-buy   6-horses   10SM-PST-10SM-NEG-know 15-6OM-ride

       Aba-hlobo ba-zo   ba-be-zi-/#**ba**-hleka.
       2-friends   2-10POSS 2SM-PST-2SM-**10OM**/#**2OM**-laugh

       'The girls bought horses. They didn't know how to ride them. Their friends laughed at them.'

(d) Bound readings for pronouns rely on noun class matching, in every class:

(41) a.   I-nenekazi nga-**li**-nye$_i$ **I**-a-yi-funda   in-cwadi ya-**lo**$_i$ /ya-khe$_j$.   *i = j
          5-lady   each-**5**-one **5SM**-PST-9OM 9-book   9-**5POSS** /9-1POSS
          'Each lady$_i$ read her$_i$ book.'

     b.   Y-onke   in-kwenkwe$_i$ y-a-tya   imi-funo   ya-**yo**$_i$ /ya-khe$_j$. *i = j
          9-every 9-boy   9SM-PST-eat 4-vegetables 4-9POSS /4-1POSS
          'Every boy ate his vegetables.'

     c.   Y-onke **imi**-gulukudu$_i$ **y**-a-khwela   ama-hashe a-**yo**$_i$ /a-bo$_j$.   *i = j
          4-all   **4**-gangster   **4SM**-PST-ride 6-horse   6-**4POSS** /6-2POSS
          'All the gangsters rode their horses.'

Upshot: Semantic factors that might disfavor agr with [3+3], [5+5] are not detectable synchronically. If they existed they've faded, leaving genders <u>without interpretable content</u>.

4.2   Gender, *n*, and interpretability

•Kramer (2015): gender is a feature of the categorizer *n;* semantic associations to genders exist because genders may be *i*nterpretable or *u*ninterpretable.

(42) <u>Amharic: two genders. Types of *n*</u>:

     a.   *n   i* [+FEM] Female natural gender
     b.   *n   i* [-FEM] Male natural gender
     c.   *n   u* [+FEM] Feminine arbitrary gender (e.g. the grammatically feminine word for 'sun')
     d.   *n*   No natural gender = "plain" *n* (grammatically masculine, by default)

(43) <u>*n*s for Xhosa</u> (note absence of *u*- vs. *i*-flavors for 1/2, 7/8, 9/10; more on this in §5)

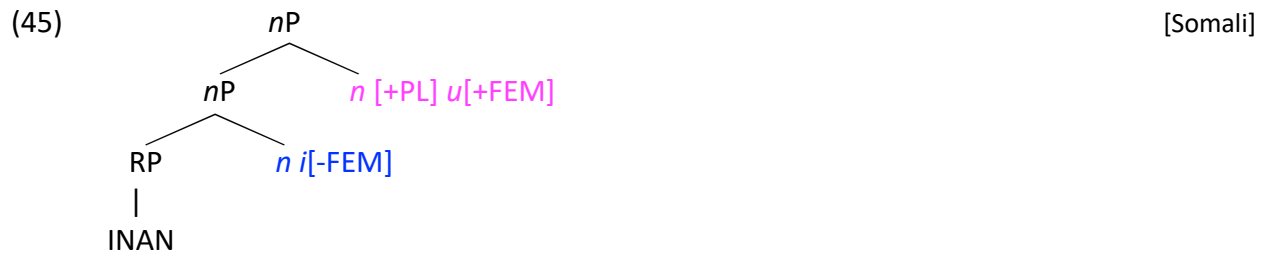|			
	Classes 1/2 = Gender A	n_A	[humans + others]
	Classes 7/8 = Gender D	n_D	[inanimates + others]
	Classes 9/10 = Gender E	n_E	[animals + others]
→	Classes 3/4 = Gender B	n_B	uninterpretable for all members
→	Classes 5/6 = Gender C	n_C	uninterpretable for all members

Working hypothesis: a gender associated with entities of type α is compatible with other kinds; alongside of *i*-versions specified e.g. *i*[entity:human] are *i*[entity:__], the apparently *u*-versions.

•A second tool from Kramer (2015): *n*-stacking

(44)   a. ínan   'son, boy (m.)'   [Somali]
        b. inammó   'sons, boys (f.)'

(45)   *n*P   [Somali]

                    *n*P   *n* [+PL] *u*[+FEM]

             RP   *n* *i*[-FEM]
              |
            INAN

•Large numbers of [human] nouns drifted from Proto-Bantu classes 1/2 to other classes, in
   Xhosa. Let's suppose their new genders such as 3/4, 5/6 stack above the older 1/2 *i*-core.

•Some [inanimate] nouns came to pair with classes 1/2 and other *n*s; assume these *n*s stack
   above an interpretable [artifact] core of classes 7/8.

•Same approach to dispersal of [animal] nouns.

(46) Sample structures of [human] nouns: a core of 1/2 = gender A

        a. um-ntwana/aba-ntwana   [n_A √MNTWANA]   *i*n for [human+]
            1-child/2-children
            'child/ren'

        b. um-gewu/imi-gewu   [n_B [n_A √GEWU]]   *u*n of 3/4 stacks above 1/2 *i*n
            3-criminal/4-criminal
            'criminal/s'

        c. i-butho/ama-butho   [n_C [n_A √BUTHO]]   *u*n of 5/6 stacks above 1/2 *i*n
            5-warrior/6-warrior
            'warrior/s'

        d. isi-hlobo/izi-hlobo   [n_D [n_A √HLOBO]]   *i*n of 7/8 stacks above 1/2 *i*n
            7-friend/8-friend
            'friend/s'

        e. in-tombi/iin-tombi   [n_E [n_A √TOMBI]]   *i*n of 9/10 stacks above 1/2 *i*n
            9-young.lady/10-young.lady
            'young lady/ladies'

(47) Structures of [inanimate] nouns: a core of 7/8 = gender D

        a. isi-bane/izi-bane   [n_D √BANE]   *i*n for [artifact+]
            7-lamp/8-lamp
            'lamp/s'

        b. u-matshini/oo-matshini   [n_A [n_D √MATSHINI]]   *i*n of 1/2 above *i*n of 7/8
            1a-machine/2a-machine
            'machine/s'

        c. um-qwazi/imi-qwazi   [n_B [n_D √QWAZI]]   *u*n of 3/4 stacks above 7/8
            3-hat/4-hat
            'hat/s'

(48) Animal nouns: a core of 9/10 = gender E

    a. in-dlovu/iin-dlovu   [n_E √DLOVU]   *in* for [animal+]
       9-elephant/10-elephant
       'elephant/s'

    b. u-nokala/oo-nokala   [n_A [n_E √NOKALA]]   *in* of 1/2 above *in* of 9/10
       1a-crab/2a-crab
       'crab/s'

        ♦"Default" agreement = formal, syntactic agreement with *i*gender cores♦

5   Deriving the patterns

Deriving default agreement with gender-matching singulars

(49) a. Um-nqwazi nom-pu **zi**-se   tafile-ni.   b. I-gqirha ne-gosa   **ba**-ya-sebenza.
       3-hat   and.3-gun 8SM-are table-LOC   5-healer and.5-officer 2SM-DISJ-work
       'A hat and a gun are on the table.'   'The healer and the officer are working.

Compare to a conjunction of plurals in one of the problem genders (more on this in §7)

    c. Imi-pu nemi-bhobho **i**-se   rumi-ni.
       4-guns and.4-pipes **4SM**-LOC room-LOC
       'The guns and the pipes are in the room.'

Default 2 and 8 agr pairing with [3+3], [5+5] and noun class mismatches:

(a) Clashes in number betw/&P$_{pl}$ and conjuncts trigger resolution process, deleting uFs.

(b) Resolved agr: the intersection of *i*-features on &P (Adamson & Anagnostopoulou 2024).

Deriving default agreement with matched conjunctions of ugenders

(50) Clashing number features: &P is plural, conjuncts are singular → resolution occurs
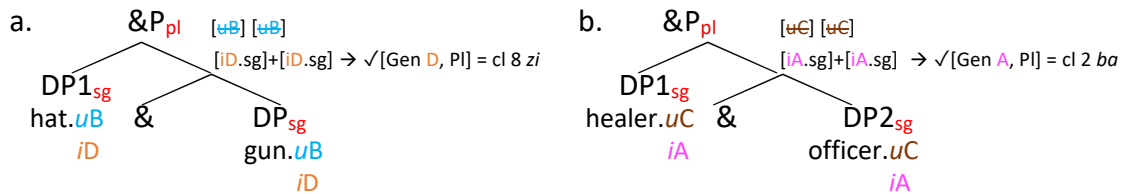
    class 8 agr with conjoined inanimates [3+3]; = (49)a   *class 2 agr with conjoined humans* [5+5] = (49)b

(51) a. Um-gewu ne-polisa   **ba**-sebenza   ndawonye.   [Xhosa]
       3-criminal and.5-policeman 2SM-pres-work together
       'The criminal and the policeman are working together.'

    b. Um-nqathe ne-qanda **zi**-se   tafile-ni.   [Xhosa; Mitchely 2015:115]
       3-carrot   and.5-egg 8SM-loc   table-loc
       'The carrot and the egg are on the table.'

(52) Clashing *u*genders, as well as number-features → deletion of *u*Fs
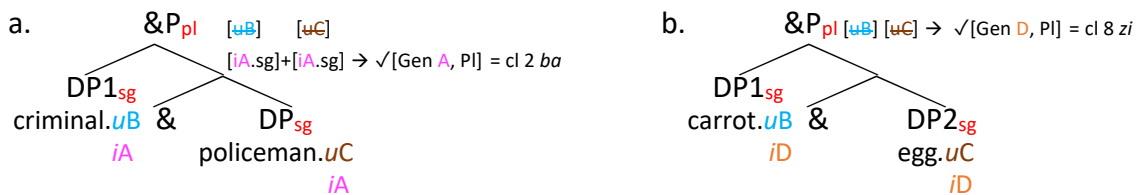
    class 2 agr with conjoined humans [3+5] = (51)a   *class 8 agr with conjoined inanimates* [3+5] = (51)b

Agreement in appropriate i*gender: <u>the highest gender wins</u> (Kramer 2015).*

(53)   U-loliwe   kunye no-matshini   ba- /*zi-ya-hamba.   [1a+1a=2]
       1a-train   and   and.1a-machine 2SM-/*8SM-DISJ-move
       'The train and the machine are moving.'

(54)   In-tombazana nen-kwenkwe **zi**-   /*ba-ya-sebenza.   [9+9=10]
       9-girl   and. 9-boy   10SM/*2SM DISJ-work
        'The girl and the boy are working.'

(55) a.   &P$_{pl}$ ✓[Gen A, Pl] = cl 2 *ba*   b.   &P$_{pl}$ ✓[Gen E, Pl] = cl 10 *zi*

       DP1$_{sg}$ DP1$_{sg}$
       train.*i*A &   DP$_{sg}$ girl.*i*E   &   DP2$_{sg}$
             *i*D   machine.*i*A   *i*A   boy.*i*E
                              *i*D   *i*A

(56)   <u>Rejected alternative</u>: *u*flavors for 1/2, 7/8, 9/10, adapting Kramer (2015)

       Classes 1/2 = Gender A   i*n*$_{A1}$ [+human]
                                       u*n*$_{A2}$ (for arbitrary members)
       Classes 7/8 = Gender D   i*n*$_{D1}$ [+inanimate]
                                       u*n*$_{D2}$ (for arbitrary members)
       Classes 9/10 = Gender E   i*n*$_{E1}$ [+animal]
                                       u*n*$_{E2}$ (for arbitrary members)

Cannot capture (53), (54) etc.; makes false predictions:

(57) a.   &P$_{pl}$ ✓[Gen A, Pl]. *Predicted:* [~~uA~~]&[~~uA~~]   b.   &P$_{pl}$ ✓[Gen E, Pl]. *Predicted:* [~~uE~~]&[~~uE~~]
                                              *[Gen D, Pl] *zi*   * [Gen A, Pl] *ba*
       DP1$_{sg}$ DP1$_{sg}$
       train.*u*A &   DP$_{sg}$ girl.~~uE~~ &   DP2$_{sg}$
             *i*D   machine.*u*A   *i*A   boy.~~uE~~
                              *i*D   *i*A

       If inanimates in 1/2 bear *u*flavor of Gender A   if humans in 9/10 bear a *u*flavor of Gender E

For mismatches of iFs, agr in the core gender -- the common denominator for DP1 & DP2.

(58) a. Is-anuse   nen-tombi ba-zi-ya-sebenza.   b.   U-bhaka nen-cwadi   **zi**-ngaphandle.
        7-medium and.9-girl 2SM-DISJ-work   1a-backpack and.9-book 8SM-be.outside
        'The medium and the girl are working.'   'The backpack and the book are outside.'

(59) a.   &P$_{pl}$ ✓[Gen A, Pl] = cl 2 *ba*   b.   &P$_{pl}$ ✓[Gen D, Pl] = cl 8 *zi*

       DP1$_{sg}$ DP1$_{sg}$
       medium.*i*D &   DP$_{sg}$ backpack.*i*1a &   DP2$_{sg}$
             *i*A   girl.*i*E   *i*D   book.*i*E
                              *i*A   *i*D

6   Utility of the agreement diagnostic for (un-)interpretability

•Kramer (2015) provides tools crucial to my account, but (60) yields indeterminacy:

(60)   <u>Definition of interpretability</u>
       A feature is interpretable iff its presence/absence changes the interpretation of a
       linguistic structure, i.e. if it is legible at LF.

•Where genders are concerned, how to tell simple correlation from cause and effect?
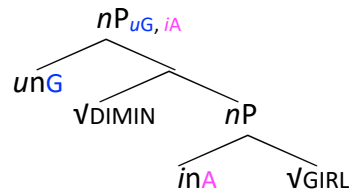Test case: Shona diminutive classes 12/13. When DIMINs conjoin, (62) a,b show agr is default.

(61) a. mu-sikana → ka-sikana   b.   Twa-sikana twa-nyangadika.
     1girl   12-girl   13-girls   13SM-disappear
     'girl'   'tiny girl'   'The tiny girls disappeared.'

(62) a. Ka-sikana ne ka-kómáná va-/ *twa-nyangadika.
     12-girl   & 12-boy   2SM/*13SM-disappear
     'The tiny girl and the tiny boy disappeared.'

     b. Ka-mba ne ka-motokari zva-/*twa-nyangadika.
        12-house & 12-car   8SM/ *13SM-disappear
        'The tiny house and the tiny car disappeared.'

Kramer (2015) suggests an i$n_{12/13}$ [DIMIN]; Fuchs & van der Wal (2022) propose the DIMIN meaning arises in $n_{12/13}$ combining with an nP (domain of idiomatic meaning). To account for unagreeableness, my proposal: DIMIN a silent root, pairing with a wholly $u$gender G (12/13) like B, C (3/4, 5/6). (Creemers & Fenger 2018, Lowenstamm 2015, Simonović 2022, Wiltschko & Steriopolo 2007 on (some) deriv. affixes as roots.)

(63) a. diminutive structure: nP$_{uG, iA}$ b.   &P$_{pl}$ √[Gen A, Pl] = cl 2 va
                                                                                      [u̶G̶] [u̶G̶]
                                  unG   DP1$_{sg}$
                               √DIMIN nP   tiny girl.$_{uG}$ &   DP2$_{sg}$
                                                                     iA tiny boy.$_{uG}$
                                     inA   √GIRL iA
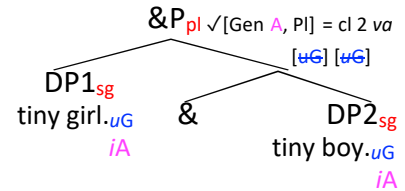
7   Agreement with conjoined plurals: patterns and implications

•With gender-matching [pl+pl], agr exceptionlessly matches, even for [4+4], [6+6], [13+13].

(64) a. Izi-tyebi   nezi-bhanxa zi-ya-funda.   [Mitchley 2015: 116]
     8-rich.persons and.8-fools   8SM-DISJ -study
     'The rich people and the fools are studying.'

     b. Imi-pu nemi-bhobho   i-se   rumi-ni.
        4-guns and.4-pipes   4SM-LOC room-LOC
        'The guns and the pipes are in the room.'

     c. Ama-sele   nama-dada   a-ya-qubha.
        6-frogs   and. 6-ducks   6SM-DISJ-swim
        'The frogs and the ducks are swimming.'

     d. Ama-polisa nama-gqwetha   a-ya-sebenza.
        6-policemen and. 6-lawyers   6SM-DISJ-work
        'The policemen and the lawyers are working.'

(65) a. Imi-gewu   nemi-gulukudu   i-se   rumi-ni.
        4-criminals and.4-gangsters 4SM-LOC room-LOC
        'The criminals and the gangsters are in the room.'

     b. Twakomana ne twasikana twa-nyangadika.   [Shona]
        13-girls   & 13-boys 13SM-disappear
        'The tiny girls and the tiny boys disappeared.'

Recall the pattern for related singulars [3+3], [5+5] and [12+12]:

(15) a. Um-gewu nom-gulukudu √**ba** /Ⅹ**i**-sebenza   ndawonye.   [3+3=2, ≠4]
          3-criminal and.3-gangster   2SM/   4SM -work   together
           'A criminal and a gangster are working together.'

(62) a. Ka-sikana ne ka-kómáná va-/ *twa-nyangadika.
          12-girl   & 12-boy   2SM/*13SM-disappear
          'The tiny girl and the tiny boy disappeared.'

The plural patterns show us that the unagreeable *u*genders **do** factor into agr with &P as long as the conjuncts and &P match in plurality.

• FCA: A preference clear in gender-mismatched [pl+pl] combos.

(66) Aba-ntwana n**een-tombi** ba-ya-cula.   [2+10: FCA chosen by 8 out of 8 speakers]
      2-children   and.10-girls   2SM-DISJ-sing-FV
      'The children and the girls are singing.'

(67) a. Iin-tombi n**aba-ntwana** zi/**ba**-ya-cul-a.   [10+2: FCA>**LCA** 5:3]
          10-girls   and.2-children 10SM/2SM-DISJ-sing-FV
           'The young ladies and the children are singing.'

      b. Iza-nuse   n**aba-ntwana** zi-ya-cul-a.   [FCA >**LCA** 6:2]
          8-mediums and.2-children 8SM-DISJ-sing-FV
           'The young ladies and the children are singing.'

      c. Izi-tya   n**emi-nqathe** zi-se   tafile-ni.   [FCA >**LCA** 6:2]
          8-plates   and.4-carrots 8SM-be 9-table-LOC
          'The plates and the carrots are on the table.'

•Default agr dispreferred. Table 2: results for 12 pairs of [+human] pls ≠ class 2. Across 8 speakers, *ba-* chosen only 10/96 times in which it is unambiguously default. Upshot: *ba-* agreement when one plural conjunct is class 2 is likely agreement with that DP.

Table 3: Default agreement for 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
2	2	2	2	0	0	1	0	0	1	0	0

•But FCA *is avoided* where DP1 is class 4 or 6 and DP2 mismatches it:

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

(69) Ama-polisa na-**ba-ntwana** **ba**/i-ya-cul-a.   [**LCA** >FCA 6:2]
      6-polisa   and.2-children 2SM /6SM-DISJ-sing-FV
      'The policemen and the children are singing.'

(70) a. Imi-nqathe n**ezi-tya**   zi-/i-se   tafile-ni.   [**LCA**/default>FCA: 6:2]
         4-carrots   and.8-plates 8SM/4SM-be 9-table-LOC
          'The carrots and the plate disappeared.'

      b. Ama-qanda n**ezi-tya**   a/**zi**-nyamalele.   [**LCA** /default>FCA 7:1]
         6-eggs   and.8-plates 6SM/8SM-disappeared
          'The eggs and the plate disappeared.'

      c. Imi-funo   n**eem-botyi** zi/i-phel-ile.   [**LCA**>FCA: 6:2]
         4-vegetables and.10-beans 10SM/4SM-be.finished-DISJ
          'The vegetables and the beans are finished.'

- Upshot: failed agr with gender-matched [sg+sg] manifests a property of whole genders, sg and pl alike, contra Taraldsen et al's (2018) claim that e.g. 3 & 4, 5& 6 are unrelated.

Most defaults and most variability: [4&6], [6&4]

(71) <u>Imi-nqathe</u> n**ama-qanda** i-/**a-**/*zi*-se tafile-ni.   [*default zi*>FCA>**LCA** 4:2:1]
    4-4-carrots   and.6-eggs 4SM/6SM/8SM-be   9-table-LOC   [i.e. *zi* x 4, *i* x 2, *a* x 1]
    'The carrots and the eggs are on the table.'

(72) <u>Ama-qanda</u> n**emi-nqathe**   i-/**a-**/*zi*-se   tafile-ni.   [*default zi*>FCA>**LCA** 4:2:1]
    6-eggs   and.4-carrots 4SM/6SM/8SM-be   9-table-LOC   [i.e. *zi* x 4, *i* x 2, *a* x 1]
    'The eggs and the carrots are on the table.'

<u>Summary</u>: • √matching agr with all matching plurals [α.pl & α.pl].
              •FCA preferred with [pl&pl] mismatches, but...
              •Agr with 4 or 6 avoided when resolution is required, as for their sgs 3 and 5.

8   Default agreement: putting singulars and plurals together

- Necessary condition for default/semantic agr: - # mismatch between &P$_{pl}$ and DPs$_{sg}$, or
                                      - gender mismatches between conjoined DPs

- *i*-features intersected to obtain resolved agr (adapting Adamson & Anagnostopolou 2024).

(73) a. <u>Ama-qanda</u> n**ezi-tya**   **z**-awa.   b. Um-nqwazi nom-pu   **z**-awa.
     6-eggs   and.8-plates 8SM-fell   3-hat   and.3-gun 8SM-fell
     'The eggs and the plates fell.'   'The hat and the gun fell.'

(74) a.   gender mismatch   b.   number mismatch
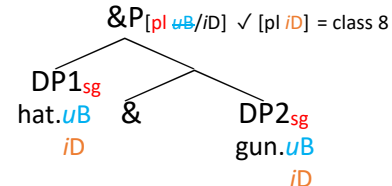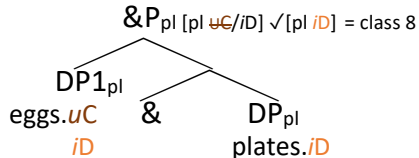
              &P$_{pl}$ [pl ~~*u*C~~/*i*D] √[pl *i*D] = class 8   &P$_{[pl ~~uB~~/iD]}$ √ [pl *i*D] = class 8
           DP1$_{pl}$ DP1$_{sg}$
      eggs.*u*C   &   DP$_{pl}$ hat.*u*B   &   DP2$_{sg}$
       *i*D   plates.*i*D   *i*D   gun.*u*B
                                                  *i*D

(75) a.   Ama-sele nama-dada   a-ya-qubha.   b.   imi-pu nemi-qhagi   y-a-wa.
      6-frogs   and.6-ducks 6SM-DISJ-swim   4-guns and.4-roosters 4SM-fell
      'The frogs and the ducks are swimming.'   'The guns and the roosters fell.'

(76) a. *no mismatches*   b.   *semantic but not formal mismatch*

            &P$_{pl}$ √[Gen C, Pl] = cl 6   &P$_{pl}$ √[Gen B, Pl] = cl 4
          DP1$_{pl}$ DP1$_{pl}$
     frogs.*u*C   &   DP$_{pl}$ guns.*u*B   &   DP$_{pl}$
      *i*E   ducks.*u*C   *i*D   roosters.*u*B
   *i*E   *i*E
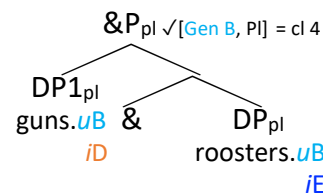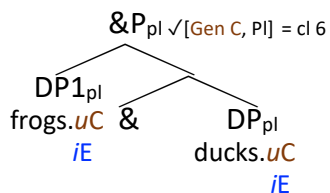
Conjecture re FCA: feature-percolation reproduces on &P the hierarchical arrangement of the conjuncts; all else equal, highest wins (language particular).

9   Feature hierarchy issues

In Greek, Icelandic, BCS, Adamson & Anagnostopoulou (2024) propose that the intersection of features is based on dependencies among features, and works from more to less specific:

(77) Greek gender in Adamson & Anagnostopolou (2024): (*i/u*) CLASS = entity (spellout neuter)
|
(*i/u*) MASC = animate
|
(*i/u*) FEM = woman/women
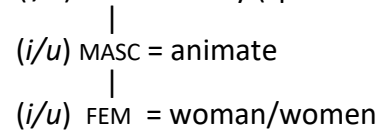
(78) Greek: FEM entails MASC entails CLASS; resolution from narrower to broader subset

(79) a. O   andras ke i   gineka ine eksipni   /*eksipna.   [Greek]
the.M.SG man   and the.F.SG woman are intelligent.M.PL/ *intelligent.N.PL
'The man and the woman are intelligent.'

b. O   pinakas   ke i   karekla ine vromika /*vromiki.
the.M.SG blackboard and the.F.SG chair   are dirty.N.PL /dirty. M.PL
'The blackboard and the chair are dirty.'

(80) Deriving masculine agreement in (79a):
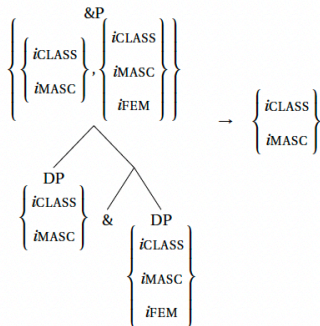
(81) **Animacy Generalization**: genders linked to non-animate reference are featurally less
specific...morphosyntactic default environments can give rise to exponence that realizes
the features of the non-animate gender, but not the features that realize the
animate...(Adamson & Anagnostopoulou 2024 on defaults in 3-gender languages)

In Bantu resolution patterns, animacy (humanness) is a major default value, and systematic
entailment relations of these 3-gender languages don't seem to operate. I've argued that the
resolution hypothesis works to derive Bantu "default" agreement nonetheless, assuming the
*i*gender cores which are language (family) particular. Maybe the differences in hierarchies that
determine resolution are encoded in the same way, via *n*P stacking, across languages:

(nP-stacking approach: [n_{FEM} [n_{MASC} [√GINEKA]] – 'woman'; [n_{MASC} [n_{NEUTER} √KAREKLA]] – 'chair')

Alternatively, finding common denominators may be a general principle underlying resolution
strategies of systems organized along different lines.

9   Conclusions

•A modest but grammatically significant semantic core underlies the Bantu noun class system.

•So-called default agreement with conjoined singulars in Bantu is syntactic agreement with an
*i*gender core beneath wholly *u*genders 3/4, 5/6, 12/13.

•Gender α has interpretable content   → [&P DP1.sing$_{gender.\alpha}$ & DP2.sing $_{gender.\alpha}$] = gender α.pl agr

•Gender α is wholly uninterpretable   → [&P DP1.sing$_{gender.\alpha}$ & DP2.sing $_{gender.\alpha}$] = default gen agr

•there is only 1 flavor of a gender, i.e. n_A, n_B, n_C, n_D, n_E; n_{FEM}, n_{MASC}

For future research:

Why [human] nouns rare and stigmatized in classes 3/4 but not 5/6? A significant difference.

Clarifying why a gender with any interpretable content patterns consistently for all members.

Explaining variability+preferences in agr with conjoined mismatched plurals in other languages

Table 4 Slovenian conjoined plurals (Marušić et al 2015): masc > neuter & feminine; LCA > FCA.
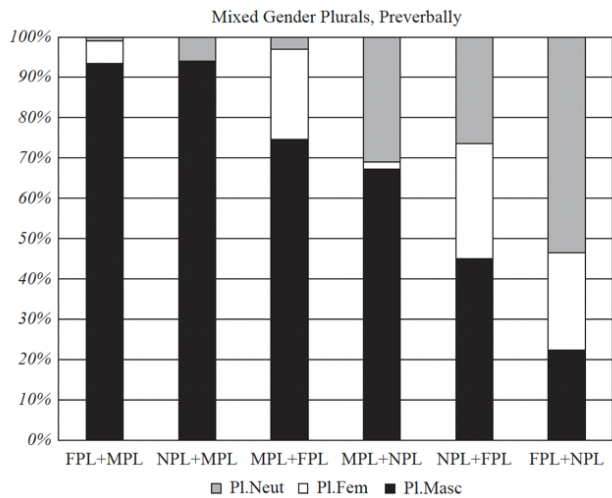
Several existing approaches assume the variation is random.

Distributed Agree: Marušič et al (2015), Marušič & Nevins (2020): agreement applies in two stages, Agree Link and Agree Copy. Agree Copy before linearization → highest conjunct agreement; Agree Copy after linearization → closest conjunct agreement because the structure is flattened out.

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

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

   a. H_{uPhi} DP1 & DP2   FCA with post-verbal subject

   b.   DP1 & DP2 H_{uPhi} LCA with post-verbal subject

To capture the Xhosa hierarchies of preference for preverbal conjuncts would require massive look-ahead (hmm, DP2 is class 2, I better wait and do Agree Copy after linearizing).

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Marušič et al (2015), Marušič & Nevins (to appear) <u>Murphy & Puškar (2018)</u>: 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.

Agree Up>Merge>Agree Down: Agree Up applies vacuously before the first conjunct is present. Agree Down will successfully give &P the gender feature of its second (lower) conjunct, so the result must be LCA.

Agree Down>Merge>Agree Up, Agree Down is vacuous, but Agree Up successful. Hence & has features of the first conjunct and agreement must be FCA.

Like Distributed Agree, this provides no handle on the way both conjuncts' gender features impact agreement with conjuncts...can this be derived from properties of the genders involved, as in my account of Xhosa and Shona?

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