

# Nominal Prefix Drop in Aghem: Agree and Strictly Local Impoverishment

## Abstract

I provide further empirical evidence from the Grassfields Bantu language Aghem that Impoverishment rules are not as arbitrary as is generally thought. They are (and need to be) featurally (Nevins 2011; Arregi & Nevins 2012; Keine & Müller 2020, among others) and locally (Kallulli & Trommer, 2011; Božič, 2020) constrained. In Aghem, nominal prefixes drop with all agreeing modifiers, except numerals and the quantifier *dzim* ‘all’. I claim that this is an instance of haplological dissimilation (Nevins, 2012) that is sensitive to morphological features, and argue that the repetition is resolved by deleting the *n* head with inherent  $\varphi$ -features in the presence of an agreeing *X* head with non-inherent  $\varphi$ -features of the same type. I demonstrate that while the modifiers that require nominal prefix drop c-command the *n* head that is targeted by Impoverishment, numerals and the quantifier do not. I rely on this to propose a restriction on the deletion operation based on closest c-command. Crucially, the locality restriction proposed in Božič (2020) for Ljubljana Slovenian does not derive the Aghem facts. I propose a revised version of this requirement that accounts for Ljubljana Slovenian, as well as Aghem. This restriction, I show, can further derive similar facts from other Grassfields Bantu languages, namely Isu and Wé.

*Keywords:* nominal prefix, Aghem, Agree, locality, Impoverishment

## 1 Introduction

The notion of Impoverishment (see Keine & Müller 2020 for an overview) was proposed in Distributed Morphology (Halle & Marantz, 1993) to account for complex morphological phenomena

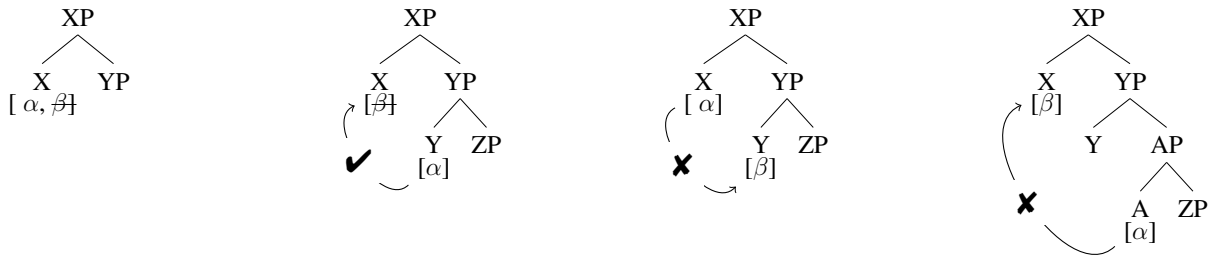
such as syncretism (Nevins, 2011; Božič, 2020). As noted in Božič (2020), while a lot has been said about the rule itself and the featural restrictions on its application, less is known about the locality constraints that underly this operation. He offered to cover this gap by proposing the locality restriction in (1) to account for syncretic patterns in the number contrasts of Ljubljana Slovenian.

(1) *Strictly Local Impoverishment*

Triggering context may be conditioned in (a) the  $X^0$  targeted for Impoverishment, or (b) the closest  $X^0$  that the target of Impoverishment c-commands. (Božič 2020:405)

What the restriction in (1) means is that the operation takes place iff (a) the trigger and the target are on the same head X, or (b) the X-target immediately c-commands the X-trigger. It predicts that the operation is bled if (c) the X-trigger c-commands the X-target, or if (d) a head Y intervenes between the X-target and the X-trigger. These facts are structurally represented in the trees in (2).  $[\beta]$  is the feature that is targeted by Impoverishment, and  $[\alpha]$  is the trigger. In the first case, both features are on the same head X, hence the rule applies. In the second, the target c-commands the trigger, and the rule still applies. In the third case, however, it is the trigger that c-commands the target, blocking the rule from applying. In the last case, although the target c-commands the trigger, a head Y intervenes between the two and, as a result, blocks Impoverishment.

(2) Locality restrictions on Impoverishment, following Božič (2020)



By proposing (1), Božič (2020) argued for a locality, in addition to a featural, restriction on the application of Impoverishment, such that the rule is less arbitrary than is generally thought. In this paper, I contribute to this line of research. I provide further empirical evidence that impoverishment rules need to be locally constrained. The locality restriction in (1), and the predictions it makes (c.f., (2)), however, fails to account for an intriguing pattern of nominal prefix drop in the Grassfields Bantu language Aghem. I argue that this phenomenon requires a definition of locality such that



prefix. Only the agreeing modifiers have them.<sup>3</sup> In the remainder of this paper, I will, following Hyman (2010) and Kießling (2010), refer to those modifiers that trigger nominal prefix drop as ‘type B’ modifiers, and those that do not as ‘type A’.<sup>4</sup> Adjectives (12) are followed by an obligatory agreeing particle that has been analysed as a pronominal enclitic in the related Ring languages Lamnso’ (McGarrity & Botne, 2001), Isu (Kießling, 2010) and Babanki (Akumbu & Kießling, 2022).

<sup>3</sup>This is a rather interesting pattern that, to my knowledge, has not been given much theoretical attention before (see Hyman 1979, 2010 for empirical descriptions of the phenomenon). We know from, for example, Brazilian Portuguese (5) that word order changes may affect morphological exponence, but crucially, on the trigger of agreement (Pereira, 2017). Agreeing *outro* ‘other’ in (5) can surface without (5-a) or with (5-b) the plural agreement marker [s] depending on its position vis-à-vis the head noun. For the Aghem case, it is the target of agreement that is affected, and there is clear evidence that agreement was carried out (c.f., the agreement exponents on the modifiers).

- (5) a. Os dois outro ∅ carro branco  
the.PL two other.∅ car.∅ white.∅  
‘The other two white cars’  
b. Os outro s dois carro branco  
the.PL other.PL two car.∅ white.∅  
‘The other two white cars’

(Brazilian Portuguese: Pereira 2017:86)

<sup>4</sup>Class drop extends to all possible nouns in Aghem, to the exception of a very few (about 3-5, according to Nelson Tschonghongi (p.c.)) class 19 nouns such as *fə-gwón* ‘cat’ and *fə-mbúʔ* ‘banana’. These nouns never lose their class prefixes (6)-(7).

- |     |   |  |
|-----|---|--|
| (6) | a. *(fə)-gwón f-ájâ<br>19-cat 19-POSS.1SG<br>‘My cat’       | b. *(fə)-gwón fə-ně f-ó<br>19-cat 19-big 19-ENC<br>‘Big cat’       |
| (7) | a. *(fə)-mbúʔ f-ájâ<br>19-banana 19-POSS.1SG<br>‘My banana’ | b. *(fə)-mbúʔ fə-ně f-ó<br>19-banana 19-big 19-ENC<br>‘Big banana’ |

All the other class 19 nouns do lose their class prefixes in the right contexts. *fə-káʔ* ‘tree’ and *fə-nyó* ‘knife’ are related examples (8)-(9).

- |     |  |   |
|-----|--|---|
| (8) | a. *(fə)-káʔ f-ájâ<br>19-tree 19-POSS.1SG<br>‘My tree’   | b. *(fə)-káʔ fə-ně f-ó<br>19-tree 19-big 19-ENC<br>‘Big tree’   |
| (9) | a. *(fə)-nyó f-ájâ<br>19-knife 19-POSS.1SG<br>‘My knife’ | b. *(fə)-nyó fə-ně f-ó<br>19-knife 19-big 19-ENC<br>‘Big knife’ |

Note that the class 19 prefix *fə-* can function as a diminutive marker (see Tschonghongi 2012 for the relevant details). I will not discuss these very few nouns in this paper, and simply assume that their behaviour is idiosyncratic. There might even be a link between the blocking of class drop with this set of nouns and the fact that the class 19 prefix can function as a diminutive marker.

- (10) a. (\*kə̀)-bə̀ŋsɔ́ k-áŋâ  
7-car 7-POSS.1SG  
'My car'
- b. (\*ò)-bə̀ŋsɔ́ w-áŋâ  
8-car 8-POSS.1SG  
'My cars'
- (11) a. (\*kə̀)-bə̀ŋsɔ́ k-ən  
7-car 7-DEM.PROX  
'This car'
- b. (\*ò)-bə̀ŋsɔ́ w-ən  
8-car 8-DEM.PROX  
'These cars'
- (12) a. (\*kə̀)-bə̀ŋsɔ́ kə̀-ně k-ó  
7-car 7-big 7-ENC  
'Big car'
- b. (\*ò)-bə̀ŋsɔ́ ò-ně w-ó  
8-car 8-big 8-ENC  
'Big cars'

If *bə̀ŋsɔ́* 'car' is modified by a numeral alone, it must keep its nominal prefix. The examples in (15) illustrate this.<sup>5</sup>

- (15) a. \*(kə̀)-bə̀ŋsɔ́ ká-mò?  
7-car 7-one  
'One car'
- b. \*(ò)-bə̀ŋsɔ́ ó-twè  
8-car 8-five  
'Five cars'

When one (or all) of the type B modifiers in (10)-(12) combines with a numeral to modify the same noun, the numeral appears last, and the nominal prefix is dropped. The examples in (16) show this for the adjective 'big'. It follows the head noun, and is in turn followed by the pronominal enclitic and a numeral.

- (16) a. (\*kə̀)-bə̀ŋsɔ́ kə̀-ně k-ó ká-mò?  
7-car 7-big 7-ENC 7-one  
'One big car'
- b. (\*ò)-bə̀ŋsɔ́ ò-ně w-ó ó-twè  
8-car 8-big 8-ENC 8-five  
'Five big cars'

The examples in (16) show that when a type B modifier combines with a numeral, the nominal prefix is dropped. A closer look at the position type B modifiers occupy vis-à-vis numerals reveals that they are closer to the head noun than numerals are. This in turn indicates that an adjacency relation is in play.

<sup>5</sup>Only numerals from one to five agree in noun class in Aghem (and probably across Ring languages). The numerals *sàmbrà* 'seven' and *ìghóm* 'ten' (13), for example, do not agree in class with the head nouns they follow.

- (13) a. \*(ò)-bə̀ŋsɔ́ sàmbrà  
8-car seven  
'Six cars'
- b. \*(ò)-bə̀ŋsɔ́ ìghóm  
8-car ten  
'Ten cars'

The quantifier *dzì̀m* 'all' also agrees with the head noun in class. It behaves like numerals in that nominal prefixes never drop when it is the only nominal modifier (14). The examples in (14) are from Hyman (2010).

- (14) a. \*(tí)-bvó tì-dzì̀m  
13-dog 13-all  
'All the dogs'
- b. \*(fí)-nwín fì-dzì̀m  
19-bird 19-all  
'The bird as a whole' (Hyman 2010:8)

I do not discuss this quantifier in detail in this paper because, to my knowledge, it is the only quantifier the language has.

These properties of the Aghem DP are not sensitive to the position the DP occupies within a sentence, contrary to what [Hyman \(2010\)](#) and [Kießling \(2010\)](#) tend to suggest. In (17), the nominal root *bə̀ŋsɔ́* ‘car’ is in object position. When it is not modified, it must have a class prefix (17-a). When it is modified by a possessive pronoun (a type B modifier), the nominal prefix must be dropped (17-b). If the modifier is a numeral (17-c), dropping the nominal prefix is ungrammatical.

- (17) a. John wé      [\*(ò)-bə̀ŋsɔ́]<sub>OBJ</sub>  
 John buy.PST 8-cars  
 ‘John bought cars.’
- b. John wé      [\*(ò)-bə̀ŋsɔ́ w-ájâ]<sub>OBJ</sub>  
 John buy.PST 8-car      8-POSS  
 ‘John bought my cars.’
- c. John wé      [\*(ò)-bə̀ŋsɔ́ ó-twè ]<sub>OBJ</sub>  
 John buy.PST 8-car      8-five  
 ‘John bought five cars.’

To summarize, nominal prefixes drop with all agreeing modifiers, except numerals and the quantifier *dzìm* ‘all’ in Aghem. This is sensitive to DP-internal factors such as the type of modifier that is used, and how close it is to the head noun.

In this paper, I argue that locality and feature identity are the driving force behind nominal prefix drop in Aghem. In the syntax, all agreeing modifiers agree with the head noun. In the morphology, an impoverishment rule deletes the *n* head that hosts inherent noun class features. I propose that when two strictly local terminal nodes share the same features, the one with inherent features is obliterated (see [Kouneli 2021](#) for a similar reasoning, albeit with different conditioning factors and locality domains). Only terminals with non-inherent features survive and are spelled out. Nominal prefixes in Bantu, it has been argued for, spell out inherent class features on the *n* head ([Kramer, 2015](#); [Fuchs & van der Wal, 2022](#)). Exponents on agreeing modifiers are the result of Agree. For this reason, the *n* head is deleted, and nouns surface without class prefixes in the relevant contexts. I show that this rule has to be locally constrained in order to account for the fact that the nominal prefix does not drop with numerals and the quantifier *dzìm* ‘all’. Crucially, I demonstrate, the locality domain on Impoverishment proposed in [Božič \(2020\)](#) does not derive the

Aghem facts. I propose a revised version of this requirement that accounts for the Aghem, as well as the Ljubljana Slovenian facts. I demonstrate that the new restriction is superior because it further derives a quasi-similar pattern of nominal prefix drop in other Grassfields Bantu languages, namely Isu and Wé. By so doing, the paper provides further empirical evidence that impoverishment rules are not as arbitrary as is generally thought (they are featurally and structurally constrained), and proposes a locality restriction on the rule that may be part of Universal Grammar.

The rest of the paper is organised as follows: §3 looks into DP-internal word order in Aghem to show that type A modifiers are linearly and structurally distant (in terms of c-command) from the head noun, compared to type B modifiers. In §4, I present the analysis in three steps. The first gives an overview of the theoretical assumptions I adopt for the analysis. The second describes the workings of Agree, and the last shows how feature deletion is constrained so as to yield the observed asymmetry. §5 discusses an alternative proposal and argues that it does not derive the pattern in a straightforward way. In §6, I discuss nominal prefix drop in the closely-related languages Isu and Wé, and make assumptions about how the proposed analysis can be extended to these languages. §7 concludes the paper.

### **3 DP-internal Word Order in Aghem**

#### **3.1 The Data**

This section provides details of DP-internal word order in Aghem. Its importance is twofold. First, as I demonstrated in Section 2, factors that determine the form of the head noun are strictly DP-internal, which means that deriving the asymmetry requires a clarification of DP-internal word order in the language. Second, adjacency to the head noun also has a role to play. The examples in (16), repeated in (18), show that when an adjective (a type B modifier) stands in-between the head noun and a numeral (a type A modifier), the nominal prefix must be dropped. If the nouns in (18) are only modified by numerals, dropping the class prefix is ungrammatical (19).

- (18) a. (\*kə̀)-bə̀ŋsɔ́ kə̀-ně́ k-ɔ́ ká-mòʔ  
 7-car 7-big 7-ENC 7-one  
 ‘One big car’  
 b. (\*ò)-bə̀ŋsɔ́ ò-ně́ w-ɔ́ ó-twè  
 8-car 8-big 8-ENC 8-five  
 ‘Five big cars’

- (19) a. \*(kə̀)-bə̀ŋsɔ́ ká-mòʔ  
 7-car 7-one  
 ‘One car’  
 b. \*(ò)-bə̀ŋsɔ́ ó-twè  
 8-car 8-five  
 ‘Five cars’

These examples demonstrate that an intervening type B modifier can force nominal prefix drop in the presence of a modifier that would otherwise disallow it. For these reasons, it is important to look into the order of agreeing modifiers within the Aghem DP.

Hyman (2010) claims that two possible orders are attested within the Aghem DP, in information-structure-neutral contexts: N > Poss > Adj > Det/Dem > Numeral and N > Adj > Poss > Det/Dem > Numeral.<sup>6</sup> Nouns are DP-initial. Numerals appear last within the Aghem DP. They are preceded by demonstrative pronouns. The order of adjectives and possessive pronouns can freely alternate. There can only be one Dem and one Numeral per DP. There can be arbitrarily many adjectives. Hyman (2010) illustrates these two possible word orders with the examples in (20).

- (20) a. (\*tí)-bvú †t-í †\*(ø)-wé tí-dú<sup>†</sup> t-ín tí-bìghà  
 13-dog 13-AM 1-child 13-big 13-DEM 13-two  
 ‘These two big dogs of the child’  
 b. (\*tí)-bvú tí-dú<sup>†</sup> †t-í †\*(ø)-wé t-ín tí-bìghà  
 13-dog 13-big 13-AM 1-child 13-DEM 13-two  
 ‘These two big dogs of the child’ (Hyman 2010: 9)

In (20-a), the noun (\*tí)-bvú ‘dog’ is followed by the genitive †tí †wé ‘of the child’. It is in turn followed by the adjective tí-dú<sup>†</sup> ‘big’, the demonstrative pronoun t-ín, and the numeral tí-bìghà ‘two’. In (20-b), the order of the genitive and the adjective is flipped, yet the meaning of the two DPs remains the same.

<sup>6</sup>One thing to note about the orders that Hyman (2010) identifies is that possessors, in his account, can both be lexical and pronominal. I will not consider lexical possessors in this section because they do not agree in noun class with the head noun, and do not trigger class drop.



There is a perhaps subtle difference between data from Hyman (2010) and the data I recently collected from my four consultants. This concerns the behaviour of possessive pronouns. Hyman (2010) claims that possessive pronouns and genitives of the type ‘of N’ behave the same way in the sense that they can follow or precede adjectives.<sup>7</sup> Since I only investigated the behaviour of possessive pronouns, it appears that they have to follow the noun in IS-neutral contexts (21-a). Adjectives follow possessive pronouns and can be as many as need be (21-b). Demonstrative pronouns come next (21-c), and are followed by numerals (21-d). The quantifier comes last (21-e).

- (21) a. (\*kə̀)-bə̀ŋsɔ́ k-áŋâ  
 7-car 7-POSS.1SG  
 ‘My car’
- b. (\*kə̀)-bə̀ŋsɔ́ k-áŋâ kè-ně kə̀-lɔ́ŋɔ́ \*(kɔ́)  
 7-car 7-POSS.1SG 7-big 7-black 7-ENC  
 ‘My big black car’
- c. (\*kə̀)-bə̀ŋsɔ́ k-áŋâ kè-ně (\*kɔ́) ká-tʃí  
 7-car 7-POSS.1SG 7-big 7-ENC 7-DEM  
 Lit. ‘That my big car’  
 ‘That big car of mine’
- d. (\*kə̀)-bə̀ŋsɔ́ k-áŋâ kè-ně (\*kɔ́) ká-tʃí ká-mòʔ  
 7-car 7-POSS.1SG 7-big 7-ENC 7-DEM 7-one  
 Lit. ‘That my one big car’  
 ‘That one big car of mine’
- e. (\*kə̀)-bə̀ŋsɔ́ k-áŋâ kè-ně (\*kɔ́) ká-tʃí ká-mòʔ ká-dzəm  
 7-car 7-POSS.1SG 7-big 7-ENC 7-DEM 7-one 7-all  
 Lit. ‘All that my one big car’  
 ‘All that one big car of mine’

The enclitic that obligatorily follows the adjective (21-b) cannot co-occur with a demonstrative pronoun (21-c)-(21-e).<sup>8</sup> In other words, when an adjective and a demonstrative pronoun simultaneously modify the same noun, the demonstrative pronoun follows the adjective. The enclitic that normally appears with adjectives disappears if this adjective is followed by a demonstrative pro-

<sup>7</sup>He writes “... a genitive noun (or possessive pronoun) and adjective can occur in either order, followed by the fixed order determiner + numeral” (p. 9), but only provides examples for genitives.

<sup>8</sup>Hyman (2010) further claims, and my consultants confirm this, that this enclitic cannot co-occur with the subject marker or a demonstrative pronoun (22). Following Hyman (1979), he proposes that the subject marker, demonstrative pronouns and the enclitic (which to him is the D head) are underlyingly the same entity, occurring as D heads. Note that the vowel of the enclitic is *ɔ́*, and that of the subject marker is *í*.

noun. When two adjectives modify the same noun, only one instance of this enclitic is preferred, and appears on the last adjective (21-b). Based on this, the word order attested within the Aghem DP is as presented in (25).<sup>9</sup>

(25) N > Poss > Adj > Enc/Det/(SM?) > Numeral > Quantifier.

Adjectives can be as many as need be, but only one instance of all the other modifiers is allowed

- (22) a. (\*tí)-bvú (\*t-ó) †t-í mô zì \*(kí)-bé  
 13-dog 13-ENC 13-SM PST eat 7-fufu  
 ‘The dogs ate the fufu.’  
 b. (\*tí)-bvú †t-í mô zì \*(kí)-bé  
 13-dog 13-SM PST eat 7-fufu  
 ‘The dogs ate the fufu.’  
 c. (\*tí)-bvú †t-in (\*t-í) mô zì \*(kí)-bé  
 13-dog 13-DEM 13-SM PST eat 7-fufu  
 ‘These dogs ate the fufu.’ (Hyman 2010:16)

One thing that might be relevant for our purposes is that in multiply-modified contexts, numerals and quantifiers have to appear after the enclitic or the demonstrative pronoun (21-e). It is unclear what happens with subject markers because, as Hyman (2010) also points out, they are silent in the presence of numerals (23).

- (23) \*(tí)-bvú (.) bí-bìghà mô zì \*(kí)-bé  
 13-dog D 13-two PST eat 7-fufu  
 ‘The two dogs ate the fufu.’ (Hyman 2010:17)

<sup>9</sup>Of course, depending on information structure, the basic DP-internal word order may change (see Alexiadou et al. 2007 for an overview). A noun can, for example, follow the possessive pronoun in contexts where there is contrastive focus on the possessive pronoun. (24), for example, would be preferred in a situation where, out of the many cars one can see in the context of the conversation, an event E affected a specific car (it could be plural). The speaker utters (24) to restrict the understanding of the affected car to his or hers.

- (24) kà k-áŋâ k-ó \*(kè)-bèŋsó  
 7 7-POSS.1SG 7-ENC 7-car  
 ‘MY (own) car’

For (24) to be possible, the enclitic that obligatorily appears with adjectives now has to follow the possessive pronoun. The nominal prefix stands alone and precedes the possessive pronoun. The head noun comes last. There is a short break between the enclitic and the head noun that, in this case, must keep its class prefix. Again, I do not look into this type of construction in this paper because I think it involves two DPs with possible ellipsis of the head noun in the first one. Partial evidence for this comes from (a) the class prefix that precedes the possessive pronoun. My working hypothesis would be that the noun is deleted from the first DP because it is recoverable from the second. Economy of pronunciation in the sense developed by Landau (2006) might also be at work in such cases. (b) in the second DP, there is no modification, hence the head noun keeps its nominal prefix. (c) the short break might indicate a prosodic boundary that may manifest the presence of two DPs. The Big DP Hypothesis (Cardinaletti, 2019) can be used to account for this type of construction. Focus-induced DP-internal movement might also be at work in deriving cases such (24). Since information structure may lead to these kinds of scenarios, I stick to the word order that is information-structure-neutral.

per DP.<sup>10</sup> What is striking about (25) is that numerals and quantifiers appear last, and follow modifiers that, Hyman (1979, 2010) shows, head the DP. It surely is not a coincidence that they are the only modifiers that do not allow for the nominal prefix to drop. I will demonstrate in Section 4.3 that locality is indeed one of the driving forces behind nominal prefix drop in Aghem. Crucially, I will show, the locality domain on Impoverishment proposed in Božič (2020) does not derive the Aghem facts. In the syntax, all agreeing modifiers agree with the head noun. In the morphology, an impoverishment rule deletes the *n* head that hosts inherent noun class features.<sup>11</sup> I propose that when two strictly local terminal nodes share the same features, the one with inherent features is obliterated (see Kouneli 2021 for a similar reasoning, albeit with different conditioning factors and locality domains). Only terminals with non-inherent features survive and are spelled out. Nominal prefixes in Bantu, it has been argued for, spell out inherent class features on the *n* head (Kramer, 2015; Fuchs & van der Wal, 2022). Exponents on agreeing modifiers are the result of Agree. For this reason, the *n* head is deleted, and nouns surface without class prefixes in the relevant contexts. I show that this rule has to be locally constrained in order to account for the fact that the nominal prefix does not drop with numerals and the quantifier *dzim* ‘all’. But, before we lay out the proposal in detail, it is important to provide what we think the structure of basic DPs looks like in Aghem.

This is the concern of the next section.

<sup>10</sup>This order was first identified by Hyman (1979), and confirmed in Hyman (2010). Data I personally elicited from my Aghem consultants also confirm this. Following Greenberg (1963) Universal 20 and Cinque (2005), few languages would instantiate the word order in (33). Hawkins (1993) and Cinque (2005) cite Aghem as one of the languages with rare DP-internal structure (other examples include Lalo, Lisu, Akha and Qiang; see Cinque 2005 for details). It appears that Aghem is not the only Grassfields Bantu language that exhibits this word order. Shupamem also does (Nchare, 2011), as illustrated in (26).

- (26) p-ón      miŋket ʃ-i      pikpa  
 2-children dirty    2-DEM four  
 ‘These four dirty children’ (Shupamem: Nchare 2011:144)

Nchare (2011) shows that Shupamem has up to 18 word orders out of the 24 that are mathematically possible, contra just 14 in Cinque (2005). This is clear indication that Universal 20 might not be as universal as we think, if one looks more closely at under-researched languages. Grassfields Bantu might be a fertile ground to study this. Noni (Grassfields Bantu) also has word orders that defy Cinque (2005) (c.f., Hyman 1981).

It is noteworthy to mention that Aghem does not only have unusual DP-internal word order. It also instantiates unusual focus and *wh*-question syntax. It marks focus in the immediately-after-verb position (c.f., Hyman 2010; Hyman & Polinsky 2010), and not in the clausal left periphery, as most languages would, I think, do.

<sup>11</sup>A purely syntactic account that may treat the absence of class prefixes as representative of Agree failures is out of reach because the features that get deleted are inherent to nouns, hence interpretable from the start.

## 3.2 Deriving the relevant order

In the section that precedes, I presented data to demonstrate that nominal modifiers in Aghem are ordered as in (27), in IS-neutral contexts.

(27) N > Poss > Adj > Enc/Dem/(SM?) > Numeral > Quantifier.

The question then is how such an order is derived. This section attempts to come up with an answer. One thing that is crucial in proposing a structure for the Aghem DP is the behaviour of the enclitic that, in most cases, obligatorily appears with adjectives.<sup>12</sup> Hyman (1979, 2010) argues that the DP is headed by this enclitic or by a demonstrative pronoun. This, in his view, explains the fact that both cannot co-occur within a single DP. I will follow him, and assume that they head the DP. I further adopt the standard assumption that there is a functional projection in-between D and NP (Ritter, 1991; Preminger, 2020), namely NumP. I adopt the idea that nouns are formed by merging a category-neutral root with the categorizing head *n* (Marantz, 1997; Arad, 2003; Harley, 2014). I will further assume that possessive pronouns behave like adjectives, and both are adjoined to the right of *n*P. The implication of this latter assumption is that, in deriving DP-internal word order in Aghem, I line up with Abels & Neeleman (2012), and not Cinque (2005). One of the crucial difference between both approaches is that Abels & Neeleman (2012)'s system, unlike Cinque (2005)'s, allows rightward movement and rightward specifiers. They both share the requirement that whatever moves for word order should include the head noun. One reason for adopting Abels & Neeleman (2012)'s system is that their approach does away with having to postulate the 'intermediate' and roll up movement steps advocated in Cinque (2005). In deriving the order N > Adj > D > Numeral, Cinque (2005) proposes that "NP raises past A, followed by pied-piping of the whose picture type past Num, followed by raising of [N A] without pied-piping (marked) past Dem" (p. 323). The current account only needs one step of movement, namely [N A] movement to SpecDP. It is therefore economical, and might be superior in that it takes into account one of the crucial assumptions in Cinque (2005) and Abels & Neeleman (2012), namely that whatever moves must include the head noun.

---

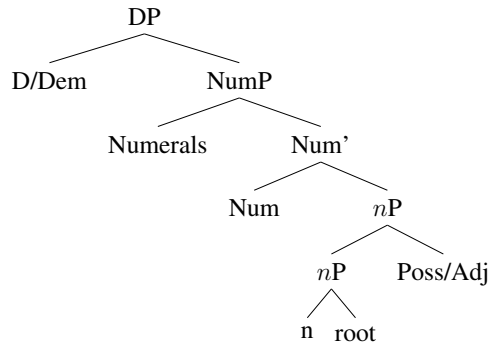
<sup>12</sup>It can also follow a possessive pronoun (see Footnote 9).

All the agreeing modifiers project, and have  $\varphi$ -probes (Chomsky, 2001). These  $\varphi$ -probes are the triggers of agreement with  $\varphi$ -features (number, gender etc.; see Adger & Harbour 2008 for a discussion of the contents of  $\varphi$ -features).

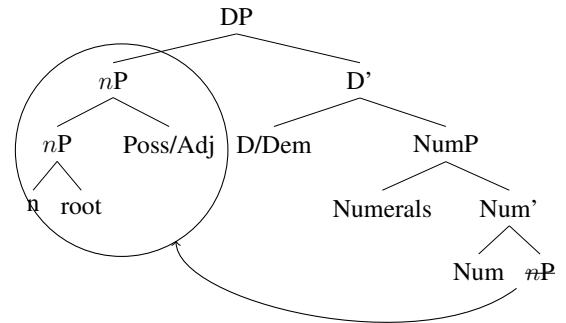
As far as numerals and quantifiers are concerned, I will also adopt the fairly standard assumption that they are base-generated in the specifier of NumP, and have  $\varphi$ -probes.<sup>13</sup> With these facts in mind, I propose the structures in (29) and (30) for the basic DP in (28). The tree in (29) details the structure of the DP before  $nP$ -to-SpecDP movement. The one in (30) represents DP structure after movement.

- (28) (\*kò)-bèñsò k-ájâ kè-ně (\*kó) ká-tjí ká-mò?  
 7-car 7-POSS.1SG 7-big 7-EN 7-DEM 7-one  
 Lit. ‘That my one big car’  
 ‘That one big car of mine’

(29) Base structure



(30) After movement



$nP$  moves to SpecDP to derive the order N > Poss > Adj > Dem/Enc > Numeral.<sup>14</sup> The  $n$  head

<sup>13</sup>Following Alexiadou (2019), numerals and quantifiers can also be said to project a Quantity Phrase (labelled #P in Alexiadou 2019). There are, as far as I can tell, two proposals in the literature on the syntax of numerals (see, for example, Alexiadou 2019 for related details). The first takes them as adjectives and locates them in the specifier of NumP (Giusti, 2002; Alexiadou et al., 2007; Alexiadou, 2019). The second assumes that they can also be merged as heads that take XP complements (Borer, 2005; Mittendorf & Sadler, 2005; Ionin & Matushansky, 2006). I adopt the former. As it will become clear as I build up the argumentation, adopting the later does not seriously bear on the analysis. It, on the contrary, my provide support that it is on the right track, given that both modifiers would be embedded in a #P, which is potentially the complement of NumP.

<sup>14</sup>The tree structure in (30) can straightforwardly account for the order in which adjectives precede the possessive pronoun, as described in Hyman (2010). One would simply need to assume that the order of PossP and AdjP can be flipped.

I also assume that quantifiers are in SpecNumP, given multiple specifiers. One could also think of them as being

will be spelled out as the nominal prefix. The root corresponds to the nominal root. The possessive pronoun comes next. It is followed by the adjective, then the enclitic/demonstrative pronoun. The numeral and the quantifier come last. Having accounted for the basic order of DPs in Aghem, one can now turn to the asymmetry proper. I do this in the next section.

## 4 Deriving the Asymmetry

This section provides an account of class drop in Aghem. As a reminder, nominal prefixes drop with all agreeing modifiers, except numerals and the quantifier *dzim* ‘all’ in this language. This is not sensitive to the position the DP occupies in the syntax, but rather to DP-internal factors such as the type of modifiers that are used, and how close they are to the head noun. I present the proposal in three steps. In the first, I lay out the theoretical assumptions I adopt for the analysis. In the second, I describe the workings of Agree. In the last, but not least step, I propose how feature deletion is constrained so as to yield the observed asymmetry.

### 4.1 Theoretical Assumptions

The analysis that I propose in this paper is based on Distributed Morphology (DM) (Halle & Marantz, 1993). Specifically, I will adopt the idea that syntax feeds morphology, as morphological exponents spell out terminal nodes that host features from the syntax (inherent features as well as those from syntactic operations such as agreement). The choice of the exponent that is the best match for a terminal node is subject to the Subset Principle (31).

(31) *Subset Principle*

A vocabulary item *V* is inserted into a functional morpheme *M* iff (a) and (b) hold:

- a. The morpho-syntactic features of *V* are a subset of the morphosyntactic features of *M*.
- b. *V* is the most specific vocabulary item that satisfies (a).

I further assume that nouns are formed by merging a category-neutral root with the categorizing  

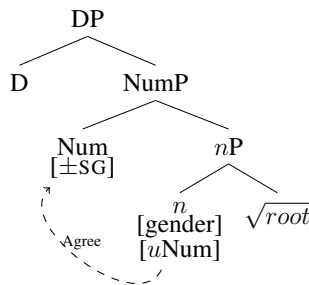
---

adjoined to NumP.

head  $n$  (Marantz 1997; Arad 2003; Harley 2014, among others). This head hosts gender features in Aghem. In other words,  $n$  has flavours of gender that it passes on to the root when it nominalizes it (see Kramer 2015, 2016; Fuchs & van der Wal 2022, for similar proposals in Bantu and beyond).<sup>15</sup> Num hosts number features (Ritter, 1991; Carstens, 1991; Nkemnji, 1995; Preminger, 2020) (but see Wiltschko 2008; Harbour 2011; Kouneli 2021 for arguments in favour of having number features on  $n$  in other languages). Noun class is the spell-out of number and gender features (Carstens, 1991; Fuchs & van der Wal, 2022). What this means for nominal prefixes is that both features need to be on the same terminal node at spell out. I assume that the head  $n$  has a number probe that copies number features from Num (through upward Agree) before  $nP$ -to-SpecDP movement.<sup>16</sup> This operation is required because having both number and gender features on  $n$  from the start makes the wrong theoretical prediction that Aghem can have a number-based noun classification system akin to Kipsigis (Kouneli, 2021). These facts are sketched in (32).

(32) The locus of  $\varphi$ -features in Aghem and spell-out of nominal prefixes

•↔  $[\pm SG, \text{gender}] \leftrightarrow \text{nominal prefix}/ n$



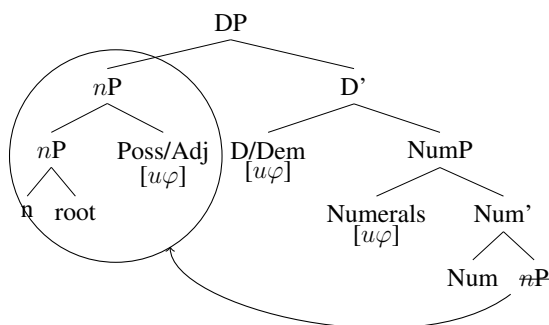
<sup>15</sup>Selection proceeds through root licensing, as discussed in Kramer (2015, 2016); Fuchs & van der Wal (2022). In other words, roots have contextual features that flavours of  $n$  can refer to. For more details, the reader can refer to the cited references.

<sup>16</sup>One could also assume that number features end up on  $n$  through head lowering which must, crucially, take place in the syntax. The operation, which is conceived of as a post-syntactic in DM cannot take place in the morphology, given the tree structure in (30). This is so because by the time it wants to apply,  $nP$  has already moved to SpecDP. One alternative would be to assume NumP-to-SpecDP, rather than  $nP$ -to-SpecDP, movement. This would be problematic because it does not derive the correct word order (numerals are in the specifier of NumP, and NumP-to-SpecDP movement derives an order in which numerals are DP-initial, which is wrong in Aghem).

## 4.2 The workings of Agree

All agreeing modifiers project, as shown in the tree in (33). Their heads host  $\varphi$ -probes. Agreement can be upward or downward (see, amongst others, Baker 2008; Carstens 2016; Murphy & Puškar 2018; Bárány & van Der Wal 2022). I follow Clem (2022) in assuming that, given the mechanics of agreement proposed in Béjar & Rezac (2009), heads, as well as their projections, can serve as probes.

(33) The workings of Agree



All the probes in (33) search corresponding goals and agree with them. The relevant features are then copied onto the probes. D, for example, will be sent to the morphology with the specification  $[\pm\text{SG}, \text{gender}, \text{D}]_{\text{AGR}}$ . The same holds for Poss ( $[\pm\text{SG}, \text{gender}, \text{Poss}]_{\text{AGR}}$ ), Adj ( $[\pm\text{SG}, \text{gender}, \text{Adj}]_{\text{AGR}}$ ), and numerals ( $[\pm\text{SG}, \text{gender}, \text{numeral}]_{\text{AGR}}$ ).<sup>17</sup>

## 4.3 Locality, Impoverishment and Morphological Spell-out

This section provides an account of the asymmetry. At the heart of the proposal is the idea that the Aghem facts are an instance of haplological dissimilation (Nevins, 2012) that is sensitive to morphological features. I propose that this is resolved by Impoverishment.<sup>18</sup> The idea is such that

<sup>17</sup>The  $_{\text{AGR}}$  symbol indicates that the relevant features are the result of an Agree operation. It will be crucial for the analysis that the morphology be able to distinguish inherent (not from, for example, Agree) from non-inherent (from Agree) features. This is so because, as the empirical data show, only inherent features are deleted. Non-inherent features are not. This means that morphology has access to this type of information.

<sup>18</sup>One of the key assumptions in DM is that features can be deleted before vocabulary insertion. This operation is known as Impoverishment (Halle & Marantz 1993; Halle 1997; Arregi & Nevins 2012; Keine & Müller 2020, to cite only these few). Features alone can be deleted, or a node, together with the features it hosts, can. This is called Obliteration (Arregi & Nevins, 2012) or Impoverishment OF the node (Harbour, 2003)

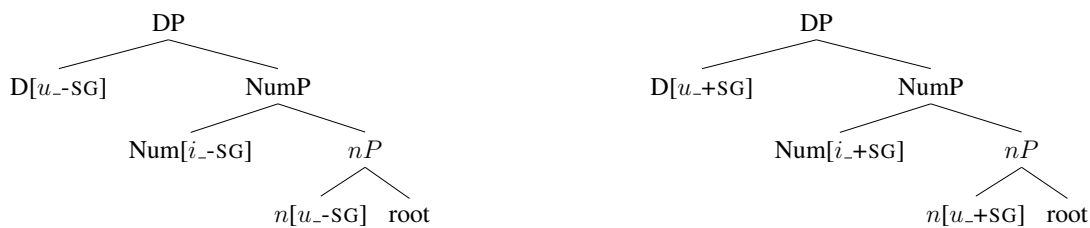


when two heads (X and Y) with identical feature sets appear within a strictly local domain, the head X that hosts inherent features gets deleted. Y heads with non-inherent features survive and, as a consequence, are spelled out. The relevant feature co-occurrence restriction is given in (34).<sup>19</sup>

- (34) *Feature Co-occurrence Restriction within Aghem DPs*  
 A head X with the inherent feature  $F$  cannot co-occur with a head Y with the non-inherent feature  $F'$ .

I propose that (34) is resolved by obliteration. That heads can be deleted because they are of the same type and are very close to each other is not a completely new idea. In her account of the behaviour of number and nominal classification in Kipsigis (Nilotic; Kenya), Kouneli (2021) proposes that when two heads with identical number features are structurally adjacent, the highest terminal node hosting this feature is deleted via obliteration. This requirement is presented in (36); and the relevant contexts in (35).

- (35) Context for obliteration in Kouneli (2021)



- (36) *Obliteration* (Kouneli 2021: 1228)  
 Delete an  $[\alpha SG]$  Num node when it dominates an  $[\alpha SG]$  node

What forces deletion in Kouneli's system are (a), adjacency (locality) of identical features, and (b) the fact that they have the same value ( $\pm$ ).<sup>20</sup> The system I propose to account for the Aghem data differs from Kouneli's in that while feature values matter in her system, what matters in mine is feature identity and whether they are inherent or non-inherent.<sup>21</sup> In other words, a sequence of non-inherent features will not be deleted. A series of inherent features will also not be deleted. Besides, if the inherent and non-inherent features are not of the same type, none of them would

<sup>19</sup>There is clear empirical evidence that the puzzle cannot be Agree-related, such that the absence of nominal prefixes in the relevant contexts tracks the failure of agreement to take place. The direct hint is that the class prefix is dropped on the head noun itself, and not on the agreeing modifiers.

<sup>20</sup>She clearly points out that this is a case of repetition avoidance that is sensitive to morphological features.

<sup>21</sup>One can also model this in terms of interpretable vs uninterpretable features, such that the latter would result from an Agree operation.

be deleted.<sup>22</sup> In a nutshell, what matters for deletion is, in addition to the inherent/non-inherent distinction, that the relevant features be identical.<sup>23</sup>

Given the feature co-occurrence restriction in (34), repeated as (39), one would expect that the *n* head be deleted in the presence of all possible modifiers. This prediction is not borne out, as the nominal prefix is always kept with numerals and the only quantifier the language has. Looking at the DP structure that the morphology processes, we see that all the modifiers that do not trigger the drop of the nominal prefix c-command the *n* head. This structure is repeated in (40) below. It follows that the rule can be restricted by c-command. In other words, it only applies if the trigger c-commands the target. In (40), only the numerals and the quantifiers do not c-command the *n* head, and only these modifiers do not trigger the drop of the nominal prefix.

---

<sup>22</sup>Strong evidence that this is correct come from N of N constructions. Below are a few examples.

- (37) a. (\*e)-wùà è    \*(ø)-bàʔtūm  
           5-cup    5.AM 1-chief  
           ‘Chief’s cup’ (Tschonghongi 2012:71)
- b. (\*tí)-bví †t-í    †\*(ø-)-wè  
           13-dog 13-AM 1-child  
           ‘Child’s dogs’ (Hyman, 2010:8)
- c. (\*e)-ghum è    \*(fí)-nwín  
           5-egg    5.AM 19-bird  
           ‘Bird’s egg’ (Tschonghongi 2012:122)

the associative markers in (37) agree in noun class with the possessed nominals, forcing them to lose their nominal prefixes. Non-modified nouns (the possessors in (37)) must surface with their nominal prefixes. This is visible for those nouns that have a segmental nominal prefix (37-c). If *fí-nwín* ‘bird’ is modified by, for example, the adjective ‘big’, the nominal prefix must be dropped. This is illustrated in (38).

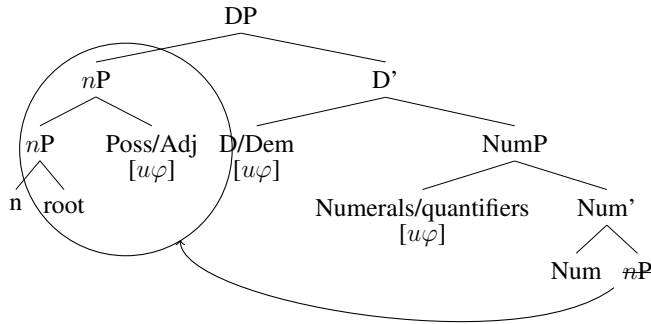
- (38) (\*e)-ghum è    \*(fí)-nwín fí-ne f-ó  
           5-egg    5AM 19-bird    19-big f-ENC  
           ‘Large bird’s egg’

These sets of facts suggest, under the analysis I argue for in this paper, that identity of  $\varphi$ -features really matters for the deletion algorithm. In all the examples in (37), only the possessed nominals agree in noun class with the associative markers, and only them lose their nominal prefixes. If identity of features did not matter, we would expect the class 19 noun in (37-c) to also lose its nominal prefix. The fact that it does not, suggests that feature identity matters for deletion. In (38), this noun is modified by an agreeing adjective and, as such, the nominal prefix is dropped, as expected.

<sup>23</sup>One of the underlying assumption the system I adopt in this paper makes is that, as agreement is involved, all the non-inherent features in a DP that contains only one head noun are copies of inherent features. If they are copies, they are the same features. The only difference is that the features of the goal are interpretable from the start, hence are inherent, whereas those of the goals are uninterpretable, hence non-inherent.

(39) *Feature Co-occurrence Restriction*  
 A head X with the inherent feature  $F$  cannot co-occur with a head Y with the non-inherent feature  $F'$ .

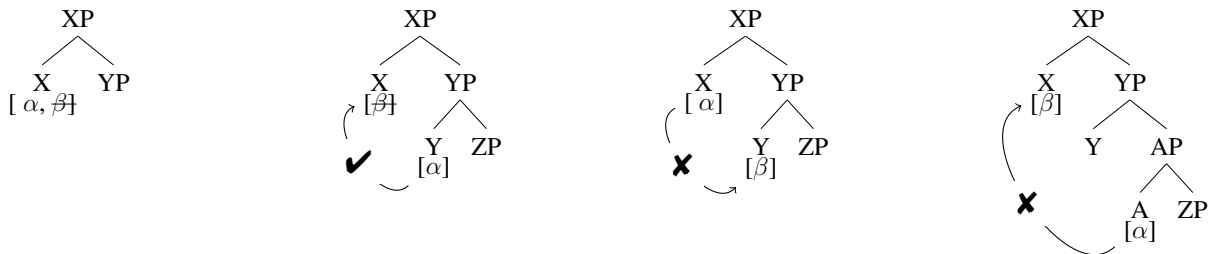
(40) DP structure in the morphology



Given (39) and (40), I conclude the deletion operation in Aghem is locally constrained, such that it can only take place if the trigger c-commands the target.

As mentioned at the introduction to this paper, locality constraints on the application of Impoverishment have been proposed in Kallulli & Trommer (2011) and Božič (2020). What is interesting is that the two studies rely on the notion of c-command. In Kallulli & Trommer (2011), the rule has to apply in the syntax, which makes it completely different from that discussed here.<sup>24</sup> In Božič (2020), the operation is triggered on two locality conditions: (a) the features are on the same head, or (b) the target immediately c-commands the trigger. Božič (2020) predicts the scenarios in (2), repeated in (41).

(41) Locality restrictions on Impoverishment, following Božič (2020)



Given (41), it follows that the locality restriction proposed by Božič (2020) cannot account for the Aghem data. The third scenario in (41), where the trigger c-commands the target, is exactly

<sup>24</sup>I do not discuss Kallulli & Trommer (2011) in this paper for two reasons. First, the Impoverishment rule they propose applies in the syntax. Second, they do not specifically argue that regular Impoverishment in the morphology is locally constrained. I guess this is also the reason Božič (2020) does not pay particular attention to their proposal. He only mentions them as predecessors of the idea that the rule needs to be locally constrained.

what we would need for Aghem, but this is excluded in (Božič, 2020)’s proposal. The relevant locality restriction is repeated in (42), for convenience.

(42) *Strictly Local Impoverishment*

Triggering context may be conditioned in (a) the  $X^0$  targeted for Impoverishment, or (b) the closest  $X^0$  that the target of Impoverishment c-commands. (Božič 2020:405)

I propose that (42) be revised as in (43) to account for the Aghem, as well as Ljubljana Slovenian.

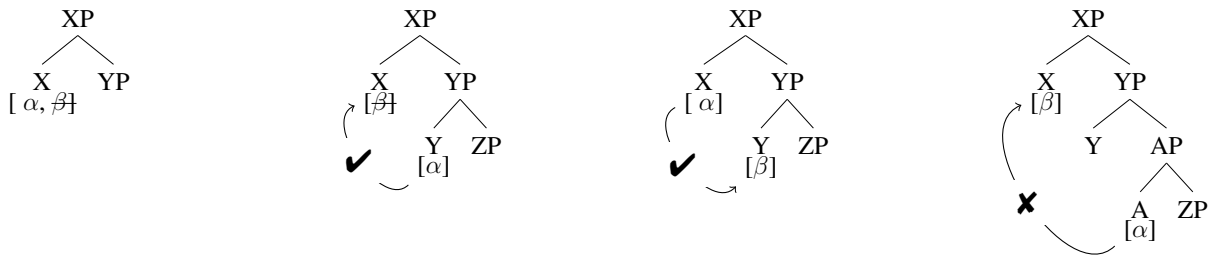
(43) *Strictly Local Impoverishment* (revised version)

Delete  $[\beta]$  or an  $[\beta]$  X node if (a), (b) or (c) hold:

- (a) the trigger  $[\alpha]$  and the target  $[\beta]$  are on the same node.
- (b) the trigger  $[\alpha]$  Y node immediately c-commands the target  $[\beta]$  X node.
- (c) the target  $[\beta]$  X node immediately c-commands the trigger  $[\alpha]$  Y node.

The revised version of (42) predicts the scenarios in (44).

(44) Locality restrictions on Impoverishment, based on (43)

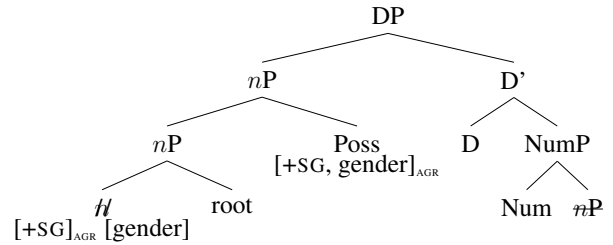


(43) opens up a third option that Božič (2020) does not allow. This third option is exactly what is needed to derive the Aghem facts. It also makes the prediction that features, as well as the terminal nodes that host them can be deleted. Overall, the locality restriction proposed by Božič (2020) under-generates. (43) is therefore superior as it accounts for Aghem, as well as Ljubljana Slovenian. In Section 6, I show that it also accounts for quasi-similar phenomena from other Grassfields Bantu languages.

The crucially different scenarios that (43) creates are given in (45)-(47). Each example has its structural representation to the right. In (45), the features on Poss and those on  $n$  are identical, giving rise to the feature co-occurrence restriction in (39). Since  $n$  got number features from

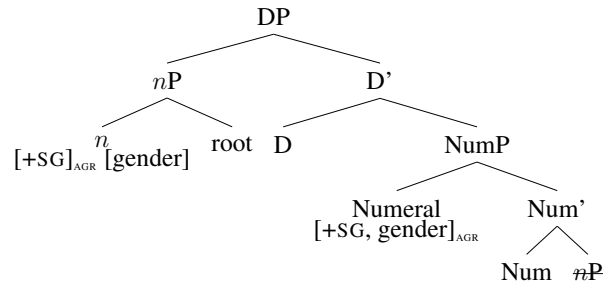
an Agree relation (c.f., Section 4.1), the number features are non-inherent (marked by the AGR symbol). Poss c-commands *n* and, per (43), *n* is obliterated. The result is that the nominal prefix will be absent.<sup>25</sup>

- (45) (\*kə̀)-bə̀ŋsɔ́ k-áŋâ  
 7-car 7-POSS  
 ‘My car’



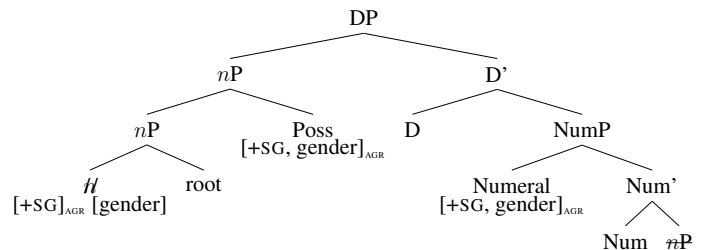
In (46), the features on the numeral and those on *n* are, again, identical, giving rise to the feature co-occurrence restriction in (39). This time around, the D head stands in-between the inherent features on *n* and the non-inherent features on the numeral. Besides, the trigger (the numeral) does not c-command *n*, and vice versa. Per the locality requirement in (43), the impoverishment rule is blocked. The result is that the *n* head will be spelled out, hence the presence of the nominal prefix.

- (46) \*(kə̀)-bə̀ŋsɔ́ kə́-mòʔ  
 7-car 7-one  
 ‘One car’



The intervening agreeing possessive pronoun in (47) forces deletion of gender features (hence the absence of the nominal prefix), in the presence of the numeral.<sup>26</sup>

- (47) (\*kə̀)-bə̀ŋsɔ́ k-áŋâ kə́-mòʔ  
 7-car 7-POSS 7-big  
 ‘My one car’



<sup>25</sup>Note that the Num head would be obliterated if it were c-commanded by *n* or vice versa. This does not bear on the analysis in any way.

<sup>26</sup>I assume that D c-commands *n*, under m-command-based c-command (Aoun & Sportiche, 1983; Cho, 2019). The maximal projection of D, namely DP, c-commands *n*, and so does D.

#### **4.4 Why Inherent, but not Non-inherent Feature Deletion?**

The question that remains to be answered, following what precedes is why is it that inherent, but not non-inherent, features are deleted. The answer to this question can have empirical, as well as theoretical underpinnings. On the empirical side, class membership can also be determined by looking solely at the exponents on agreeing modifiers (as explained in Footnote 1). What this means is that the same information is encoded on two local heads twice. This alone does not provide an accurate answer to the question because it says nothing about what feature must be deleted and why. It only explains the requirement that one of the feature sets be deleted.

On the theoretical side, one can speculate that deleting features from Agree might create a scenario where the probes will still be unsatisfied in the PF. Inherent features are not subject to valuation, and deleting them would not cause such a problem.

It is also possible to view the deletion of inherent features as being sensitive to the possibility of the nominal root to reconstruct its meaning and class membership. The class of a noun like ‘dog’, for example, can be reconstructed with innate semantic knowledge. This is definitely not the case for agreeing modifiers.

### **5 An Alternative Proposal?**

This section discusses a potential alternative to the proposal just sketched. As already mentioned at different stages of the paper, the asymmetry cannot be thought of as involving Agree-failure because the features that get deleted are those of the nominal prefix which, technically, are inherent from the start. We are, therefore, left with an Impoverishment account that relies on the notion of repetition avoidance that is sensitive to morphological features (see [Nevins 2012](#), for an overview). Under this view, one plausible alternative would be to think of the asymmetry as being phonologically conditioned. One could, for example, claim that the drop of nominal prefixes is sensitive to phonological, rather than morphological, features. There are a couple of potential arguments against this view.

The first comes from the N of N constructions in Footnote 22. They are repeated in (48). They show that the asymmetry is truly sensitive to concord, even when two nouns appear within the same DP.

- (48) a. (\*e)-wùà è      \*(∅)-bàʔtūm  
           5-cup    5.AM 1-chief  
           ‘Chief’s cup’ (Tschonghongi 2012:71)
- b. (\*tí)-bví †t-í      †\*(∅)-wε  
           13-dog 13-AM 1-child  
           ‘Child’s dogs’ (Hyman, 2010:8)
- c. (\*e)-ghum è      \*(fí)-nwín  
           5-egg    5.AM 19-bird  
           ‘Bird’s egg’ (Tschonghongi 2012:122)

The associative markers in (48) agree in noun class with the possessed nominals, forcing them to lose their nominal prefixes. Non-modified nouns (the possessors in (37)) must surface with their nominal prefixes. This is visible for those nouns that have a segmental nominal prefix (37-c). If *fí-nwín* ‘bird’ is modified by, for example, the adjective ‘big’, the nominal prefix must be dropped. This is illustrated in (49).

- (49) (\*e)-ghum è      \*(fí)-nwín fí-ne f-ó  
           5-egg    5AM 19-bird    19-big f-ENC  
           ‘Large bird’s egg’

It is unclear to me how concord can be derived using purely phonological features. What would the relevant features be? If this were possible, what would this mean for the featural contents of noun classes in Bantu? The literature on concord in these languages uniformly models it as agreement with  $\varphi$ -features.

The second argument relates to tones. If the prefixes were present in the morphology, and then deleted in the phonology, one would expect tonal interactions (see Akumbu & Hyman 2017 for a discussion of tonal processes in relation to class markers across Grassfields Bantu) of some sort, given that these prefixes have inherent tones. As far as I can tell, based on data I personally gathered from my Aghem consultants, there are no tone differences between roots that have prefixes and those that do not.

Besides, under a phonology-based approach, one also has to think about the type of locality restrictions that might be in play, such that certain modifiers, but not others, force nominal prefix drop. One can think of this in terms of phonological phrasing (type B modifiers are within the same phonological phrase with the head noun, and type A modifiers are not?), but it is unclear how to capture the relevance of concord which, ideally, should be modelled as agreement with morphosyntactic features. This does not mean that such an account is impossible, but it is, in my view, less plausible. What would be the defining factor(s) for phrasing, under this view?

## 6 Extending the Analysis to Other Western Ring Languages

Aghem is not the only Ring language in which nominal prefixes drop with a specific set of modifiers. Isu, Wé and Zoa (c.f., [Kießling 2018](#)), to cite only these few, also instantiate the phenomenon. In this section, I present the phenomenon in Isu and Wé, and make assumptions about how the locality restriction I argue for in this paper can derive the Isu and Wé facts. By so doing, I show that the locality domain proposed in this paper can be extended to other languages, hence is superior to that developed by [Božič \(2020\)](#).

Isu (Western Ring, Grassfields Bantu, Cameroon) also instantiates nominal prefix drop in the same environments where Aghem does ([Kießling, 2010](#)).<sup>27</sup> Below are a few examples. In (50-a), the nominal root *fú* ‘rat’ appears without its class prefix. It is followed by an agreeing enclitic of type B. The head noun in the object DP *tá-bvú* ‘dogs’, however, is not modified, hence it appears with its class prefix.

- (50) a. (\*kə)-fú k-íy kəʔ \*(tə)-bvú  
 7-rat 7-ENC see.PST 13-dog  
 ‘The rat saw (the) DOGS.’  
 b. \*(tə)-bvú t-íy kəʔ \*(kə)-fú  
 13-dog 13-ENC see.PST 7-rat  
 ‘The dogs saw a/the RATS.’ (Isu: [Kießling 2010](#): 152)

<sup>27</sup>Isu, just like Aghem, is a SVO language. It also makes use of the immediately-after-verb position to mark focus. These two languages, according to my consultants, share a high degree of mutual intelligibility.



The major difference between Aghem and Isu, [Kießling \(2010\)](#) notes, is that, unlike in Aghem, where the nominal prefix is always dropped with modifiers other than numerals and the quantifier, in Isu, this prefix only disappears if it has a CV shape. In other words, the conditioning factors in both languages are the same (class drop depends on the modifier that is used), but deletion is further sensitive to whether the nominal prefix has a CV, V or C shape. Non-modified nouns obligatorily have a class prefix (51). CV-prefixes are dropped with type B modifiers, amongst which the enclitic (52-b). Non-CV prefixes (the vowel in (52-a), for example) are not dropped in the context where a CV-prefix would (52-a).<sup>28</sup>

- (51) a. ηγà ηê tóm-ó \*(i)-γá<sup>†</sup>ηó  
 1PL now dig-IPF 5-root  
 ‘Now we are digging the root.’  
 b. ηγà ηê tóm-ó \*(tə)-γá<sup>†</sup>ηó  
 1PL now dig-IPF 13-root  
 ‘Now we are digging the roots.’ (Isu: [Kießling 2010:154](#))

- (52) a. ηγà mó <sup>†</sup>tóm \*(i)-γá<sup>†</sup>ηó y-íy  
 1PL PST.FOC dig 5-root 5-ENC  
 ‘We HAVE dug up the root.’  
 b. ηγà mó <sup>†</sup>tóm \*(tə)-γá<sup>†</sup>ηó t-íy  
 1PL PST.FOC dig 13-root 13-ENC  
 ‘We HAVE dug up the roots.’ (Isu: [Kießling 2010:154](#))

At first sight, one might claim, given the sensitivity to the shape of the prefix, that the conditioning factor in Isu is phonological. There is a perhaps suggestive argument against thinking of exponent drop in Isu as a being phonologically-conditioned. This relates to the behaviour of the class 7 class marker. As noted in [Kießling \(2018\)](#), this prefix can become *a-* in N2 contexts. An example is given in (53) below.

- (53) à ndzárí <sup>†</sup>ná <sup>†</sup>ndíó mífáa mí á<sup>†</sup>n-\*(á)-γú  
 Is mess.up keep who 6ab.faeces 6a.OF at-7-toilet  
 ‘Who messed up the toilet with liquid faeces?’ (Isu: [Kießling 2018:27](#))

<sup>28</sup>Class prefixes in Isu and in Aghem can be segmentally null (class 1 and 9 in both languages), single vowels (class 2-6 and class 8 in both languages), an homorganic nasal (class 6a and 6b in Aghem, but class 6b in Isu), and CV-sequences (class 7, 13 and class 19 in Aghem, but class 7, 13, 19 and 6a in Isu). For details of the noun class system in both languages, see [Hyman \(2010\)](#) and [Kießling \(2010\)](#).



The nominal prefix does not drop with numerals (58).

- (58) a. \*(kǎ)-tów kǎ-mòʔò  
           7-head 7-one  
           ‘One head’
- b. \*(ú)-tów ú-kàikè  
       8-head 8-four  
       ‘Four heads’

Wé also shares a high degree of mutual intelligibility with Aghem and Isu. For this reason, I suggest that the proposal to derive the Aghem facts be fully transferred to Wé, such that the *n* head is always obliterated when c-commanded by the head that hosts the agreeing modifier. Numerals do not c-command the *n* head, and vice versa. As a result, they do not trigger the operation that leads to the absence of the nominal prefix.

As far Isu is concerned, one can assume iconicity, such that CV prefixes have more features than non-CVs. In other words, all CV prefixes would be specified for a feature, say [ $\gamma$ ], that non-CVs lack. Impoverishment in Isu would, based on this, be sensitive to the same locality requirements as in Aghem and Wé. The only difference would then be that the rule only applies in the presence of the [ $\gamma$ ] feature. The rule that would derive the Isu data is given in (59).

- (59) Isu impoverishment rule  
 $n \rightarrow \emptyset / [\gamma]$

This rule ensures that the *n* head is only deleted in the presence of the [ $\gamma$ ] feature. Since, under this account, only CVs are specified for this feature, non-CVs will survive. The rule in (59) will be locally constrained by the same locality requirement that derives the Aghem and Wé facts. The puzzle then would be to decompose Isu features in such a way that one can give the [ $\gamma$ ] feature semantic contents. One also has to make sure that iconicity does work for Isu. Since this paper is concerned with locality of Impoverishment, and given space restrictions, I will not discuss this any further. It suffices for our purpose that the locality requirement I propose in the paper can derive the Aghem and Wé facts without further ado.

## 7 Conclusion

In this paper, I provided further empirical evidence from Western Ring languages that Impoverishment rules are not as arbitrary as is generally thought. They are (and need to be) featurally (Nevins, 2011; Keine & Müller, 2020) and locally (Kallulli & Trommer, 2011; Božič, 2020) constrained. The evidence comes from the phenomenon of nominal prefix deletion in Aghem, Isu and Wé. In these languages, nominal prefixes drop with all agreeing modifiers, except numerals and the quantifier. I claimed that this is an instance of haplological dissimilation (Nevins, 2012) that is sensitive to morphological features, and argued that the repetition is resolved by deleting the  $n$  head with inherent  $\varphi$ -features in the presence of an agreeing  $X$  head with non-inherent  $\varphi$ -features of the same type. I demonstrated that while the modifiers that require nominal prefix drop c-command the  $n$  head that is targeted by Impoverishment, numerals and the quantifier do not. I relied on this to restrict the application of the deletion operation, based on closest c-command. Crucially, the locality restriction proposed in Božič (2020) for Ljubljana Slovenian, I showed, does not derive the Aghem facts. I proposed a revised version of this requirement that accounts for Ljubljana Slovenian, as well as Aghem. This restriction, I claimed in the end, can further derive similar facts from other Grassfields Bantu languages, namely Isu and Wé. By so doing, the paper provides further empirical evidence that Impoverishment rules are not as arbitrary as is generally thought (they are featurally and structurally constrained), and proposes a locality restriction on the rule that may be part of Universal Grammar.

## References

- Abels, Klaus & Ad Neeleman. 2012. Linear asymmetries and the LCA. *Syntax* 15(1). 25–74.
- Adger, David & Daniel Harbour. 2008. Why phi. In Adger David, Harbour Daniel & Béjar Susana (eds.), *Phi theory: Phi-features across modules and interfaces*, 1–34. Oxford University Press.
- Akumbu, Pius W & Larry M Hyman. 2017. Nasals and low tone in Grassfields noun class prefixes. *Nordic Journal of African Studies* 26(1). 1–13.
- Akumbu, Pius W & Roland Kießling. 2022. The role of the Babanki noun phrase-final enclitic class marker. *Linguistique et Langues Africaines* (8 (1)).
- Alexiadou, Artemis. 2019. Morphological and semantic markedness revisited: The realization of plurality across languages. *Zeitschrift für Sprachwissenschaft* 38(1). 123–154.

- Alexiadou, Artemis, Liliane Haegeman & Melita Stavrou. 2007. *Noun phrase in the generative perspective*. Mouton de Gruyter: Berlin & New York.
- Aoun, Joseph & Dominique Sportiche. 1983. On the formal theory of Government. *The linguistic Review* 2(3). 211–236.
- Arad, Maya. 2003. Locality constraints on the interpretation of roots: The case of Hebrew denominal verbs. *Natural Language & Linguistic Theory* 21(4). 737–778.
- Arregi, Karlos & Andrew Nevins. 2012. *Morphotactics: Basque auxiliaries and the structure of spellout*, vol. 86. Springer Science & Business Media.
- Baker, Mark C. 2008. *The syntax of agreement and concord*, vol. 115. Cambridge University Press.
- Bárány, András & Jenneke van Der Wal. 2022. We don't agree (only) upward. *Linguistic Inquiry* 53(3). 501–521.
- Béjar, Susana & Milan Rezac. 2009. Cyclic Agree. *Linguistic Inquiry* 40(1). 35–73.
- Borer, Hagit. 2005. *Structuring sense: Volume 1: In name only*, vol. 1. Oxford University Press.
- Božič, Jurij. 2020. Strictly local impoverishment: An intervention effect. *Linguistic Inquiry* 51(2). 395–409.
- Cardinaletti, Anna. 2019. Cliticization as extraction: The big DP hypothesis revisited. *Revista da Associação Portuguesa de Linguística* (5). 1–16.
- Carstens, Vicki. 1991. *The morphology and syntax of determiner phrases in Kiswahili*: University of California, Los Angeles dissertation.
- Carstens, Vicki. 2016. Delayed valuation: A reanalysis of goal features, “upward” complementizer agreement, and the mechanics of case. *Syntax* 19(1). 1–42.
- Cho, Keeseok. 2019. Two different C-Commands in intra-argument structures and inter-argument structures: Focus on Binding Principles B and A. 45. 79–100.
- Chomsky, Noam. 2001. Derivation by phase. In Kenstowicz Michael (ed.), *Ken Hale. A Life in Language*, 1–52. MIT Press.
- Cinque, Guglielmo. 2005. Deriving Greenberg's Universal 20 and its exceptions. *Linguistic inquiry* 36(3). 315–332.
- Clem, Emily. 2022. Cyclic expansion in Agree: Maximal projections as probes. *Linguistic Inquiry* 54(1). 39–78.
- Fuchs, Zuzanna & Jenneke van der Wal. 2022. The locus of parametric variation in Bantu gender and nominal derivation. *Linguistic Variation* 22(2). 268–324.
- Giusti, Giuliana. 2002. The functional structure of noun phrases: A bare phrase structure approach. In Cinque Guglielmo (ed.), *Functional structure in dp and ip: The cartography of syntactic structures*, vol. 1, 54–90. Oxford University Press Oxford.
- Greenberg, Joseph. 1963. Some universals of grammar with particular reference to the order of meaningful elements. In J. Greenberg, ed., *Universals of Language*. 73–113. Cambridge, MA. .
- Halle, Morris. 1997. Distributed morphology: Impoverishment and fission. *MIT Working Papers in Linguistics* 30. 425–449.
- Halle, Morris & Alec Marantz. 1993. Distributed Morphology and the pieces of inflection 111–176.

- Harbour, Daniel. 2003. The Kiowa case for feature insertion. *Natural Language & Linguistic Theory* 21(3). 543–578.
- Harbour, Daniel. 2011. Valence and atomic number. *Linguistic Inquiry* 42(4). 561–594.
- Harley, Heidi. 2014. On the identity of roots. *Theoretical Linguistics* 40(3-4). 225–276.
- Hawkins, John A. 1993. *Word order universals*, vol. 3. Academic Press INC.
- Hyman, Larry M. 1979. Aghem grammatical structure: With special reference to noun classes, tense-aspect and focus marking. *Southern California Occasional Papers in Linguistics* 7.
- Hyman, Larry M. 1981. Noni grammatical structure: With special reference to verb morphology. *Southern California Occasional Papers in Linguistics* 9.
- Hyman, Larry M. 2010. Focus marking in Aghem: Syntax or semantics. In Fiedler Ines & Schwarz Anne (eds.), *The expression of information structure: A documentation of its diversity across africa* (Typological Studies in Language 91), 95–116. John Benjamins Publishing Company.
- Hyman, Larry M & Maria Polinsky. 2010. Focus in Aghem. In Zimmermann Malte & Féry Caroline (eds.), *Information structure: Theoretical, typological, and experimental perspectives*, 206–233. Oxford University Press.
- Ionin, Tania & Ora Matushansky. 2006. The composition of complex cardinals. *Journal of Semantics* 23(4). 315–360.
- Kallulli, Dalina & Jochen Trommer. 2011. Closest c-command, agree and impoverishment: The morphosyntax of non-active voice in Albanian. *Acta Linguistica Hungarica* 58(3). 277–296.
- Keine, Stefan & Gereon Müller. 2020. Impoverishment. [lingbuzz/005025](https://ling.auf.net/lingbuzz/005025). doi:<https://ling.auf.net/lingbuzz/005025>.
- Kießling, Roland. 2010. Focalisation and defocalisation in Isu. In Fiedler Ines & Schwarz Anne (eds.), *The expression of information structure: A documentation of its diversity across africa* (Typological Studies in Language 91), 145–163. John Benjamins Publishing Company.
- Kießling, Roland. 2018. Noun classes, genders, declensions in Grassfields Bantu—preliminary generalisations on their dynamics (with a focus on the Ring subgroup). *Colloquium talk, Humboldt-Universität, Berlin*.
- Kouneli, Maria. 2021. Number-based noun classification. *Natural Language & Linguistic Theory* 39(4). 1195–1251.
- Kramer, Ruth. 2015. *The morphosyntax of gender*, vol. 58. Oxford University Press.
- Kramer, Ruth. 2016. The location of gender features in the syntax. *Language and Linguistics Compass* 10(11). 661–677.
- Landau, Idan. 2006. Chain resolution in Hebrew V(P)-fronting. *Syntax* 9(1). 32–66.
- Marantz, Alec. 1997. No escape from syntax: Don't try morphological analysis in the privacy of your own lexicon. *University of Pennsylvania Working Papers in Linguistics* 4(2). 201–225.
- McGarrity, Laura W & Robert Botne. 2001. Between agreement and case marking in Lamnso. *IULC Working Papers* 1(2).
- Mittendorf, Ingo & Louisa Sadler. 2005. Numerals, nouns and number in welsh nps. In *Proceedings of the lfg 2005 conference*, 294–312.

- Murphy, Andrew & Zorica Puškar. 2018. Closest conjunct agreement is an illusion. *Natural Language & Linguistic Theory* 36. 1207–1261.
- Nchare, Abdoulaye Laziz. 2011. The syntax of agreement in Shupamem DP and Greenberg's Universal 20. *NYU Working Papers in Linguistics* 3. 136–198.
- Nevins, Andrew. 2011. Marked targets versus marked triggers and impoverishment of the dual. *Linguistic Inquiry* 42(3). 413–444.
- Nevins, Andrew. 2012. Haplological dissimilation at distinct stages of exponence. In Trommer Jochen (ed.), *The morphology and phonology of exponence*, 84–117. Oxford University Press.
- Nkemnji, Michael Akamin. 1995. *Heavy pied-piping in Nweh*: University of California, Los Angeles dissertation.
- Pereira, Bruna K. 2017. The DP-internal distribution of the plural morpheme in Brazilian Portuguese. *MIT Working Papers in Linguistics* 81. 85–104.
- Preminger, Omer. 2020. Functional structure in the noun phrase: revisiting Hebrew nominals. *Glossa: a Journal of General Linguistics* 5(1).
- Ritter, Elizabeth. 1991. Two functional categories in noun phrases: Evidence from Modern Hebrew. In Rothstein Susan D. (ed.), *Perspectives on phrase structure: Heads and licensing*, 37–62. Brill.
- Tschonghongi, C. Nelson. 2012. *Juridical lexicon and translation pragmatics in Aghem*. The University of Yaounde I MA thesis.
- Wiltschko, Martina. 2008. The syntax of non-inflectional plural marking. *Natural Language & Linguistic Theory* 26(3). 639–694.