

# Exponent Drop in Aghem: Agree, Impoverishment, and the Unity of Phases in Syntax and Morphology

## Abstract

This paper provides empirical evidence from the Grassfields Bantu language Aghem that a unified concept of phases in the syntax and morphology is possible. In Aghem, nominal prefixes drop with all agreeing modifiers, except numerals and quantifiers. I argue that this is due to a constraint that requires deletion of inherent features within a phase that contains inherent and non-inherent features of the same type. I first demonstrate that an approach that treats the absence/presence of noun prefixes as somewhat related to the status of the full DP as being in focus (hence in the syntactic position where focus is marked in Aghem) (Hyman, 2010; Kießling, 2010) is untenable on empirical grounds. I show that modifiers that disallow nominal prefix drop are DP-external. I rely on this to propose that the asymmetry is tied to the simultaneous presence of inherent and non-inherent features of the same type within a single phase domain (DP, being a phase). This forces impoverishment of inherent features, hence the absence of class prefixes on nouns. Numerals and quantifiers are DP-external and, as such, do not interact with inherent features for the purpose of the impoverishment requirement. D, therefore, counts as a phase head for syntactic as well as morphological operations.

## Keywords:

Aghem, Agree, Impoverishment, unity of phases, morpho-syntax.

## 1 Introduction

The notion of phases has been proposed to account for syntactic (Chomsky, 2000, 2001; Gallego, 2010; Müller, 2010, 2011; Legate, 2012; Bošković, 2012) as well as morpho-phonological (Embick, 2010, 2014; Marantz, 2013; Samuels, 2012; Marvin, 2013) phenomena. The consensus is generally that phases define spell-out domains that become inaccessible for further operations in a given module of the grammar. The strong version of the Phase Impenetrability Condition (see Gallego 2020 for a recent discussion of strong and weak cyclicity in phase theory), for example, has it that complements of phase heads are invisible to operations outside of phase domains. This has been used to account for syntactic phenomena such as agreement and movement (cf. Gallego 2010; Müller 2011, among others). Embick (2010) and Marvin (2013) discuss the relevance of adopting the concept of phases in the morpho-phonology to account for allomorphy and stress placement.

The concept of phases is not always identical when we move from one module of the grammar to the other. In the morphology, for example, as Embick (2010) argues, category-defining heads such as *n* and *v* are phase heads that drive cyclic spell-out and condition allomorphy. In the syntax, phase heads are generally assumed to be C, *v* (little *v*) and D. The impression we therefore have from the literature is that a unified concept of phases across the different modules of the grammar is out of reach. The goal of this paper is to provide empirical evidence from the Grassfields Bantu language Aghem that this is not necessarily the case. I show that a unified concept of phases in the syntax and morphology is, after all, possible.

Aghem (Western Ring, Grassfields Bantu, Cameroon) parallels most Bantu languages in that nouns in isolation must take prefixes (and sometimes suffixes) that express the class to which they belong.<sup>1</sup> The examples in (1) and (2) illustrate this for the roots *bvó* ‘dog’ and *bàŋsó* ‘car’ which, in the singular, are marked for class 9 and 7, respectively. They form their plural in class 13 (dogs) and 8 (cars).<sup>2</sup>

- |     |   |   |
|-----|---|---|
| (1) | a. <i>*(ø)-bvó</i><br>9-dog<br>‘dog’    | b. <i>*(tó)-bvó</i><br>13-dog<br>‘dogs’ |
| (2) | a. <i>*(kə)-bàŋsó</i><br>7-car<br>‘car’ | b. <i>*(ò)-bàŋsó</i><br>8-car<br>‘cars’ |

When the nouns in (2), for example, are followed by agreeing modifiers other than numerals and quantifiers, the nominal prefix is dropped. Only the agreeing modifiers have class prefixes. This is shown in (3)-(5) for possessive pronouns (3), demonstrative pronouns (4) and adjectives (5).<sup>3</sup> As these examples illustrate, the root for ‘car’ appears without a class prefix. Only the agreeing modifiers have them. 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 (5) are followed

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<sup>1</sup>Babanki and Lamnso’ are examples of Grassfields Bantu languages that have suffixal class markers (McGarrrity & Botne, 2001; Akumbu & Kießling, 2022). Although non-modified nouns are marked for class, we sometimes need to rely on concordial prefixes to identify the class to which certain nouns belong. This is the case for those nouns which nominal prefixes are the same (generally null), yet they have different concordial prefixes. Class 1 and class 9 nouns in Aghem belong to this group. The nominal prefixes in both classes are segmentally null, and one has to rely on concordial prefixes to tease them apart (see Hyman 2010 for related details).

<sup>2</sup>Part of the Aghem data I use in this study were collected during two fieldtrips (August 2022 and July 2023) to Cameroon. Other examples are taken from existing work on the language, and will be referenced accordingly. The difference between the data I collected and those from existing papers will be visible from the type of vowels I use and, sometimes, the tones. I follow the noun classification system proposed in Hyman (2010). The nouns in (1) and (2) need to have a class prefix, otherwise they are ungrammatical. This is easy to see for those nouns that have overt class markers.

<sup>3</sup>The class exponents on adjectives need not be pronounced. In fact, my consultants all said that they will use them when writing the language. In spoken Aghem, they will omit them in rapid speech, but use them otherwise (slow speech). This is completely different from nominal prefix drop, which is in no way optional in the relevant contexts.

<sup>4</sup>This extends to all possible nouns in Aghem, to the exception of a very few (about 5, according to

by an obligatory agreeing particle that has been analysed as a pronominal enclitic in the related Ring languages Lamnso’ (McGarritty & Botne, 2001), Isu (Kießling, 2010) and Babanki (Akumbu & Kießling, 2022).<sup>5</sup>

- |     |    |   |    |  |
|-----|----|---|----|--|
| (3) | a. | (*kə)-bəŋsɔ́ k-áŋâ<br>7-car      7-POSS<br>‘my car’           | b. | (*ò)-bəŋsɔ́ w-áŋâ<br>8-car      8-POSS<br>‘my cars’          |
| (4) | a. | (*kə)-bəŋsɔ́ k-ən<br>7-car      7-DEM<br>‘this car’           | b. | (*ò)-bəŋsɔ́ w-ən<br>8-car      8-DEM<br>‘these cars’         |
| (5) | a. | (*kə)-bəŋsɔ́ kə-ně k-ó<br>7-car      7-big 7-ENC<br>‘big car’ | b. | (*ò)-bəŋsɔ́ ò-ně w-ó<br>8-car      8-big 8-ENC<br>‘big cars’ |

If *bəŋsɔ́* ‘car’ is modified by a numeral, it keeps its nominal prefix. The examples in (6) illustrate this.<sup>6</sup>

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Nelson Tschonghongi (p.c.) class 19 nouns such as *fə-gwón* ‘cat’ and *fə-mbú?* ‘banana’. These nouns never lose their class prefixes (i)-(ii). Note the tone difference between *fə-gwón* ‘cat’, in isolation, and when it is modified (*fə-gwón*). I do not discuss tonal processes in this paper, and simply assume that the interaction of tones is what conditions this type of changes. The reader can refer to Akumbu & Hyman (2017) for a recent discussion of tones in the Grassfields Bantu noun class systems.

- |      |    |  |    |   |
|------|----|--|----|---|
| (i)  | a. | *(fə)-gwón f-áŋâ<br>19-cat    19-POSS<br>‘my cat’    | b. | *(fə)-gwón fə-ně f-ó<br>19-cat    19-big 19-ENC<br>‘big cat’    |
| (ii) | a. | *(fə)-mbú? f-áŋâ<br>19-banana 19-POSS<br>‘my banana’ | b. | *(fə)-mbú? 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-ká?* ‘tree’ and *fə-nyó* ‘knife’ are related examples (iii)-(iv).

- |       |    |  |    |   |
|-------|----|--|----|---|
| (iii) | a. | (*fə)-ká? f-áŋâ<br>19-tree    19-POSS<br>‘my tree’   | b. | (*fə)-ká? fə-ně f-ó<br>19-tree    19-big 19-ENC<br>‘big tree’   |
| (iv)  | a. | (*fə)-nyó f-áŋâ<br>19-knife    19-POSS<br>‘my knife’ | b. | (*fə)-nyó fə-ně f-ó<br>19-knife    19-big 19-ENC<br>‘big knife’ |

<sup>5</sup>I will not look into the properties of this particle in this paper. For related discussion, the reader can refer to the references above. In Section 3.1, I will discuss the relevance of this enclitic in determining DP-internal word order in Aghem.

<sup>6</sup>Only numerals from one to five agree in noun class in Aghem (and probably across Ring languages). The numerals *sámbrá* ‘seven’ and *ighóm* ‘ten’ (i), for example, do not agree in class with the head nouns they follow.

- (6) a. *\*(kə)-bəŋsɔ́ kə-mòʔ*  
           7-car        7-one  
           ‘one car’  
       b. *\*(ò)-bəŋsɔ́ ó-twè*  
           8-car        8-five  
           ‘five cars’

When one (or all) of the type B modifiers in (3)-(5) combines with a numeral to modify the same noun, the numeral appears last, and the nominal prefix is dropped. The examples in (7) show this for the adjective ‘big’. It follows the head noun, and is in turn followed by the pronominal enclitic and a numeral.

- (7) a. *\*(kə)-bəŋsɔ́ kə-ně k-ɔ́ kə-mòʔ*  
           7-car        7-big 7-ENC 7-one  
           ‘one big car’  
       b. *\*(ò)-bəŋsɔ́ ò-ně w-ɔ́ ó-twè*  
           8-car        8-big 8-ENC 8-five  
           ‘five big cars’

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) suggest.<sup>7</sup> The examples in (7) 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.

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 is the driving force behind nominal prefix drop in Aghem. Crucially, this locality domain is uniform in syntax and morphology. In the syntax, all agreeing modifiers agree with the head noun. In the morphology, an impoverishment rule deletes inherent noun class features. I propose that when two strictly local terminal nodes share the same features, inherent features are deleted (see Kouneli 2019, 2021 for a similar reasoning, albeit with different conditioning factors and locality domains). Only non-inherent features survive and are spelled out. Nominal prefixes in Bantu, it has been assumed, spell out inherent class features (Carstens, 1991; Fuchs & van der Wal, 2022). Exponents on agreeing modifiers are the result of Agree. For this reason, the features on the head noun are deleted, and it appears without a class prefix. Nouns keep their class prefix with numerals

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- (i) a. *\*(ò)-bəŋsɔ́ sàmbrà*  
           8-car        seven  
           ‘six cars’  
       b. *\*(ò)-bəŋsɔ́ ìghóm*  
           8-car        ten  
           ‘ten cars’

The quantifier *dzìm* ‘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 (ii). The examples in (ii) are from Hyman (2010).

- (ii) a. *\*(tí)-bvú tì-dzìm*  
           13-dog 13-all  
           ‘All the dogs’  
       b. *\*(fí)-nwín fì-dzìm*  
           19-bird 19-all  
           ‘The whole bird’

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

<sup>7</sup>Section 2 of the paper discusses this in more detail.

and quantifiers because the terminal nodes that spell them out are sufficiently distant from each other. Distance here is defined in terms of phases, such that, in a given phase P, inherent features will be deleted in the presence of non-inherent features of the same type. If a phase boundary stands in-between inherent and non-inherent features of the same type, both cannot communicate, hence no impoverishment. This, I show, accounts for the puzzle in a straightforward way.

The rest of the paper is organised as follows: §2 looks into previous descriptions of exponent drop in Western Ring. Hyman (2010) and Kießling (2010) have claimed that the status of the DP as being in focus might matter for the behaviour of nominal prefixes in Aghem and Isu. I argue, based, amongst other things, on the syntactic behaviour of DPs that feature nouns modified by numerals only, that this generalization is not tenable. I demonstrate that nominal prefixes never drop in DPs that feature nouns modified by only numerals, irrespective of their syntactic position. This alone, I claim, suggests that the pattern is not related to the position the DP occupies in the syntax, but rather is tied to factors internal to the DP. §3 looks into DP-internal word order in Aghem to show that numerals and quantifiers tend to appear last when all possible modifiers are used. I argue that they are rightwards specifiers of a functional projection that takes a full DP as its complement. 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 makes a detour to closely related Isu which, following Kießling (2010), also instantiates nominal prefix drop in the same contexts as Aghem, albeit with different properties. I show how the analysis I propose for Aghem can be extended to Isu. §6 concludes the paper.

## 2 Does Focus Play a Role in Nominal Prefix Drop?

In this section, I look into previous descriptions of nominal prefix drop in Western Ring. Of relevance are Hyman (2010), on Aghem, and Kießling (2010), on closely related Isu. Although they do not provide a formal analysis of the phenomenon (probably because they are mainly concerned with focus marking), they both discuss examples in which nouns appear without their class prefixes. They argue that focus plays a role in whether a noun appears in the ‘A form’ (with the nominal prefix) or the ‘B form’ (without the nominal prefix but, crucially, with an obligatory agreeing enclitic). Hyman (2010), in discussing Aghem, claims that form A is used when an object DP appears in the immediately-after-verb (IAV) position of a main clause affirmative sentence (8-a).<sup>8</sup> Otherwise (i.e., not in the IAV position (8-b), in

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<sup>8</sup>The basic word order in Aghem is SVO (Hyman, 2010; Hyman & Polinsky, 2010; Kießling, 2010). Aghem is well known for the way it syntactically marks focus. For an XP to be interpreted as focus, it has to appear in the immediately-after-verb (IAV) position (see Aboh 2007; Hyman 2010; Hyman & Polinsky 2010; Kießling 2010, amongst others, for related details). For a subject XP (ii) to be marked for focus, for example, it has to appear immediately after the verb. (ii) is derived from (i). The same holds for adjuncts (iii-a) and wh-elements (iii-b)). There are no hierarchy effects in multiple wh-questions. The wh-elements in (iii-b) can be freely ordered.

(i)       $[(\text{tí})\text{-bvú } \text{tí-bìghà}]_{\text{SUBJ}}$     mō    zì    kí-bé    ʔné  
          13-dog      13-two                   PST eat 7-fufu today

the immediately-before-verb position (8-c), when the auxiliary is marked for focus (8-d), in embedded clauses (8-e), after negative verbs (8-f)), they appear in the B form.

(8) (Hyman 2010:7)

- a. ò m̀ zì kǐ-bé (\*bé ʔk-ó) ʔné  
SM PST eat 7-fufu (\*fufu 7-ENC) today  
'He ate fufu today'
- b. ò m̀ zì né ʔbé ʔk-ó (\*kǐ-bé)  
SM PST eat today fufu 7-ENC (\*7-fufu)  
'He ate fufu TODAY'
- c. ò m̀ bé ʔk-í (\*kǐ-bé) zì né  
SM PST fufu 7-ENC (\*7-fufu) eat today  
'He ate fufu TODAY'
- d. ò m̀â zì bé ʔk-ó (\*kǐ-bé) né  
SM PST.FOC eat fufu 7-ENC (\*7-fufu) today  
'He did eat fufu today'
- e. wìzín wílà ò m̀ zì bé ʔk-ó (\*kǐ-bé) né  
1.woman who SM PST eat fufu 7-ENC (\*7-fufu) today  
'The woman who ate fufu today'
- f. ò kà m̀ zì bé ʔk-ó (\*kǐ-bé)  
SM NEG PST eat fufu 7-ENC (\*7-fufu)  
'He did not eat fufu'

In (8-a), the object DP *kǐ-bé* 'fufu' appears in the IAV position, and is in the A form, i.e., it has the nominal prefix. The B form is ungrammatical. In (8-b), the object DP is not in the IAV position. The adverb *né* 'today' is, and the object DP immediately follows it. In such contexts, the noun has to appear in the B form. The A form is ungrammatical. What is striking about the nouns that appear in the B form is that the nominal root is obligatorily followed by the agreeing enclitic ʔk-ó (it can be *f-ó*, *z-ó*, *w-ó* etc., depending on the class the head noun it agrees with belongs to).<sup>9</sup> The obvious question then is what conditions the use of the B forms in (8-b)-(8-f). Is it their syntactic position (not in the IAV position, for example), or the fact that these nouns are obligatorily modified by the agreeing enclitic?

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'The two dogs ate fufu today' (Hyman 2010: 3)

- (ii) à m̀ zì [\***(tǐ)-bvú tǐ-bìghà**]<sub>SUBJ</sub> ʔbé ʔk-ó né  
RES/EXP PST eat 13-dog 13-two fufu 7-DET today  
'the TWO DOGS ate fufu today' (Hyman 2010: 4)

(iii) (Hyman 2010: 4)

- a. [\***(tǐ)-bvú tǐ-bìghà**]<sub>SUBJ</sub> m̀ zì [**né**]<sub>ADJUNCT</sub> ʔbé ʔk-ó  
13-dog 13-two PST eat today fufu 7-DET  
'The two dogs ate fufu TODAY'
- b. à m̀ zì [ndúghó]<sub>WH</sub> [kwòkò]<sub>WH</sub> [zín]<sub>WH</sub>  
RES/EXP PST eat who what when  
'Who ate what when'

<sup>9</sup>The vowel quality of the enclitic may also change due to vowel assimilation (cf., example (8-c), where the vowel that is used is 'í', and not regular 'ó' (Hyman, 2010)).

There is a very simple test for this. If the position of the DP matters in the sense that nouns in object position have to appear in the A form when the DP is in the IAV position, we wouldn't expect to find a noun in the B form in the IAV position. The examples (9) show that it is possible for a noun to appear without a class prefix in this position. The object DPs *ò-bàṣṣó* 'car' and *bàṣṣó w-áṣṣá* 'my car' in the direct clauses in (9) both appear in the IAV position, as they can be interpreted as in focus, yet dropping the class prefix is ungrammatical in (9-a), but compulsory in (9-b). The only major difference between the two sentences is that the head noun in the first one is not modified, whereas it is in the second (by a possessive pronoun).

- (9) a. John wé [*\*(ò)-bàṣṣó*]<sub>OBJ</sub>  
 John buy.PST 8-cars  
 'John bought cars'  
 b. John wé [*\*(ò)-bàṣṣó w-áṣṣá*]<sub>OBJ</sub>  
 John buy.PST 8-car 8-POSS  
 'John bought my cars'

Since the examples in (8), which are all from Hyman (2010), feature the obligatory agreeing enclitic (he does not discuss nominal modification by modifiers other than this determiner), I propose that what focus impacts is whether the noun appears with this enclitic or not. In the IAV position, object DPs need not be modified by this particle, hence would appear in the A form. In the other contexts in (8), the object DPs need to be so modified. Recall from the introduction to this paper that only numerals and the quantifier *džám* 'all' disallow nominal prefix drop in Aghem. In other words, even the agreeing enclitic that obligatorily appears with nouns in the B form would force the noun to appear without its class prefix. What this means is that B forms are created in two steps. The first adds the obligatory enclitic to the noun in the appropriate contexts. In the second step, the nominal prefix is dropped because this particle is of type B. Hyman (2010) himself makes this clear by saying that "the fact that B forms lack a noun class prefix follows from the general process of prefix deletion in Aghem... prefix deletion will occur whenever a noun is followed by any agreeing element except for a numeral or quantifier".

The examples in (10) further demonstrate that what really matters is not the position the DP occupies and its status as being in focus or not. Nouns modified by numerals only will never lose their class prefix both in canonical subject position and in the IAV, where they are marked for focus.

- (10) (Hyman 2010: 3-4)  
 a. [*\*(tí)-bvú tí-bìghà*]<sub>SUBJ</sub> mò zì kí-bé ʔné  
 13-dog 13-two PST eat 7-fufu today  
 'The two dogs ate fufu today'  
 b. à mò zì [*\*(tí)-bvú tí-bìghà*]<sub>SUBJ</sub> ʔbé ʔk-ó né  
 RES/EXP PST eat 13-dog 13-two fufu 7-DET today  
 'the TWO DOGS ate fufu today'

In (10-a), the subject DP *tí-bvú tí-bìghà* 'two dogs' is in its canonical position, and appears in the A form. In (10-b), the same subject DP is focused, hence in the IAV position, and

still appears in the A form. What (10-a) and (10-b) share is that the head noun is modified by only a numeral. This is also clear evidence that the governing factor is DP-internal, and has nothing to do with the status or syntactic position the DP occupies.

Isu also instantiates nominal prefix drop in the same environments where Aghem would (Kießling, 2010). Below are a few examples. In (11-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.<sup>10</sup>

(11) (Kießling 2010: 152)

- a. (\*kà)-fú k-íy kòʔ \*(tá)-bvú  
7-rat 7-ENC see.PST 13-dog  
‘The rat saw (the) DOGS’
- b. (\*tá)-bvú t-íy kòʔ \*(kà)-fú  
13-dog 13-ENC see.PST 7-rat  
‘The dogs saw a/the RATS’

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 quantifiers, in Isu, this prefix only disappears if it is a CV sequence. In other words, the conditioning factors in both languages are the same (it depends on the modifier that is used), but deletion is further sensitive to whether the nominal prefix is a CV sequence or not in Isu. Non-modified nouns obligatorily have a class prefix (12). CV-prefixes are dropped with type B modifiers, amongst which the enclitic (13-b). Non-CV sequences (the vowel in (13-a), for example) are not dropped in the context where a CV-sequence would drop (13-a).<sup>11</sup>

(12) (Kießling 2010:154)

- a. ɲgà ɲâ tá-m-á \*(i)-ɲá<sup>↓</sup>ɲá  
1PL now dig-IPF 5-root  
‘Now we are digging the root’
- b. ɲgà ɲâ tá-m-á \*(tâ)-ɲá<sup>↓</sup>ɲá  
1PL now dig-IPF 13-root  
‘Now we are digging the roots’

(13) (Kießling 2010:154)

- a. ɲgà mó <sup>↓</sup>tám \*(i)-ɲá<sup>↓</sup>ɲá y-íy  
1PL PST.FOC dig 5-root 5-ENC  
‘We HAVE dug up the root’
- b. ɲgà mó <sup>↓</sup>tám (\*tâ)-ɲá<sup>↓</sup>ɲá t-íy  
1PL PST.FOC dig 13-root 13-ENC  
‘We HAVE dug up the roots’

<sup>10</sup>Isu, just like Aghem, is an 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.

<sup>11</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).



Kießling (2010) follows Hyman (2010) in claiming that focus has a role to play in whether a noun appears in the A form (with class prefix), or in the B form (without the class prefix but, again, with the obligatory agreeing enclitic). Once again, the crucial question is whether the absence of the CV nominal prefix in (13-b) is the result of focus or the presence of the obligatory agreeing enclitic *t-íy*. I do not have enough Isu data to provide an accurate answer to this question. My prediction is that, if Isu behaves like Aghem in that numerals disallow nominal prefix drop, then focus might only impact the presence or absence of the agreeing enclitic. Depending on the syntactic position a noun appears in, for example, it must or must not be modified by this particle. As soon as it is so modified, the class prefix is dropped on the noun because the said modifier is one that requires nominal prefix drop. The difference between Aghem and Isu would be that in Aghem, only the type of nominal modifier has a role to play in the form in which the head noun appears. In Isu, however, in addition to the type of nominal modifier, there is a phonological requirement that takes into account the shape of the nominal prefix. A system that accounts for Aghem should, in principle, also account for Isu in a straightforward way.

Having established that the asymmetry between modified and non-modified nouns is not related to their position in the syntax, but rather to factors internal to the DP, we can now look into DP-internal word order in Aghem. I do this in the next section.

### 3 DP-internal Word Order in Aghem

#### 3.1 Empirical Generalizations

This section provides details of DP-internal word order in Aghem. Its importance is twofold. First, as I demonstrated in §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 also has a role to play. The examples in (7), repeated in (14), show that when an adjective (a type B modifier) stands in-between the head noun and a numeral, the nominal prefix must be dropped. If the nouns in (14) are only modified by numerals, dropping the class prefix is ungrammatical (15).

- (14) a. (\*kə)-bəŋsɔ́ kə-ně k-ɔ́ kə-mò?  
           7-car           7-big 7-ENC 7-one  
           ‘one big car’  
       b. (\*ò)-bəŋsɔ́ ò-ně w-ɔ́ ó-twè  
           8-car           8-big 8-ENC 8-five  
           ‘five big cars’

- (15) a. \*(kə)-bəŋsɔ́ kə-mò?  
           7-car           7-one  
           ‘one car’  
       b. \*(ò)-bəŋsɔ́ 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 in 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 > NUM and N > ADJ > POSS > DET > NUM.<sup>12</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 NUM per DP. There can be arbitrarily many adjectives and genitives. Hyman (2010) illustrates these two possible word orders with the examples in (16).

(16) (Hyman 2010: 9)

- a. *bvá †tí †wé tí-dú†ú t-ín tì-bìghà*  
dog of child 13-big 13-DEM 13-two  
‘These two big dogs of the child’
- b. *bvá tí-dú†ú †tí †wé t-ín tì-bìghà*  
dog 13-big of child 13-DEM 13-two  
‘These two big dogs of the child’

In (16-a), the noun *bvá* ‘dog’ is followed by the genitive *†tí †wé* ‘of the child’. It is in turn followed by the adjective *tí-dú†ú* ‘big’, the demonstrative pronoun *t-ín*, and the numeral *tì-bìghà* ‘two’. In (16-b), the order of the genitive and the adjective is flipped, yet the meaning of the two DPs remains the same.

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 ‘N of X’ behave the same way in the sense that they can follow or precede adjectives.<sup>13</sup> Since I only investigated the behaviour of possessive pronouns, it appears that they have to follow the noun in IS-neutral contexts (17-a). Adjectives follow possessive pronouns and can be as many as possible (17-b). Demonstrative pronouns come next (17-c), and are followed by numerals (17-d). Quantifiers tend to be last (17-e).

- (17) a. *bàŋsɔ́ k-ájâ*  
car 7-POSS  
‘My car’
- b. *bàŋsɔ́ k-ájâ kè-ně kə-lɔ́ŋɔ́ \*(kó)*  
car 7-POSS 7-big 7-black 7-ENC  
‘My big black car’
- c. *bàŋsɔ́ k-ájâ kè-ně (\*kó) kə-tʃí*  
car 7-POSS 7-big 7-ENC 7-DEM  
Lit. ‘That my big car’  
‘That big car of mine’

<sup>12</sup>One thing to note about the orders that Hyman (2010) identifies is that possessives in his account can both be genitive constructions of the type ‘N of X’ and possessive pronouns. I will not consider genitives in this section because I think they might instantiate complex DP structures.

<sup>13</sup>He writes “... a genitive noun (or possessive pronoun) and adjective can occur in either order, followed by the fixed order determiner + numeral”, but only provides examples for genitives.

- d. bəŋsɔ́ k-ájâ kè-ně (\*kɔ́) ká-tʃí ká-mò?  
 car 7-POSS 7-big 7-ENC 7-DEM 7-one  
 Lit. ‘That my one big car’  
 ‘That one big car of mine’
- e. bəŋsɔ́ k-ájâ kè-ně (\*kɔ́) ká-tʃí ká-mò? ká-dzəm  
 car 7-POSS 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 (17-b) cannot co-occur with a demonstrative pronoun (17-c)-(17-e). 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 pronoun. When two adjectives modify the same noun, only one instance of this enclitic is preferred, and appears on the last adjective (17-b). Based on this, the word order attested in the Aghem DP is the following:<sup>14</sup>

$$(18) \quad N > POSS > ADJ > ENC/DEM > NUM > Q.$$

Adjectives can be as many as need be, but only one instance of all the other modifiers is allowed per DP. What is striking about (18) is that numerals and quantifiers appear last. It surely is not a coincidence that they are the only modifiers that do not allow for the nominal prefix to drop. I will propose in Section 4.3 that locality is indeed the driving force behind nominal prefix drop in Aghem. Crucially, this locality domain is uniform in syntax and morphology. In the syntax, all agreeing modifiers agree with the head noun. In the morphology, an impoverishment rule deletes inherent noun class features.<sup>15</sup> I propose that

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<sup>14</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. (i), 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 (i) to restrict the understanding of the affected car to his or hers.

- (i) kə k-ájâ k-ɔ́ \*(kə)-bəŋsɔ́  
 7 7-POSS 7-ENC 7-car  
 ‘MY (own) car’

For (i) 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. DP-internal movement might also be at work in deriving cases such (i). Since information structure may lead to these kinds of scenarios, I stick to the word order that is information-structure-neutral.

<sup>15</sup>A purely syntactic account that may treat the absence of class prefixes as representative of Agree failures

when two strictly local terminal nodes share the same features, inherent features are deleted (see Kouneli 2019, 2021 for a similar reasoning, albeit with different conditioning factors and locality domains). Only non-inherent features survive and are spelled out. Nominal prefixes in Bantu, it has been assumed, spell out inherent class features (Carstens, 1991; Fuchs & van der Wal, 2022). Exponents on agreeing modifiers are the result of Agree. For this reason, the features on the head noun are deleted, and it appears without a class prefix. Nouns keep their class prefix with numerals and quantifiers because the terminal nodes that spell them out are sufficiently distant from each other. Distance here is defined in terms of phases, such that, in a given phase P, inherent features will be deleted in the presence of non-inherent features of the same type. If a phase boundary stands in-between inherent and non-inherent features of the same type, both cannot communicate, hence no impoverishment. But before we lay out the proposal, 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.

### 3.2 Basic DP Structure in Aghem

In the section that precedes, I presented data to demonstrate that nominal modifiers in Aghem are ordered as in (19), in IS-neutral contexts.

(19) N > POSS > ADJ > ENC/DEM > NUM > Q.

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 appears with adjectives (and sometimes possessive pronouns (footnote 14). Of relevance is the fact that it cannot co-occur with demonstrative pronouns. Besides, in Babanki (another Ring language), for example, it can be in complementary distribution with the subject marker (see Akumbu & Kießling 2022 for related details).

Since the enclitic and the demonstrative pronoun cannot co-occur, I will assume that they both head DPs. The fact that they cannot co-occur follows from the requirement that a single projection cannot be double-headed. In other words, one DP cannot be the projection of two heads. I further assume 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 and adjectives are rightward specifiers of *n*P (see Abels & Neeleman 2012 for details of the idea that base-generated specifiers can be rightward). All the agreeing modifiers project, and their heads have  $\phi$ -probes (Chomsky, 2001). These  $\phi$ -probes are the triggers of agreement with  $\phi$ -features (number, gender etc.; see Adger & Harbour (2008) for discussion of  $\phi$ -features).

As far as numerals and quantifiers are concerned, I will assume that they are rightward specifiers of a functional projection that takes a full DP as its complement. This functional projection could well be a focus projection.<sup>16</sup> What this means is that numerals and

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is out of reach because the features that get deleted are inherent to nouns, hence interpretable from the start.

<sup>16</sup>The idea that numerals can be specifiers of a focus projection comes from Akumbu & Kießling (2022). They claim that numerals are inherently focused in Babanki, another Ring language. Babanki and Aghem share the fact that numerals tend to be last within DPs, and both languages instantiate the enclitic. By analogy, I will assume that if numerals are inherently focused in Babanki, they might also be so in related

quantifiers are DP-external. There are indeed empirical data that could point towards this direction. These all relate to the behaviour of the enclitic. The first piece of evidence might be phonological in the sense that after this enclitic, speakers tend to observe a short break. In pronouncing (20), for example, my consultants would observe a short break immediately after the enclitic *k-ó*. This break can be interpreted as a prosodic boundary that tracks the end of a DP. What follows the enclitic in (20) would then be taken as another DP that is not modified.

- (20) *kà k-áŋâ k-ó \*(kà)-bèŋsó*  
 7 7-POSS 7-ENC 7-car  
 ‘MY (own) car’

If this is true, then the noun *kà-bèŋsó* ‘car’ in (20) is external to the first DP which ends with the enclitic. Evidence that this might be the case comes from the fact that *kà-bèŋsó* in (20) must appear with its class prefix. This is expected if it belongs to a different DP in which it is not modified.

The second argument comes from looking at the related Ring language Babanki. Babanki also has an enclitic akin to what is found in Aghem, after adjectives (21).

- (21) (Akumbu & Kießling 2022: 13)
- a. *à-lyèŋ à-fí ɣ-ó*  
 3-bamboo 3-new 3-ENC  
 ‘New bamboo’
- b. *tà-lyèŋ tà-fí t-ó*  
 13-bamboo 13-new 13-ENC  
 ‘New bamboos’

What is interesting for our purposes is that this enclitic cannot co-occur with a subject marker in Babanki. When it is absent, subject markers must be used (22-a). In the presence of this enclitic, subject markers must be left out (22-b).

- (22) (Akumbu & Kießling 2022: 14)
- a. *və-tʃí (\*v-ó) \*(ó) yì vî nɛntʃwì*  
 2-in.law (\*2-ENC) 2.SM PST come afternoon  
 ‘In-laws came in the afternoon.’
- b. *və-tʃí və-fí \*(v-ó) \*(ó) yì vî nɛntʃwì*  
 2-in.law 2-new 2-ENC (\*2.SM) PST come afternoon  
 ‘New in-laws came in the afternoon.’

In (22-a) the enclitic is not required, and the subject marker must be used. In (22-b), the noun *və-tʃí* ‘in-law’ is modified by an adjective (and adjectives, just like in Aghem, require this enclitic). In the presence of this enclitic, the subject marker must be left out. This suggests that the enclitic is in complementary distribution with subject markers. Unless subject markers are DP-internal in Ring, this shows that the enclitic might terminate DPs in

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Aghem.

Babanki.<sup>17</sup> If Babanki and Aghem are similar in this respect, then this enclitic would block subject markers in Aghem as well, given that Aghem is known to also have subject markers. Although this is not fully systematic, there are contexts in Aghem where this prediction seems to be borne out. This is illustrated in (23-b).

- (23) a. bəŋsɔ́ k-áŋâ \*(k-ɔ́) dzɔ́ɔ́ nù  
           car   7-POSS 7-SM   nice FOC  
           ‘my car is nice’  
       b. bəŋsɔ́ k-áŋâ kə-ně (#k-ɔ́) \*(k-ɔ́) dzɔ́ɔ́ nù  
           car   7-POSS 7-big (#7-ENC) 7-SM   nice FOC  
           ‘my car is nice’

In (23-a), the enclitic is not required with the possessive pronoun *k-áŋâ*, and the subject marker must be used. In (23-b), an adjective follows the possessive pronoun. This adjective requires the enclitic. Using both the enclitic and the subject marker appears to be marginal to my consultants, and would only make sense in very slow speech.<sup>18</sup> Unlike in Babanki, where the enclitic is preferred, the subject marker tends to be preferred in Aghem. Based on these observations, I conclude that the enclitic cliticizes to full DPs and ends them. If numerals and quantifiers follow this enclitic, then they are DP-external. Since they modify full DPs, I will assume that they are rightwards specifiers of a functional projection that takes a full DP as its complement.

With these facts in mind, I propose the structure in (25) for the basic DP in (24).<sup>19</sup>

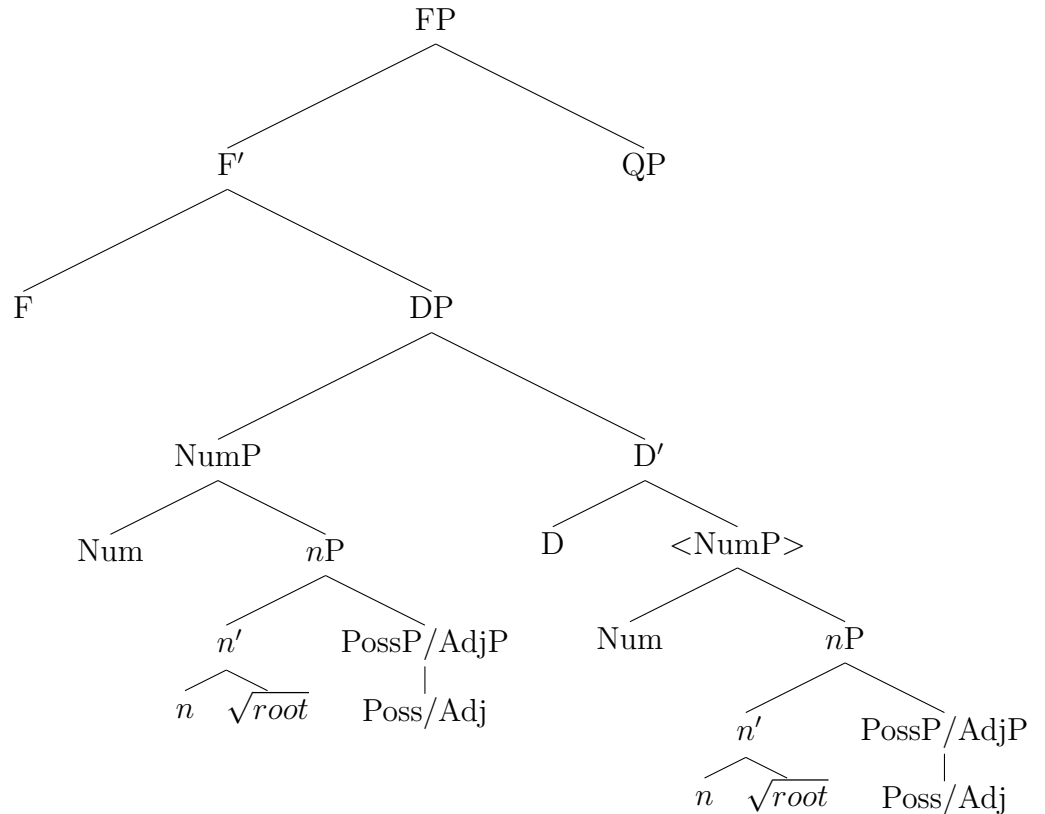
- (24) bəŋsɔ́ k-áŋâ kə-ně (\*kɔ́) ká-tʃí ká-mò?  
       car   7-POSS 7-big 7-EN 7-DEM 7-one  
       Lit. ‘That my one big car’  
       ‘That one big car of mine’

<sup>17</sup>McGarrity & Botne (2001) provide empirical evidence that subject markers are clitics to full DPs and not to verbs in Lamnso’, another Ring language. If this is true, then this enclitic might also be a clitic to full DPs in related Babanki. This would explain why both are in complementary distribution.

<sup>18</sup>In fact, two of the four speakers I consulted told me the enclitic is there, but is not pronounced.

<sup>19</sup>Quantifiers and numerals give information about quantity. For this reason, I propose that they head QPs and have  $\phi$ -probes. In contexts where both numerals and quantifiers are used, I will assume multiple specifiers.

(25) Basic DP Structure in Aghem<sup>20</sup>



NumP and everything it dominates moves to SpecDP to derive the order N > Poss > Adj > DEM/ENC > NUM.<sup>21</sup> Having accounted for the basic order of DPs in Aghem, one can now turn to the asymmetry proper.<sup>22</sup> I do this in the next section.

<sup>20</sup>There are at least four different ways to ensure that possessive pronouns and adjectives follow the head noun, as exemplified in (24). The first is to assume, as I do in (25), that they are rightward base-generated specifiers of *nP*. The second would be to say that both are adjoined to the right of *nP*. This would make sense, if Hyman's (2010) observation that the order of these two modifiers can freely alternate, is proven to be correct. The third would be to propose that PossP and AdjP project in-between NumP and *nP*. The correct word order is then derived by roll-up head movement. The fourth would simply assume that nominal roots take PossP and AdjP as direct complements. This latter approach will pose problems for compositional semantics (Heim & Kratzer, 1998). This is so because adjectives will be semantically interpreted as if they are modified by nouns (and not the other way around), such that the reading [car [my big ]] (and not 'my big car'), for example, would be possible. Since this does not have a clear impact on agreement (c.f. Section 4.2), I do not discuss this any further, and simply adopt the view that possessive pronouns and adjectives are rightward specifiers of *nP*.

<sup>21</sup>The tree structure in (25) can also 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.

<sup>22</sup>The angled brackets in (25) indicate that NumP, and everything it dominates, is a copy of movement and, thus, not pronounced.

## 4 Deriving the Asymmetry

This section provides an account of the asymmetry between modified and non-modified nouns 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 modifier that is used, and how close this is 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 adopt 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 (26).

(26) *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).

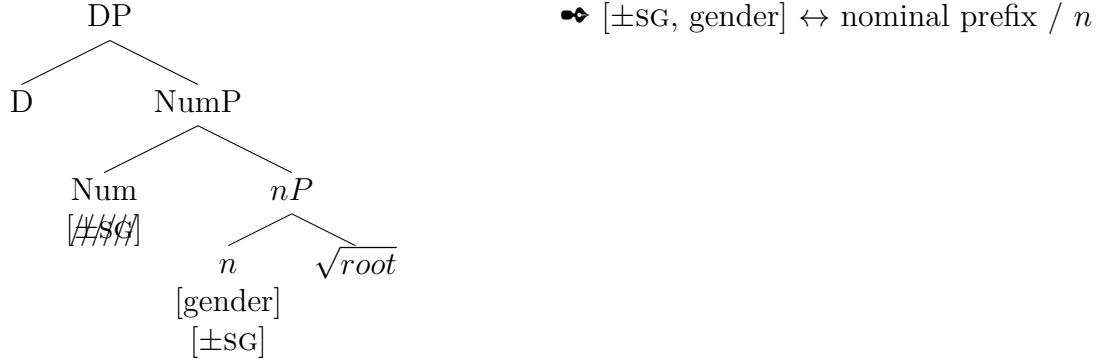
I further assume that nouns are formed by merging a category-neutral root with the categorizing head  $n$  (Marantz 1997; Arad 2003; Harley 2014, among others). This head hosts gender features in Aghem. In other words, when  $n$  nominalizes the root in this language, it gives it gender information (see also Kramer 2015, 2016; Fuchs & van der Wal 2022, for similar proposals in Bantu and beyond). Num hosts number features (Ritter, 1991; Carstens, 1991; Nkernji, 1995; Preminger, 2020) (but see Wiltschko 2008; Harbour 2011; Kouneli 2021 for arguments about 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 Num lowers to  $n$  in the morphology to ensure that both features are spelled out together (via fusion). The lowering 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). All this is illustrated (27).<sup>23</sup>

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<sup>23</sup> ~~[[F<sub>gender</sub>]]~~ indicates that the feature in the square brackets has been lowered to the head of the complement, assuming that syntactic structures are built bottom-up.



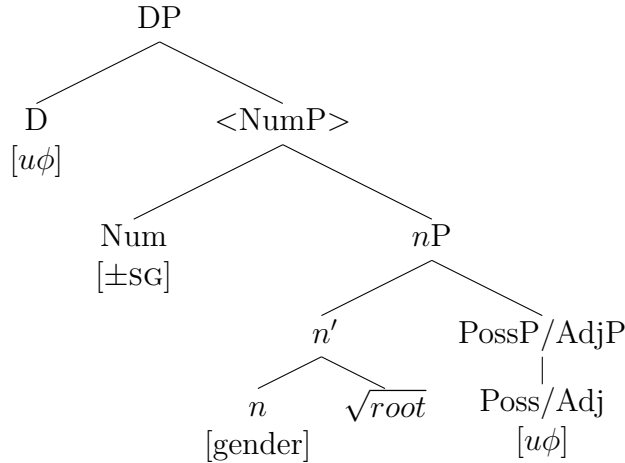
(27) The locus of  $\phi$ -features in Aghem and spell-out of nominal prefixes



## 4.2 The Workings of Agree

All agreeing modifiers project, as shown in the tree in (28).<sup>24</sup> Their heads host  $\phi$ -probes. Agreement can be upward or downward (see, amongst others, Bejar 2003; Baker 2008; Béjar & Rezac 2009; Murphy & Puškar 2018; Bárány & van Der Wal 2022).

(28) The workings of Agree



All the probes in (28) 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 ( $[\pm\text{SG}, \text{gender}, \text{Poss}]_{\text{AGR}}$ ) and Adj ( $[\pm\text{SG}, \text{gender}, \text{Adj}]_{\text{AGR}}$ ).<sup>25</sup> QP also probes after DP has been built (after NumP-to-SpecDP movement). DP is a phase (Svenonius 2004; Bošković 2005; Bošković 2012; Kramer 2007; Heck et al. 2008, etc.) and, as such, only its head and edge are accessible to syntactic

<sup>24</sup>Number features are not lowered yet because we are still in the syntax (agreement), and lowering is a post-syntactic operation.

<sup>25</sup>The <sub>AGR</sub> 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.

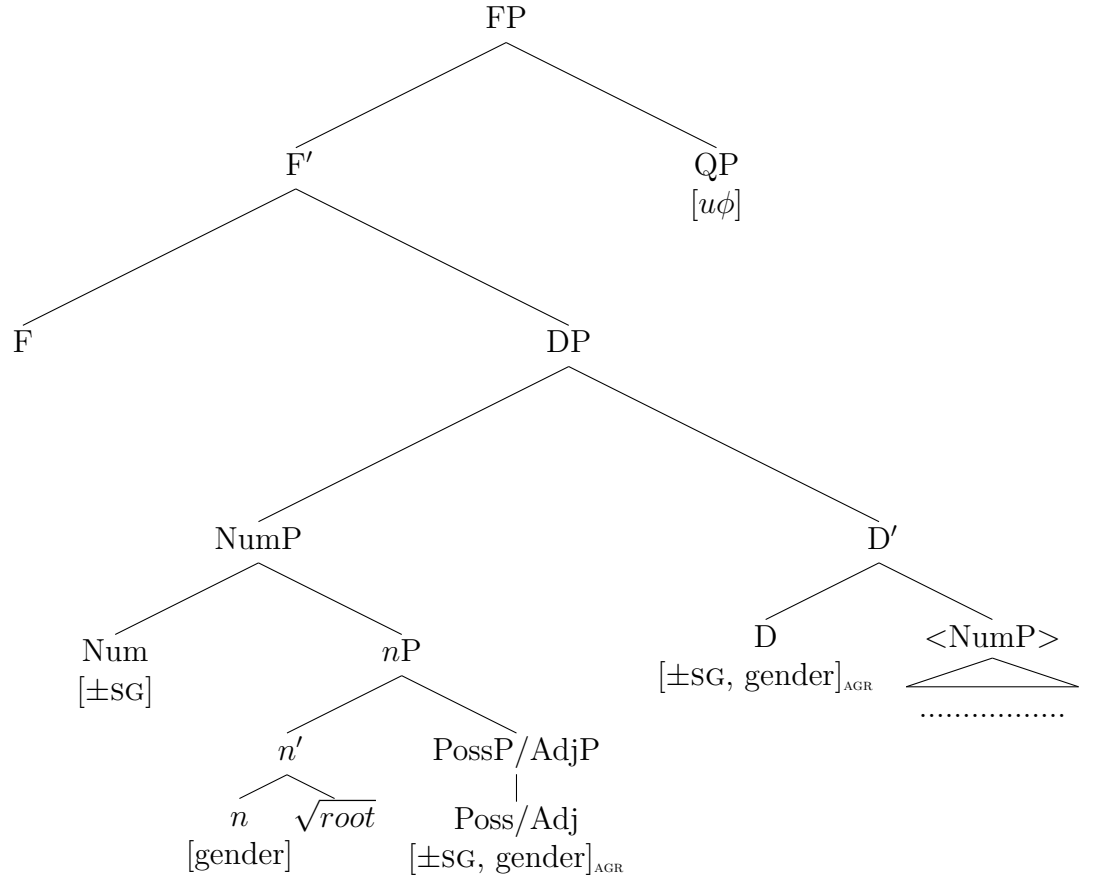
operations above DP, per the Phase Impenetrability Condition (PIC) in (29).<sup>26</sup>

(29) *Phase Impenetrability Condition (PIC)*

In phase  $\alpha$  with head H, the domain of H is not accessible to operations outside  $\alpha$ ; only H and its edge are accessible to such operations (Chomsky 2000:108)

I adopt the view that phase edges are non-recursive (Müller, 2010, 2011). In other words, only the highest projection of a phase edge and its head are accessible to operations outside of a phase domain. What this means for the structure in (31) is that only NumP and its head Num (in addition to the phase head D) will be visible to the QP probe. *n*P and everything it dominates will not. The question then is how QP gets the  $\phi$ -features it needs. I propose that in such contexts, QP gets its gender features from D, following Legate (2005) and Preminger (2009) who claim that a valued/checked probe feature can be turned into a goal feature for another Agree operation (30).

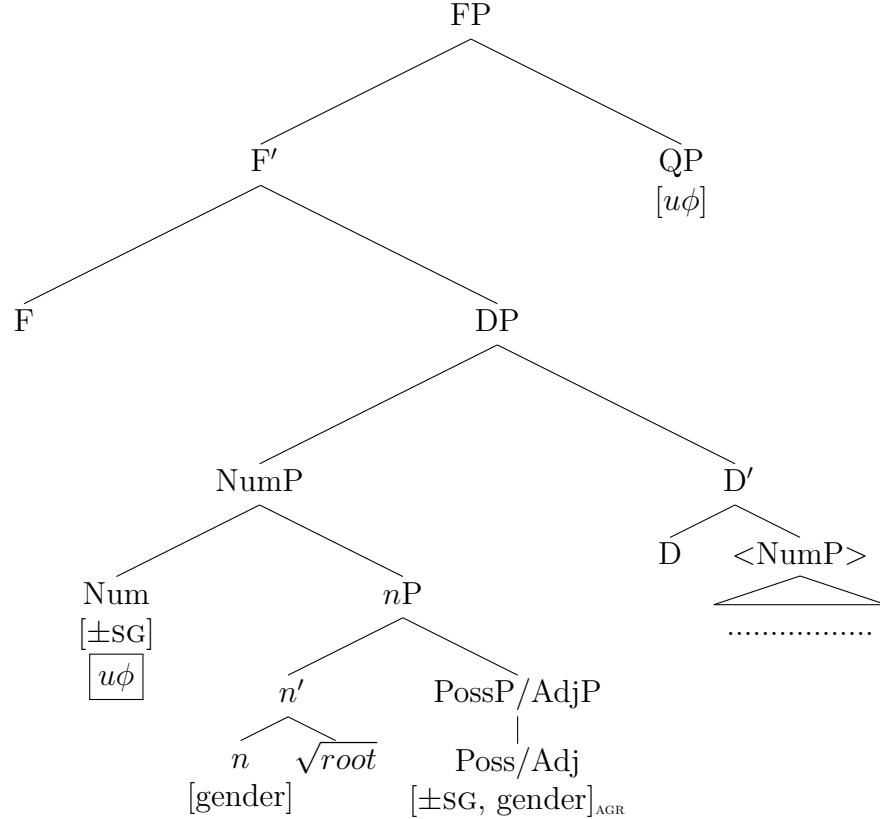
(30) Numeral and quantifier agreement in the presence of a D item



<sup>26</sup>How exactly the probe in QP can access the structure to its left might look problematic because the Q head bearing the probe, technically does not c-command any of the goals in (31). One way out could be to assume, like Carstens (2001, 2011, 2016, cited in Norris 2017), that heads and their projections share features. If a head with a probe scans its c-command domain for goals and sees nothing to agree with, it can pass on this probe to its projection (Béjar & Rezac, 2009; Clem, 2022).

When D is absent (31), hence does not participate in agreement, I propose that a  $\phi$ -probe is inserted on Num as a last resort (Collins, 2001; Béjar & Rezac, 2009; Preminger, 2014; Hein, 2017, 2018). This probe copies gender features from  $n$  to Num, and ensures that QP gets all the relevant features it needs. This is schematized in (31). The last resort  $\phi$ -probe on Num is in the box.

(31) Numeral and quantifier agreement in the absence of a D item



QP is transferred to the morphology with the specification  $([\pm\text{SG}, \text{gender}, \text{numeral}]_{\text{AGR}})$  for numerals and  $([\pm\text{SG}, \text{gender}, \text{quantifier}]_{\text{AGR}})$  for quantifiers.

### 4.3 Locality, Impoverishment and Spell-out in the Morphology

This section provides an account of the asymmetry. At the heart of the proposal is the hypothesis that when two identical feature sets appear within a phase domain, inherent features get deleted.<sup>27</sup> Non-inherent features survive and, as a consequence, are spelled out (32).<sup>28</sup>

<sup>27</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 To appear, 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))

<sup>28</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

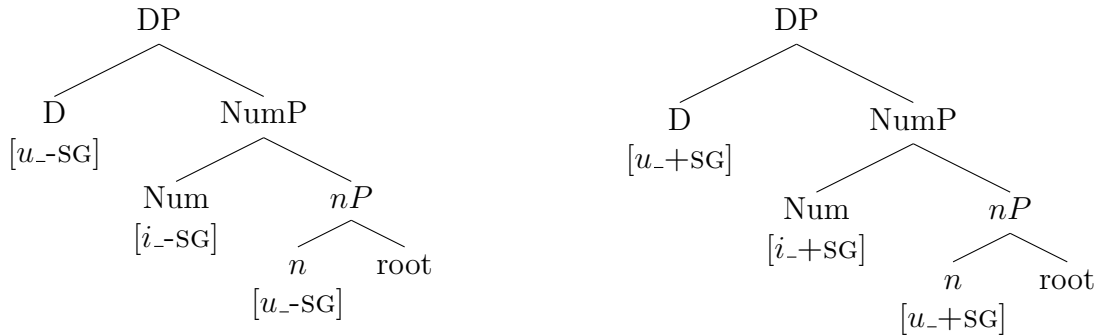
(32) *Impoverishment*

Delete feature  $F$  from a terminal node  $T$  iff (a) and (b) hold:

- a.  $F$  is an inherent feature.
- b.  $F$  is in the same phase with  $F'$ .

That features 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 identical number features are structurally adjacent, the highest terminal node hosting this feature is deleted via obliteration. This requirement is presented in (34); the relevant context for it to apply is the tree in (33).

## (33) Context for obliteration in Kouneli (2021)

(34) *Obliteration* (Kouneli 2021: 1228)

Delete an  $[\alpha\text{SG}]$  Num node when it dominates an  $[\alpha\text{SG}]$  node

What forces deletion in Kouneli's system is (a), adjacency (locality) of identical features, and (b) the fact that they have the same value ( $\pm$ ). The system I propose to account for the Aghem data differs from Kouneli's in two ways. The first is the locality domain. In her system, structural adjacency conditions deletion. The one I propose provides additional evidence for phases as locality domains in the morphology (Embick, 2010; Marantz, 2013). Second, while feature values matter in her system, what matters in mine is feature identity and whether they are inherent or non-inherent.<sup>29</sup> In other words, if only non-inherent features are present in a phase domain, none of them would be deleted. A series of inherent features will also not be deleted. Besides, if in a phase domain, the inherent and non-inherent features are not of the same type, none of them would be deleted. In a nutshell, what matters for deletion is, in addition to the inherent/non-inherent distinction, that features be identical and appear within a single phase domain.<sup>30</sup>

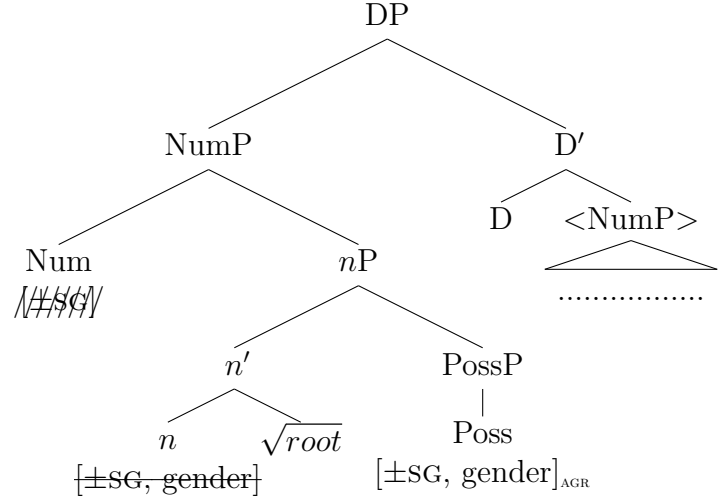
the class prefix is dropped on the head noun itself, and not on the agreeing modifiers.

<sup>29</sup>One can also model this in terms of interpretable vs uninterpretable features, such that the latter would result from an Agree operation.

<sup>30</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.

The crucially different scenarios that (32) can create are given in (35)-(37). Each example has its structural representation to its right. In (35), two identical features are present in the same phase. The inherent features are then deleted, per (32).<sup>31</sup> The roots in (35) is then spelled out without class prefixes, after deletion has applied.<sup>32</sup>

- (35)    bəŋsɔ́ k-áŋâ  
          car    7-POSS  
          ‘My car’

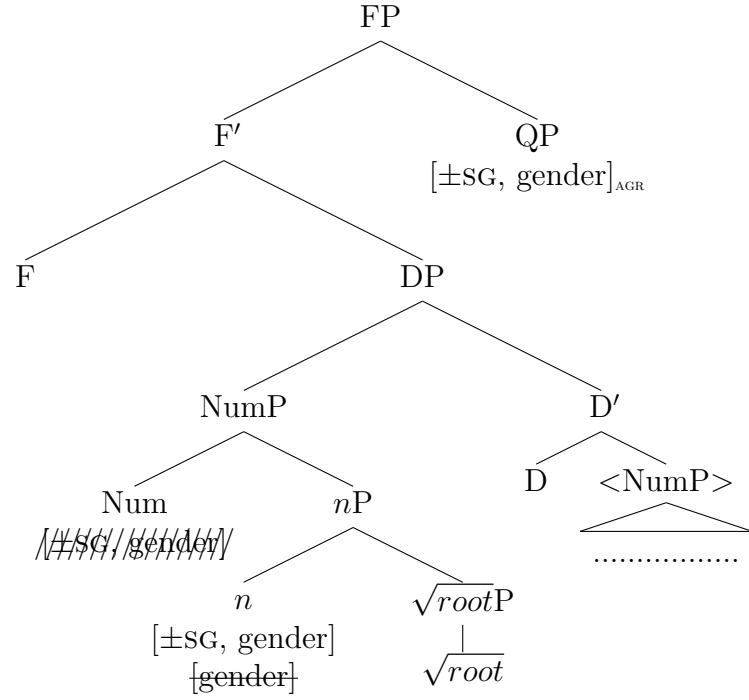


In (36), D is empty, hence did not participate in agreement in the syntax. The last resort  $\phi$ -probe was then inserted (31). This probe copied gender features from  $n$  to Num, to ensure that QP has access to the relevant features it needs ([ $\pm$ SG, gender]). Lowering in the morphology takes place to ensure that nominal prefixes be spelled-out on  $n$  as a bundle of features that has number information. One instance of [gender] is deleted in (36) because it is inherent, and the last resort agreement step created a non-inherent version of it. Although there are inherent number features on  $n$  and non-inherent number features on QP, they cannot communicate because of the phase boundary. In technical terms, the lowering operation removes the context for the impoverishment rule to apply (bleeding interaction). For this reason, no features are deleted, hence the class prefix on both the head noun and the numeral.

<sup>31</sup>Lowering is represented by ~~[Feature]~~, and deletion by [Feature].

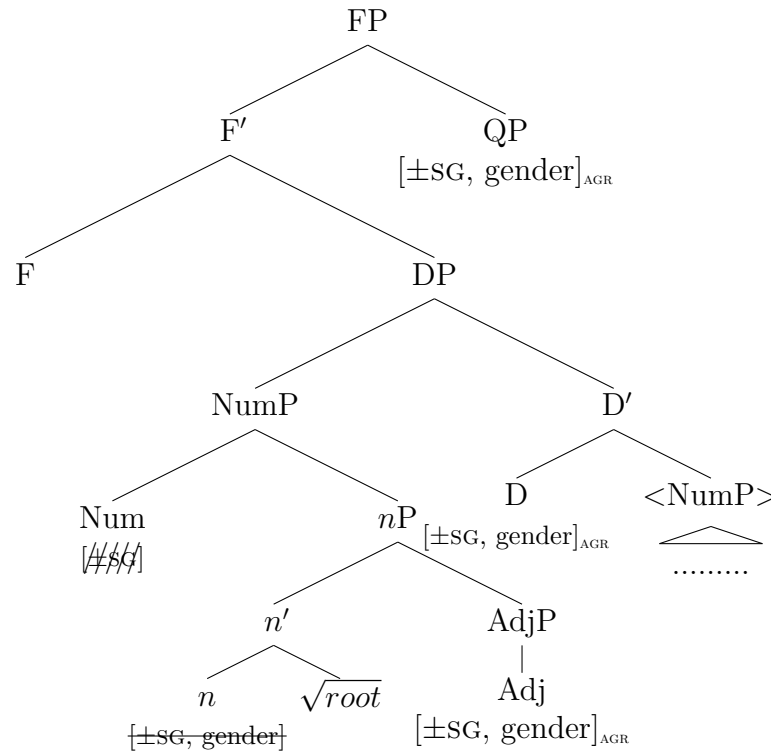
<sup>32</sup>I take feature deletion here to be regular Impoverishment, and not obliteration (or Impoverishment of the node). Assuming obliteration, as in Kouneli (2019, 2021) would mean that  $n$  is deleted altogether. This cannot be the case because  $n$  is necessary for semantic interpretation at LF.

- (36) kà-bàṅsɔ́ ká-mòʔ  
 7-car 7-one  
 ‘One car’



The intervening agreeing adjective and the enclitic in (37) force nominal prefix deletion, following (32). QP gets its features from D. This does not really matter for feature deletion because agreement with other modifiers that are phase-internal would already force deletion of the inherent features on *n*.

- (37) bàṅsɔ́ kà-ně k-ɔ́ ká-mòʔ  
 car 7-big 7-EN 7-big  
 ‘One big car’



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

The question that remains to be answered, following Section 4.3 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 (Footnote 1). What this means is that the same information is encoded on two local heads twice. Pronouncing class exponents on the head noun and on the agreeing element can therefore be said to violate *economy* of pronunciation. 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 Making Sense of the Isu Data

We are now in a position to look a little closer at nominal prefix drop in Isu, albeit with limited data. This section does not provide a thorough analysis of the phenomenon in Isu. It simply makes assumptions that one may make, based on the analysis I adopt for the same phenomenon in Aghem, if one were to analyse Isu.

As a reminder, Isu also instantiates nominal prefix drop in the same environments where Aghem would (38). The nominal root *fú* ‘rat’ in (38) appears without its class prefix because it is followed by an agreeing determiner of type B. The head noun in the object DP *tá-bvú* ‘dogs’, however, is not modified, hence it appears with its class prefix.

(38) (Kießling 2010: 152)

- a. (\*kə)-fú k-íy kòʔ \*(tá)-bvú  
     7-rat     7-ENC see.PST 13-dog  
     ‘The rat saw (the) DOGS’
- b. (\*tá)-bvú t-íy kòʔ \*(kə)-fú  
     13-dog    13-ENC see.PST 7-rat  
     ‘The dogs saw a/the RATS’

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 quantifiers, in Isu, this prefix only disappears if it is a CV sequence. In other words, CV-prefixes are dropped with type B modifiers, amongst which determiners (39-b). Non-CV sequences (the vowel in (39-a), for example) are not dropped in the context where CV-sequence would drop (39-a).

(39) (Kießling 2010:154)

- a.    ηgà mó            †tám \*(ì)-yá†ηó y-íy  
       1PL PST.FOC dig    5-root        5-DET  
       ‘We HAVE are dug up the root’
- b.    ηgà mó            †tám (\*tò)-yá†ηó t-íy  
       1PL PST.FOC dig    13-root        13-DET  
       ‘We HAVE are dug up the roots’

The system I propose for Aghem should, in principle, be able to derive the Isu data in a straightforward way. The reasons for this are: (a) both languages are closely related and almost mutually (if not mutually) intelligible, and (b) Isu also has exponent drop in the same contexts where Aghem would.

The most plausible way to extend the proposal to Isu, with the DM architecture in mind, might be to assume that Isu differs from Aghem in that the deletion operation takes place after spell out or in the phonology. CV prefixes are then deleted on nouns in the appropriate context (within the phase, as in Aghem). Otherwise, they are not deleted (with numerals only). Non-CV prefixes never get deleted. Overall, the same requirement that accounts for the Aghem data will be at work in Isu. The difference will simply be that it applies after spell out, as it interacts with the constraint on the shape of the class prefix.<sup>33</sup> If this is true, then the unified concept of phases that I argue for in this paper can also be extended to the phonology.

## 6 Conclusion

In this paper, I provided an analysis of nominal prefix drop in the Grassfields Bantu language Aghem. I proposed an account of this phenomenon that relies on the idea that inherent features are deleted within a phase that contains both inherent and non-inherent features of the same nature. I first showed that an approach that treats the absence/presence of noun prefixes as somewhat related to the status of the full DP as being in focus (hence in the syntactic position where focus is marked in Aghem) (Hyman, 2010; Kießling, 2010) is untenable on empirical grounds. I demonstrated that nominal prefixes never drop in DPs that feature nouns modified by only numerals, no matter their syntactic position (subject, dedicated focus position, for example). This alone, I claimed, suggests that the puzzle is not related to the position the DP occupies in the syntax, but rather is conditioned by factors internal to the DP. Interestingly, I argued, the modifiers that disallow nominal prefix drop can be shown to be DP-external. I relied on this to propose that the asymmetry is tied to the simultaneous presence of inherent and non-inherent features within the same phase domain. This boils down to the following:

- Non-modified nouns will keep their class prefix because no deletion took place. The

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<sup>33</sup>One also has to say something about those class 19 nouns which prefixes never drop. As I illustrated in Footnote 5, about 5 class 19 nouns never lose their class prefixes. I will tend to think that, since this is specific to only a very few number of class 19 nouns, their behaviour might be thought of as idiosyncratic. The class prefix and the root have probably evolved to form a single, inseparable root. As this only happens with a very limited number of class 19 nouns, I will not develop this any further.



DP phase only contains inherent features in such contexts.

- A noun that is DP-internally modified will give rise to a scenario where identical inherent and non-inherent features appear within the same phase. As a result, inherent features are deleted, and the head noun surfaces without a class prefix.
- Nouns that are modified by numerals or quantifiers only will keep their class prefix because, despite the fact that the features are similar and are inherent (on the head noun), but non-inherent (on the numeral/quantifier), they are not within the same phase and cannot communicate. For this reason, no deletion takes place, and nouns surface with class prefixes.

Inherent, but not inherent feature, are deleted because, for example, the nominal root can reconstruct its meaning and class membership.

The paper therefore makes empirical, as well as, theoretical contributions to the area of DP-internal concord. On the empirical side, it fully describes a pattern that is relatively rare in Grassfields Bantu and beyond; providing evidence that factors that determine the form in which the head noun appears are strictly DP-internal.

On the theoretical side, it makes the contribution that morphological operations can be sensitive to some notion of phases that, crucially, are the same in both syntax and morphology. The paper also provides additional arguments for non-recursive phase edges (Müller, 2010, 2011).

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