# Selective class drop in Isu: A case for cyclic morphology

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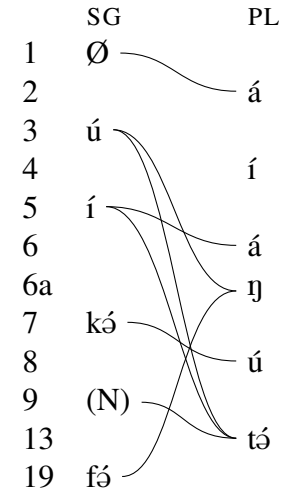
**Overview:** Isu (Grassfields Bantu, Ring group) has a relatively rich noun class system with non-trivial correspondences between singular and plural. It also shows a selective class drop, where classes of shape CV are deleted in the presence of certain modifiers. We would like to propose that both patterns are best derived if classes are decomposed into binary features (Wiese 2004, Alexiadou & Müller 2008) and morphology is cyclic, not modular: It processes the structure bottom-up, so that morphological structure rules triggered by higher nodes counterfeed Vocabulary insertion into a lower structure.

**Class system:** Nominal classes in Isu are not deducible from meaning of the noun. The scheme in (1) adapted from Kießling (2018) relies on the standard Bantu class numbering (Maho 1999) and summarizes robust SG-PL correspondences. It shows that nouns of one class in singular can belong to different classes in plural: Class 3 nouns in singular are distributed between classes 6a and 13 in plural. Similarly, one class in plural can be split to different singular classes: Class 13 plural nouns belong to classes 9, 5, or 3 in singular.

(1) Isu classes




**Decomposition:** We would like to suggest a re-analysis of Isu classes: There is in fact always a one-to-one correspondence between singular and plural classes. Non-trivial correspondences are an illusion created by syncretism of different class exponents. Syncretic markers are accounted by decomposition of classes and underspecification of exponents. Classes are composed of formal binary features (Wiese 2004, Wunderlich 2004, Müller 2004, Alexiadou & Müller 2008). In Isu, three features $[\pm\alpha, \pm\beta, \pm\gamma]$ distinguish eight classes.

(2) New Isu class system (roman numbers mark the new system, arabic numerals – the old one)

| | I | II | III | IV | V | VI | VII | VIII |
|---|---|---|---|---|---|---|---|---|
| | $[-\gamma,+\alpha,+\beta]$ | $[-\gamma,+\alpha,-\beta]$ | $[+\gamma,+\alpha,-\beta]$ | $[+\gamma,+\alpha,+\beta]$ | $[+\gamma,-\alpha,+\beta]$ | $[-\gamma,-\alpha,+\beta]$ | $[+\gamma,-\alpha,-\beta]$ | $[-\gamma,-\alpha,-\beta]$ |
| SG | Ø (1) | u (3) | u (3) | i (5) | i (5) | kə (7) | N (9) | fə (19) |
| PL | a (2) | ŋ (6a) | tə (13) | a (6) | tə (13) | u (8) | tə (13) | ŋ (6a) |

Exponents syncteric between several classes are underspecified for features distinguishing these classes, but are nevertheless inserted under the Subset Principle (Halle 1997). If the competing exponents have the same number of features, the feature hierarchy in (3) (cf. Noyer 1992) determines which exponent is inserted.

(3) Feature hierarchy
$\gamma > \beta > \alpha$

(4) Vocabulary items – pl
a. ŋ ↔ $[-\beta, \text{pl}]$
b. u ↔ $[-\alpha, \text{pl}]$
c. tə ↔ $[+\gamma, \text{pl}]$
d. a ↔ $[+\alpha, +\beta, \text{pl}]$

(5) Vocabulary items – sg
a. fə ↔ $[-\gamma, -\alpha, -\beta, \text{sg}]$
b. kə ↔ $[-\gamma, -\alpha, +\beta, \text{sg}]$
c. u ↔ $[+\alpha, -\beta, \text{sg}]$
d. N ↔ $[-\alpha, -\beta, \text{sg}]$
e. i ↔ $[+\beta, \text{sg}]$
f. ø ↔ $[-\gamma, +\alpha, +\beta, \text{sg}]$

**Class drop:** We turn to novel data obtained by elicitation. Nouns in isolation must have class:

(6) a.*(kə́)-bá
VI-fufu
'fufu'

b.*(ú)-bá
VI-fufu
'fufus'

(7) a.*(í)-fú
V-axe
'axe'

b.*(tə́)-fú
V-axe
'axes'

If a noun is modified by possessive pronouns, adjectives, or demonstratives, class prefixes of the CV shape are deleted. Class drop does not apply to V and C prefixes.

(8) a. (*kə́)-bá kə̀-ně k-íy
VI-fufu VI-big VI-ENC
'the big fufu'

b. *(ú)-bá ù-ně w-íy
VI-fufu VI-big VI-ENC
'the big fufus'

(9) a.*(í)-fú y-ám
V-axe V-my
'my axe'

b. (*tə́)-fú t-ám
V-axe V-my
'my axes'

Numerals differ from other modifiers in that they do not trigger class drop; see (10). As shown in (11), numerals in Isu generally occupy the outermost position in the DP. Possessive pronouns and adjectives are closer to the noun, their order is flexible: N > Poss / Adj > Det > Numeral.

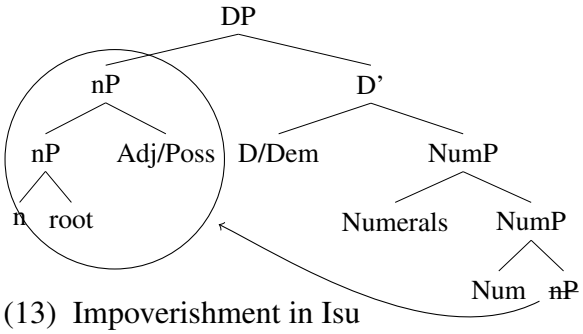
(10) a. *(kə́)-bá kə́-mɔ̀ʔ
VI-fufu VI-one
'one fufu'

b. *(ú)-bá ú-bɔ̀ghà
VI-fufu VI-two
'two fufus'

(11) fú k-ám kɔ̀-gháʔá (*k-íy) k-ə́ kə́-mɔ̀ʔ
rat VI-my VI-big VI-ENC VI-DEM VI-one
'that my one big rat'

**DP-structure:** We assume that Isu has a regular sequence of nominal functional projections *n*—NumP—DP and the surface order is derived by movement of the nP to Spec,DP; (12). Class concord on nominal modifiers is derived by Agree in syntax (Carstens 2001, Baker 2008, Puškar 2017). Class features are positioned on *n* (Kramer 2015, Fuchs & Van der Wal 2022). Number comes from the Num head, but appears on *n* via Agree as well. We suggest that class drop is triggered by the Impoverishment rule in (13). It deletes one of the formal features building Isu classes if it is c-commanded by another instance of this feature (cf. Božič 2020). Under (12), all modifiers but numerals c-command *n* and trigger impoverishment. Note that impoverishment deletes only $[\pm\gamma]$ and this is the feature shared by all CV exponents. Under (4)-(5), C and V markers lack $[\pm\gamma]$ and are thus not affected.

(12) Movement in Isu DP

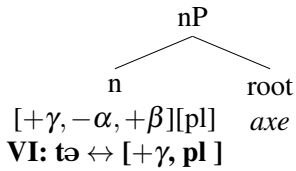



(13) Impoverishment in Isu
$n[\pm\gamma] \rightarrow n$ / if c-commanded by $[\pm\gamma]$

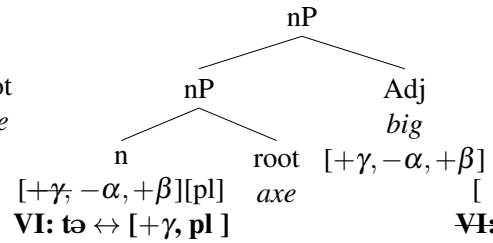
**Cyclic morphology:** Impoverishment typically results in a retreat to a more general exponent, so insertion of less specific V or C exponents is expected. To account for deletion, we would like to suggest a cyclic approach to morphological computation: Morphology processes the structure from bottom to top (cf. Bobaljik 2000, Kalin & Weisser 2022), so that Vocabulary Insertion into a lower node may take place before Impoverishment applies to this node, if Impoverishment is triggered by features in a higher projection; cf. Noyer (1992), Chung (2009), Dobler et al. (2011), Piggott & Travis (2017), and Privizentseva (2023) on interleaving Vocabulary Insertion and various structure readjustment operations (Fission, Fusion, head movement, Lowering).

**Derivations:** Going through the structure supplied from syntax in the bottom-up fashion, morphology first encounters the *n* node. Vocabulary insertion applies to it yielding (14). After this, the derivation encounters the adjective that triggers impoverishment of $[\pm\gamma]$ as shown in (15). After this, features of the vocabulary item *tə* inserted earlier are not anymore in the subset relation to the features in the syntactic node. The exponent is thus deleted; see (16).

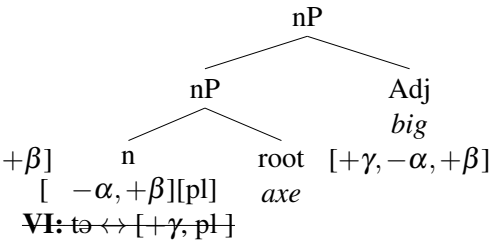
(14) Step 1: Class inserted




(15) Step 2: Impoverishment




(16) Step 3: Class deletion




Vocabulary insertion cannot re-apply to *n* at (16), because it would then target a proper subpart of the structure and violate strict cyclicity (Chomsky 1973, 2019). Finally, if the prefix inserted in the first step is not specified for $\gamma$, Impoverishment has no effect. This derives that V and C classes are not dropped as they bear no $[\pm\gamma]$.

**Outlook:** #1. On the basis of novel data from Isu, this work argues for the cyclic, non-modular architecture of morphology. #2. If a context for both Impoverishment and Vocabulary Insertion is met simultaneously, Impoverishment may precede Vocabulary insertion, i.e., standard evidence for modularity can still be derived (Halle & Marantz 1993, Arregi & Nevins 2012, Hewett 2023). #3. A feature-based account of the split between CV and V/C classes allows a uniform morphological approach to class drop in Grassfields Bantu (cf. Fongang 2024 on Aghem).