Gender "Polarity": Theoretical Aspects of Somali Nominal Morphology

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1. Introduction

The concept of polarity (Meinhof 1912) stands for a widely recognized principle said to be operative in the Afroasiatic languages, the core case being the polarity patterns of gender reversals in Cushitic. As is quite well-known, only internal plurals seem to keep the same gender as the base singular form in Somali: *díin* (m) 'tortoise' / *diin-á-n* (m) 'tortoises' (see section 3.2.2). Other plurals, whether prosodic plurals (*árday* 'student' (m) / *ardáy* 'students' (f)) or plurals derived by suffixation (*ínan* (m) 'boy' / *inam-(m)ó* (f) 'boys,' *gabádh* (f) 'girl' / *gabdh-ó* (m) 'girls,' *hooyó* (f) 'mother' / *hooyó-oyin* (m) 'mothers,' etc.), seem systematically "polaric." However, both empirical (including historical) and theoretical considerations suggest that the concept of polarity, as a principle of grammar, is hardly plausible, and that a more articulate account is required.

In this paper, I explore the possibility of deriving the observed polarity effects from a more abstract property of nominal number in Somali, namely the fact that plural affixes are nominal categories which behave like other nominal affixes with a fixed inherent gender. The account will rest on a derivational view of plural formation, leading to an unified treatment of these forms which explains many of their syntactic and morphological peculiarities, such as the

existence of double plural forms (also attested in Celtic), as well as inflected forms in composition and derivation, in which unmistakably derivational processes apply "outside of" an inflected plural noun.

From a theoretical point of view, the proposal has consequences for the proper treatment of inflectional vs. derivational processes. In particular, I will claim that the properties of Somali plurals are quite consistent with a purely syntactic approach to word formation (Halle and Marantz 1993 and related work) and can even be explained from this point of view. I expect this approach to be relevant to the analysis of the Semitic languages as well. Typically, inflectional processes operating in the morphological component – such as 'template conditions' for morphological structures, ablaut/umlaut alternations, or processes that explicitly insert infixes in the verbal system in Semitic – are common in Afroasiatic: on classical lexicalist treatments (e.g., Anderson 1992), the word reaches the phonological component uninflected, the phonetic form resulting from interaction with functional elements within the morpho-phonological component. Thus, this study may add crucial insight into the nature of these processes and the study of their formal properties.

The paper is structured as follows. Section 2 introduces the concept of polarity and its relevance to Afroasiatic nominal morphology. Section 3 addresses the problem of Somali plural formation by discussing Andrzejewski's (1964) model of declensions and providing a revised classification. Sections 4 and 5 bring the Distributed Morphology approach into the picture and offer a unified analysis of Somali plurals, checking its prediction with respect to the range of morphological and phonological processes that may affect plural forms. In section 6, the consequences of this analysis for subject–verb agreement (partial agreement: gender and person only) are briefly explored, in relation to parallel facts in the Semitic and Celtic languages.

2. The concept of polarity

Introduced in Meinhof's (1912) comparative study, the concept of polarity is still understood not only as a descriptive label for certain contrasted phenomena in the grammar of Afroasiatic languages, but as the principle behind them.[1] In Meinhof's definition, given a system of two terms (grammatical features) and two exponents, values and exponents can be inverted so that

> If under certain conditions A becomes B, B will become A
> under the same conditions. I call this process polarity for the
> following reasons. The magnet has a positive pole (A) and a
> negative pole (B). If the positive pole becomes negative under

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1. The literature relating to this subject is too extensive for detailed reference. See Hetzron 1967 for a survey. For conflicting arguments, see Speiser 1938.

the influence of a stronger magnet, i.e., if A becomes B, the
negative pole will turn positive, B becoming A. (Meinhof
1912: 18–20)

A simple example involves the perfective/imperfective vocalic alternations
(ablaut) in the verbal system of Classical Arabic (lab**i**s → yalb**a**s 'dress' vs.
ḍar**a**b → yaḍr**i**b 'hit'), classically treated in terms of /a/ → /i/ vs. /i/ → /a/
polarity, that is, in terms of a reversible (or bi-directional) process.[2]

Afroasiatic nominal morphology is classically assumed to provide the
clearest evidence for a polarity principle involving gender and number. As an
often-cited example discussed in Hetzron 1967, 1972, the cardinal numbers from
3 to 10 in Arabic take the opposite gender of the noun they are in construction
with.[3] Numerals with a feminine ending are used with masculine nouns (1a), and
conversely, the masculine forms are used with feminine nouns (1b). [–Human]
nouns that have a different gender in the plural clearly show, Hetzron argues,
that the numeral agrees incongruently (i.e., in polaric gender opposition) with
the underlying *singular* form (1c,d):

(1)   a.   θala:θat$_u$ bani:$_{na}$
           three(f)   sons
           'three sons'

      b.   θala:θ$_u$ bana:t$_u$
           three(m)   daughters
           'three daughters'

      c.   θala:θat$_u$ kutub$_{in}$ [sg. kitaab$_{un}$ (m)]
           three(f)   books(m)
           'three books'

      d.   θala:θ$_u$ mudun$_{in}$ [sg. madi:nat$_{un}$ (f)]
           three(m)   cities(m)
           'three cities'

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2. For a related discussion, see Guerssel and Lowenstamm 1996, in which a
reanalysis of the phenomenon in terms of apophonic derivation is also provided.

3. Due to limitation of space, the present paper will only touch upon the syntax of
Semitic number phrases. See, however, Halle's (1990) short discussion of Hebrew
numerals 2–19. Adapting his proposal, I will suggest that there is no "agreement" in (1a)
in that the /-at/ ending of the numeral does not reflect the gender of the (either singular or
plural) head noun. Rather, the /-at/ suffix is better understood as representing a particular
form class, which in the default instance is associated with feminine gender (Rolf Noyer
p.c.). Assuming this, the concord rule states that numerals of masculine nouns are
assigned to the /-at/ form class, therefore it is part of the morphology rather than the
syntax.

Gender polarity is a common feature of Cushitic languages.[4] In Somali, nouns seem to systematically take the opposite gender in the plural, as signaled by the /k/ vs. /t/ gender alternation of the agreeing definite article, which itself appears as a suffix of the noun stem.[5]

(2)   a.   libáax (-a) (m) 'lion'   libaaxyó (-á-da) (f) 'lions'
           goól (-sha) (f) 'lioness'   gooló (-á-ha) (m) 'lionesses'
           náag (-ta) (f) 'woman'   naagó (-á-ha) (m) 'women'
                                                             (cf. Hebrew *naashim* [m])
           Soomáali (-ga) (m) 'Somali'   Soomaalí (-da) (f) 'Somalis'
           áabbe (-á-ha) (m) 'father'   aabbayáal (-sha) (f) 'fathers'
                                                             (cf. Hebrew *aabot* [f])
           hooyó (-á-da) (f) 'mother'   hooyoóyin (-ka) (m) 'mothers'

      b.   áqal (-ka) (m) 'hut'   aqalló (-á-da) (f) 'huts'
           qálin (-ka) (m) 'pencil'   qalimmó (-á-da) (f) 'pencils'
           su'áal (-sha) (f) 'question'   su'alló (-á-ha) (m) 'questions'
           sheekó (-á-da) (f) 'tale'   sheekoóyin (-ka) (m) 'tales'

Plural formation in Cushitic provides, according to Hetzron (1967: 187), the clearest evidence for the former "polarity of genders" system of Afroasiatic, by which "the dichotomy of number is associated with gender, i.e., masculine vs. feminine," and "change of number necessarily involves change of gender." The crucial factor involved, Hetzron argues, is that "in a given language, plurality is a less well-defined category than gender is. ... Also, rules of agreement in Arabic, which require that a verb preceding its subject agree with it in gender only and not in number, confirms the hypothesis that originally gender had a priority over number in the proto language."[6] According to Hetzron, explanation (in the sense of historical motivation) can also be drawn from the concept of polarity: "The presupposition for this theory is that the proto-language of the given group had no proper and uniform expression for the plural. And the

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4. Agaw (Hetzron 1967), Bayso (Corbett and Hayward 1987), Iraqw (Mous 1993), Oromo (Andrzejewski 1960), Rendille (Oomen 1981, Pillinger 1989), etc.

5. The initial consonants /k/ and /t/ of the definite article have various phonetic realizations, depending on the phonological nature of the last element of the noun stem. In the examples, /k/ and /t/ may be replaced by /g/, /q/, /Ø/ and /d/, /sh/, respectively. The vowel of the full forms *-ka*/*-ta* [–nom], *-ku*/*-tu* [+nom], *-kii*/*-tii* [+past] of the suffix may trigger regressive assimilation of the root (or stem) vowel.

6. It is worth noting that Hetzron's proposals interact with a comparative historical perspective on subject–verb agreement. He hypothesizes that modern Semitic languages further generalized the gender of singular nouns to plural forms. Arabic restricted the operation to only [+human] nouns, whereas [–human] plural nouns, either feminine or masculine in the singular, trigger FS agreement in both SV and VS contexts.

heterogeneity of plural forms in Semitic and other Afroasiatic languages makes this assumption very likely."

Modern structural linguistics, including work by Fodor (1959), has demonstrated the original character of the Afroasiatic binary gender system, thereby undermining the historical basis of polarity. One can assert with confidence that gender in Cushitic (and Afroasiatic) is, and always was, a two-term (m/f) opposition.[7] Irrespective of the empirical question of whether polarity systems are found in natural language, a polarity principle should also be rejected on conceptual grounds. It is hard to see how it could meet the design conditions on human language, or plausible assumptions about learnability. As a methodological position, it is simply unworkable in that it allows for the use of contrasting gender values as exponents of plurality. What we have here, as a matter of principle, is a fundamental conflation of two quite different notions: gender and number. In contrast, there is a universal distinction between these two notions in the grammar of natural languages, as Greenberg (1967: 112) observed – a distinction that is explicitly embodied in generative grammar since the earliest works.

Yet, it seems that the phenomena observed are of some generality, and their role in diachronic processes argues that treating them as an accident would be trivializing an issue that is worthy of a systematic explanation. This leaves the questions of how we can characterize the observed priority of gender over number, and what exactly are the language-dependent properties that give rise to polarity effects. I hope to show in what follows that the empirical evidence does not justify appealing to polarity. Instead, morphological theory can provide an explicit characterization that simultaneously meets the demands of language learnability and those of linguistic explanation.

3. Plural formation in Somali

3.1. Previous accounts: The "declensions" of Somali nouns

The first analysis of Somali nominal morphology is due to Andrzejewski (1964), who proposed a system of eight declensions. Andrzejewski's notion of declension is partly defined on the basis of the gender and phonological shape of the basic singular noun, but strictly refers to the accentual patterns of individual nominal forms or nominal clusters (i.e., complex noun phrases) in a set of

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7. Still reflecting Meinhof's (1912) original hypothesis that the Afroasiatic (and Indo-European) binary gender systems have evolved historically from a multiple gender system, such as the Bantu system of multiple classes, the treatment of plural as a third gender (masculine, feminine, and "multiple reference" forms) is a common practice in Cushitic studies (cf. Oomen 1981, Hayward 1981, 1984, Pillinger 1989) as well as in Chadic (Newman 1990).

specific syntactic environments.[8] Each declension may contain both singular and plural, masculine and feminine forms. Furthermore, there is no necessary link between the singular and the plural form of the same noun, which most generally belong to different declensions:[9]

(3)   a.   D1 explicite (m) 'man'   →   D6 nimán (m) 'men'
      b.   D2 libáax (m) 'lion'   →   D6 libaaxyó (f) 'lions'
      c.   D3 fáras (m) 'horse'   →   D6 fardó (m) 'horses'
      d.   D3 díbi (m) 'bull'   →   D4 dibí (f) 'bulls'
      e.   D4 hál (f) 'female camel' →   D6 haló (m) 'female camels'
      f.   D5 magáalo (f) 'town'   →   D3 magaalóoyin (m) 'towns'
      g.   D5 waráabe (m) 'hyena'   →   D6 waraabayáal (f) 'hyenas'

The notion of declension defined here is based on the phonological word or phrase, on the basis of the prosodic behavior of nouns and nominal clusters. As declensions are defined on prosodic structure constructed (or mapped) from morphological or syntactic structure, they may involve constituents larger than the noun, e.g., nominal clusters such as genitive constructions, relative clauses, or complement clauses, according to their phonological shape. Since the affected elements are prosodic categories, not morphological ones, one must ask whether the notion of declension so defined can bring generalizations pertaining to nouns. Further, by entering singular and plural forms of the same noun as belonging to different declensions, as in the prosodic model, there is no way the partial identity of *libaax* 'lion' and *libaaxyo* 'lions' can be accounted for: both singular and plural forms are treated as instances of suppletion, that is, as a set of phonologically distinct stems, each associated with its own (partial) set of morphosyntactic properties. This obscures the fact that except for the plural suffix /-yo/, the two forms are phonologically identical. Finally, since all D6 plurals such as *nim-á-n* (m) 'men' (3a), *libaax-yó* (f) 'lions' (3b), *hal-ó* (m) 'female camels' (3e), etc. are treated as prosodic units, not morphological constituents, all these clearly different plural processes are subsumed under the same rubric of declension.

The same notion of prosodic declension, albeit simplified, is retained by Hyman (1981) in his study of tonal accent in Somali. The basic tenet is that underlying forms are marked neither for accent nor tone. Complex sets of morphological rules assign a single accent per word on the basis of grammatical information, such as gender and declension class. In Somali, the prosodic

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8. As a rough approximation, open and closed configurations in Andrzejewski's terms would correspond to adjunct and Spec,XP positions, respectively.

9. Although writers of pedagogical grammars (e.g., Saeed 1999) have consistently treated singular and plural nouns as belonging to one class, Andrzejewski's original system is widely assumed in the linguistic literature (e.g., Pillinger 1989, Banti 1988).

behavior of nouns is normally predictable from their gender: taking the mora as accentual unit, for nouns of more than one mora, masculine nouns in general have a penultimate accent while feminine nouns have a final accent. Prosodic information is therefore not included in the entries of most nouns, which constitute Hyman's first declension (D1). The second declension (D2) only contains a special set of singular nouns ending in a vowel, both feminine and masculine, which show a particular accentual behavior when used in isolation. The third declension (D3) contains all the masculine nouns that violate the "regular" pattern by having a final accent. Most are plural nouns, since their masculine gender would otherwise lead one to predict that they take a penultimate accent:

(4)   D1:   ínan (m) 'son'
              inán (f) 'daughter'
              inam-**mó** (f) 'sons'
        D2:   waraábe (m) 'hyena'
              abeéso (f) 'snake'
        D3:   haweén (m) 'women'
              inam-**ó** (m) 'daughters'
              nim-**á**-n (m) 'men'

As Hyman observes, the regular pattern exemplified in the first declension is violated in two directions: feminine D2 nouns take a penultimate accent, and masculine D3 nouns take a final accent. Specific rules are therefore needed to assign accents. Beyond this, since the whole approach denies the existence of underlying morphological processes, the strong correlation observed between grammatical gender and phonological shape is severed as soon as nominal forms bear suffixes. The fact that most plural forms are accented on the final vowel, and are masculine as well as feminine, is purely accidental in this approach. In Hyman's system, *inammó* (f) 'sons' receives a final accent only by stipulation, because it is listed as a D1 noun, while *inamó* (m) 'daughters' receives a final accent only because it is listed as a D3 noun. The whole account, moreover, is inherently inconsistent with the economy constraints that enter in the learning process: learners do not learn plural forms of a noun by adding a new item to the lexicon, but instead analyze the new form they encounter into [stem + plural suffix]. Clearly, the declension system is not what is strongly at work in determining the ability of Somali learners to classify the plurals of their language properly. Given such a complex picture, it is natural to look for a possible alternative analysis. This is what I attempt in the following.

3.2. A revised classification

A step toward a solution to this puzzle is to briefly examine the main plural formations in Somali.[10] As an organizing principle, these formations can be grouped as follows: (1) zero suffix (section 3.2.1), (2) suffixes containing a consonant 'copied' from the stem (sections 3.2.2 and 3.2.3), (3) vocalic suffix (section 3.2.4), and (4) complex suffixes (section 3.2.5):

3.2.1. Prosodic plurals

For a limited set of masculine (mostly animate) nouns, there is no plural suffix, but a mere change in the tonal pattern (5). So-called gender-switch plurals are considered the core case of polarity: all these masculine nouns with a penultimate H tone are feminine (final H tone) in the plural. Gender on nouns can be safely postulated on the basis of agreement with the determiners (definite article *-ka* (m) / *-ta* (f)):

(5)   díbi (-ga) (m) 'bull'   dibí (-da) (f) 'bulls'
       éy (-ga) (m) 'dog'   eý (-da) (f) 'dogs'
       árday (-ga) (m) 'student'   ardáy (-da) (f) 'students'
       Soomáali (-ga) (m) 'Somali'   Soomaalí (-da) (f) 'Somalis'
       mádax (-a) (m) 'head'   madáx (-da) 'heads'
       túug (-ga) (m) 'thief'   tuúg (-ta) 'thieves'

Syntactically, [–human] plural nouns of this class may trigger feminine singular (FS) concord with an associated pronoun (6a), a property also shared by [–human] Arabic plurals (see note 6). The whole class is assigned to a semantic (collective) class by most authors. This is incorrect in my view, since true (basic) collective [–countable] nouns, morphologically devoid of plural marking, are masculine as well as feminine (6b,c), and when masculine never trigger agreement with a singular subject pronoun (6b):[11]

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10. Cushitic languages all have a rich and complex system of noun plural morphology (Zaborski 1986). Although Somali morphology is basically concatenative, it presents both internal and external formations. Since their properties would add nothing crucial to the discussion, I have left aside (archaic?) [–human] feminine plurals in /-aan/ (*dhágax* (m) / *dhagx-áan* (f) 'stone(s)') and plurals borrowed from Arabic such as [+human] feminine plurals in /-iin/ (*caáqil* (m) / *caaqil-íin* (f) 'chief(s)'), "broken" plurals with internal /a/ (*maxbúus* (m) / *maxaabiís* (f) 'prisoner(s)'), or apophonic realization (*wáfdi* (m) / *wufuúd* (f) 'delegation(s)').

11. In the Somali glosses, Foc=focus marker (declarative root complementizer); detM/F=definite determiner (masculine or feminine); dem=demonstrative; Q=interrogative. The featural composition of argument clitics (person, number, gender) is represented in capital letters. Verbal agreement features are in lower cases.

(6) a. dibí-dii   wáy   tagtay / wáy   tegeen
       bulls-detF   Foc.3FS   left.fs / Foc.3P left.pl
       'The bulls (it/she or they) left.'

    b. dúmar-kii   wáy   tageen / *wúu   tagay
       women-detM   Foc.3P   left.pl / Foc.3MS left.ms
       'The women (they) left.'

    c. carruúr-tani   xag-gée   bay   ká   timid?
       children-detF+dem[+nom]   where-detM+Q   Foc.3FS   from   come.fs
       'Where do these children come from?'

I will be assuming instead that prosodic plurals are cases of zero-affixation of a null [f] plural suffix, as discussed in greater detail in section 5.

3.2.2. *Internal -á- plurals*

I take the basic plural morpheme in Somali to be an (accented) /a/, realized as an infix, a suffix, or part of a suffix. For nearly all masculine monosyllabic nouns, the last consonant of the stem is duplicated and the accented /a/ is inserted. What is affixed, then, is better viewed as a CV skeleton: the phonemic content of the reduplicated consonant is obtained by copying the last consonant of the stem.[12] These nouns remain masculine in the plural: internal plurals are therefore not polaric:

(7) áf (-ka) (m) 'mouth'   af-**á**-f (-ka) (m)   'mouths'
     nn (-ka) (m) 'man'   nim-**á**-n (-ka) (m)   'men'
     wár (-ka) (m) 'new'   war-**á**-r (-ka) (m)   'news'
     róob (-ka) (m) 'rain'   roob-**á**-b (-ka) (m)   'rains'
     túug (-ga) (m) 'thief'   tuug-**á**-g (-ga) (m)   'thieves'

3.2.3. *Plurals in -Có (f)*

When there is more than one syllable, masculine nouns most regularly take a suffix /-Co/. I take these plurals to be the suffixal version of the preceding ones. The final consonant of the stem duplicates if it can do so, and the final /a/ becomes /o/, as a general rule in Somali. If the consonant cannot duplicate, the suffix is spelled out as /yo/. Polysyllabic masculine nouns in -*Có* exhibit polarity:

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12. See Oomen (1981) for an account of parallel facts in Rendille.

(8)   ínan (-ka) (m) 'son'   inam-**mó** (-á-da) (f) 'sons'
      doofáar (-ka) (m) 'warthog'   doofaar-**ró** (-á-da) (f) 'warthogs'
      qálin (-ka) (m) 'pencil'   qalim-**mó** (-á-da) (f) 'pencils'
      dagáal (-ka) (m) 'war'   dagaal-**ló** (-á-da) (f) 'wars'
      dhágax (-a) (m) 'stone'   dhagax-**yó** (-á-da) (f) 'stones'

3.2.4. Plurals in -ó (m)

As in Rendille (Oomen 1981), /-o/ plural formation is common to both masculine (9) and feminine nouns (10), although in terms of frequency mostly feminine nouns are concerned. For concreteness, I will assume that /-o/ plurals use mere suffixation and are masculine.[13] Only feminine nouns, then, exhibit polarity. Masculine polysyllabic nouns in -*ó*, which remain masculine in the plural, do not:

(9)   hílib (-ka) (m) 'meat'   hilb-**ó** (-á-ha) (m) 'meats'
      ílig (-ga) (m) 'tooth'   ilk-**ó** (-á-ha) (m) 'teeth'
      maálin (-ka) (m) 'day'   maalm-**ó** (-á-ha) (m) 'days'
      wáran (-ka) (m) 'spear'   warm-**ó** (-á-ha) (m) 'spears'
      gúri (-ga) (m) 'house'   gury-**ó** (-á-ha) (m) 'houses'
      qóri (-ga) (m) 'wood'   qory-**ó** (-á-ha) (m) 'woods'
      géed (-ka) (m) 'tree'   geed-**ó** (-á-ha) (m) 'trees'
      waláal (-ka) (m) 'brother'   walaal-**ó** (-á-ha) (m) 'brothers'
      náas (-ka) (m) 'breast'   naas-**ó** (-á-ha) (m) 'breasts'
      sác (-a) (m) 'cow'   sac-**ó** (-á-ha) (m) 'cows'

(10) úl (-sha) (f) 'stick'   ul-**ó** (-á-ha) (m) 'sticks'
      fár (-ta) (f) 'finger'   far-**ó** (-á-ha) (m) 'fingers'
      náag (-ta) (f) 'woman'   naag-**ó** (-á-ha) (m) 'women'
      xiddíg (-ta) (f) 'star'   xiddig-**ó** (-á-ha) (m) 'stars'
      su'áal (-sha) (f) 'question'   su'aal-**ó** (-á-ha) (m) 'questions'
      gacán (-ta) 'hand'   gacm-**ó** (-á-ha) (m) 'hands'
      gabár (-ta) (f) 'girl'   gabdh-**ó** (-á-ha) (m) 'girls'
      dayuurád (-da) (f) 'airplane'   dayuurad-**ó** (-á-ha) (m) 'airplanes'
      xaashí (-da) (f) 'letter'   xaashiy-**ó** (-á-ha) (m) 'letters'
      waláal (-sha) (f) 'sister'   walaal-**ó** (-á-ha) (m) 'sisters'

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13. "Stem contraction" is often involved in /-o/ pluralization of either masculine or feminine stems containing two short vowels. Stem contraction in fact does not exist, as Barillot (1997) suggests, if singular forms actually involve vowel propagation in a CVCC stem.

3.2.5. Plurals in -yáal *(f or m) and* -óyin *(m)*

Plurals in *-yáal* and *-óyin* are plurals of stems ending in a vowel, mostly derived stems. Plurals in /-yaal/ are masculine or feminine, depending on regional variation, and thus either polaric or not. Plural formation in /-oyin/ is regularly polaric:

(11) a. *Masculine nouns ending in a vowel*:
          maroodí(-ga) (m) 'elephant'   maroodi-**yáal** (-sha) (f) éléphants
          waraábe (-áha) (m) 'hyena'   waraaba-**yáal** (-sha) (f) 'hyenas'
          túke (-áha) (m) 'crow'   tuka-**yáal** (-sha) (f) 'crows'
          áabbe (-áha) (m) 'father'   aaba-**yáal** (-sha) (f) 'fathers'
          jáallé (-áha) (m) 'comrade'   jaala-**yáal** (-sha) (f) 'comrades'
          madaxweyné (-áha) (m) 'president'   madaxweyna-**yáal** (-sha) (f)
                                                                    'presidents'

      b. *Feminine nouns ending in a vowel*:
          hóoyo (-áda) (f) 'mother'   hooyo-**óyin** (-ka) 'mothers'
          eeddó (-áda) (f) 'paternal aunt'   eeddo-**óyin** (-ka) (m) 'paternal aunts'
          magaaló (-áda) (f) 'town'   magaalo-**óyin** (-ka) (m) 'towns'
          xeró (-áda) (f) 'enclosure'   xero-**óyin** (-ka) (m) 'enclosures'

This overview of plural formation in Somali clearly shows that a polarity principle, even in its mild, descriptive version, is unsustainable. It is simply not the case that nouns take the opposite gender in the plural. Rather, the relevant generalization is this: whatever the gender of the singular is, the gender of the plural form can be safely predicted from the (type of) plural suffix.

4. Number in nouns: Inflection or derivation?

There is a simple way to restate the problem if we suppose that the gender of the plural form is the gender of the suffix. In languages with gender distinctions, nouns are typically associated with an invariant gender. If a noun is feminine, its plural form is also feminine. What is crucial here is that in the plural we are dealing with gender values which are not *from* the noun. This gender value must therefore be a feature of the plural suffix itself. Assuming that plural suffixes can bear a gender specification, they would behave rather like derivational suffixes in productive (category-changing) derivational morphology.

The idea that plural formation has a mixed inflectional and derivational nature is hardly new in Cushitic studies.[14] Let us then consider briefly the most significant properties.

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14. On this issue, see Hayward 1981 and Mous 1993 among others.

4.1. Multiple plural forms

In Somali, as in other East Cushitic languages, there can be multiple plural forms for the same noun. In particular, most of the nouns that form prosodic plurals also have one or two other plural forms involving infixation or suffixation:

(12) díbi (-ga) (m) 'bull'   dibí (-da) (f) 'bulls'
                                    dibi-**yó** (-á-da) (f) 'bulls'
                                    dibi-**yaál** (-sha) (f) 'bulls'

       dáas (-ka) (m) 'shop'   daas-**á**-s (-ka) (m) 'shops'
                                    daas-**yó** (-á-da) (f) 'shops'

       túug (-ga) (m) 'thief'   tuúg (-ta) (f) 'thieves'
                                    tuug-**á**-g (-ga) (m) 'thieves'
                                    tuug-**ó** (-á-da) (f) 'thieves'

4.2. Selectional and contextual properties

Plural suffixes never attach to categories other than nouns, and they select particular stems (a morphological unit, not a syntactic one). Pluralization processes that extend the stem do not apply to derived stems: internal -a- plurals and plurals in -Có (f) select basic nominal roots (nim-a-n 'men,' aqal-ló 'houses'), not derived nouns. Plurals in -ó, -yáal, and -óoyin can select derived nouns. Inserted suffixes condition insertion of other suffixes. A particular derivational suffix always entails a specific plural suffix: feminine abstract nouns in -ád form plurals with the -ó suffix (13a,b), masculine agentive nouns in -é form plurals with -yáal (13c–e), and feminine agentive nouns in -tó (-só/-shó) form plurals with the suffix -óyin (13f):

(13) a. kulliy-**ád** (-da) (f) 'faculty'
          kulliy-**ad-ó** (-áha) (m) 'faculties'

      b. daayuur-**ád** (-da) (f) 'airplane'
          dayuur-**ad-ó** (-áha) (m) 'airplanes'

      c. danjir-**é** (-áha) (m) 'ambassador'
          danjir-**a-yaál** (-sha) (f) 'ambassadors'

      d. xooghay-**é** (-áha) (m) 'secretary'
          xooghay-**a-yaál** (-sha) (f) 'secretaries'

      e. abaabul-**é** (-áha) (m) 'organizer'
          abaabul-**a-yaál** (-sha) (f) 'organizers'

      f. abaabu-**shó** (-á-da) (f) 'organizer'
          abaabu-**sho-óyin** (-ka) (m) 'organizers'

This suggests that plural suffixes come with categorial and sub-categorial information, just as derivational suffixes do. A particular suffix (say, *-Có* or *-yáal*) has a contextual feature to limit its attachment to certain roots and to certain affixes. In other words, the affixation rule must already "know" whether the root is monosyllabic or bisyllabic, and whether it is masculine or feminine. More than one plural suffix may possess the appropriate contextual information (multiple plural forms).

As a further example, consider the set of productive formations for deriving nouns that can apply to the root /bar/ 'teach': the suffix *-id* derives a feminine causative abstract noun (14a), and the agentive suffix *-é* derives a masculine agentive noun (14b). From this derived stem in *-é*, apparently similar morphological processes generate either a feminine plural form in *-yáal* (14c) or an abstract feminine noun in *-nimó* (14d):

(14) *bár*   'teach' (imperative)
    a. /bár-**íd**/ (f) → baríd (f)   'teaching'
    b. /bár-**é** (m)/ → baré (m)   'teacher'
    c. /bár-á-**yaál**/ (f) → barayaál (f)   'teachers'
    d. /bár-é-**nimó**/ (f) → barenimó (f)   'being a teacher'

In this respect, the status of the plural suffix is very similar to that of English derivational suffixes *-ness, -hood, -ation*: the gender of the noun is the gender of its rightmost suffix.

4.3. *Plurals of plurals*

Given the derivational nature of plural formation in Cushitic, some degree of recursivity is expected. We thus find in Somali double pluralization processes such as the ones illustrated in (15), where an independently productive plural suffix *-yáal* can be added to already plural forms such as *nim-á-n* 'men' or *naag-ó* 'women':

(15)	*Singular*	*Simple plural*	*Plural of plural*
a.	nín (-ka) (m)	nim-**án** (-ka) (m)	nim**an**-**yaál** (-sha) (f)
	'man'	'men'	'(groups of) men'
			nim**an**-**yów** (-ga) (m)
			'(groups of) men'
b.	róob (-ka) (m)	roob-**áb** (-ka) (m)	roob**ab**-**yów** (-ga) (m)
	'rain'	'rains'	'rains'
c.	gabádh (-dha) (f)	gabdh-**ó** (-á-ha) (m)	gabdh-**a-yów** (-ga) (m)
	'girl'	'girls'	'(groups of) girls'

    d. náag (-ta) (f)   naag-**ó** (-ha) (m)   naag-**a-yáal** (-ka) (m)
         'woman'   'women'   '(groups of) women'

    e. ílig (-ga) (m)   ilk-**ó** (-á-ha) (m)   ilk-**a-yáal** (-ka) (m)
         'tooth'   'teeth'   'teeth'

Stump (1989, 1990) discusses similar facts in Breton, a Celtic language.[15] So-called 'double plurals' in Breton are formed by adding plural suffixes *-ed* ([+animate] nouns) or *-où* (generally [–animate] nouns) to already plural forms:

(16) | *Singular* | *Simple plural* | *Double plural* |
|---|---|---|
| louarn 'fox' | lern | lern**ed** |
| avr 'goat' | gevr | gevr**ed** |
| houarn 'iron' | hern | herni**où** |
| troad 'foot' | treid | treid**où** |

Stump argues (against Anderson's (1986) account of the facts) that double plurals derive from simple plurals. Simple plurals themselves derive from corresponding singulars by means of a productive rule. Accordingly, double plurals conflict with the Paninian elsewhere principle (Kiparsky 1973), by which the application of the more specific rule which forms irregular plurals (such as /ox-en/ or /childr-en/) precludes the later application of the more general, less specific rule (thus ruling out forms like /*oxens/ or /*childrens/). This will be discussed in more detail below in section 5.

4.4. Inflected forms in composition/derivation

Another feature shared by Breton, Somali, and Yiddish is the existence of unquestionably derivational processes that take inflected plural forms as a basis.[16] As illustrated in (17b,d,f), the Somali agentive suffix *-é* may appear "outside of" inflected plural forms that are used in composition with verbal roots, yielding a masculine agentive noun. These forms are not accented as a pair of words, but receive only one (either penultimate or final) accent:

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15. See also Hendrick (1995: 343-44) for an insightful discussion of Breton plural suffixes *-ed* and *-où*.

16. According to Stump (1990), both Breton and Yiddish facts provide evidence against Perlmutter's (1988) split-morphology hypothesis. In Breton, a diminutive derivational suffix *-ig* can be attached to inflected plural forms. Following Stump (1989: 266), plural diminutives derive from basic singular nouns by the application of three rules: *-ed* affixation, *-ig* affixation, and *-où* affixation. In Yiddish (Bochner 1984, Perlmutter 1988), a diminutive suffix *ļ* may attach to a plural form: *xóxIm* 'wise man,' *xaxóm-Im* 'wise men,' *xóxIm-ļ* 'wise man (dim.),' *xaxóm-Im-l-Ix* 'wise men (dim.).' In this last form, the plural suffix *-əx* must be understood as the plural of the diminutive (Jean Lowenstamm p.c.).

(17) a. buug-**a**-g-shéeg (-ga) (m) 'bibliography'
          (búug 'book' + shéeg 'say')

      b. buug-**a**-g-hay-é (-á-ha) (m) 'librarian'
          (búug 'book' + háy 'keep')

      c. geed-**o**-aqóon (-ta) (f) 'botany'
          (géed 'tree, plant' + aqóon 'know')

      d. geed-**o**-gooy-é (áha) (m) 'soothsayer'
          (géed 'tree, plant' + góo 'cut')

      e. xubn-**o**-aqóon (-ta) (f) 'anatomy'
          (xubín 'limb' + aqóon 'know')

      f. xagl-**o**-gooy-é (-á-ha) (m) 'diagonal'
          (xagál 'angle'+ góo 'cut')

As discussed in Stump 1989, it is well known that the internal structure of words is opaque to certain syntactic processes such as composition, derivation, or incorporation which preclude inflected forms. Strict compounds (*truck driver*) never show any sort of inflection on their left-hand member. Loose compounds (*tea pot*) do inflect for number on their left-hand member, but their right-hand member is always an independent word, not a bound element. Such processes clearly are part of the system of word-formation in Breton and Somali. The problem here for classical lexicalist theories of word formation is to explain how inflectional morphology can be embedded inside derivational morphemes, given the assumption that derivation takes place in the lexicon whereas inflectional rules apply in the phonology after lexical insertion.

5. The syntax–phonology interface

5.1. On gender-bearing plural morphology: Problems

The hypothesis outlined above that plural suffixes bear inherent gender specification seems well motivated on empirical grounds, but it poses one major conceptual problem. Since earlier generative works, the feature composition of nouns is determined by different parts of the grammar: [gender] figures in the complex symbol of lexical entries for nouns. [Number] is introduced by a contextual rule of the base, as a feature of the syntactic tree rather than a feature of the noun itself. This fundamental distinction is most clearly expressed by Chomsky's (1995) intrinsic/optional distinction for formal features: gender is a lexical (intrinsic) property of nouns, whereas number is an optional property, common to both nouns and other substantial categories. Assuming this distinction, gender-bearing plural morphology is a potential problem.

One theoretical possibility is to deny that gender is specified both on the noun stem and the plural affix. This is actually the line that Ritter (1991) takes in

her purely syntactic approach to Hebrew plural morphology. In her analysis, gender is assigned to nouns through lexical affixation. Number inflection is associated with the head of a functional projection Num, and acquired by nouns through syntactic head raising:

(18)

```
              DP
          /        \
        D           NumP
                      \
                      Num'
                    /      \
                 Num        NP
                [±pl]         \
                              N'
                            /    \
                          N        h
                         [±f]
```
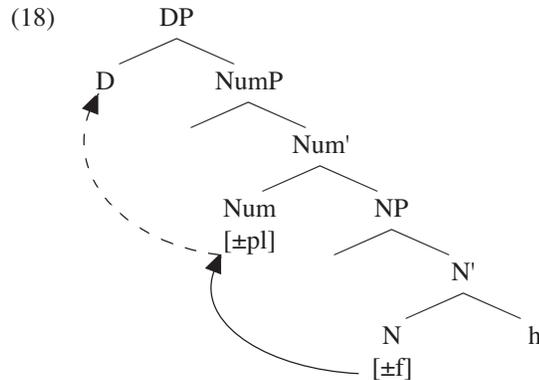
In this analysis, gender in Hebrew is specified in the lexical entry for the noun stem, together with information about the plural marker (/-im/, /-ot/, or a suppletive allomorph). As plural reference morphemes, /-im/ (m) and /-ot/ (f) have independent lexical entries, but these lexical entries are specified for [number] only.

The same approach is taken by Carstens (1991, 1993) in her analysis of Bantu nominal class morphology. Gender in Kiswahili, she argues, is a property of stems. Prefixes are all exponents of the more general syntactic category [±plural], and are specified for [number] only. The numerous instantiations of the syntactically unique, abstract [plural] feature are introduced by a redundancy rule applying at PF. On this analysis, Kiswahili Class prefixes are all allomorphs of the [±pl] feature that head a Number projection (complement of D) in the noun phrase:

(19) 1. m-tu   'person'
      2. wa-tu   'people'
      3. m-ti   'tree'
      4. mi-ti   'trees'
      5. gari   'car'
      6. ma-gari   'cars'
      7. ki-atu   'shoe'
      8. vi-atu   'shoes'

```
              NumP
            /      \
         Num        NP
        [+sg]        |
         Ki-         N'
                     |
                     N
                    atu
```
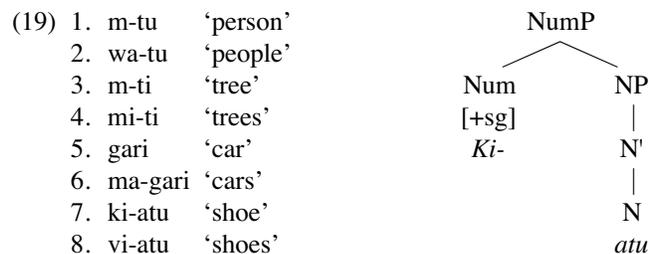
The main difficulties facing this approach are cases where the stem does not appear to carry the relevant gender information.[17] As discussed in Bresnan 1995, the existence of pre-prefixes (those prefixes which attach to already prefixed nouns) and diminutive noun classes prefixes showing outer concord are problematic for Carstens' syntactic head movement analysis.[18] Moreover, if the class marker is a marker of syntactic number originating in the Num head of a Number projection, there is no explanation for why it can appear inside the noun-derivation prefix (e.g., diminutive and augmentative prefixes), leading to the same problems we previously noted with regard to parallel fact in Somali, Breton, and Yiddish (see section 4.4).

Taking the same approach, suppose that we regard the Somali plural affixes as an allomorphic set competing for the same Number functional node. Then further questions arise. First, as classically assumed in earlier (rule-based) theories of morphosyntax as well as in more recent ones (Halle and Marantz 1993), insertion at functional nodes is subject to competition according to the Paninian elsewhere principle, the most highly specified item available being first inserted, so that [pl] $\rightarrow$ /-en/ /OX__ applies before [pl] $\rightarrow$ /-z/. But the allomorphic distribution of Somali plurals cannot be described by competing rules. There is no elsewhere suffix – plural affixes cannot be listed in order of decreasing specificity, with competing forms differing at most in their gender feature value. There is no unspecified elsewhere context either – all plural affixes have a specific contextual definition. Since these suffixes are equally specific, all containing the [pl] substantive feature and an environment feature, they are not ordered by complexity. Moreover, each Somali noun may take several plural suffixes.

A second source of difficulty is that plural suffixes clearly introduce a gender feature, since the gender feature value of the plural form may be different from that of the noun stem. We cannot equate Somali plural suffixes with gender-related class forms or theme suffixes (as in Spanish, Russian, or Latin), since the derived gender feature of the plural form obligatorily determines syntactic agreement inside the DP (e.g., with determiners and adjectives), and may determine concord with other elements in the sentence (such as subject pronouns and verbal subject agreement). Inflectional morphology, on the other hand, is characteristically unspecified. Viewing insertion at a functional node as competition of underspecified morphemes into fully specified syntactic nodes, as in the Distributed Morphology framework, Somali plural morphology would be

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17. Ritter (1991: 53) notes that some [m] nouns in Hebrew exceptionally select the [f] plural, while some [f] nouns exceptionally select the [m] plural, although she uses the evidence in an argument that gender is not specified on the plural suffix.

18. To account for these cases, Carstens posits null N heads lexically or syntactically adjoined to bare N stems and carrying the outer gender information. See Bresnan 1995 for a critical evaluation of this proposal.

ruled out by the Subset Condition (Halle 1997) by being overly specified: vocabulary insertion cannot modify already existing feature values.

To recap quickly, on a purely syntactic approach, there is no possible account for the inherent gender specification of the number suffixes, for why they do not compete for insertion as true functional morphemes do, why they can appear inside composition/derivation, and why potential recursivity is yielded. These properties follow immediately from a derivational account. But the syntactic account is required, because the set of plural suffixes has independent status in the grammar, and cannot be the by-product of morpho-phonological rules. Unlike true derivational category-changing morphology, number in nouns is a functional feature that fully determines meaning; any [+count] noun must be singular or plural – a semantic property, visible throughout the derivation.[19] Clearly, the Somali plural affixes are all functional morphemes in that they are completely determined by the grammar of the speaker. All satisfy the conditions of insertion for the relevant abstract morpheme, given a syntactic structure containing the appropriate [plural] functional node.

Finally, although number morphology seems to pattern uniformly with category-changing morphology, there is evidence that the hierarchical location of the plural affixes is determined by the syntax. Harmony facts are among the syntax-sensitive processes that reflect a correlation between the function of morphemes and phonological behavior. In Somali, vowel harmony can be viewed as the spreading of the [+ATR] feature from a suffix vowel into the stem or from a stem vowel into the suffix in both nominal and verbal words (Armstrong 1964, Hassan 1994). Only some suffixes that contain a fronted vowel trigger harmony on the root. Purely derivational suffixes (i.e., category-deriving morphemes /-is, -id, -in/) never trigger regressive harmony on the verbal (or category-less) root (20a). On the other hand, plural suffixes and possessive clitics trigger regressive harmony on the noun stem (20b). Regressive vowel harmony also affects syntactic constituents such as question words belonging to higher syntactic structure (20c):

---

19. However, note that in Somali as in many languages, the features that play a role in morphology, such as [±pl], are only partially related to the corresponding lexical (conceptual) features (countability). Mass nouns such as *biyó* (m) 'water' and *caanó* (m) 'milk' are morphologically (and syntactically) plural, although count noun syntax (e.g., *labá biyo* 'two waters') leads to a severe anomaly, showing that they are treated as continuous entities.

(20) a. With a nominalizing suffix:
   [habs]$_{[+ATR]}$ + [-ad]$_{[-ATR]}$ → [habsad]$_{[+ATR]}$ 'collapsing'
   [qurx]$_{[-ATR]}$ + [-ín]$_{[+ATR]}$ → [qurxín]$_{[-ATR]}$ 'beautification'

   b. With a plural suffix (or a genitive clitic):
   [sheekó]$_{[-ATR]}$ 'tale' + [-óyin]$_{[+ATR]}$ → [sheekóoyin]$_{[+ATR]}$ 'tales'
   [sheekó]$_{[-ATR]}$ + [-óod]$_{[+ATR]}$ → [sheekádood]$_{[+ATR]}$ 'their tale'

   c. With higher syntactic constituents:
   [fáras]$_{[-ATR]}$ 'horse': [ma fáras baa?]$_{[-ATR]}$ 'is it a horse?'
   [libáax]$_{[+ATR]}$ 'lion': [ma libáax baa?]$_{[+ATR]}$ 'is it a lion?'

It seems, then, that plural suffixes head higher harmonic domains than purely derivational ones. We must therefore conclude that the phonological component requires access not only to syntactic boundaries, but also to the actual hierarchical organization of the constituents built in the morphological component.

5.2. Distributed Morphology

Recent work in Distributed Morphology (Halle and Marantz 1993, 1994, and much related work) suggests a new perspective on the problem, since the whole approach obviates the need for a distinction between derivational vs. transformationally induced morphology. A central thesis is that there is no separate component for lexical operations. Rather, the functions assigned to the lexicon in earlier theories are distributed among various components of grammar. The Pure Lexicon contains the atomic roots of the language and the bundles of grammatical features relevant to the computational system of grammar. The Vocabulary provides the connections between the terminal nodes of the syntax and their phonological realization. The Encyclopedia associates phonological expressions with meanings that are irrelevant to the computational system. Syntactic trees are not constructed out of vocabularies (or their characteristically underspecified set of grammatical features), but out of abstract morphemes or bundles of features drawn from the set made available by UG, including functional features such as tense, number, etc. Syntax delivers to the morphological component a hierarchically structured but unordered (unlinearized) representation. Vocabulary items (VIs) are spelled out after the rules of the morphological component have had the opportunity to rebracket the syntactic structure, subject to certain restrictions (such as adjacency), and to modify or simplify the feature complexes provided by the syntax under strict locality conditions. Full phonological specification is determined at PF, i.e., after the computational system.

Pure Lexicon

↓

syntax

Vocabulary ↘

PF   LF
Phonetic Interface   Conceptual Interface ← Encyclopedia
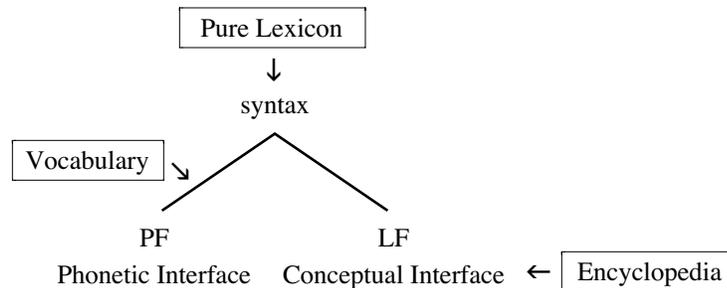
Figure 1. The grammar in Distributed Morphology

In this approach, the classical lexicalist distinction between inflection and derivation is irrelevant in principle. Instead, the central question is to discover what particular set of universal (and/or language-particular) semantic and syntactic features is chosen for the creation of terminal nodes in the syntax, and what the relation between VIs and abstract morphemes is for a given language.

5.3. Plural morphemes as "little n's"

What, then, is the exact source of parametric variation that yields the Somali system of number inflection? Combining Marantz's (1997) and Chomsky's (1998) proposals, I will assume that nouns are morphological categories that emerge during a derivation in the context of functional heads creating a nominal environment. A root becomes nominal when it merges with D, and nouns acquire the special meaning of plural in the context of a [number] functional node. Number inflection in English or French can be thought of as affixed on a stem as the result of possible operations on terminal nodes, such as syntactic head movement and adjunction, or syntactic head merger under structural adjacency (lowering):

(21) [DP [Num [N...]]   Syntactic structure
      [DP [N+Num [...]]   Head movement
      [DP [[N+Num...]]   Lowering (syntactic merger)

Somali plural suffixes, in contrast, can be understood as number categories intermediate between pure (underspecified) functional categories and plural words. Accordingly, a particular requirement about what constitutes a morphological well-formed noun in the language blocks the syntactic joining of N and Num, leaving a stranded Num morpheme. Regardless of its realization, Num requires a sister N as a morphological property, as all the VIs for [plural] are affixal and cannot stand apart from a N host. I will then assume, in the spirit of Marantz (1997, 1999), that the morphological well-formedness condition of [number] in Somali is met by the insertion of a "little n" node, without any other

feature than its category identification. This amounts to saying that in Somali, [pl] is always spelled out on auxiliary morphological nodes (or dissociated nodes, in the sense of Embick 1998). Specifically, I assume that plurality of a noun N is implemented configurationally as a structure [$_n$ n [$_N$ N]]:

(22)
```
            DP
           /  \
          D    nP
              /  \
             N    n [pl]
         [gender] [gender]
```
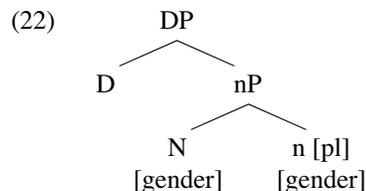
Supposing the n head is projected separately from a lower, basic nominal head after the syntax, but before Spellout, N and n must then be two morphemes, with two VIs inserted:

(23) a. *inam-mó* (f) 'sons'   b. *inam-ó* (m) 'daughters'
```
            DP                                  DP
           /  \                                /  \
          D    nP                             D    nP
              /  \                                /  \
             N    n                              N    n
          ínan (m)  -Có (f)                   inán (f)  -ó (m)
```
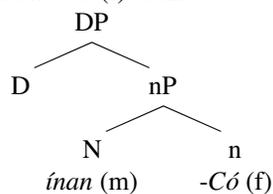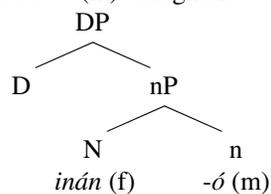
Somali plural suffixes might thus be thought of as functional stems, like syntactic light v's *do, have, be* whose insertion is completely determined by features, in that they are (or realize) functional morphemes and contain no root. As vocabularies, they have contextual features determining their insertion. The phonological shape of the noun stem clearly conditions merger of particular suffixes. I will then assume that the plural morpheme undergoes morphological merger with the root N in the morpho-phonology, after vocabulary insertion into the morpheme making up the noun. The morphological operations, then, are the following:[20]

---

20. The manner in which (24) is stated should be taken as relative to the Somali nominal system. Typological variation in Afroasiatic could be captured with different conditions on the interaction of Morphological Merger and Vocabulary Insertion stated in (24). Semitic sound plurals might involve equating the gender value of N and n. Broken plurals might involve Morphological Merger of Root and n nodes before Vocabulary Insertion. I will not discuss this further here, however.

(24) Vocabulary insertion into substantive nodes (root Ns)
      "Little n" head insertion
      Vocabulary insertion into functional nodes
      Morphological merger (strictly local)

When plural suffixes are joined to the root via asymmetrical merger, two elements are put together, with one of the elements identified as the head. Supposing the two parts of the derived word are differently specified for gender value, only the features of the latter will be inherited. In addition, prosodic information is part of vocabulary entries for plural suffixes.[21] Since there is only one realized accent per word in Somali, the inherently accented [pl] suffix bears a H tone in both (23a) and (23b). This accounts for the observed absence of gender/accent correlation in plural forms (section 3).

In this analysis, the basic properties of Somali plurals reviewed in sections 3–4 follow from simple and plausible assumptions:

Zero affixation (prosodic plurals): The morphological requirement that Somali plural morphology be spelled out on n nodes holds regardless of the Vocabulary entry inserted as the [pl] morpheme, and this applies when the [pl] morpheme is phonetically null as well as when the [pl] morpheme is readily isolated as a piece in the phonetic string. Since n is a morpheme, and not every morpheme needs to have a phonological exponent, the option allows that n gets a phonologically zero VI inserted. I will then assume that for prosodic plurals (section 3.2.1), n attached to the root gets a null VI inserted, along with a default [f] feature value and an associated prosodic feature.

Internal plurals: The rebracketing of root and n under adjacency interacts with the infixal nature of specific plural vocabularies to produce outputs in which the VI appears morphologically inside the root to which it is attached. Somali internal plurals are instances of partial reduplication, i.e., n is filled with a Vocabulary that is part of the root. Since the Vocabulary content of n is supplied by the root itself, there is no gender value other than the gender of the root stem. The main argument for this analysis is that internal -á- plurals are not polaric.[22]

Somali internal plurals involve earlier morphological processes than external ones, since they can serve as inputs to other derivational processes, including external plural formation: stage 1 outputs are visible to stage 2 outputs, but not vice versa. We must therefore assume the following processes:

(25) 1. internal /-a-/ plurals
      2. external plurals (with polarity effects)

---

21. I crucially depart here from Hyman's (1981) proposals. See section 3.1 above.

22. I will assume here that the Somali "broken" plurals of the Semitic type (see note 10) are assigned a default [f] gender value.

Plurals of plurals and the Elsewhere Condition: As noted earlier (section 4.3), double plurals seem to conflict with any current version of the Elsewhere Condition (Anderson 1986, Noyer 1992), and challenge the Distributed Morphology assumption that a given feature can only be realized once in a given word. A true double plural marking, where the *same* feature [pl] is realized twice, is impossible in any current framework. Under the present analysis, Somali plurals of plurals involve n above n:

(26) *naag-a-yáal* (m)   '(groups of) women'

```
              DP
           /      \
         D          nP
                  /    \
                n'        n
              /    \    -yáal (m)
            N         n
         naag (f)   -ó (m)
```
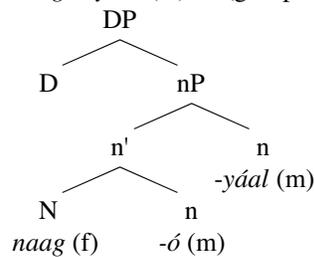
As discussed in section 4, plural suffixes come with categorial and subcategorial information that is not part of the morphosyntactic representation before they are inserted. Some plural suffixes are themselves specified for selection of particular plural suffixes. On the "little n" analysis, the second plural feature comes with the suffix, and serves as a context for the special meaning associated with the already plural form. This accounts for the fact that plurals of plurals often identify countable groups (*niman-yáal* 'groups of men'), or have intensive meaning (*roobab-yów* 'rains and rains'). Thus, we don't have here, formally speaking, a double plural, that is, the *same* formal feature discharged twice, but a plural of plural, following the more accurate terminology used in traditional Cushitic studies.

Inflected forms in composition/derivation: On the same analysis, agentive /-é/ nominals must involve n above "little v":

(27) *xaglo-goy-é* (m) 'diagonal'

```
                    DP
                 /      \
               D          nP
                        /    \
                      v'        n
                    /    \    -é (m)
                  n'        v
                /    \    goy 'cut'
              N         n
        xagl (f) 'angle'   -ó (m)
```
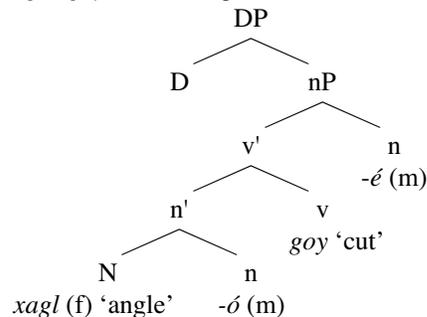
In the present account, the question of why we cannot make a derived nominal from a form that has an inflected plural in English, Romance, etc., is a matter of selection, in that n or v can only select roots and category nodes built in the morphology. This option is available in Somali, Breton, Yiddish, and Kiswahili (cf. section 4.4). Only D can select Number phrases constructed by syntactic head movement and adjunction (English, Romance).

The Subset Principle: As discussed above (section 4.5), VIs are characteristically underspecified with respect to the features of the terminal nodes from the syntax. According to the Subset principle (Halle 1997), the phonological exponent of a VI is inserted into a morpheme if the item matches all or a subset of the grammatical features specified in the terminal morpheme. This would rule out the insertion of gender-bearing plural morphologies, since insertion does not take place if the VI contains features not present in the morpheme.

On the present account, the gender feature *is* present in the morpheme: n is a bundle of features [n,pl] fused according to particular decisions the language makes about choice and association of features in terminal nodes. [Gender] is included in the bundle as an intrinsic feature of [n]. The value is supplied by the specific VIs inserted as plural suffixes.

The Universal Feature Hierarchy: In the present analysis, the functional prominence of number is structurally encoded by the morphosyntax. Among the functional heads in whose environments roots become nouns, the [pl] morpheme occupies the structurally highest n, above the n nodes that host gender-class or derivational suffixes:

(28) a. *Kulliy-ad-ó* (m) 'faculties'   b. *bar-a-yáal* (f) 'teachers'
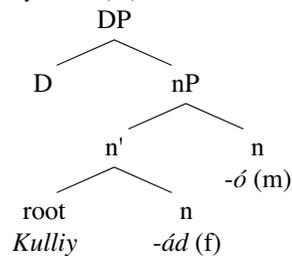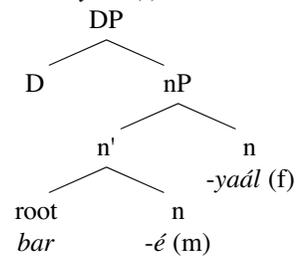
This analysis ensures the prominence of [number] over [gender] in a universal hierarchy of morphological features (Noyer 1992, Harley 1994). [Gender] is included as an intrinsic feature of [n] in the [n pl] bundles that get plural suffixes inserted. There is, therefore, no such thing as conflation or interplay of gender and number in Somali. Rather, the question of how we can characterize the observed priority of gender over number in Afroasiatic is now straightforward: given the absence of syntactic joining of N and Num, the [number] node remains dissociated from the root and is therefore not active before it enters the morphological component.

6. Some considerations on agreement

It has long been observed that Afroasiatic agreement systems are gender-based systems, in a sense that I would like now to make more precise. From a minimalist perspective, variation in inflectional systems comes from which features are directly accessed in the syntax (i.e., the language-particular choice of features that determine the Agree relation) and how features are used by the operations that drive the syntactic computation. [Gender] in Afroasiatic clearly has syntactic import, relevant to Spec–head agreement and concord. On the other hand, evidence suggests that the [pl] feature content of the [number] node is not directly accessed by the operations that construct syntactic phrases, but simply carried along until it enters the morphological component. Let me first enumerate some of the relevant properties, and try to make explicit how this generalization is to be captured formally.

6.1. DP-internal agreement/concord

Nominal inflection of the Indo-European type, where determiners and adjectives agree in [number] with the noun, does not exist as such in Cushitic. In contrast, determiners reflect strong grammatical [gender] agreement with the noun stem; this is especially true in Somali, where the gender value of the plural affix (rather than the gender of the stem) determines the gender of the derived plural form. Adjectives agree with nouns in gender in the singular (29b).[23] Number concord with adjectives manifests itself morphologically through a reduplication process, clearly not an inflectional-type agreement (29c):

(29) a. árday-ga   wanaagsan / árday-gii   wanaagsanaa
          student-detM   good   / student-detM[+past]   good[+past]
          'the good student'

      b. ardayád-da   wanaagsan / ardayád-dii   wanaagsan**ayd**
          student.f-detF   good   / student.f-detF[+past] good[+past].f
          'the good(f) student(f)'

      c. ardáy-da   **wan**wanaagsan / ardáy-dii   **wan**wanaagsanaa
          students-detF   pl.good   / students-detF[+past] pl.good[+past]
          'the good students'

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23. On nominal tense and tense agreement in the noun phrase, see Lecarme 1996, 1999b.

6.2. Subject–verb agreement

In Somali, argument DPs occupy peripheral positions. Full DPs – phrases such as 'the students' in (30) – are adjoined to the clause and bind (or double) the pronominal arguments within the clause. The examples show that the subject clitic appears on a phonological word that is independent of the inflected verb, clearly indicating that these clitics are not (directly) part of the inflectional system. Verbal inflection in Cushitic, as well as in Semitic, includes [gender] as a feature of subject agreement.[24] In Somali as in other Cushitic languages, gender agreement is neutralized in the plural (30c):

(30) a. árday-gii   wúu   **y**imid
         student-detM Foc.3MS m.came
         'The student (he) came.'

     b. ardayád-dii   wáy   **t**imid
         student.f-detF Foc.3FS   f.came
         'The student (f) (she) came.'

     c. ardáy-dii   wáy   yimaadeen
         students-detF Foc.3P   came.3p
   'The students (they) came.'

6.3. Partial agreement

As is well known, much variation exists in Afroasiatic as to how number agreement with a plural subject is formally expressed.[25] In Somali, rich agreement (person, number, gender) on the verb involves an optionally adjoined [+nom] subject (inherently case-marked), and a nominative clitic or its null counterpart (31a). Partial agreement (person, gender, and invariable [sg] number) occurs when a plural subject DP is marked with a default [+acc] case and no [nominative] clitic appears in the structure, i.e., when a (local) subject is questioned, focalized, or relativized (31b,c). This variation is clearly conditioned by syntactic rather than paradigmatic factors (see Lecarme 1991, 1995, 1999a for more details). Assuming that focus markers are root complementizers (Lecarme 1991), the configuration involves a plural noun phrase in a root Spec,CP position (or a subject relative clause):

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24. Both Carstens (1991) and Ritter (1988, 1991) suggest that verbal agreement (AgrS) includes [gender] in Kiswahili or Hebrew as a consequence of N-to-D movement in the DP. This, however, does not seem general enough, since many N-to-D languages (Swedish, Romanian, etc.) do not share the gender agreement property.

25. Pluractional verb formation (i.e., derived intensive or frequentative stems denoting semantic plurality) is extremely common and productive in Berber and Chadic (see Newman 1990).

(31) a. (ardáy-du)   wáy   joogaan
       students-detF[+nom]   Foc.3P   are-present.3p
       'The students are present / they are present.'

    b. ardáy-da   baa   joog**t**a
       students-detF[+acc]   Foc.*pro*   is-present.**fs**
       '*The students* are present.'

    c. ardaydée   baa   joog**t**a?
       students-detF+Q   Foc.*pro*   is-present.**fs**
   'Which students are present?'
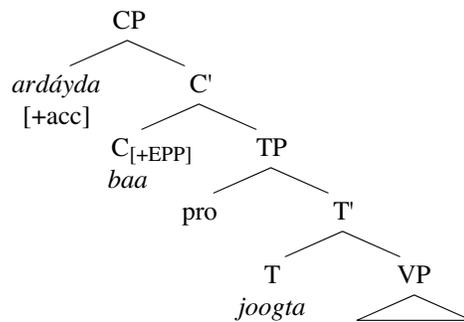
Following earlier work, I assume that the default [+acc] subject is structurally induced in Spec,CP by the EPP feature of C.[26] Given this selectional property of C, an expletive (*wax* 'thing') can be merged at the CP level, yielding the so-called postverbal focus constructions:[27]

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26. Given my assumption that both focus markers *waa*/*baa* occupy the C position, the optional choice of an EPP feature of C is morphologically expressed through the *waa*/*baa* complementarity: the other option is illustrated by the root complementizer *waa*, which does not involve an extra Spec,CP position.

27. In the corresponding representation, the postverbal subject is a right-hand specifier, and the expletive /wax/ 'thing,' a purely nominal category, is merged in the C position. The link between the expletive and the associate is mediated by a pronominal element. Alternatively, we may suppose that the expletive can be null during the computational process and added only at the phonological level. Assuming Kayne's (1994) reanalysis of rightwards adjunction, the construction then involves a stranded left-hand specifier.

(32) a. wax-aa   jooga   ardáyda
        expl-Foc.*pro*   is-present.ms   students-detF
        '*The students* are present.'

   b. wax-aa   akhriyay   búug-gan   ardáy-dii
        expl-Foc.*pro*   read-ms   book-detM+dem   students-detF[+acc]
        '*The students* read this book.'

$$
\begin{array}{c}
\text{CP} \\
\diagup \quad \diagdown \\
\text{C'} \qquad \text{(Spec)} \\
\diagup \; \diagdown \quad \text{DP}_i[+acc] \\
\text{C}_{[+EPP]} \quad \text{TP} \\
\textit{wax}_i \; \textit{aa} \quad \diagup\diagdown \\
\text{... pro}_i \text{ ...}
\end{array}
$$
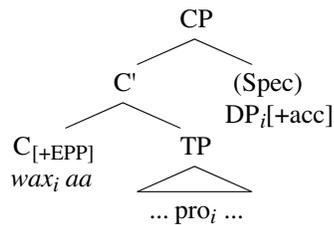
From a minimalist point of view, there are four kinds of uninterpretable features in these structures: the default [+acc] Case of the subject DP, the EPP feature of C, the agreement features of T (the impoverished phi-set), and the EPP feature of T. The crucial point for the present discussion is that the finite T head has a full set of unvalued phi-features (both person and number), in Chomsky's (1998, 1999) terminology, although Number has the default [sg] value. I will then assume, as in earlier work, that the phi-features of T are valued by merger with an empty pronominal satisfying its EPP.[28] Crucially, *pro* is independently required in Spec,TP for the chain headed by the default case [+acc] subject to be interpreted; the natural assumption is that, although the pronominal element is not a copy of the DP, but a different kind of element, pure Merge of the default [+acc] subject in the extra Spec selected by the EPP feature of C creates a legitimate chain in the sense of Chomsky (1999), Frampton and Gutmann (2000):

(33) DP and *pro* form a chain if
      i.   *pro* shares a feature of the DP (gender, person)
      ii. and [DP, *pro*] meet standard conditions on chains such as
           uniformity, c-command, and locality.
      Both DP and *pro* are in A-position, and the chain is an A-chain.[29]

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28. Careful examination of agreement facts confirms evidence that poor agreement, like full agreement, is mediated by a (non-overt) pronominal-like category: although all plural nouns trigger [–pl] agreement in these syntactic configurations, only [–human] plurals may trigger agreement with the derived [f] gender (contrast (31b) and (32a)).

29. I will assume that wh-phrases, as in (31c), begin by forming an A-chain and then proceed to form an A'-chain. Significantly, Somali excludes wh-phrases in postverbal focus constructions.

Pure Merge of the default [+acc] subject must be a possible option in a pronominal argument language and does not violate any theta-theoretical principle, provided the merged category is in a local relation with a pronominal. Therefore, either a subject DP is merged yielding (31), or an expletive can be merged to satisfy EPP (32). In the syntax, there is the sharing of features of the same argument in more than one position: the empty category has [person] and [gender]. The [interpretable] plural feature of the DP is carried along to the LF interface, where all the features are computed in the same (anaphoric) domain.

This is reminiscent of the complementary distribution between number agreement and the postverbal subject in Semitic and Celtic (Doron 1988).[30] We cannot take partial (i.e., [–pl]) agreement to be a property of VSO systems, since Cushitic languages are basically OV languages. Departing from most analyses, I suggest that a unified explanation of partial agreement facts does not rest on a VSO typology, or a VSO configuration or linear order (adjacency or precedence relations), but directly follows as a consequence of the conclusions we have already come to.

We still have to determine in what precise sense nominal [number] is not (directly) accessed in the syntactic derivation. I suggested that, given the absence of syntactic joining of N and Num, the number node in some languages remains dissociated from the root and is therefore not active before it reaches the morphological component. This account can be readily stated in recent versions of minimalism (Chomsky 1998, 1999). Assuming that computations form syntactic objects in parallel, if (24) holds, the [pl] morpheme of DPs is not yet spelled out at the cyclic point when the AgrS node is inserted in the morphology (feature copy). Supposing that the phi-set of N both deletes and values the phi-features of T, with or without movement, it is not clear what prevents finite T in Arabic from valuing rich agreement features with the subject before the verb moves in C, on classical assumptions. In the present account, we do not expect [pl] to be active at the stage of the computation when T and the closest nominal matching its phi-features enter an Agree relation.

From this perspective, the more obvious, and classical, position, namely that verbs in Semitic or Celtic are inflected in person and number by means of pronominal-like prefixes or suffixes (alternatively, person and number are indicated by preverbal or postverbal pronouns, whereas the verb itself is invariant) is essentially correct: full agreement involves the incorporation (morphological merge) of a pronominal. Partial agreement signals a genuine agreement relation.

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30. The literature on partial agreement in VS contexts is too extensive to be reviewed here in any detail (see Mohammad 1990, Fassi Fehri 1993, and Benmamoun 2000 among many others). On partial agreement involving a preverbal position in Berber, Celtic, and other languages, see Ouhalla 1993.

7. Conclusions

This paper has been concerned with the proper treatment of gender polarity, a well-known feature of nominal plurality in Afroasiatic. The treatment I proposed maintains a universal distinction between gender and number, while traditional analyses conflate these two notions. Specifically, I argued that gender "polarity" in Somali illustrates the universally available option of having number inflection spelled out on adjoined "little n" morphological nodes hosting [gender] as an inherent feature of n. The postulation of such a morphological well-formedness condition not only makes possible an explanation of the gender polarity effects, but also of other morphologically-conditioned phenomena, such as the existence of double plural forms or the presence of plural forms in composition and derivation, and at the same time accounts for the gender-based property of Afroasiatic agreement systems. These points and their implications for the study of the syntax–morphology interface are discussed within the context of the theory of Distributed Morphology (Halle and Marantz 1993 and related work). It was shown that a late insertion view of grammar can handle the facts without any need to appeal to a distinction between inflection and derivation, by centering instead on the quest for the exact source of variation. In this view, the Somali nominal number system is not atypical, given the existence of facts in Semitic, Celtic, and Bantu that might fall under this analysis.

I explored the hypothesis that the morphosyntax of plural formation in Somali and other Cushitic languages is responsible for partial subject–verb agreement, given the hidden nature of nominal number in these languages. Assuming that the [pl] feature of nouns plays virtually no role in the syntactic computation, partial agreement would in fact reflect genuine subject–verb agreement in the syntax. I suggested that this proposal might be extended to parallel facts in the Semitic (and Celtic) languages. If this analysis proves to be correct, then it provides a new perspective on the problem of how partial agreement works in natural language, showing that – unlike partial agreement effects in English or Romance, which appear to involve properties of language use or linguistic performance – partial agreement in Afroasiatic belongs to the competence grammar of agreement.

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