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Restructured Niger-Congo gender systems as another type of concurrent nominal classification

Abstract: Recent research looks increasingly at languages with more than one system of nominal classification and first systematic typological assessments of so-called "concurrent noun classification" exist with a focus on cases involving classifiers and gender. We elaborate on this work by dealing with Niger-Congo languages that have restructured their inherited noun classification in a particular way. The inherited system entailing a strong parallelism between agreement-based gender and affix-based noun inflections shifted toward one where the gender system is reduced to an animacy-based opposition while nominal inflection maintains a considerable amount of original complexity with semantic criteria beyond those of the innovative gender distinction. While the phenomenon as such is not a new discovery, its typological relevance has gone unrecognized so far. We argue that such cases of restructured gender systems in Niger-Congo prima facie suggest themselves as candidates for a new type of concurrent noun classification, both from a synchronic and diachronic perspective. We present a detailed description of the phenomenon in the Guang language Gonja and determine whether or how it can be integrated in the available typology. We also survey its wider distribution and discuss some recurrent historical aspects of its emergence in the family.

Keywords: animacy hierarchy; concurrent systems; Niger-Congo; nominal classification

1 Noun classification, gender, and concurrency

There are a number of formally diverse types that can be subsumed under the general domain of nominal aka noun classification. McGregor (2002: 1) writes:

> What all systems of noun classification have in common is that they are language-internal systems that overtly typologise nominal words, phrases, and/or their conceptual referents into

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classes or categories. That is to say, the language possesses a system of lexical or grammatical devices that group nominals, and/or their referents, into categories.

The commonly researched types of a differential treatment of distinct classes of nouns are gender and different kinds of classifiers.[1] However, as discussed in the literature on nominal classification (cf. among others Aikhenvald 2000; Fedden and Corbett 2017; Senft 2000), the phenomenon has other widespread reflexes such as a basic distinction in content question-pronouns, differential encoding of grammatical features like number, possession etc., and, as we argue here, the grouping of nouns into different morphological classes.

According to the "no-concurrent-feature conjecture" one would expect that a feature like noun classification is encoded in a single coherent morphosyntactic system: "a language may have, or not have, each of the possible features, but it may not have two instances of the same feature" (Round and Corbett 2017: 57). However, recent research, notably Fedden and Corbett (2017), identifies a number of cases where two "concurrent" systems instantiate noun classification in the sense of being functionally parallel but largely independent. Thus, languages like Nanti, Pnar, and Mian are found to display a system of classifiers side by side with a gender system, while Paumarí and Michif possess two distinct gender systems. Useful criteria for identifying two separate systems of noun classification are "the degree to which the semantics of the two systems are orthogonal to each other" and "the degree to which their means of realization are different" (Corbett et al. 2017: 215).

The mixed language Michif that arose from the intimate contact between French and the Algonquian language Cree exemplifies this phenomenon. It combines the French-based agreement on definite articles and preposed adjectives according to a distinction between masculine and feminine with the Cree-based agreement on demonstratives and verbs according to an opposition of animate versus inanimate. Example (1) shows that the two systems are indeed "concurrent" in differing in both their semantics and their formal agreement exponents.

(1) Michif
  a. awa   **lɪ**   garsũ   'this boy'
      this.near.A.SG DEF.M.SG   boy
  b. **awa**   **la**   fij   'this girl'
      this.near.A.SG DEF.F.SG   girl
  c. **uːma**   **lɪ**   papji   'this paper'
      this.near.IA.SG DEF.M.SG   paper

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1 Compare Grinevald's (2000: 55) definition of nominal classification as constituting "a lexical-grammatical continuum", beginning with measure and class terms as lexically based classification systems and ending with gender systems having their base in the morphosyntax of a given language.

d. **anɪma**   **la**   mɛ̃zũ   'that house'
this.intermediate.IA.SG   DEF.F.SG   house
(Bakker 1997: 109, cited in Corbett 2006: 269–270)

We attempt to show here that a similar situation has arisen in a number of Niger-Congo languages with historically deeply entrenched gender systems – a phenomenon so far gone unnoticed. Before we discuss the pertinent data, we briefly outline our analytical approach to gender systems, applicable to all kinds of systems attested cross-linguistically but in particular to those of the Niger-Congo type, where gender intricately interacts with nominal morphology and is thus largely "overt" as defined by Heine (1982).

Gender is defined by Corbett (1991, 2006) and others as the classification of nouns reflected by agreement on other syntactically and semantically related words. We follow this approach but refer the reader to Güldemann (2000) and particularly Güldemann and Fiedler (2019, 2021). There, our analytical methodology is outlined in more detail, as it deviates in some important respects from Corbett's approach. Suffice it to note here that we distinguish the following four crucial analytical concepts of agreement class, gender, nominal form class, and deriflection. Table 1 summarizes these four concepts regarding their cross-classification in terms of two oppositions of syntax versus morpho(phono)logy and of word form versus lexeme, and gives the conventional representation used here. The concepts are briefly illustrated and explained by means of example (2) from the Bantu language Swahili.[2,3]

Table 1: The four concepts used for analyzing gender systems.

	Concrete noun in a morphosyntactic context = word form		Abstract noun in the lexicon = lexeme	
Syntax	a.	AGREEMENT CLASS (abbreviated as AGR and numbered by Arabic numbers)	b.	GENDER (numbered by Roman numerals)
Morpho(phono)logy	c.	NOMINAL FORM CLASS (abbreviated as NF)	d.	DERIFLECTION aka "declension class"

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2 Since Swahili is a language with "general animate concord" (see Section 2.3 below), it may not count as fully "canonical" for Niger-Congo. Its basic system, however, entails the important traits we want to exemplify in this context.

3 The glossing of examples of Niger-Congo languages is as follows: We indicate nominal form classes by an abstract capitalized representation rather than an Arabic number in order to distinguish them from agreement classes. When the nominal form class consistently triggers a certain agreement class, the Arabic number of the relevant class directly follows the representation of the nominal form class. When, as in (2), the nominal form class is not tied to a single agreement class so that agreement must be triggered by the lexeme, the Arabic number follows the noun in parentheses. We also refrain from indicating the number value of nominal form classes, as they (like agreement classes) do not in all cases have just one number value (cf. Güldemann and Fiedler 2019, 2021).

(2)   Swahili

     a.   **m**-toto   **yu**-le   **m**-moja   **a**-me-anguka
         M(W)-child(**1**)   **1**-D.DEM   **1**-one   **1**-PERF-fall
         'that one child has fallen down'

     b.   **wa**-toto   **wa**-le   **wa**-wili   **wa**-me-anguka
         W(A)-child(**2**)   **2**-D.DEM   **2**-two   **2**-PERF-fall
         'those two children have fallen down'
         (personal knowledge)

Agreement classes (henceforth abbreviated by AGR and numbered by Arabic numerals) are classes of nouns in concrete morphosyntactic contexts (that is, *mtoto* and *watoto* in the sentences in (2a) and (2b) rather than the nominal lexeme *-toto*) that are characterized by an identical agreement behavior across all targets that are relevant in the language-specific agreement system.[4] Thus, (2a) of Swahili demonstrates AGR1 established by a set of exponents on diverse agreement targets, here **yu-** on the distal demonstrative, **m-** on the numeral 'one' and **a-** indexing the subject on the verb; in (2b), the same holds for AGR2 with the triplet of identical exponents **wa-** applying for this agreement class in these contexts. Importantly, both agreement classes not only convey nominal classification but also the feature of number, singular for AGR1 and plural for AGR2. That is, agreement classes in Swahili (and many other languages) conflate gender and number.

By definition, genders are based on agreement as well, but they relate to classes of nominal lexemes by abstracting from agreement features other than noun classification, notably number.[5] Example (2) involves the human gender whose nouns partake in the singular-plural distinction and are characterized in their agreement by the pair AGR1/AGR2. A group of nouns without variation for number and the same agreement would establish a single-class gender, which typically exists in Niger-Congo for nouns referring to masses/liquids, abstract concepts, etc.

Nominal form classes (henceforth abbreviated as NF and identified by an abstract representation of the relevant exponent in capitals) are classes of concrete

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[4] This differs from Corbett's (1991: 147) definition, itself inspired by Zaliznjak (1964), which caters well for agreement systems of European languages but not for others (cf. already Güldemann's (2000) discussion of some Kalahari Basin languages in Africa and Güldemann and Fiedler (2019, 2021) for a more general discussion). In our terms, nouns of the same agreement class need not refer to the same value of a particular agreement category, notably number.

[5] There are additional agreement features, for example, case, the discussion of which is beyond the scope of this topic.

noun forms of a language that share identical morpho(phono)logical properties.[6] They are the counterpart of agreement classes but pertain to the FORM of the agreement controller itself. In (2), nominal form classes are established by the prefixes on the subject nouns, namely NF MU- (with allomorph M–) on **m-toto** 'child' and NF WA- on **wa-toto** 'children'.

Finally, deriflection classes, henceforth just deriflections, stand for classes of nominal (or other) lexical bases established on account of their identical morpho(phono)logical paradigmatic variation and possibly similar semantic characteristics of the nominal referents. They are the counterpart of genders in the realm of nominal form. They are comparable to the more familiar concept "declension class" but differ from it in that our concept is wider in comprising both DERIvation and inFLECTION (hence the newly coined hybrid term). This is motivated by the fact that in line with Corbett's (1991) notion of "formal assignment" the agreement behavior of nouns is not only influenced by formal properties relating to inflection (e.g., for number) but also those conveying derivation (e.g., abstract or diminutive). In (2), the pairing of NF MU- in the singular and NF WA- in the plural is the typical (albeit not exclusive) inflection pattern of human nouns in Swahili.

It is important to recognize that, pace two reviewers, we do not consider NF classes and deriflections to merely serve the "equipollent marking of number" but consider them to reflect nominal classification, too – otherwise Swahili and other such Niger-Congo languages would not have elaborate sets of marker pairs for singular and plural as well as single-class patterns without any role for number establishing different deriflections with clear semantic-functional correlates (see Section 2.2.2 for more details).

2 Canonical and less canonical noun classification in Niger-Congo

2.1 The inherited type

The Swahili example (2) shows the type of Niger-Congo noun classification widely thought to be typical and inherited (cf., e.g., Westermann 1935; Williamson 1989: 31–40), in that it is reflected by both agreement-based genders and affixing

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6 A language like Rendille (Cushitic) has distinct accentual patterns of nouns that determine their different agreement behavior (cf., e.g., Oomen 1981). Accordingly, phonological properties need to be considered potentially in the recognition of different NF classes.
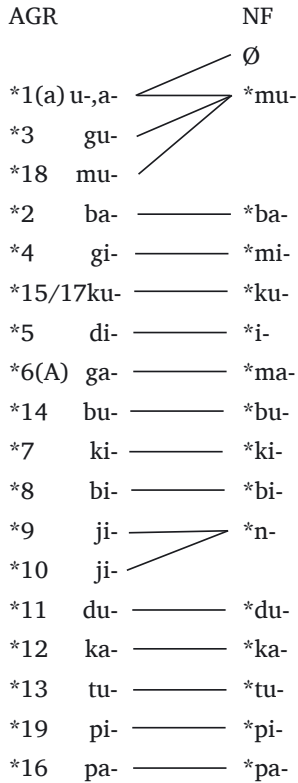
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AGR                NF
                    Ø
*1(a) u-,a-         *mu-
*3      gu-
*18     mu-
*2      ba- ——————— *ba-
*4      gi- ——————— *mi-
*15/17 ku- ——————— *ku-
*5      di- ——————— *i-
*6(A)  ga- ——————— *ma-
*14     bu- ——————— *bu-
*7      ki- ——————— *ki-
*8      bi- ——————— *bi-
*9      ji- ——————— *n-
*10     ji-
*11     du- ——————— *du-
*12     ka- ——————— *ka-
*13     tu- ——————— *tu-
*19     pi- ——————— *pi-
*16     pa- ——————— *pa-
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Figure 1: Mapping of 18 agreement and 16 nominal form classes in Proto-Bantu.

noun deriflections. The marking on agreement targets and nominal controllers is largely parallel due to the predominant biunique and alliterative mapping between agreement classes and nominal form classes, as epitomized in the philological "noun class" concept that is meant to capture both aspects. This is a historically old situation and is commonly reconstructed for various proto-languages within Niger-Congo (cf., e.g., Heine (1968) for Ghana-Togo-Mountain, De Wolf (1971) for Benue-Congo, Dimmendaal (1978) for Upper Cross, Gerhard (1983) for different Plateau groups, Snider (1988) and Manessy (1987) for Guang, Miehe et al. (2012) for Gur). The system of Proto-Bantu is particularly well researched, the reconstruction of which by Meeussen (1967: 96–104) is given in Figures 1 and 2.[7]

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7 The order of the classes in the figures does not bear on the argument but first of all serves to avoid crossed lines in the visual presentation of the systemic organization.
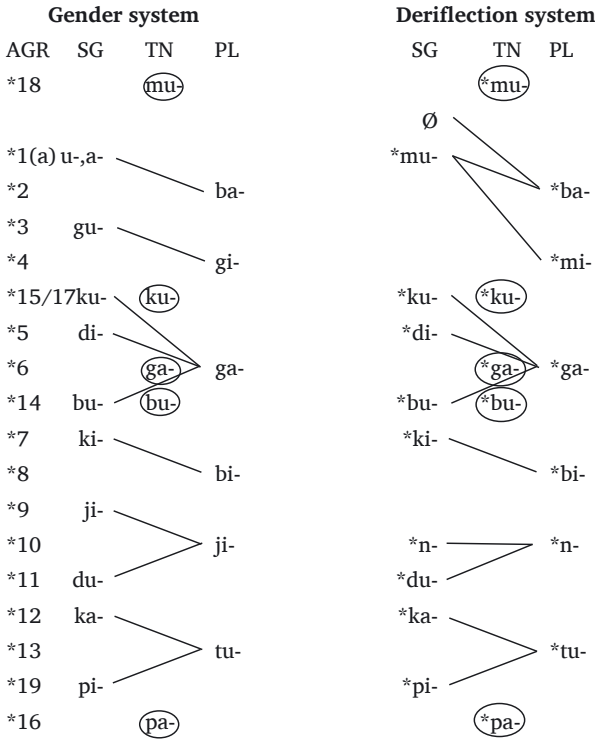
Figure 2: Gender system versus deriflection system of Proto-Bantu.

Figure 1 shows the inventory of agreement classes on the left side and of nominal form classes on the right side and how they correspond with each other. With some exceptions, there is a strong systemic and formal correlation between the two motivating the recognition of "noun classes" that conflate agreement and nominal form.

Figure 2 represents the reconstructed inventory of the agreement-based system of 10 paired and 3 single-class genders on the left side and the morphology-based system of 11 paired and 5 single-class deriflections on the right side (the single-class values of each system appear in the middle under TN and are encircled). As with agreement and nominal form classes, the two systems in Figure 2 correspond largely in terms of semantic and structural distinctions so that one can rightfully speak of a single unitary system of nominal classification in Niger-Congo languages of this type.

2.2 The case of Gonja (Guang, Potou-Akanic, Benue-Kwa)

The noun classification system of the type described in Section 2.1 is an inherited feature from an early state of Niger-Congo and still frequent in the family today (cf., e.g. Güldemann 2018; Westermann 1935; Williamson 1989). At the same time, many languages have restructured such an original system to a considerable extent, sometimes up to its entire loss (cf. Good (2012) for a detailed overview). One specific endpoint of such change is the reduction of the gender system to a simple binary opposition that may differ from the inherited assignment criteria, while the complex deriflection patterns reflecting semantic criteria of the proto-system are maintained. The existence of such cases is well-known (see Section 2.3 below). Here, we discuss their typological significance for the discussion of concurrent noun classification by means of such a new system in the Guang language Gonja.

2.2.1 Agreement classes and the gender system

According to the information in Painter (1970) and Rytz (1970), Gonja has four agreement classes that encode gender and number. Table 2 summarizes the diverse array of agreement targets and the class-specific exponents and (3) exemplifies the four classes by means of the paradigm of anaphoric object pronouns.

Table 2: Agreement classes of Gonja (after Painter 1970; Rytz 1970).

AGR	SBJ PRO	OBJ PRO	DEM	CARD. NUM	ORD. NUM	IDEF (one)	'any'	who/what	Num-ber	Gen-der
1	e-	e-mo	é-dè	–	é-	è-kó	è-kámà	è-mò	SG	A
2	bo-	bo-mo	bú-dè	bù-	bá-	bù-kó	–	bù-mò	PL	A
3	ki-	ku-mu	kí-dè	–	kí-	kù-kó	kì-kámà	mò	SG	IA
4	a-	a-mu	á-dè	à-	á-	à-kó	–	à-mò	PL	IA

(3)   Gonja
   a.   kà-nyέn   érì   nyòr   àcɔ́   **è-mǒ**   nà
        KA-man(1) this   be.thin surpass **1-PRO** DEF
        'This man is thinner than that one.'
   b.   ή   kɔ́   à-dàmàtá   àcɔ́   **bò-mò**   kíkὲ
        1SG have A-many   surpass **2-PRO**   all
        'I have more (sheep) than all of them.'
   c.   kà-díbì   érì   dú   pùlὲ-púlέ   àcɔ́   **kú-mú**   nà
        KA-tree(3) this   be   RED-tall   surpass **3-PRO**   DEF
        'This tree is taller than that one.'

d. Ø-dòróbì   érì   dú   nyáŋ-nyáŋ   àcɔ́   **á-mú**   kíkὲ
    Ø-lemon(3) this   be   RED-sour   surpass **4-PRO**   all
    'This lemon [SG] is sourer than those [PL].'
    (Painter 1970: 371–372)

The gender system emerges by abstracting from the agreement feature of number, as schematized in Figure 3, using the exponents of subject pronouns. It shows that Gonja has a simple system of two genders that encodes an opposition of animate versus inanimate. It has a so-called parallel structure and all agreement classes are dedicated to one gender and one number value.
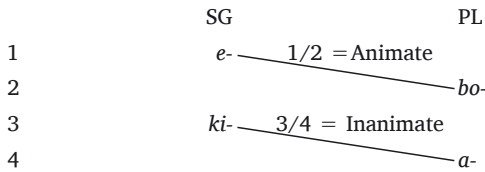
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             SG                        PL
1            e- ———— 1/2 = Animate
2                                    — bo-
3            ki- ——— 3/4 = Inanimate
4                                    — a-
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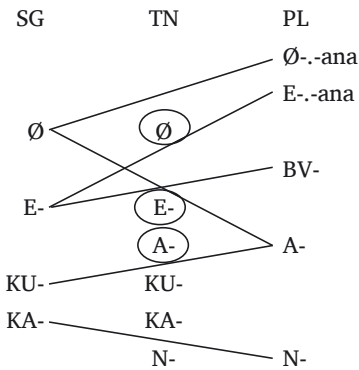**Figure 3:** Gender system of Gonja (after Painter 1970).

2.2.2 Nominal form classes and the deriflection system

Gonja possesses six nominal form classes marked by inherited prefixes as well as an additional Ø-marked class. Only one of these seven classes is dedicated to a single number value, namely the plural class BV-. This is due to the fact that most classes also involve transnumeral nouns – a term we use for lexemes that do not partake in the singular-plural opposition. There are two additional nominal form classes established by the combination of the Ø- and the E-classes with the plural suffix -*ana* that emerged outside the inherited prefix class system of Niger-Congo. Table 3 shows this NF inventory and gives sample nouns in the different number values.

It can be deduced from Table 3 that countable nouns establish singular-plural pairs of nominal form classes, for example, -**fὲtέ** 'monkey' with singular Ø and plural A-, -**yúr** 'skin, body' with singular **E-** and plural **E-.-ana**, and so on. The overall mapping of nominal form classes over number results in six recurrent class pairs and additional exceptional aka "inquorate" patterns, as counterparts of "inquorate" genders "postulated on the basis of an insufficient number of nouns, which should instead be lexically marked as exceptions" (Corbett 1991: 170). These multiple morphological patterns, called here deriflections, establish, even when disregarding the inquorate ones, a complex "crossed" system, as presented in Figure 4.

Table 3: Noun form classes of Gonja (after Painter 1970, Rytz 1970) ([a]without tone).

NF	Number	Allomorps[a]	Example(s)
Ø	SG		**fɛ̀té** 'monkey', **kòtòkú** 'sack', **cúrò** 'brother-in-law', **tùtò** 'father'
	TN		**dà** 'character'
E-	SG		**è-cé** 'woman', **é-bí** 'child', *è-yú* 'thief'; **è-yúr** 'skin, body'
	TN		**è-bú** 'room', **è-bálàng** 'meat', **é-póng** 'belly'
BV-	PL	*ba-, bi-, bu-*	**bà-cúrò** 'brothers-in-law', **bà-cé** 'women', **bí-bí** 'children', **bù-yú** 'thieves', **bà-nìkpá** 'friends'
KU-	SG	*ki-, kɪ-, ku-, kʊ-*	**kì-nìkpá** 'friend', **kì-wá** 'snake', **kù-shúng** 'work', **kí-bémbì** 'thigh'
	TN		**kì-nyì** 'boasting', **kì-sèlí** 'in-law's funeral'
A-	PL		**à-fɛ̀té** 'monkeys', **à-kòtòkú** 'sacks', *à-tó* 'fathers', **à-wá** 'snakes', **à-shúng** 'works', **á-bémbì** 'thighs'
	TN		**á-kóng** 'hunger', **á-kpátásì** 'spirit'
kA-	SG	*ka-, ko-*	**kà-díbì** 'tree', **kó-dɔ́** 'farm', **kà-bówé** 'goat'
	TN		**kà-sà** 'loving', **kà-shing** 'time'
N	PL	*n-, m-,*	**ǹ-díbì** 'trees', **ǹ-dɔ́** 'farms', **m̀-bówé** 'goats'
	TN	*ɲ-, ŋ-*	**ny-cú** 'water', **ḿ-fɔ́l** 'salt'
E-.-ana	PL		**è-yúr-ánà** 'skin, bodies'
Ø-.-ana	PL		**tùtò-ánà** 'fathers'

Figure 4: Deriflection system of Gonja (after Painter 1970).

Six of the nine nominal form classes occur with transnumeral nouns. The status of these sets of nouns in the deriflection system cannot be resolved conclusively with the limited data at our disposal. Those in **KU-** and **KA-** can arguably be viewed as singularia tantum of the paired deriflection **KU-/A-** and **KA-/N-**, and those in **N-** as pluralia tantum of **KA-/N-**. While these would not affect the deriflection system, the

situation with the exponents **Ø, E-**, and **A-** for transnumeral nouns is different, as these partake in more than one paired deriflection. Since we cannot assign these groups of transnumeral nouns unambiguously to a deriflection already recognized, we identify three additional single-class deriflection patterns.

Central for the present discussion is that most deriflections have clear semantic and structural import so that the deriflection system as a whole establishes nominal classification in the sense of creating distinct noun groups which, similar to canonical gender or classifier systems, correlate at least partly with different semantic and grammatical properties.

Examples for certain deriflections tied to some extent to semantic traits are as follows: **Ø/Ø-.-ana** for kin terms (e.g., 'father' in Table 3, **tánà/tánà-ánà** 'aunt (father's sister)'); **E-/BV-** for humans (e.g., 'woman', 'child' in Table 3, **é-sà/bá-sà** 'man/men'); **KA-/N-** for animals (e.g., 'goat' in Table 3, **kà-bwíb↓í/m̀-bwíb↓í** 'bird'); **KU-/A-** for some animals (e.g., 'snake' in Table 3, **kì-náʔ/à-náʔ** 'cow') and body parts (e.g., 'thigh' in Table 3, **kù-sʊ́/à-sʊ́** 'ear', **kù-mú/à-mú** 'head'); **E-/E-.-ana** for elongated entities (e.g., **é-bóŋ/é-bóŋ-ánà** 'stream', **ɛ́-fɔ́lʔ/ɛ́-fɔ́lʔ-ánà** 'rope'); and **N-** for liquids and masses (e.g., 'water', 'salt' in Table 3).

Only partly tied to the previous semantic criteria, certain deriflections are also used productively for derivational purposes, quite parallel to what is also typical for agreement-based noun classification in Niger-Congo. Some such derivations, e.g., for infinitives, are not primarily semantic but confer a specific morphosyntactic character on the noun. Relevant examples are: **KA-/N-** for group membership (e.g., **kà-málbà/ m̀-málbà** 'Hausa person') and diminutives (e.g., **kà-nà-bí/m̀-nà-bí** 'calf' from **kì-náʔ/ à-náʔ** 'cow'); **E-/BV-** for deverbal agent nouns (e.g., **é-dɔ́-pò/bú-dɔ́-pò** 'farmer' from **dɔ** 'to farm', **è-yú/bù-yú** 'thief' from **yú** 'to steal'); **KU-** for deverbal process nouns (e.g., 'boasting' in Table 3, **kú-dɔ́** 'farming' from **dɔ** 'to farm'); and **KA-** for deverbal resultative nouns (**kà-yú** 'theft' from **yú** 'to steal', **kà-fóé** 'mistake' from **fóé** 'to loose').

Another sign for the productivity of the deriflection system is the regular assignment of borrowings to the pattern **Ø/(A-)**, as, e.g., the Akan loan **bɔ̀rdìyɛ́/ a-bɔ̀rdìyɛ́** 'plantain'. This is independent of gender assignment according to the semantic basis of ±animate. Thus, **tícà/á-tícà** 'teacher' from English *teacher* has animate agreement while **tébùl/à-tébùl** 'table' from English *table* is assigned to inanimate gender, despite the fact that both nouns have the same deriflection.

In general, noun lexemes follow in their morphological behavior assignment criteria that differ from those reflected by agreement. In other words, the deriflection system of Gonja represents a type of nominal classification system on its own by establishing different classes of nouns distinguished by their semantic and grammatical characteristics. This system is obviously inherited from its earlier canonical Niger-Congo profile with semantic correlations that are much stronger than found in, say, inflectional classes of Indo-European languages. Such a

phenomenon has been previously anticipated, for example, under so-called "non-agreeing classification" by Nichols (1992: 134–6):

> In many languages there are distinct declension classes of nouns, or other formal classes of nouns, which can sometimes be associated with semantic categories like those involved in gender and other kinds of classification but which never involve agreement, selection, or other formal response (Nichols 1992: 134).

2.2.3 Concurrency

What emerges from Section 2.2.1 on gender and Section 2.2.2 on deriflection is that Gonja has two distinct domains where nouns are classified into distinct sets and the question arises to what extent these constitute a single system or are better viewed as concurrent in terms of Fedden and Corbett (2017). These authors investigate nominal classification that is reflected on elements that are detached from the elements classified, that is, in agreement-based gender and in classifier systems. As we argue, the deriflection system of Gonja also classifies nouns and thus represents non-agreeing classification in terms of Nichols (1992).

We will accordingly assess whether the situation in Gonja and similar languages qualifies as a case of concurrent noun classification. Fedden and Corbett (2017) propose various concurrency measures in their canonical typology approach. Some are not applicable in our case due to the quite different morphosyntactic loci of classification in Gonja, namely on the noun itself via morphology and on dependent words via agreement. We thus discuss here the following three criteria:
(a) similarity of formal encoding: agreement versus nominal form classes
(b) structural orthogonality: mutual predictability of genders and deriflections
(c) semantic basis of classification: genders versus deriflections

With respect to the first factor of formal encoding of agreement and nominal form classes, we can observe a considerable degree of diversity between the two. This is obvious from the different inventories of four agreement classes versus nine nominal form classes. At the same time, all four agreement classes can be argued to have formal counterparts in the inventory of nominal form classes. Using the ratio between shared and all forms as a similarity measure, that is 4 : 9, we arrive at a value of 0.44. This is slightly closer to the value 0 of maximal orthogonality than to the value 1 of maximal identity. It should also be taken into account that the correspondence of the four agreement classes and the respective nominal form classes holds first of all from an etymological perspective, because – their parallel number values aside – the relevant forms are no longer identical in semantic terms (cf. Fedden and Corbett 2017: 13). This can also be seen from the mapping of
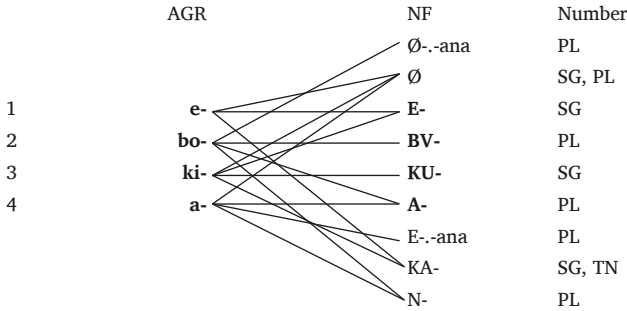
Figure 5: Mapping of agreement and nominal form classes in Gonja.

agreement classes and nominal form classes shown in Figure 5 (dealing with count nouns that vary with number, as the description is not clear about the agreement of transnumeral nouns). The figure demonstrates a strongly crossed pattern, where all four agreement classes of modern Gonja also match up with nominal form classes other than their formal counterparts.

The second measure is the structural orthogonality score between genders and deriflections. According to Corbett et al. (2017: 227) or Fedden and Corbett (2017: 31), "two features are fully orthogonal if each value of one feature co-occurs with each value of the other; …" The situation in Gonja is schematized in Table 4 and Figure 6.

Gonja has two genders and nine deriflections which yields a maximum of 18 possible combinations. The two systems would be fully orthogonal if all 18 combinations were attested. The two systems increasingly overlap the more they approach the minimum of nine combinations because gender categories then are increasingly predictable from deriflection categories and vice versa. Since only 12 out of 18 possibilities are attested, the resulting score according to Fedden and Corbett's (2017: 18) formula is 0.33 vis-à-vis the maximum of 1. In this measure, the low value of 0.33 reflects a relatively low orthogonality of the two systems.

The final concurrency criterion relates to the semantics of the gender and deriflection systems. Gender in Gonja operates a simple distinction of animate versus inanimate, while the deriflection semantics are considerably different. Figure 6 shows that many more and distinct semantic and structural criteria are involved,

Table 4: 12 gender-deriflection combinations in Gonja.

	E-/BV-	Ø/Ø-.-ana	KU-/A-	KA-/N-	Ø/A-	E-/E-.-ana	E-	Ø	A-
I = A	X	X	**X**	**X**	**X**				
II = IA			**X**	**X**	**X**	X	X	X	X

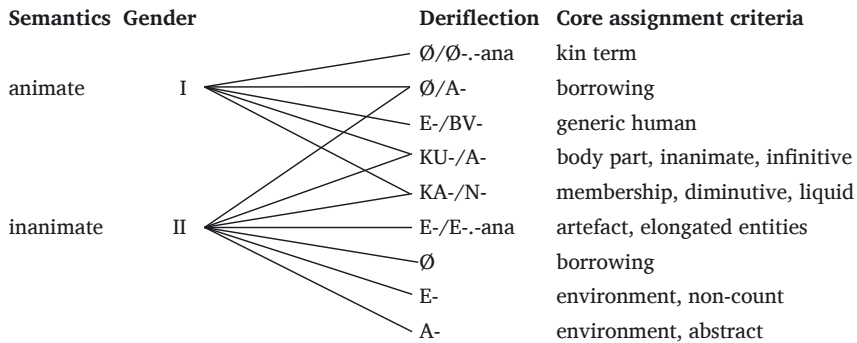| Semantics	Gender		Deriflection	Core assignment criteria
			Ø/Ø-.-ana	kin term
animate	I		Ø/A-	borrowing
			E-/BV-	generic human
			KU-/A-	body part, inanimate, infinitive
			KA-/N-	membership, diminutive, liquid
inanimate	II		E-/E-.-ana	artefact, elongated entities
			Ø	borrowing
			E-	environment, non-count
			A-	environment, abstract

Figure 6: Mapping of genders and deriflections in Gonja.

such as generic human, kinship, group membership, diminutive, body part, non-countable, aggregate, abstract, deverbal derivation, infinitives (see Section 2.2.2 for more details). Moreover, the assignment according to animacy in the gender system is partly at odds with the criterion of humanness in the deriflection system in that non-human animates would be treated differently. Overall, the assignment principles of each system have a quite limited overlap and are a major argument that the two should be analyzed as independent.

The three criteria for assessing concurrency of classification have different strengths of evidence with the order: semantics > formal similarity > structural orthogonality. The different semantics are our strongest argument for viewing noun classification by means of agreement-based gender marking and by means of nominal affix morphology as two concurrent phenomena.

2.3 Concurrent classification across Niger-Congo

As mentioned above, the attrition in Niger-Congo of the original complex noun classification system of the proto-language is widespread and diverse, as was observed early on, for example, by Greenberg:

> The drift in Niger-Congo has been in the direction of the simplification of the nominal classificational system. (Greenberg 1949: 90)

The recent survey of such changes by Good (2012) makes clear, however, that simplification proceeds within certain general constraints. One such constraint is that different components of the overall system have their own dynamics that are in principle independent from those of other components. Thus, Miehe (forthcoming) observes notably that in line with our findings:

Table 5: Modern Niger-Congo language types vis-à-vis inherited noun classification.

Type	Good retention of		Typical examples attested in:
	Gender	**Deriflection**	
I	YES	YES	Bantoid, Atlantic, Mel, Gur, etc.
II	**NO**	**YES**	**Bantoid, Guang, Ghana-Togo-Mountain, Gur, Atlantic**
III	YES	NO	Kainji-Platoid, Cross-River, Wolof
IV	NO	NO	Gbe, Igboid

> … the marking of nouns and the concord (agreement) systems in their formal and semantic multiplicity should be considered as independent paradigms with regard to their evolution. (Miehe forthcoming: 239)

This observation in mind, one can classify the nominal systems of modern Niger-Congo languages into four idealized types vis-à-vis the original state in the assumed proto-language, depending on whether any of the two domains of gender and deriflection were subject to considerable change, as shown in Table 5. The types II and III are characterized by the innovative large-scale non-congruence between the gender and the deriflection system. In particular, Type II develops through the extensive attrition of the original alliterative agreement that automatically affects the gender profile.

Such highly reduced gender systems emerged several times independently, which has been observed previously (e.g., Creissels et al. 2008: 117; Good 2012: 319–321; Maho 1999: 127–142; Van de Velde 2019: 243–244). A selection of genealogically and geographically widely dispersed Niger-Congo languages with this feature is given in Table 6.

All such languages are extreme cases of a more general phenomenon in Niger-Congo observed by Güldemann and Fiedler (2019, 2021), namely that deriflection systems are often more complex, or at least not simpler, than the associated gender systems in terms of inventory as well as systemic structure. This also implies that the gender system appears to be more innovative and the locus of reorganization/simplification while the deriflection system is more conservative and complex. The frequency of this phenomenon across Niger-Congo makes it hard to agree in a general fashion with Demuth, Faraclas, and Marchese's (1986: 462) historical conclusion about "a primacy of concord over nominal marking" or Dimmendaal's (2001: 381) claim that "concord systems generally speaking are more conservative than markers on the noun across Niger-Congo." What these authors may have referred to is an observation made also in Indo-European languages, namely that "morphophonological erosion of gender inflections tends to spread from nouns" (Di Garbo and Miestamo 2019: 37). This would be in line with reduced deriflections

Table 6: Selected cases of extreme agreement reduction in Niger-Congo.

Language	Classification		Country	Source
Koromfe	(Central) Gur	Gur	Burkina Faso	Rennison (1997)
Samu	Samuic	Gur	Burkina Faso	Winkelmann (2007a)
Win	Tusian	Gur	Burkina Faso	Winkelmann (2007b)
Akan	Akanic, Potou-Akanic	Benue-Kwa	Ghana	Osam (1993)
Gonja	Guang, Potou-Akanic	Benue-Kwa	Ghana	Painter (1970)
Igo	Ka-Togo	Benue-Kwa	Togo	Gblem-Poidi (2007)
Gade	Nupoid	Benue-Kwa	Nigeria	Sterk (1978)
North Ivie	Edoid	Benue-Kwa	Nigeria	Masagbor (1989)
Medumba	Grassfields, Bantoid	Benue-Kwa	Cameroon	Goldman et al. (2015)
Kako	Zone A, Bantu, Bantoid	Benue-Kwa	Cameroon	Ernst (1992)
Nzadi	Zone B, Bantu, Bantoid	Benue-Kwa	DR Congo	Crane et al. (2011)
Lingala	Zone C, Bantu, Bantoid	Benue-Kwa	DR Congo	Guthrie and Carrington (1988)
Beeke	Zone D, Bantu, Bantoid	Benue-Kwa	DR Congo	Vorbichler (1963)
Ma	Mbaic	Ubangi	DR Congo	Pasch (1991)

before reduced genders, which does occur (see, e.g., Babou and Loporcaro 2016; Pozdniakov and Robert 2015 for Wolof) but on which we cannot yet provide any representative findings for Niger-Congo. The present topic is primarily concerned with what Di Garbo and Miestamo (2019) call "redistribution [or more generally 'reorganization'] of agreement patterns." Here, the concord system on targets is often less conservative in Niger-Congo than the system of nominal forms, also in line with cross-linguistic observations by the previous authors.

　　Most languages in Table 6, like any relatives with a similar profile, are candidate cases of concurrent noun classification of the Gonja-type. As discussed in Section 2.2.3, a central criterion for concurrency is the innovative assignment principle of animacy so that the evaluation of the languages in Table 6 hinges to a considerable extent on whether they retain the ±human distinction ingrained in the inherited Niger-Congo system or underwent a shift to an animacy-based opposition. That is, if a language reduces the gender system to a distinction of human versus non-human, it is plausible to argue that the additional semantic criteria in the inherited deriflection system are merely subsumed under the non-human value of the new bipartite gender opposition, representing something parallel to Corbett's (1991: 163) "sub-genders" – hence, still a case of a single gender system rather than two distinct ones. In some cases, such as the Gur language Koromfe and the Bantu language Nzadi, the highly reduced gender system appears to be based indeed on the feature ±human and is thus less likely to involve concurrent noun classification. It is also possible that the gender system is based unambiguously on animacy but the prefixal inflection no longer conveys a more or less transparent way of nominal classification, which may

be the case in a Bantu language like Beeke (cf. Maho (1999: 127–142) for more data and discussion about such deviant cases in the Bantu family). In general, several languages of Table 6 are known insufficiently, and more research is necessary for a final conclusive assessment with respect to the problem at issue.

When speaking of an animacy-based gender system as an innovation in Niger-Congo, it is important to acknowledge that this feature is already latent in languages with a canonical noun classification system. The context-driven amalgamation of the grammatical treatment of human and non-human nouns that are perceived as animate is a widespread phenomenon in and outside Niger-Congo which in some languages can become generalized. Suffice it to refer here to the topic of so-called "general animate concord" in Bantu (cf., e.g., Wald (1975), Maho (1999: 122–126), Contini-Morava (2008) for some discussion).

The extension process has both a stylistic and a grammatical aspect. Regarding the first stylistic factor, the treatment of non-human animates like humans occurs typically in stories involving personified animals and may spread from this salient discourse type to other text genres. Concerning the second morphosyntactic aspect, the available data strongly indicate that the shift is facilitated by the linear and/or syntactic distance between controller and target and starts in contexts of long-distance anaphoric agreement in line with Corbett's (2006) agreement hierarchy in Figure 7 (cf. also Di Garbo and Miestamo 2019: 25, 37).

attributive > predicate > relative pronoun > personal pronoun

⟵————————————————————————————⟶

Assignment:	Formal	Semantic
Distance:	Short	Long

Figure 7: Agreement hierarchy (after Corbett 2006: 207).

Compare in this respect examples (4) and (5) from another Guang language, Nawuri, that is not (yet) of the Gonja-type. In (4), one observes the possible alternation of an animate subject noun between lexically determined alliterative agreement **ga** in the (a.)-version and semantically motivated agreement ɔ in the (b.)-version. This is a recurrent phenomenon with clausal subject-predicate agreement and even more so with agreement across clauses.

(4)   Nawuri
        a.   **ga**-bʷi   **ga**   ɩ-ba
             GA.6-goat$_x$ **6**.SBJ$_x$ IPFV-come
             'The goat is coming.'

b. **ga**-bʷi   daŋ **ɔ**   sʊ   ɔ   naa   (gabʷi daŋ ***ga** sʊ ɔ naa)
   GA.6-goat$_x$ INT **1**.SBJ$_x$ have 1.OBJ walk
   'Goat is walking with it.' [with animate singular class 1]
   (Casali 1995: 71, 81)

Variation as in (4) has not yet intruded short-distance agreement in the noun phrase. In (5), nouns of the same nominal form class and apparent semantic potential[8] behave differently according to morphosyntactic scope: the (a.)-version shows the obligatory formal agreement **N-** of a modifier in a noun phrase, while the (b.)-version involves an instance of agreement **ba-** for plural animates~humans on the clause level overriding formal assignment.

(5)   Nawuri
   a. **m**-bwɪ   libi   **ŋ**-kʊʊ   (mbwɪ libi ***ba**kʊʊ)
      N.7-spirit$_x$ bad   7-some$_x$
      'some bad spirits'
   b. **m**-baa   **ba**   bʊ   n-dɔɔ   tɔ   (mbaa ***m** bʊ ndɔɔ tɔ)
      N.7-wasp$_x$ **2**.SBJ$_x$ be   N-farm   on
      'There are wasps at the farm.' [with animate plural class 2]
      (Casali 1995: 71, 72)

In general, the emergence of animacy-based gender in Niger-Congo languages of type-II is associated with the drift away from a strongly morphological assignment that targets the **grammatical form** of the nominal lexeme, here the noun affix, toward a strongly semantic assignment system that targets the lexeme's **referential meaning** as determined by the lexicon or context.

3 Discussion

With this contribution, we propose to expand the notion of concurrent noun classification because we view Gonja-type languages to present a new type for Fedden and Corbett's (2017) proposed typology, this in two important ways. The first

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8 A reviewer rightly observes about (5a) that spirits may not be regarded as animate in the same way as humans or animals, so that the example may not illustrate our intended point about short- versus long-distance agreement. Unfortunately, the available material does not furnish an example with a clearly animate noun. Example (4) nevertheless shows that the phenomenon is relevant in the language.

is the necessary recognition of possible concurrency in a different configuration regarding the morphosyntactic loci of classification. The focus of Fedden and Corbett is concurrency effected on different parts of speech **detached** from the classified items, notably agreement targets for gender marking or classifiers. That is, the cases of concurrency on record up to now exist in different syntactic domains. As opposed to this, our above data involve concurrency between agreement targets and the morphology (called here deriflection) that occurs on the classified elements themselves. The combination of syntax and the non-syntactic domain of nominal morphology represents a new concurrency type from a synchronic perspective.

There is a second historical aspect of the relevant Niger-Congo languages that adds to the discussion of concurrent noun classification in a novel way. From a purely theoretical point of view, one can conceive of two opposite scenarios of how concurrency can arise. One option is that the different systems have a separate origin in having emerged in diverse morphosyntactic contexts and/or at different time points, or, in the case of Michif in Section 1, even in distinct languages. As far as we can see, this accounts for all cases of concurrent systems identified so far (see Section 1 above). This scenario also applies to some cases in Africa. Thus, some Niger-Congo languages have innovated a classifier system in addition to their inherited gender system, notably the Mbaic language Dongo with new possessive classifiers (Pasch 1985, 1986) and some Bantoid languages with innovated numeral classifiers (Kießling 2018). Moreover, Mba, also from the Mbaic family, possesses in addition to the Niger-Congo type noun classification a pronominal gender system based on transparent semantic features like animacy and natural sex (Fiedler et al. 2021; Pasch 1986).

What is important about the Gonja-type languages discussed here is that they are cases for the other historical scenario of the emergence of concurrent noun classification, not yet envisioned by Fedden and Corbett's (2017) pioneer work. Here, an originally unitary system diversifies over time in different morphosyntactic domains with the endpoint of two largely independent systems. That this scenario is not tied to the Niger-Congo profile of noun classification becomes clear from the case of the Tuu language Taa. This figures an **intra**-sentential gender system with seven agreement classes establishing in the most complex dialects close to ten genders that are formally and semantically largely opaque. At least in the East !Xoon dialect, three of the seven agreement classes are said to convey another simple and semantically distinct gender opposition of animate versus inanimate, namely in *inter*-sentential anaphoric contexts (cf. Güldemann 2000; Kießling 2008; Traill 1994).

The emergence of concurrency in Niger-Congo via diversification of a single into two classificatory systems is nevertheless quite distinct in being contingent on the
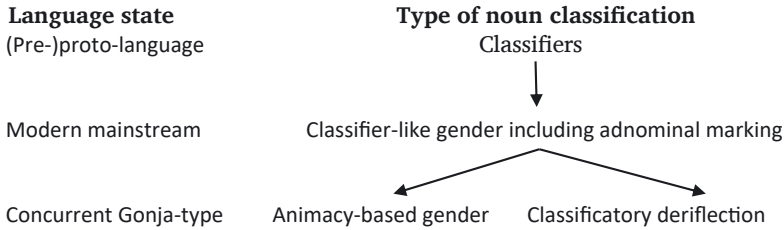
Language state	Type of noun classification

Language state — **Type of noun classification**
(Pre-)proto-language — Classifiers

Modern mainstream — Classifier-like gender including adnominal marking

Concurrent Gonja-type — Animacy-based gender — Classificatory deriflection

Figure 8: Different developmental stages of noun classification in Niger-Congo.

specific design of its inherited, typologically rare gender system. Early Niger-Congo started out with nominal classification that was not just "overt" on the controller but involved a particularly strong parallelism across all encoding contexts, that is, in both nominal morphology and syntactic agreement (cf. Section 2.1). The so far unprecedented diachrony is in fact behind the above observation that Gonja and similar languages instantiate a new concurrency type in synchronic terms combining a morphologically and a syntactically based system of noun classification.

Against the background that the Niger-Congo "noun class" system can be argued to derive ultimately from a proto-system of classifiers (Güldemann and Fiedler 2021; Güldemann and Merrill in prep.; Kießling 2013), Figure 8 schematically represents the historical relation between some of the different noun classification types found in Niger-Congo today.

A central innovation discussed above is the emergence of an animacy-based gender opposition. From a typological perspective, this is not remarkable because such a distinction is cross-linguistically salient. It is at least as important as, if not more important than, the ±human pattern, as observed by such authors as Heine (1982: 191), Nichols (1992: 129), Croft (1994: 148), Dahl (2000: 101), Mithun (2001: 93), Kilarski (2013: 13), and Corbett (2013: §3). Such a basic binary gender distinction is supported by the referential prominence and topic-worthiness of animate and/or human nouns, so that different types of grammatical marking tend to single them out (cf., e.g., Malchukov (2008: 204) for a typological perspective and McGill (2009) for an extensive discussion concerning the Kainji language Cicipu). If one were to align the restricted set of so-called 'macrogenders' (cf. Nichols 1992) as different cut-off points on a semantic hierarchy, as in (6), the grammatical distinction of animates from inanimates would arguably be the most inclusive, and in some sense basic, choice on this scale (cf., inter alia, Aissen 2003, Comrie 1989; see also De Swart and De Hoop's (2018: 16) gradient 'conceptual animacy').

(6)   +Feminine or +Masculine > +Human > +Animate

The development of the new **animacy**-based macrogender in Niger-Congo is thus a reversion to a typologically basic trait and from a cognitive perspective simplifies noun classification in the realm of agreement to a semantically largely transparent principle. At the same time, it leads to a typologically rare concurrency with the categorically distinct *human*-based macrogender that is ingrained in the inherited classification and still reflected in the modern deriflection system. That is, the considerable simplification in the gender system has the opposite effect for the overall system of noun classification, namely its complexification toward two different systems in distinct morphosyntactic domains.

Abbreviations

A	Animate
AGR	Agreement class
CARD	Cardinal
D	Distal
DEF	Definite
DEM	Demonstrative
F	Feminine
IA	Inanimate
IDEF	Indefinite
INT	Intensifier
IPFV	Imperfective
M	Masculine
NF	Nominal form class
NUM	Numeral
OBJ	Object
ORD	Ordinal
PERF	Perfect
PL	Plural
PRO	Pronoun
RED	Reduplication
SBJ	Subject
SG	Singular
TN	Transnumeral

Arabic numerals indicate AGR classes. If triggered primarily by the meaning of the nominal stem, this stem is marked for the AGR class. Primarily morphological assignment is indicated by adding the AGR class to the NF exponent, which is indicated by capital letters.

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