Language in Africa 4(1), 2023, 86–99. doi: 10.37892/2686-8946-2023-4-1-3-85

ANOMALIES IN THE NOUN CLASS SYSTEMS OF NIGER-CONGO: TOWARDS A TYPOLOGY OF THE ATYPICAL

Konstantin Pozdniakov
INALCO – LLACAN – Labex EFL
konstantin.pozdniakov@cnrs.fr

Abstract: The paper focuses on minor noun classes and minor genders in Niger-Congo languages, which are usually regarded as anomalies in class systems. It takes into consideration data from 243 languages, and shows that such anomalies are most characteristic for quite specific meanings, namely those traditionally regarded as prototypical meanings of noun classes: 'person', 'thing', 'foot', 'tree', 'eye', 'place', etc. Thus, the particular patterns of class agreement observed, or particular correlations between singular and plural noun classes, often do not represent accidental exceptions, but are better thought of as a kind of marker of noun class paradigmatic semantics.

Key words: Niger-Congo noun classes, anomalies in noun class systems, minor noun classes and genders, typology of the atypical, prototypical noun class meanings, noun class paradigmatic semantics

1. Introduction

In many languages of the Niger-Congo macrofamily, and especially in its West African branches, along with the typical noun classes containing hundreds of nouns, there are also minor classes that contain only a few nouns or even just one noun with a special agreement pattern and special class markers. Thus, in Joola Gusiilaay, according to Sapir (1965), only the noun *ja-lɔŋ* 'pounded rice' (< 'to pound') belongs to the **ja-** class.

Even more common are languages in which minor classes are absent, but there are numerous atypical correlations of classes in

number, meaning that for some nouns it is necessary to postulate non-standard plural (or singular) forms. Thus, according to SIL 2018, in the same language Joola Gusiilaay only the noun *ɲɪ-kɪn* 'ricefield plot' shows the correlation SG **ɲɪ-** / PL **mu-**.[1]

At first glance, such marginal anomalies are not significant and do not seem to deserve the special attention of researchers, especially when describing complex systems of noun classes like many of the systems seen in Atlantic languages. Indeed, there is no reason to believe that the anomalies that can be identified are determined by the specific meanings of the words involved, such as 'pounded rice' or 'ricefield plot'. It is hard to imagine that we will encounter special classes for nouns with these meanings in other languages.

However, along with such examples of very specific meanings borne by nouns showing class anomalies, we regularly find other cases where particular classes or exclusive correlations in number are used for nouns with the most important common meanings in the framework of the given noun class system. Thus, for example, also in the Joola languages, a special plural class is attested just for the noun for 'person', whose unique marker *bak-* is formed by joining the human plural class **ba-**[2] to the human singular class ***ku-**.[3] This feature of the Atlantic languages of Casamance was noted by David Sapir (1965) and proved to be so important that Sapir suggested using the term "Bak languages" to refer to this Atlantic branch.[4]

The difference between this example and the previous ones is not only that the words for 'person(s)' are central to the description of the Niger-Congo noun class systems (it is no coincidence that we number the noun classes for humans as classes 1 and 2). The point is that special marking for words with these meanings is found not only in

[1] In this paper, the slash is used to separate singular and plural lexical forms or singular and plural noun classes.

[2] This probably descends from ****ba-***, the class 2 marker in Proto-Niger-Congo.

[3] For Proto-Atlantic, the class 1 marker is reconstructed *as* ****ku-***.

[4] See Pozdniakov & Segerer 2023 (in press) for details.

the Joola languages and in other Bak languages, but also in a number of other Atlantic languages, and also, as will be shown, in a number of languages of other Niger-Congo branches. Note that a wide variety of strategies are used in noun class systems to mark words for 'person' in a particular way. Let us consider two specific examples from the other – northern – branch of the Atlantic languages: the words for 'person' in Wolof, and also in Laalaa, one of the Cangin languages.

Wolof. In this language, the entirety of nouns are distributed over just eight singular and two plural noun classes. So, it is not surprising that the majority of classes include hundreds of nouns. However, there are only two nouns in class **K**, namely *nit* K 'person' and *këf* K 'thing'. To anyone who is even vaguely familiar with the noun classes in the Niger-Congo languages, it is quite obvious that these two meanings are not random for a noun class system – on the contrary, they represent the two most important concepts in the opposition "animate vs. inanimate" which is central to Niger-Congo noun class systems. It must be emphasized that class **K** does *not* oppose animate and inanimate here; on the contrary, it neutralizes the opposition according to this key feature, in that class **K** includes nouns with both of the indicated meanings 'person' and 'thing', and does not include anything else. Thus, in the above case, the exclusivity of the noun class (a particular agreement pattern applying to just two nouns) deals not with something marginal but with the most important feature of the class system.

Laalaa. Like in Wolof, the nouns for 'person' and 'thing' belong to a special noun class **Y**, which includes only two nouns: *ɓɔy* Y 'person', *ɔɲ* Y 'thing'. At the same time, while the plural form of the word for 'thing' is standard (it belongs to the vast plural class **C**: *ɔɲ* C 'things'), the plural for 'person' belongs to to a special plural class **Ɓ** that includes precisely one noun, namely *ɓɔy* Ɓ 'persons' itself (Dièye 2015: 296–297). Thus, the exclusivity of the noun with the meaning 'person' is marked twice and even three times over: in the singular (**Y**), in the plural (**Ɓ**) and in the unique correlation in number (**Y / Ɓ**). To emphasize that in etymological terms class **K** in Wolof and class **Y** in Laalaa are apparently different, that is,

the similarity between the Atlantic languages Wolof and Laalaa that I have drawn attention to here is typological, not genetic.

In both languages, and apparently independently of each other, we are faced with non-standard formal coding of what are precisely the most important nouns in terms of the functioning of the prototypical system of Niger-Congo noun classes, namely the nouns that mean 'person' and 'thing'.[5] We see that in systems such as Wolof classes, anomalies do affect the most important meanings. This is confirmed, in particular, by the fact that in Wolof there are only two plural noun classes: one class for some animate names, the other for inanimate ones (for details, see Pozdniakov & Robert 2015). This in itself allows us to consider the category of animacy as the central category in the Wolof class system.

Let us now consider important anomalies of another kind.

Fula. There are over 20 noun classes in this language, and most of these classes include hundreds of nouns. However, like many other Atlantic languages, Fula also has classes that include very few nouns. For example, the most comprehensive Fula dictionary (Seydou 2014), containing more than 23,000 words, lists just 37 nouns as belonging to the **NGE** class. However, an analysis of their semantics shows unambiguously that in fact only three key meanings are found in this class: 'cow', 'fire' and 'sun'. 28 nouns are associated with the meaning 'cow', 6 with the meaning 'sun', and 3 with the meaning 'fire'.

Of course, the class exclusivity of these nouns is well perceived by native speakers and specialists, who often refer to this Fula class as the cow-class (Klingenheben 1963: 71). Hence, in the history of the study of the Fula language and in the oral tradition, all kinds of speculations appear, emphasizing the special significance of the cow among the pastoral Fulbe people. In other words, all these numerous

[5] The various uses of the term "prototypical" in the African linguistic literature are discussed in (Pozdniakov 2013). For our purposes here, the term "prototypical" refers to the correspondence of the observed systems of noun classes to the presumed Proto-Niger-Congo system.

interpretations suggest (consciously or not) that the very fact that only a small number of words belong to a given noun class, i.e. its exclusivity, signals the most important nodes of semantic classification in language and even in culture. This thought is clearly expressed, for example, in the following very interesting statement: "Considering the importance of cows for the Fulbe, it is not strange that there is a separate noun class for these animals" (Breedveld 1995: 70). The anomalies in the class system (in this case, a special class for one or only a few nouns) and the importance of a given concept are unambiguously linked here. Moreover, it logically follows that anomalies mark not only the central structural units of the noun class system, as in Wolof or Laalaa, but they can be used to mark some important cultural concepts – for example, 'cow' or 'sheep' among cattlemen.

If anomalies can mark the most important meanings in the grammatical category of noun class and even in some of the most significant cultural concepts, we might expect to find a systematic typological study in which such anomalies would be identified across languages, groups, and families. It would be interesting to know, for example, if there are other Atlantic languages and, more broadly, other Niger-Congo languages in which the cow is marked in a special way in the noun class system. What other concepts tend to regularly show anomalies in noun classes? How often do anomalies occur? Is it possible to draw up a "typology of the atypical" with respect to noun classes? Surprisingly, we have no comprehensible answers to these questions. There is no typology of anomalies in noun class systems. I am not aware of any publication in which such anomalies have been systematically considered – not only across different branches of the Niger-Congo family, but even within any single branch, for example Bantu.

Indeed, a special marking of nouns with the meaning 'cow' occurs, as it is easy to show, in other Atlantic languages, for example, in Konyagi, but in Konyagi anomalies in the class system can also be found for the name of the elephant, while in other Atlantic languages

exceptions are found for the names of other animals. Some examples of such exceptions in Atlantic languages are given in Table 1.

Table 1

Examples of anomalies for animals in the Atlantic languages

Language	**Forms**	**Meaning**	**CL SG**	**CL PL**
Sereer	*Ø-naak* l / *Ø-naak* k[6]	‘cow’ (+ ‘goat’)	**Ø- … l**	**Ø- … k**
Konyagi	*fɛ̀-kúɲénté* / *vù-kúɲénté*	‘calf’	9/9A	14
Konyagi	*i-ɲi* / *i-ỹi*	‘elephant’	**i- III**[7]	i- I
Basari	*ɛ-ʃəɓàx*	‘chameleon sp.)’	13	2F
Bedik	*jɑ̄-fɛ̀*	‘sheep’	9	6NF
Nyun-jbl	*fəbi* / *-oŋ*	‘goat’	**f**	**f-…-oŋ**
Buy	*kɔɔmpali*	‘frog’	**Ø**	**ko?**
Nyun-kas	*sibɔ* / *sibong*	‘cat’	**si**	**siŋ**
Tanda	*e-ɲana* / *o-y*	‘bee’	5/9N	6
Nyun	*ka-tinnɔ* / *ja-* / *ka-...-əŋ*	‘bird’	**ka**	**ja**, **ka-...-əŋ**
Kobiana	*ká-maafen* / *máafen*	‘fish’	**ka- III**	**ma- I**

Which of these meanings are regularly anomalous in Atlantic languages: ‘cow’, ‘elephant’, ‘frog’? Can anomalies really be “regular” across different systems? And if they can, what are the differences

[6] All of the forms shown in Table 1 are anomalous in one way or another. In the framework of the present article I will not be able to detail the nature of the anomalies in each individual case. The main types of anomalies will be considered below.

[7] Roman numerals (I-III) in the Atlantic languages denote the consonant mutation grades assigned to each noun class.

between such regular anomalies in the various branches of Niger-Congo?

The section 2 is focused on these issues. As will be shown, typological data of various kinds allow us to argue that there is a certain set of meanings which is typical of Niger-Congo minor noun classes. At the same time, significant differences in the inventory of such meanings in various Niger-Congo branches are also revealed.

In the section 3, I will show that the typical set of such exceptional meanings in class systems is not arbitrary, and correlates well with the set of semantic features that we traditionally attribute to the standard noun classes. As we have already seen from the Wolof and Laalaa examples, it is the central meaning of class 1 (namely 'person') that reveals formal anomalies. It turns out that this situation is typical for other classes as well.

One of the most important problematic issues, however, is that we do not always really know which meanings should be considered central to a particular noun class. Researchers' judgements about prototypical class meanings, even in well-studied languages such as those of the Bantu family, differ considerably and remain, as a rule, subjective.

In this article, I will try to test a formal criterion (diachronic in nature) to identify the nouns that are most typical of each noun class. This criterion is based on the hypothesis that the nouns that are the most important for class semantics are less likely to pass from one class to another, and are therefore diachronically more stable than other nouns. We can assume that by identifying the most stable nouns in each noun class we will obtain the required list of the prototypical meanings associated with the different classes. Naturally, this hypothesis can only be tested in a language family for which we have reliable reconstructions, namely Bantu. The BLR's vast materials on noun classes in Proto-Bantu, taken together with the numerous dictionaries of modern Bantu languages available, provide us with just such an opportunity. The results are discussed in the second section of the paper. I would like to point out that, in my opinion, the resulting list may be

of independent value both for Bantuists and for specialists in the field of semantics of noun classes.

In the section 4, the most stable nouns in Bantu noun classes are systematically compared with the most typical anomalies found in Niger-Congo. In my opinion, there is nothing wrong with comparing units from different taxonomic levels in our case: "typical" in the Bantu classes and "atypical" in the Niger-Congo classes (including Bantu). The point is that we must accept that at present our conceptualization of the semantics of Niger-Congo noun classes is largely based on our knowledge of the noun classes of Bantu languages. In addition, I will look for justification in the fact that this criterion seems to work: as will be shown, there is an undeniable correlation between the two lists obtained independently of each other.

2. Semantics of anomalies in the noun classes of Niger-Congo

2.1. Types of anomalies

Anomalies in each noun class system can be realized in different ways. I will give only some of the most typical cases where a particular noun is "isolated" within a noun class system.

1. A special agreement pattern is found for the noun in question, that is, it belongs to a special noun class. Above some examples were provided from Atlantic languages, in particular Wolof. Similar examples are not uncommon in other branches of NC. Thus, in Bantu in Ikoma JE45,[8] only the noun *àhà-ɣírò* 'place' belongs to class 16 (Higgins 2012); in Apinji B304, only 2 nouns are in class 19 – *βi-βoi* 'fire' and *βinɔ ~ βi-βinɔ / to-βinɔ* 'sleep' (Grollemund 2006) etc.
2. The agreement class markers do not show deviations, but the marker found on the noun is not standard. (This is quite common

[8] Guthrie codes for Bantu languages are given according to Maho (2003) and Hammarström (2019).

in the Atlantic languages, where, within the system of noun classes based on agreement behavior, we are forced to distinguish numerous subclasses based on the morphology shown by the noun itself.)

3. Special marking of a noun is manifested in a special relationship between singular and plural class assignment, characteristic of only one or a few nouns. Regrettably, such anomalies are often not recorded in grammars, precisely because these correlations are not typical. Meanwhile, this is the most frequent and apparently the most easily detected type of anomaly, and is of undoubted interest for describing the class system. Thus, in Kagulu G12, singular class 5 and plural classes 2 and 10 are both of high frequency, but only two nouns show a 5 / 2 number correlation, and only they also show a 5 / 10 correlation as a variant: *di-lumbu* ‘sibling’ and *di-kolo* ‘uncle’ (Petzell 2008).
4. Rare *pluralia* and *singularia tantum* in a noun class. Thus, Alexander Cobbinah (2010: 184) reports for Baïnounk Gubaher that: “Also part of the system are five non-paired class markers which are extremely rare, so far only observed on one to three items in a lexicon of ca. 1500–2000 items <…>: ***hu-*** (*hu-ŋa:n* ‘thing’), ***pi-*** (*pi-t:ari* ‘tobacco’), ***mi-*** (*mind* ‘milk’), ***ti-*** (*ti-rux* ‘cool season, chill’), ***ku-*** (*ku:g* ‘hunger’, *kum-pan* ‘honey’, *ko:l* ‘fire’)”.
5. Instead of one class marker, the so-called pre-prefixing technique is used, whereby one class marker (for example, a plural marker) does not replace another (for example, a singular prefix), but precedes it. This technique is especially common for size classes and for pl. nouns with the meaning ‘person’, but can appear in many other cases. See, for example, in Bantu Koya B22b, *mú-m^{w}-àdì* 3+3 / *m^{y}-ádì* 4 ‘woman, wife’ (Medjo Mvé 2011), Yombe H16c, *lùmvû* 11+3 / *zìmvû* 10+3 ‘gray hair’ (De Grauwe 2009), Kwakum A91, *á-kɔ́ɔ́kɛ̀* 12 / *á-á-kɔ́ɔ́kɛ̀* 12+12 ‘lizard’ (Belliard 2005), etc.

6. Suppletive singular and plural forms. Essentially suppletive number forms should be assigned to the categories of *singularia* and *pluralia tantum*, which often also represent anomalies. See, for example, in the Gur languages: Palɛn *fà.nà / liibé.nì* ‘person’ (Kleinewillinghöfer 2007: 555), Moore *bíiga / kàmbá* ‘child’ (Winkelmann 2012: 295); Kɔnni *jàáŋ / ɲìntí* ‘thing’ (Schwarz 2012: 75), etc. Often, the actual suppletive forms of the singular and plural result from the attachment of a fixed class marker to the root. This explains, for instance, the “suppletive” forms in the three words in Ejagam (Ekoid): *Ǹ-mŏn / à-βŏn* ‘child’, *è-yə̂d / à- yə̂d* ‘eye’, *è-yîŋ / à-mə̂ŋ* ‘tooth’ (Watters 1980: 119).
7. Some additional markers, e.g. suffixes that are obligatory for the singular or plural form. Thus, in Farıfarı (Gur), “the honorific marker ***-ba*** is observed with only a few items: *ǎsəbà / ǎsədòma* ‘maternal uncle’, *nàba / nadòma* ‘chief’, *yàaba / yaabeduma* ‘ancestor’” (Miehe et al. 2012: 272).
8. In North Atlantic languages, the noun classes are closely related to mutations of initial consonants in the root. Each class is associated with one of the three mutation grades. However, some nouns show deviations from the mutation rules. Thus, in Kobiana, a weak consonant mutation grade (I) is assigned to the noun class **ma-**. This means that all the initial consonants of noun stems in the **ma- I** class, which mainly includes the names of liquids and masses, are fricatives or sonants: *ma-**l**e(m)* ‘water’, *ma-**f**óos* ‘salt’. However, in the noun *ma-**nd**eko* ‘cassava’ and only there, the initial consonant is in the strong mutation grade (prenasalized *nd-*, grade III), which forces us to single out a special class **ma- III** for that one noun, especially since in the Kobiana language agreement is realized not only by segmental class markers (***ma-***), but also by mutation grades (I-III):

***ma-nd**eko* ‘cassava’ ***ma-nd**ad-r-oo* ‘all cassava’ (class **ma- III**)
***ma-y**ɛt* ‘spit’ ***ma-l**ad-r-oo* ‘all spit’ (class **ma- I**)
(Voisin 2015: 348–349)

The exotic mechanism of agreement by mutation grade can be illustrated by the example of Basari (1).

(1)			‘red’	CL	Mutation Grade
	‘red moon’	*Ø-fɛ̈cɐw̃*	*i-**w**árax*	**in**	I
	‘red lip’	*ɛ-pə́rə̀ʃá*	*ɛ-**b**árax*	**ɛl**	II
	‘red eye’	*a-ngə́s*	*a-**mb**árax*	**aŋ**	III

It is clear that any small failure in such a complex system of noun classes can lead to the formal isolation of one or another noun from others. Interestingly, in fact, nouns with some meanings are isolated more often than nouns with other meanings, as will be shown below.

This is not a complete list of anomalies that are characteristic of the complex systems of the Niger-Congo noun classes. As already noted, I am not aware of any works in which these anomalies have been systematically analyzed. Furthermore, the data themselves on anomalies in class systems are extremely fragmentary, and often not provided at all by the authors of grammars, precisely because they concern atypical anomalous phenomena. Thus, to indicate specific number correlations (item 3 on my list), at best dotted lines are used on number correlation diagrams, often without concrete examples. Meanwhile, it is precisely this type of deviation that is most easily detected when referring to dictionaries (in contrast to agreement patterns, for example, which as a rule are not indicated in dictionaries).

In this article, I will not distinguish between different mechanisms for the manifestation of anomalies. I will take into account all types of anomalies available for observation.

2.2. Sources

As is well known, the Niger-Congo macrofamily includes approximately 1500 languages. For this article, a language sample has been compiled which, as far as possible, represents the noun class languages found across the different branches of Niger-Congo. Thus the sample does

not include data on the Mande, Dogon, Ijo, and Kru languages, in which noun classes are absent or represented by rudimentary traces only. The sample is given in Table 2.

Table 2

The Niger-Congo language sample

NC Branch	Sources
Bantu	41
Bantoid outside Bantu	11
Benue-Congo outside Bantoid	28
Gur	54
North Atlantic	40
Bak Atlantic	34
North Mel	5

NC Branch	Sources
South Mel	5
Limba (isolated)	1
Gola (isolated)	2
Ubangi	9
Adamawa	3
Kwa	7
Kordofanian	3
Total	**243**

Comments on Table 2:

– 80 Benue-Congo languages (BC) were selected according to two criteria: the presence of large dictionaries or word lists in RefLex (usually consisting of at least 500 words) and the presence of noun class annotation by the author (with class numbering in Bantu languages). These 80 languages were divided into 3 groups: Bantu, Bantoid outside Bantu, and Benue-Congo outside Bantoid.
– For Atlantic languages, the most detailed database was used, taking into account my own specialization. The time distance between the languages of the two Atlantic groups, North Atlantic and Bak Atlantic, exceeds 7,000 years according to lexicostatistics, and accordingly they are considered separately in the article, because the similarities between the anomalies in the two groups appear to be typological more often than genealogical in nature.
– The anomalies in the two different Mel groups are also considered separately. As shown in Pozdniakov & Segerer (2023), the Mel

family should be separated from the Atlantic family. The Limba and Gola languages appear to be separate branches within Niger-Congo, and there is no reason to attach them to the Atlantic branch.
– As already noted, data from Gur languages could be analyzed reliably and in detail thanks to the fundamental two-volume work on Gur noun classes (Miehe et al. 2007; 2012), in which anomalies in the class systems of each language are systematically considered.
– In the Kordofan and Adamawa branches, unfortunately, there is information for only a small number of languages.
– Thus, taking into account the composition of my sample and the preliminary results obtained for some groups and families, it seems optimal to single out the 14 Niger-Congo branches indicated in Table 2. They will be considered separately, and then the resulting data will be summarized. It is clear that within the confines of an article there is no way to discuss in detail the results obtained for hundreds of languages. Therefore, I will present the data in table format as far as possible. Citing sources also poses a problem, as it is impossible even to mention 243 sources in an article. Some sources used in the RefLex database will be cited as RefL, followed by the author's name, if appropriate, and the Reference number. Inserting this number in the REF cell of Maho & Segerer's WEB Bibliography (2006–2023) gives access to full information concerning the source. Other sources are listed separately in References.

2.3. Benue-Congo languages

As the BC languages are the best studied languages in the family, and since for one of the main branches of BC, namely Bantu, we have a reliable reconstruction of the noun classes in terms of their singular / plural correlations (BLR), we have a unique opportunity to trace some anomalies in the modern languages back to their origins in Proto-Bantu. This analysis can give us real arguments *pro* and *contra* with respect to the fundamental question: whether we can consider the results obtained as typological or genetic, given that we are dealing with related languages all of which belong to the Niger-Congo family.

I will start my analysis with the Bantu languages, considering them in the context of anomalies in the Proto-Bantu class system.

2.3.1. Bantu

The BLR data shows that already in Proto-Bantu there was at least one gender that could be seen as anomalous, as it comprised just five nouns. Here are statistics on Proto-Bantu classes in their number correlations, which can be calculated from the BLR reconstructions (Table 3).

Table 3

Proto-Bantu classes in BLR

SG CL number	PL CL number	Frequency SG	Frequency PL
1	2	244[9]	185
1a	2a	92	12
3	4	964	354
5	6	687	525
	6		98
7	8	705	302
9	10	1133	619
11	10	434	

[9] As a remark, the data in Table 3 seem to be indispensable in examining the diachronic evolution of the distribution of vocabulary into classes in the different Bantu zones and languages. Thus,Mark Van de Velde (2019) raises a very interesting point, noting that "distribution of nouns over the noun classes is little studied, but appears to be quite variable across Bantu". According to his estimation, in particular, the frequency of class 1 varies considerably by language (from 2% to 20%); meanwhile "For class 7, differences <…> are less dramatic. Typical figures are 34% (Njyem A84) versus 16% (Makonde P23) " (Van de Velde 2019: 264). Of course, such data is even more interesting to consider against the background of Proto-Bantu, where the corresponding frequencies calculated by Van de Velde's methodology (the first 13 classes are taken into account) according to my estimation give respectively 5.4% for class 1 and 15.7% for class 7.

Table 3 (end)

SG CL number	PL CL number	Frequency SG	Frequency PL
12	13	115	24
14	6	220	
15	6	12	
		4606	2119

As can be seen from Table 3, in the *15 / 6 correlation, only 12 nouns are formally attested along with phonetic variants, but in fact we find only 5 meanings represented – ‘arm’, ‘leg’, ‘ear’, ‘armpit’, ‘moon’. This can be verified by referring to Table 4.

Table 4

Gender *15 / 6 in Proto-Bantu (from BLR)

Form	Meaning	Bantu Zones	SG CL	PL CL
bókò	‘arm; hand; front paw’	ABCDEGHJKLMNRS	3, 5, 15, (7, 11)	4, 6, (8, 10)
jókò	‘arm’		15, (11, 14)	6, (4)
có	‘left hand; left side’	CDLM	15	
díò	‘right hand; right side’	DEJLMPRS	(3), 11, 14, 15	
gòdò	‘leg; hind leg’	ABCDEFGHJKLMNR	3, 5, 7, 15, (11)	4, 6, 8
tó	‘ear’		5, 15	6
tóò	‘ear’		5, 15	6
tòì	‘ear	ABCDEFGHJKLMR	5, 15, (7)	6, (8)
jápà	‘armpit’	CDEGJLMNPRS	15	6
jápì	‘armpit’		15	
jédì	‘moon; month’	ACDEFGHJKLMNPRS	3, 15	4, 6
tɔmpɔ	‘lunation (sp.; about March)’	LM	15	

It is easy to see that all the names of body parts included in this gender are associated with a sense of duality.[10] The fact that 'moon' appears in this group can be explained as a trace of the lunar calendar, the core of which is two lunar periods of two phases each – a waxing or a waning moon.

Thus an anomaly of the kind we are interested in is already visible in Proto-Bantu, suggesting a special agreement pattern for just a few nouns. Given that modern Bantu languages descend from Proto-Bantu, it is only natural that many of them show this correlation (15 / 6) and a special class (15), for some four or five nouns. Consider the facts of the three languages given in (2).

(2)	Meaning	Holoholo D28	**Lega D251**	**Fwe K402**
	'armpit'	*àhá*	*kʷ-ăgà / m-*	*kw-àhà / m-àhà*
	'arm'	*bòkó*	*kò-bɔ́kɔ̀ / mà-*	*kù-βôkò / mà-βôkò*
	'leg'	*gòlò*	*kò-gòlò / mà-*	*kù-ùrù / mà-ùrù*
	'knee'	*nwĭ*		
	'ear'	*twĭ*	*kò-rózì / mà-*	*kú-twì / má-twì*

Moreover, in some languages only 2 nouns can be preserved, or even one noun that requires special agreement, as in (3).

(3)	Meaning	**Gusii JE40**	**Nyamwezi F22a**	**Yombe H16c**
	'hand'	*ɔ́kɔ̀bɔ́kɔ́ / ámàbɔ́kɔ́*	*kòβòkó / màβòkó*	*kóòkò / móòkò ~ myóòkò*
	'leg'	*ókògòrò / ámàgòrò*	*kògòlò / màgòlò*	

Yombe H16c (De Grauwe 2009) retains a special class 15 only for the reflex of Proto-Bantu ****bókò*** 'arm; hand'; moreover, in the plural

[10] Jean Doneux (1967: 11), who first reconstructed 15 / 6 for Proto-Bantu, also includes ****dúí*** 'knee' here, but in BLR2 it does not belong to class 15.

we see a tendency to put this noun in class 4 (*myóòkò*). The rest of the nouns have moved to the extensive class 5. Thus, a situation arises in which a special agreement characterizes only one single noun, that is the protolinguistic anomaly is not eliminated, and on the contrary becomes even more striking. In Makwe G402, the only example of a 15 / 6 correlation is *kuúlu / mauúlu* 'leg', while a variant of this correlation is 3 / 6 (*mmuúlu / mauúlu*), which is only noted for two nouns, the second of which is *nkóóno / makóóno* 'arm; hand' (Devos 2008: 56).

As a consequence, if we examine minor classes in Bantu languages, we will inevitably find that the most common meanings in these classes will be 'hand', 'foot' and 'ear', which at first glance is not relevant to typology but is only a genetic feature, manifested in the reflexes of a common proto-language.

However, even in such apparently transparent cases, things are not so simple. First of all, the data of some Bantu languages suggest that we are dealing not only with a grouping of several words within the gender 15 / 6, but also with a grouping of concepts.

Already Doneux in his pioneering article showed that often gender 15 / 6 refers not to Proto-Bantu reflexes, but to innovations. Let us add that it is not uncommon for the original gender (*15 / 6) to be replaced by a new one, but the result would be another minor gender, still featuring the same semantic concepts. Doneux writes: "Ainsi, Herero atteste *-rama*, 15 « jambe », mais n'a pas **-gùdù*. Sukuma présente *-kono*, 15 « bras », mais ne connaît pas **-bókö* " (Doneux 1967: 11). Regarding the last root, it should be noted that it stands out in the BLR in the meaning of 'forearm' in the zones EFGJKLMNPS, and for it there is a widespread 3 / 4 correlation. However, in my sample, in Makonde P23 (Manus 2003) we find a unique 3/6 correlation for just one word, namely *ńkónò / mákónò* 'hand'. In (Maganga & Schadeberg 1992) for Nyamwezi F22a (as well as for Sukuma F21, Nurse & Philippson 1975–1999), the same anomalous correlation 3 / 6 is noted for *m̀kònó / màkònó* 'hand, arm'. Moreover, apart from the given word with the meaning 'hand, arm', the correlation 3 / 6 is

used in Nyamwezi F22a only for the meaning ‘leg’ in *m̀gʊ̀lʊ̀ / màgʊ̀lʊ̀*, along with the original correlation 15 / 6 (*kʊgʊlʊ*). In Koonzime A84 in the 3 / 6 correlation (Beavon & Beavon 1996) only the following 3 examples stand out: *mbô / mèbô* ‘arm’, *kŏ / mèkŏ* ‘foot, leg’ and *póm / mèpóm* ‘calf of leg’. In Kisamba L12a (Van Acker 2018), only two nouns show a 5 / 4 correlation, and they are *góg / myóg* ‘arm, hand’ and *gúúl / mííl* ‘leg, foot’. In Gevia B301, the word *gɔgɔ* ‘hand’ is noted in a rare correlation 11 / 6+ (Van der Veen & Bodinga-Bwa-Bodinga 2002) only two examples, the second of which has the meaning ‘shoe’).

The processes under consideration are manifested very clearly in Ngoni N12. In Ngonyani 2003 there are only 2 examples of 11 / 6 correlations and only two examples of 7 / 6 correlations. Consider them in (4).

(4)

	‘hand; arm’	**‘foot; leg’**
11 / 6	*lu-woko / ma-woko*	*lu-gendelu / ma-gendelu*
7 / 6	*ci-woko*	*ci-gendelu*

Four examples of 7 / 6 correlations are noted in Kako A93 (Ewané Etamé 1995). Among them are *èkáá / màkáá* ‘arm; hand’ and *èkòò / màkòò* ‘foot’. In Adere (Grassfields), the correlation 7 / 6 is attested in *kŏkò / mù:ŋkò* ‘leg, foot’ and *bì / mù:mbì* ‘thigh’ (Voorhoeve 1980: 68).

In the examples given, we saw different lexical stems and different singular / plural correlations, which have in common only that they include an extremely limited number of nouns – from one to five. Thus, despite the fact that many languages retain the protolinguistic situation, the phenomenon itself can be considered typological, not genetic. In addition, as will be shown below, nouns with the indicated meanings are anomalous in the class systems of Niger-Congo languages outside of Bantu and even outside Benue-Congo, such as Nyun and Buy (North Atlantic). Here, these anomalies could hardly be explained by historical inheritance.

Curiously, the anomalies are distributed unevenly across the Bantu languages. So, in my sample, two languages are found that generally do without any anomalies in their class systems (at least according to the data of the dictionaries used), namely Bekwel A85 and Kwasio A81. These do not have minor classes or non-standard class correlations in number. In general, judging by the data, the languages of zones A, B, C on average show fewer anomalies than the rest, although it is in these zones that languages are also found in which a record number of nouns in minor classes is attested. Table 5 shows the distribution of 535 identified anomalies across 40 Bantu languages (plus Proto-Bantu).

Table 5

Noun class anomalies in Bantu languages

Language	**Code**	**Anomalies**	**Language**	**Code**	**Anomalies**
Proto-Bantu		21	Pove / Vove	B305	10
Koya[11]	B22b	40	Lega-Beya	D251	10
Nyamwezi	F22a	33	Ikoma	JE45	10
Koonzime	A84	26	Ndambomo	B204	9
Yombe	H16c	25	Holoholo	D28	9
Gciriku / Rumanyo	K332	25	Gusii	JE40	9
Fwe	K402	24	Mbugwe	F34	9
Kalanga / Ikalanga	S16	22	Tswana	S31	9
Bushoong	C83	21	Njyem	A84	7
Kagulu	G12	20	Yeyi	R41	7
Gevia / Viya	B301	19	Gyeli	A801	6
Makaa	A83	18	Shiwa	A893	6
Samba / Kisamba	L12a	18	Kako	A93	4

[11] Table 5 also shows which languages were used in my Bantu sample.

Table 5 (end)

Language	Code	Anomalies	Language	Code	Anomalies
Holu / Kiholu	L12b	17	Kwakum	A91	3
Makonde	P23	17	Pinji / Apinji	B304	3
Basaa	A43a	15	Kol	A832	2
Ngoni	N12	13	Kande / Okande	B32	2
Herero	R31	12	Wongo	C85	2
Laali (West Teke)	B73b	11	Bekwel	A85	0
Ndamba	G52	11	Kwasio	A81	0
Mwesa	B22E	10	Total		535

It turns out that, according to my data, anomalies make up approximately 1% of Bantu nouns. I note right away that in other Bantoid languages this percentage is significantly higher (1.6%), and in the Benue-Congo languages, excluding Bantoid languages, it is even higher and reaches 2.6% in the noun corpus (as will be shown below, in some languages of West Africa this figure can reach up to 7%).

It should be noted that in Bantu languages the minor singular / plural correlations do not only concern reflexes of the *15 / 6 nouns. Thus, for example, in Noomande / Mandi A46, in addition to *o-otú / e-etú* ‘ear’ (3 / 6, probably from *15 / 6) Patricia Wilkendorf identifies the following “minor noun class genders”: *ɔ-tɔ́ / bɔ́-tɔ́* 3 / 2 ‘type of yam’, *ci-íbe / me-ébe* ‘house’ 9 / 6a, *i-inyí / bi-inyí* ‘mother’ 9 / 8, *bu-laŋa, bɛ-laŋa* 14 / 8 ‘clothes’, *haála / bɛ-haahla* 16 / 8 ‘place’ (Wilkendorf 1985: 13). Larry Hyman identifies a similar situation for Tuki A64 (A601), where, in particular, he points out as “genres exceptionnels” *òtūh / àtūh* ‘ear’ 3 / 6 and *hòmā / màhòmā* 16 / 6a ‘place’ (Hyman 1980: 29).

Here are summarized data on the meanings that occur in minor classes and genders in at least three Bantu languages in the sample (Table 6).

Table 6

The typical anomalous meanings in Bantu

Meaning	Anomalies	Meaning	Anomalies
‘foot; leg’	22	‘father’	4
‘arm; hand’	20	‘bat’	3
‘face’	9	‘brother; sister’	3
‘ear’	8	‘cutlass’	3
‘bow’	7	‘fire’	3
‘house’	7	‘iron’	3
‘moon’	7	‘medicine’	3
‘armpit’	5	‘mouth’	3
‘boat’	5	‘nail’	3
‘disease’	5	‘night’	3
‘finger’	5	‘place’	3
‘mother’	5	‘powder’	3
‘pus’	5	‘sun’	3
‘sleep’	5	‘tooth’	3
‘village’	5	‘uncle’	3

Unsurprisingly, at the top of the list are the meanings ‘leg; foot’, ‘arm; hand’, ‘ear’, ‘moon’ and ‘armpit’. The frequency of some other meanings also finds an explanation when we take into account other rare class correlations in Proto-Bantu (in particular 14 / 6, where only 20 meanings are postulated for Proto-Bantu in BLR; class 14 from my list includes the meanings ‘face’, ‘bow’, ‘boat’, ‘village’, ‘night’).

2.3.2. Bantoid without Bantu

Recall that there are only 13 languages in this grouping of my sample. Accordingly, there are fewer meanings at the top of my list. Here we find the meanings of minor classes and genders that are observed in three or more languages (Table 7).

Table 7

The typical anomalies in Bantoid except Bantu

Meaning	Anomalies	Meaning	Anomalies
‘child’	5	‘foot; leg’	3
‘chief’	4	‘house’	3
‘guest’	4	‘parent-in-law’	3
‘soup’	4	‘person’	3
‘bamboo’	3	‘saliva’	3
‘disease’	3		

Quite unexpected is the regular class anomaly for ‘soup’. Let us check this point (5).

(5)	**Source**	**Form**	**Meaning**	**CL SG**	**CL PL**
	(Hyman 1979): Aghem, 9446	*kínómɔ́*	‘soup’	7	8~12
	(Coleman n.d.): Esimbi, 27430	*ɔru / aru*	‘slippery soup (sp.)’	1	10
	(Coleman n.d.): Esimbi, 27430	*mɛringi / ɛringi*	‘soup ; vegetables’	14	6
	(Schaub 2018): Babungo, 27900	*múú múú mbàsə̄*	‘soup’	1	6a

For this semantic field we do indeed see 4 different nouns in a minor number correlation. Thus, in Aghem, Hyman (1979) indicates a correlation of 7 / 12 (along with 7 / 8) only for this noun and no other. The last item on this list, from Babungo, is made up of *múú* ‘water’ (19 / 6A) and *mbàsə̄* ‘meat; vegetable; soup’ (1 / 2). Quite predictably, this anomaly (apparently random) does not extend beyond one particular language group.

2.3.3. Benue-Congo without Bantoid

It should be recalled that there are 28 languages in my sample that represent various branches of Benue-Congo other than the numerous Bantoid branches. Table 8 is a list of the anomalies identified by language (the major data were attested in Connell 1991).

Table 8

Noun class anomalies in Benue-Congo languages except Bantoid

Language	Anom.	Source	Language	Anom.	Source
Basa	80	(Blench & McGill 2011), 27858[12]	ItuMbuso	2	(Connell 1991), 4453
Reshe	54	(Blench & McGill 2011), 26773	Obolo	2	(Connell 1991), 4453
DuRop	51	(Kastelein 1994), 27428	Anaang	1	(Connell 1991), 4453
Proto-Lower-Cross	31	(Connell 1991), 4453	Efai	1	(Connell 1991), 4453
Usakade	27	(Connell 1991), 4453	Ilue	1	(Connell 1991), 4453
Proto-Upper-Cross	15	(Dimmendaal 1978), 5406	Okobo	1	(Connell 1991), 4453
Ogbronuagum	13	(Kari 2000), 10424	Efik	0	(Connell 1991), 4453
Ṵt-Ma'in (Ror)	13	(Smith 2007), 25337	Ekit	0	(Connell 1991), 4453
Oro	12	(Connell 1991), 4453	Etebi	0	(Connell 1991), 4453
C'lela	10	(Rikoto 2001), 25334	Ibino	0	(Connell 1991), 4453

[12] Here the reference numbers in the WEB Bibliography for African Languages and Linguistics are given; these references are not included into the reference list of this article. See http://reflex.cnrs.fr/Lexiques/webball/index.html

Table 8 (end)

Language	Anom.	Source	Language	Anom.	Source
Enwang	7	(Connell 1991), 4453	Ibuoro	0	(Connell 1991), 4453
Ibibio	7	(Connell 1991), 4453	Iko	0	(Connell 1991), 4453
Degema	5	(Kari 2000), 25274	Uda	0	(Connell 1991), 4453
Ebughu	3	(Connell 1991), 4453	Ukwa	0	(Connell 1991), 4453

As already noted, the percentage of nouns in the minor classes of this group is significantly higher than in Bantu and other Bantoid languages. At the same time, as can be seen from Table 8, many languages have practically no anomalies in their class system. Of course, too much weight should not be placed on these values – they are influenced by both the researchers' attitude to anomalies and the state of knowledge of a particular language. We see that by and large the languages described by Connell do not show anomalies, although there are exceptions here too (for example, 27 anomalies are detected in Usakade). The largest number of anomalies is found in the Kainji languages (Basa, Reshe, DuRop). Thus, 80 anomalies out of 690 nouns (11.6%!) are recorded by Roger Blench for Basa.

Here are the meanings of nouns in minor classes and singular / plural correlations noted in at least three languages (Table 9).

Table 9

The most frequent anomalies in Benue-Congo (except Bantoid)

Meaning	Anomalies	Meaning	Anomalies
'chief'	9	'ancestor'	3
'head'	6	'arm'	3
'person'	6	'bird'	3
'foot; leg'	6	'guest'	3

Table 9 (end)

Meaning	Anomalies	Meaning	Anomalies
‘boat’	5	‘husband’	3
‘child’	5	‘parent-in-law’	3
‘feather’	5	‘man’	3
‘ear’	4	‘millet’	3
‘fowl’	4	‘palm’	3
‘knee’	4	‘song’	3
‘nail’	4	‘tail’	3
‘slave’	4	‘tortoise’	3
‘woman’	4	‘tree’	3

Comparing the anomalies in the three selected Benue-Congo groups, we see not only differences, but also significant similarities. As a result we can compose a general table for BC, including only those meanings that are common to at least five languages out of 80 (Table 10).

It can be stated that only one meaning is anomalous in all three groups, namely ‘foot; leg’. Most of the other meanings show anomalies in two of the three selected groups.

2.4. Gur

Among the data analyzed here, the data on Gur languages are of exceptional importance, since they are not based on a superficial analysis of dictionaries (as is necessarily the case in my data on most other branches of NC), but on the qualified opinion of specialists in each language. Fortunately, in the monumental two-volume work on noun classes in Gur (Miehe et al. 2007; 2012), the authors were instructed to establish all anomalies and irregularities for each noun class, which is the subject of my analysis.

I will select the anomalies that are presented in at least three Gur languages (out of 54) and comment on the results (Table 11).

Table 10

The typical anomalous meanings in three Benue-Congo branches

41 lang.	Meaning	Ano-malies	11 lang.	Meaning	Ano-malies	28 lang.	Meaning	Ano-malies	TOTAL: 80 lang.
Bantu	**'foot; leg'**	22	Bantoid	**'foot; leg'**	3	BC	**'foot; leg'**	6	**31**
Bantu	**'arm; hand'**	20				BC	**'arm; hand'**	3	**23**
			Bantoid	**'chief'**	4	BC	**'chief'**	9	**13**
Bantu	**'ear'**	8				BC	**'ear'**	4	**12**
Bantu	**'boat'**	5				BC	**'boat'**	5	**10**
			Bantoid	**'child'**	5	BC	**'child'**	5	**10**
Bantu	**'house'**	7	Bantoid	**'house'**	3				**10**
Bantu	**'face'**	9							**9**
			Bantoid	**'person'**	3	BC	**'person'**	6	**9**
Bantu	**'disease'**	5	Bantoid	**'disease'**	3				**8**
Bantu	**'bow'**	7							**7**
			Bantoid	**'guest'**	4	BC	**'guest'**	3	**7**
Bantu	**'moon'**	7							**7**
Bantu	**'nail'**	3				BC	**'nail'**	4	**7**
						BC	**'head'**	6	**6**

Table 10 (end)

			Bantoid	**'parent-in-law**	3	BC	**'parent-in-law'**	3	**6**
Bantu	**'armpit'**	5							**5**
Bantu	**'finger'**	5							**5**
Bantu	**'mother'**	5							**5**
Bantu	**'pus'**	5							**5**
Bantu	**'sleep'**	5							**5**
Bantu	**'village'**	5							**5**
						BC	**'feather'**	5	**5**

Table 11

The typical anomalous meanings in Gur

Meaning	Anomalies	Meaning	Anomalies
‘thing’	12	‘ancestor’	3
‘woman’	10	‘animal’	3
‘child’	9	‘ashes’	3
‘sheep’	8	‘axe’	3
‘arm; hand’	7	‘baobab’	3
‘arrow’	7	‘bow’	3
‘fowl; guineafowl’	7	‘cowrie; money’	3
‘person’	7	‘elephant’	3
‘tree’	6	‘eye’	3
‘cow’	5	‘tooth’	3
‘chief’	5	‘father’	3
‘field’	5	‘mother’	3
‘fire’	5	‘fish’	3
‘man’	5	‘foot’	3
‘parent-in-law’	5	‘hole’	3
‘snake’	5	‘house’	3
‘bee’	4	‘leaf’	3
‘bone’	4	‘medicine’	3
‘goat’	4	‘millet’	3
‘moon’	4	‘neck’	3
‘mouse’	4	‘night’	3
‘owner’	4	‘porridge’	3
‘uncle’	4		

As can be seen from Table 11, the anomalies in Gur are more diverse than those in BC – in Gur at least 16 anomalous meanings are

attested for 5 languages or more. Let us now consider what exactly lies behind these results.

In the introduction, I considered deviations related to the meaning ‘cow’ in Fula and in some other Atlantic languages. In Table 11, we see that nouns with this meaning also behave abnormally in Gur, in at least 5 languages. Let us present these anomalous forms.

In the northern branch of Senufo an irregular singular / plural correlation for ‘cow’ is attested in Minianka (*nù / nìyè*, classes SG **u** / PL **yi**) and in Sə̀cə̀té (Tagba) (*nɔ̀*, *nèŋɛ̀ / nènyɛ̀*, classes SG **wə** / PL **yi**) (Dombrowsky-Hahn 2007: 344; 376). In both languages, it is the only noun showing this correlation. An anomaly with the same classes as in Sə̀cə̀té is also noted by Gudrun Miehe in the southern branch of Senufo for the language Palaka (Pilara): *nɔ̰ / nw̰e* ‘cow’, classes SG **wi** / PL **yi** (Miehe et al. 2007: 441). In the Gurma group (North Central Gur, Oti-Volta), in the Mɔyɔbɛ language, an anomaly for ‘cow’ is found in correlation with other classes, namely SG **i** / PL **a**: *ì-náà / à-náà* (this correlation is noted for only 5 nouns in Rongier 1996).

Finally, in Moore (also North Central Gur) Kerstin Winkelmann postulates the minor gender SG **-fo** / PL **-sE** (in his interpretation, the class correlation 19 / 13 в *náafó / níisì* ‘cow’). This correlation is noted for only two words, ‘cow’ and ‘snake’ (*wáafó / wíisì*), which make up a kind of minimal pair (*náafó / níisì ~ wáafó / wíisì* 19 / 13) (Winkelmann 2012: 298).

That being said, note that in Gur languages, the nouns for ‘snake’ also show regular anomalies in the noun class systems. As the examples above show, the anomalies in Gur for ‘cow’ involve different noun classes, but are possibly related to the same lexical root, which Winkelmann defines in Moore as *nág-* (Winkelmann 2012: 298). Klaudia Dombrowsky-Hahn (2007: 344) believes that in Minyanka it is an “old borrowed word”, but this interpretation is questionable. We seem to be dealing with the Niger-Congo root **nak*, which, as we saw in the example of Fula, is preserved in the Atlantic, Mel, Dogon and Mande languages (Proto-Mande **ni(n)ka*), reconstructed for BC as **nak* (RefL: 20487).

2.5. Atlantic languages

2.5.1. North Atlantic languages

Wolof. As already noted, Wolof has a special agreement class for only two nouns, 'person' (*nit K*) and 'thing' (*këf K*), namely class **K**. But minor class assignment is also attested in the plural subsystem. There are only two plural classes in Wolof – **Y** for the vast majority of nouns and **Ñ** which, according to the most complete dictionary (Diouf 2003), contains only 7 nouns, all for animated (for more information see Pozdniakov & Robert 2015: 614–615), and one of them is precisely the PL for 'persons': *nit Ñ*. Thus, for the meaning 'person(s)' in a single language, we can identify two distinct anomalies in the class system. Moreover, in PL a special class marker **Ñ** is also attested in a third form with a close meaning, which in synchrony should be treated as pluralia tantum, namely *gaa Ñ* 'people; persons'.

Fula-Sereer. In Fula, as noted in the introduction, there is every reason to single out the minor class **NGE** ('cow', 'fire', 'sun'). The presence of the **NGU** class in some Fula dialects has a specific rationale and is provoked by a kind of grammatical taboo, which has led to a number of anomalies (for details, see Pozdniakov 2022: 230–232).

It is difficult to obtain a representative picture of the minor classes and genders in Sereer, and the data vary greatly by dialect. Renaudier (2012) postulates the following rare correlations in number.

- **L / K** correlation noted only for *Ø-naak le / Ø-naak ke* 'cow' and *Ø-fambe / Ø-pambe ke* 'sheep; goat'
- **OL / AX** correlation for *o ɓay ole / xa-ɓay axe* 'hand' and *o-piic ole / xa-piic axe* 'vein (leaf)'
- **AL / K** for *a ndok ale / Ø-tok ke* 'room' and *a-ngas ale / Ø-kas ke* 'well (for water)' (the more numerous examples in Merrill 2018 suggest that we are dealing with a correlation for place names, or perhaps locative meanings more generally: also *a-lanq ale / ke* 'floor; down', *a-mbaaw ale / ke* 'kitchen', *a-mbeel ale / ke* 'lake', *a-mboy ale / ke* 'tomb', *a-ndund ale / ke* 'island').

Note that all the nouns of this small group have in SG the consonant mutation grade III

- **ONG / AK** for *o-ɓi onge / a-ɓi ake* ‘child’ with a non-standard diminutive plural form. (Merrill 2018 does not give this anomaly, but another anomaly is recorded in his diminutive class **ONG / K** for *o-ngoor* ‘boy, male child, young man; more commonly used in plural’; the word is formed from a root for ‘man’)
- **FO / AK** for *fo-suun ole / a-suun ake* ‘smoke’, *fo-oy ole / a-oy ake* ‘blood’

In (Merril 2018), the following meanings are also marked in a special way: *Ø-mbaal a poxolac / Ø-paal a poxolac* ‘spiderweb’ (**N / AK** correlation), *o-jaf* ‘leg; foot’ and *o-xiic* ‘jujube’ (**OL / AK**).

Tenda-Jaad-Biafada. There are seven languages in this branch of the North Atlantic languages (the five Tenda languages of Basari, Bedik, Tanda, Bapen, and Konyagi, as well as Jaad and Biafada). For this study, 11 lexical sources on these languages are relevant. The languages of this branch are fundamentally different from languages such as Wolof, Fula or Sereer in the sense that concerns us. Here it is not just a few individual nouns that have to be classified as anomalous, but approximately 400 nouns out of 19,000, i.e. approximately 2% of nouns show atypical class markers or atypical class correlations in number.

Some examples of minor classes and genders from this group are interesting to consider in the context of discussing the theoretical question of how far data from closely related languages are suitable for this typological study. In the case of related languages, there is always the possibility that common anomalies simply represent retentions of a “proto-anomaly” that has survived into the modern languages. Let us look at an example.

The nouns for ‘cow’, which we have already addressed twice, reveal systematic anomalies in the Tenda group, and these anomalies are of a different nature. First of all, we see different lexical roots, which does not allow us to speak of common retention: the Niger-Congo root **nak* considered above is preserved in Biafada: *nnaga / ge-n-* ‘cow’, and, for example, in Bapen, the Tenda innovation **kəʃ* ‘cow’ is attested (cf. Basari

i-xɛ̀ʃ, Bedik *gi-kɔ̀ʃ,* Tanda *i-ɣeyˆ/ o-*; Marie-Paule Ferry (1991) attempts to explain this innovation as a verbal derivative of ***-hɤdʸ** ‘get hard’).

At the same time, the noun class anomalies in Biafada and Bapen are formed independently of each other: in Biafada, according to Wilson, the non-standard correlation SG **Ø-** / PL **ge-** is noted for three names of domestic animals, including the cow, with consonant mutation III / I (*nnaga / ge-naga* ‘cow’), while in Bapen, *a-keʃ /ɔ-heʃ ~ ɓa-keʃ ~ i-ɣeʃ* ‘cow’, alongside the standard pairing SG **a-** / PL **ɓa-** there is a unique correlation SG ***a-*** / PL ***ɔ-*** and yet another unique correlation SG **a-** / PL **i-** (!). Thus, it is obvious that in this case the anomalies are typological rather than genetic in nature, and are therefore of interest for this study.

‘Fire’. The group contains three different roots with this meaning (*ɗox* – Tenda group, *fuuru* – Biafada, *kus* – Jaad) and all three roots show an anomaly in at least one of the seven languages of the group, and in total we have 7 anomalies in languages / sources. This means that the exceptions cannot be explained by anomalies already present in Proto-Tenda-Jaad-Biafada (where the word in question should apparently be reconstructed as **ɗox*), and are instead of a typological nature.

It is not only the lexical roots that differ here: the noun classes themselves are also different. It may, therefore, be supposed that these anomalies have developed independently of each other. However, we cannot always judge with certainty whether we are dealing with reflexes of different proto-classes or of only one. Thus, in Biafada, the class **fu-** is possibly a reflex of the proto-class ***kwo-**, a hypothesis which is supported particularly by the forms for ‘smoke’, which, like the forms for ‘fire’, reveal regular anomalies in this group of languages (they are marked in gray in Table 12).

In fact, without such a detailed analysis, it is difficult to conclude whether a given anomaly is typical, or whether it is isolated and only reflects an anomaly that already existed in the proto-language. So, for example, in the draft version of this article I treated words for ‘moon’, ‘hair’, ‘man’ as displaying typical anomalies in the context of the group, but eventually they had to be removed from this list. The facts are as follows.

Table 12

Anomalies for 'fire' and 'smoke' in Tenda-Jaad-Biafada

Language	**Fire**	**Smoke**
Biafada	*fu-fuuru / ba-fu-f-*	*fu-cu / ba-fu-c-*
Jaad	*ne-kku-sa?*	*ku-ccu*
Konyagi	*Ø-xwà-də̂x / wὲ-kwà-də̂x*	*Ø-xwà-cìcə́ / wὲ-kwà-cìcə́*
Tanda	*ɣwə-dək-ən / o-kw-*	*ɔ-kɔ-cən*
Basari	*xɔ̀-dŏ̋x*	*ɔ-kʷɔ́-cʌ́n*
Bedik	*ɲu-kú-dɔ̂*	*gɔ-kʷʌ̀-c*
Bapen	*ɛ-duh / mo-duh*	*ɔ-ku-cʌn-*

'Moon'. All six reflexes of Proto-Tenda **pacaw̃* show anomalies in the class systems of modern languages. This means that in essence we have not six cases of deviations, but only one. This is a genetic fact, not a typological one.

'Hair'. As with the nouns for 'moon', all sources show class anomalies in all four languages, which reflect the Proto-Tenda-Jaad root **baɻ* 'moon'. This means that the anomalies go back to the proto-language, and thus for my typology of meanings associated with anomalies this case is not actually of interest as it reflects a genetic rather than a typological phenomenon.

'Man'. All anomalies for 'man' are noted for reflexes of nouns with the same root, namely **can* (Bedik *a-ʃán,* Jaad-Biafada *wu-siya / bə-*). We can thus single out only one anomaly in Proto-Tenda.

'Woman'. By contrast, for 'woman', anomalies are noted in three different roots and are accordingly of undoubted interest. Many other examples are also of interest. Let us consider just a few of them.

'Foot; leg'. Among the reflexes of proto-roots with this meaning, we find some in which there are no anomalies. So, for example, all reflexes of Proto-Tenda **a-bʌŋ / ɓa-* 'foot; sole' which are attested in four languages (Basari *a-mbə̀ŋá*, Bedik *gi-mbéndὲ*, Tanda *a-mbəŋa /*

ba-, Bapen *a-mbʌŋo / ɓa-*), are included in the standard classes and regular singular / plural correlations.

A reverse example gives the root **go-nʌng* 'leg', which should perhaps be reconstructed for Proto-Tenda-Jaad-Biafada. This root is retained in five languages, including possibly Biafada (*ge-ranka / ma-t-*), and in four of them the reflexes show anomalies in terms of noun classes (in particular Bapen *ɣo-nʌng / mo-ɣo-nʌng*, Konyagi *ù-xò-l̰ənk / wæ̀-kò-l̰ənk*). This means that we have reason to attribute this anomaly to the proto-language state, that is, to reduce these anomalies to just a single case.

A third root *CL?-*tap-* 'foot; leg' is also widely represented in modern languages; however, anomalies can be traced in only one of them (Basari *sàp-àr*).

Finally, anomalous class characteristics can also be seen in forms that cannot be reconstructed for the proto-language of the group and are attested in only one modern language (Jaad *k-oore* 'leg').

'Bee'. Class anomalies are noted in two different roots: one of them is attested in the Tenda group (Bedik *gi-ɲānà*, Tanda *e-ɲana / o-y-*) and the other in Biafada (*gu-ncege / bʷa-s-*). Note that in Bedik, anomalies are also found in two words with the meaning 'bee (sp.)' (*gi-mās, go-mbòŋ-mbòŋ*).

'Child'. Anomalies are noted for different roots. In some roots they are observed simultaneously in all languages (for example, Jaad and Biafada *nə-mbe / ba-nə-mbe*), but in other roots only in one or a few languages: for example, the root Proto-Tenda **tɔx* 'child', retained in all languages of the group, shows class anomalies only in Bapen (*ɲi-tɔ / ɓʌ-tɔ-ɓʌn*). Anomalies are also found in other roots with this meaning, such as Biafada *nu-nda / maa-dda*, Jaad *neseŋ / ba- neseŋ*, etc.

'Person'. Anomalies are found in nouns with this meaning in six sources for four languages. For the same language, different sources may give different anomalous forms. Thus, in Jaad, *wuun / ban* (RefLex: Ducos) and *wunu / ba-nə* (RefLex: Wilson) should be classified as anomalous.

The most common anomalies in this group of languages are presented in Table 13.

Table 13

The typical anomalies in Tenda-Jaad-Biafada

Meaning	Anomalies	Meaning	Anomalies
‘child’	9	‘bee’	3
‘fire’	7	‘smoke’	3
‘person’	6	‘father’	3
‘woman’	4	‘feather’	3
‘foot; leg’	3	‘cow’	3
‘thing’	3	‘cloth’	3

Nyun-Buy. The group consists of various Nyun dialects (Nyun cluster) and two Buy languages: Kobiana and Kasanga. To analyze the Nyun cluster I used 8 sources including 5340 nouns, revealing 224 anomalies (4.2%). In my analysis of Buy I use 4 sources including 1800 nouns, of which 130 show class anomalies – this is the highest percentage (7.1%) of anomalies in the Atlantic family.

Taking into account that the two subgroups are not equal in terms of the number of sources available, I choose a different lower threshold of anomalies for each of them (Table 14).

Table 14

The typical anomalous meanings in Nyun-Buy

Nyun: 8 sources

Meaning	Anom.	Meaning	Anom.
‘eye’	6	‘river’	3
‘foot’	6	‘smoke’	3
‘hand’	6	‘thing’	3
‘cloth’	4	‘trap’	3
‘friend’	3	‘woman’	3
‘millet’	3		
‘hair’	3		

Table 14 (end)

Buy: 4 sources

Meaning	Anom.	Meaning	Anom.
'fish'	4	'cassava (plant)'	2
'house'	4	'father'	2
'eye'	3	'fire'	2
'foot'	3	'ear'	2
'hand'	3	'girl'	2
'cloth'	3	'grass'	2
'millet'	3	'groundnut'	2
'maize'	3	'mother'	2
'hair'	2	'person'	2
'brain'	2	'tree'	2

Gray color in Table 14 indicates the meanings that show anomalies in both Nyun and Buy. As we can see, the lists are very similar: half of the regular anomalous meanings in Nyun are also anomalous in Buy.

The languages of these two subgroups provide us with interesting material to discuss again the important methodological question that arises in this research. In this study one must constantly keep in mind that we are dealing with related languages, although in most cases these relationships are only distant. This means that we have to consider, as far as possible, whether anomalies are typological or whether they are linked genetically.

Let us dwell on three common anomalies identified both in Nyun and Buy. We note that in various Nyun dialects, a special correlation in number is found for 'hand' and 'foot' (SG **si-** / PL **ha-**). It should be emphasized that this correlation is not used for any other noun. Interestingly, the same class SG **si-** is used in another unique number correlation (SG **si-** / PL **i-**) for 'eye'. At the same time, both the **si-** (SG) class and the **ha-** and **i-** (PL) classes are widely used in other correlations. On the other hand, in Buy languages, all three of the anomalies indicated can be traced, but they operate in a completely different way (Table 15).

Table 15

Anomalies in some body part meanings in Nyun-Buy

	'hand; arm'		***'foot'**		**'eye'**	
Nyun	sɪ-lah / ha-lah	si- / xa-	si-diih / hə-diih	si- / xa-	si-gil / i-gil	si- / i-
Kobiana	ji-hákk / ŋa-h-	ji- I / ŋa- I[11]			sí-ggəh / ge-g-	si- III / ge- I
Kasanga	ji-rek / ŋa-r-	ji- I / ŋa- I	ki-diir / xa-diir	ki- / ha-	si-gir / ga-	si- / ga-~ŋi-
			***'leg'**			
Nyun						
Kobiana			tá-pper / ja-f-	ta- II / jV- I		
Kasanga			tɛ-ped / jɛ-fɛd	ta- / jV-		
			***'sole; foot'**			
Nyun			gu-lef / xa	gu- / xa-		
Kobiana			gu-háf / ŋa-	gu- / ŋa-		
Kasanga			gu-rɔfɔ / ŋa	gu- / ŋa-		
			***'calf'**			
Nyun			bʊ-bax / i-	bʊ- / i-		
Kobiana			a-bbáh / ga-b	a- II / ga- I		
Kasanga						

[13] Recall that the Roman numerals (I-III) in Buy denote the initial consonant mutation grades in lexical stems assigned to each noun class. The regular correspondence Nyun [l] ~ Kobiana [h] ~ Kasanga [r] in different positions can be traced in four of the six stems given in Table 15.

Anomalous correlations are marked in gray in Table 15. In Nyun they refer to three roots, and in Buy to four: along with the first three anomalies, in Buy the correlation **ta- / jV-** in the reflex of the Atlantic root for *'leg' is also anomalous. At the same time, unlike Nyun, the Buy anomalies are not combined into semantic groups – all four anomalous correlations are noted for different noun classes, both singular and plural. Note that in two nouns with close meanings, showing standard number correlations in Buy languages, other noun classes are attested. Thus, we observe that the common anomaly for associated meanings ('hand', 'foot') is not retained from the situation in the proto-language but was apparently formed specifically in Nyun.

In conclusion, I reiterate that the percentage of anomalies in Buy is exceptionally high (7.1%) and is generally the highest among the Niger-Congo languages included in the database. I think this has to do not only with the lack of reliable data from Buy, but also with the fact that these languages have developed a highly complex class system – in each of Kobiana and Kasanga we have to identify about 30 agreement classes, which are used against consonant root mutations incorporated into the class system, and dozens of different singular / plural correlations. In this respect, Buy classes seem to show the highest level of complexity of any noun class systems in Niger-Congo languages. This is the more interesting point given that the Buy languages belong to the same genetic group (North Atlantic) as some languages that have virtually lost their noun class system (in part the languages of the Cangin and Nalu groups).

It does not make sense to consider the last two groups in detail separately. The Cangin languages are very close to each other and, as a rule, reveal common anomalies for related nouns. As for the Nalu-Pukur languages (where Pukur includes Baga Mboteni and Baga Fore), on the other hand, their grouping remains quite problematic and for my purposes it is preferable to analyze them separately.

Thus, on the basis of my comparative historical data on the North Atlantic languages, it seems optimal to generalize the distribution

of anomalies in ten separate branches. The results are presented in Table 16, which collects anomalies occurring in at least two of the ten North Atlantic branches.

Table 16

The typical anomalies in North Atlantic

Meaning	Groups	Languages / Sources	Groups (names)
'foot; leg'	5	14	Ser, Tend, Nyun, Buy, Baga Mb
'person'	4	17	Wol, Tend, Buy, Cang
'fire'	4	11	Ful, Ser, Tend, Buy
'hand; arm'	4	10	Ser, Nyun, Buy, Baga Mb
'thing'	4	8	Wol, Tend, Nyun, Pukur
'cow'	4	6	Ful, Ser, Tend, Nal
'child'	3	12	Ser, Tend, Cang
'eye'	3	10	Nyun, Buy, Baga Mb
'millet'	3	10	Nyun, Buy, Cang
'cloth'	3	10	Tend, Nyun, Buy
'woman'	3	8	Wol, Tend, Nyun
'hair'	3	7	Nyun, Buy
'smoke'	3	7	Ser, Tend, Nyun
'father'	2	5	Tend, Buy
'finger'	2	5	Cang, Baga, Mb
'fish'	2	5	Buy, Baga Mb
'bee'	2	4	Tend, Baga Mb
'ear'	2	3	Buy, Baga Mb
'tree'	2	3	Buy, Baga Mb
'heart'	2	2	Baga Mb, Pukur
'stone'	2	2	Baga Mb
'young man'	2	2	Wol, Ser

2.5.2. Bak Atlantic

The Bak group includes 4 branches: Joola, Manjak-Mankanya-Pepel, Balant and Bijogo. Each of them contains a different number of languages and accordingly is treated by a different number of sources. Here is the distribution of sources and anomalies in my sample (Table 17).

Table 17

Bak statistics in the sampling

	Nouns	**Sources**	**Anom.**	**% Anom.**
Joola	30500	15	382	1.3
Manjak	6800	11	184	2.7
Balant	3300	5	67	2.0
Bijogo	1600	3	59	3.7
	42200	34	692	1.6

Consider interesting details in each of the branches.

Joola. Anomalies are summarized in Table 18.

Table 18

The typical anomalous meanings in Joola

Meaning	**Anomalies**	**Meaning**	**Anomalies**
‘person’	7	‘chief’	3
‘thing’	7	‘clothes’	3
‘child’	6	‘dance’	3
‘bee’	5	‘eye’	3
‘dance (sp.; women’s funeral)’	5	‘place’	3
‘mother’	5	‘rice’	3
‘rice (cooked)’	5	‘river’	3
‘egg’	4	‘smoke’	3
‘fire’	4	‘time’	3
‘inside’	4	‘brother / sister’	3

The given meanings are, as a rule, interesting from a typological point of view and do not always reflect the common lexical roots and noun classes of Proto-Joola. So, for example, in a number of Joola dialects (Kasa, Huluf Banjal etc) a common root *-ah / -af* with an anomalous class **u-** ~ **w-** is found for 'thing'. In other dialects, other roots and other anomalous classes are attested. Thus, Kwaatay and Fogny attest a special class **d-** for two other roots: Kwaatay *d-ɔɔn* 'thing', Fogny *rındaar* 'thing'.

Manjak-Mankanya-Pepel. Let us note the anomalies that are found in at least two sources (Table 19).

Table 19

The typical anomalous meanings in Manjak-Mankanya-Pepel

Meaning	**Anomalies**	**Meaning**	**Anomalies**
'broom'	5	'banana'	2
'hair'	4	'boy'	2
'person'	4	'calabash'	2
'baby'	3	'cassava'	2
'brother'	3	'cotton field'	2
'child'	3	'egg'	2
'co-wife'	3	'first-born'	2
'friend'	3	'grass'	2
'groundnut'	3	'head'	2
'mouth'	3	'hoe'	2
'orange'	3	'moon'	2
'pepper'	3	'nose'	2
'rice'	3	'oilpalm'	2
'sugar cane'	3	'old'	2
'tree'	3	'place'	2
'twin'	3	'pumpkin (plant)'	2
'woman'	3	'song'	2

Two of the four Bak branches are represented by single languages – Balant and Bijogo. Therefore, when compiling a general table representing regular anomalies in the Bak languages, we will take into account all the anomalies found in these two languages, regardless of the number of sources in which they are noted.

The summarized data are presented in Table 20.

Table 20

The typical anomalous meanings in Atlantic Bak

Meaning	Groups	Sources	Branches
place	4	7	Jool, Manj, Bal, Bij
person	3	15	Jool, Manj, Bal
brother	3	8	Jool, Manj, Bal
co-wife	3	5	Manj, Bal, Bij
child	2	9	Jool, Manj
bee	2	8	Jool, Bal
hair	2	7	Manj, Bal
egg	2	6	Jool, Manj
rice	2	6	Jool, Manj
mother	2	6	Jool, Bal
eye	2	6	Jool, Bij
time (occasion)	2	5	Jool, Bal
fire	2	5	Jool, Bij
groundnut	2	5	Manj, Bij
chief	2	4	Jool, Bal
river	2	4	Jool, Bij
smoke	2	4	Jool, Bij
friend	2	4	Manj, Bij
pepper	2	4	Manj, Bij
sugar cane	2	4	Manj, Bij
oilpalm	2	3	Manj, Bij

Table 20 (end)

Meaning	**Groups**	**Sources**	**Branches**
maize	2	2	Bal, Bij
thing	1	7	Jool
dance sp.	1	5	Jool
rice (cooked)	1	5	Jool
broom	1	5	Manj
inside	1	4	Jool
clothes	1	3	Jool
dance	1	3	Jool
baby	1	3	Manj
mouth	1	3	Manj
orange	1	3	Manj
tree	1	3	Manj
twin	1	3	Manj
woman	1	3	Manj
ear	1	3	Bal
wing	1	3	Bal
foot; leg	1	3	Bij
shellfish	1	3	Bij

Now we can draw up a general list of regular anomalies in the Atlantic family (Table 21).

Table 21

A general list of the typical anomalous meanings in Atlantic

Atlantic (Branches: 1. North Atlantic; 2. Bak)

Meaning	Branches	Groups (14)	Sources (66)	Subgroups
'person'	2	7	32	Wol, Tend, Buy, Cang; **Jool**, **Manj**, **Bal**[14]
'foot; leg'	2	6	17	Ser, Tend, Nyun, Buy, Baga Mb; **Bij**
'fire'	2	6	16	Ful, Ser, Tend, Buy; **Jool**, **Bij**
'child'	2	5	21	Ser, Tend, Cang; **Jool**, **Manj**
'eye'	2	5	16	Nyun, Buy, Baga Mb; **Jool**, **Bij**
'thing'	2	5	15	Wol, Tend, Nyun, Pukur; **Jool**
'hair'	2	5	14	Nyun, Buy; **Manj**, **Bal**
'smoke'	2	5	11	Ser, Tend, Nyun; **Jool**, **Bij**
'cloth'	2	4	13	Tend, Nyun, Buy; **Jool**
'bee'	2	4	12	Tend, Baga Mb; **Jool**, **Bal**
'woman'	2	4	11	Wol, Tend, Nyun; **Manj**
'friend'	2	3	7	Nyun; **Manj**, **Bij**
'river'	2	3	7	Nyun; **Jool**, **Bij**
'ear'	2	3	6	Buy, Baga Mb; **Bal**
'tree'	2	3	6	Buy, Baga Mb; **Manj**
'maize'	2	3	5	Buy; **Bal**, **Bij**
'hand; arm'	1	4	10	Ser, Nyun, Buy, Baga Mb
'place'	1	4	7	**Jool**, **Manj**, **Bal**, **Bij**

[14] Branches of the Bak group where anomalies are attested are given in bold.

Table 21 (end)

Meaning	Branches	Groups (14)	Sources (66)	Subgroups
'cow'	1	4	6	Ful, Ser, Tend, Nal
'millet'	1	3	10	Nyun, Buy, Cang
'brother'	1	3	8	**Jool**, **Manj**, **Bal**
'co-wife'	1	3	5	**Manj**, **Bal**, **Bij**
'egg'	1	2	6	**Jool**, **Manj**
'mother'	1	2	6	**Jool**, **Bal**
'rice'	1	2	6	**Jool**, **Manj**
'groundnut'	1	2	5	**Manj**, **Bij**
'time (fois)'	1	2	5	**Jool**, **Bal**
'father'	1	2	5	Tend, Buy
'finger'	1	2	5	Cang, Baga, Mb
'fish'	1	2	5	Buy, Baga Mb
'chief'	1	2	4	**Jool**, **Bal**
'pepper'	1	2	4	**Manj**, **Bij**
'sugar cane'	1	2	4	**Manj**, **Bij**
'oilpalm'	1	2	3	**Manj**, **Bij**
'heart'	1	2	2	Baga Mb, Pukur
'young man'	1	2	2	Wol, Ser

How should the distribution of anomalies in the systems of noun classes in the Atlantic family be evaluated? The 16 meanings show anomalies in both the North branch and the Bak branch (gray in Table 21). Anomalies may extend to half of the branches I have chosen: nouns for 'person' show anomalies in seven of the 14 selected groups. Anomalies may extend to half of the sources / languages ('person'), but as Table 21 shows, anomalies are also common in a number of other meanings. It is already quite clear that the most typical anomalous

meanings are those that we traditionally classify as prototypical meanings of the noun classes (see next section), although there are some curious deviations in this respect. Let us turn to data on other branches of Niger-Congo where this is possible.

2.6. Mel languages

For North Mel, there are 5 languages / sources selected (Baga Koba, Baga Sitemu, Baga Maduri, Temne, Landuma), 4087 noun records, 134 anomalies (3.3%). The anomalies are given in Table 22.

Table 22

The typical anomalous meanings in North Mel

Meaning	Anomalies (1–5)	Languages
fire[15]	5	BK, BS, BM, Temne, Landuma
father	4	BK, BS
mother	3	BK, BS
tooth	3	BK, Temne
grandfather	3	BS
place	3	BS, Temne
animal	2	BS, Temne
day	2	BS, Temne
eye	2	BK, Temne
egg	2	BK, Temne
village	2	BS
tree	2	BS, Temne
thing	2	BS, Temne
hand; arm	2	BS, Temne
foot; leg	2	BS, Temne

[15] For more on the anomalous noun class for ‘fire’ in North Mel languages, see Pozdniakov (1993: 162–163).

Table 22 (end)

Meaning	Anomalies (1–5)	Languages
cow	2	Temne
rainy season	2	Temne
Face	2	Temne

For South Mel, there are 5 languages / sources selected (Kisi, Mani, Bom, Kim, Sherbro), 5974 noun records, 63 anomalies (1.1%). There are very few anomalies, and almost all of them are attested only in one source. Therefore, a tabular presentation of the data does not make sense in this case. A rare exception is formed by 4 (!) anomalous correlations in number in Kim for nouns meaning 'fishing net (sp.)' (6).

(6)	**Form**	**Meaning**	**SG CL**	**PL CL**
	bɔ̀	'fishing net (sp.)'	hi	mo
	kàmàtì	'fishing net (sp.)'	hu	mo
	kìtìgá	'fishing net (sp.)'	hu	mo
	pɛ́n	'fishing net (sp.)'	ko	mo

This is certainly an anomaly formed in this particular language. In general, anomalies in Mel are represented in Table 23.

Table 23

The typical anomalous meanings in Mel

Meaning	Branches (2)	Sources	Languages
'eye'	2	4	BK, Temne; Mani
'thing'	2	3	BS, Temne; Mani
'cow'	2	3	Temne; Bom
'village'	2	3	BS; Mani
'ancestor'	2	2	BS; Kim
'spider'	2	2	BS; Sher
'snake (sp.; viper)'	2	2	Temne; Bom

Table 23 (end)

Meaning	Branches (2)	Sources	Languages
‘father’	1	4	BK, BS
‘fishing net’	1	4	Kim
‘mother’	1	3	BK, BS
‘place’	1	3	BS, Temne
‘tooth’	1	3	BK, Temne
‘grandfather’	1	3	BS
‘animal’	1	2	BS, Temne
‘day’	1	2	BS, Temne
‘foot; leg’	1	2	BS, Temne
‘hand; arm’	1	2	BS, Temne
‘tree’	1	2	BS, Temne
‘egg’	1	2	BK, Temne
‘face’	1	2	Temne
‘rainy season’	1	2	Temne

Note seven meanings (gray in Table 23) that show anomalies in both Mel groups. At the same time, none of the most frequent meanings in the anomalies of the North Mel group (gray in Table 23) appear as anomalous in any of the languages / sources of the South Mel group (otherwise they would be marked in gray).

2.7. Isolated languages Limba and Gola

Pozdniakov & Segerer (2023) show that we do not have sufficient grounds to classify Limba and Gola as either Atlantic or Mel languages. They will be treated as isolated Niger-Congo languages. Anomalies in the class systems of these languages are given in Table 24.

Table 24

Anomalous meanings in Limba and Gola

Limba (1 source)		Gola (2 sources)
‘man’		‘man’
‘house; home’		‘house’
‘child; baby’		‘chicken’
‘woman’		‘country’
‘widower’		‘town’
‘chameleon’		‘farm’
‘squirrel’		‘tree; stick’
‘place’		‘banana’
‘world’		‘yam (sp.);
‘mouth; blade’		‘groundnut’
‘rope’		‘stone’
‘seed’		‘arrow’
‘boat’		‘belly’
‘wave’		

2.8. Ubangi

The only group in the Ubangi family where RefLex sources systematically show noun classes is the Sere-Ngbaka-Mba group. I have 9 sources, 2359 nouns, 76 anomalies (3.2%). Typical anomalies are given in Table 25.

Table 25

The typical anomalies in Ubangi

Meaning	Sources	Meaning	Sources	Meaning	Sources
‘father’	4	‘animal; meat’	2	‘star’	2
‘grass’	4	‘chicken’	2	‘tail’	2
‘mother’	3	‘heart’	2	‘water’	2
‘termite’	3	‘fishing net’	2	‘witchcraft’	2
‘tooth’	3	‘person’	2	‘year’	2

2.9. Adamawa

In the three Adamawa sources used (Koma, Kùláál (Iro) and Momi), 42 anomalies were identified in 1950 nouns (2.2%). Most of them are attested in only one of the three languages, and there is no point in listing them in a special table. The exception is nouns for 'thing', which show anomalies in all three languages, and they are obviously not related to each other. Koma (RefL: Dieu & Perrois, 27445) shows a rare SG **N** / PL **N** correlation in three words, and in particular in *nēnē / léʔɛ̄* 'thing'. Momi (RefL: Blench & Edward, 3294) has a unique correlation SG **an** / *Pl* ***at*** in *wan / net* 'thing'. Finally Kùláál (Iro) (RefL: Pairaul) also gives a unique correlation of classes SG **kí** / PL **mò** in *ì (kí) / òm (mò)* 'thing', with this plural class (**mò**) attested only in two nouns – 'thing' and 'place' (*én (kɛ̀) / ǫ́nóm (mò)* 'place').

2.10. Kru

Noun classes are only noted in Dida (Lakota) (RefL: Guéhoun; 1 source, 568 nouns), but no anomalies are found.

2.11. Kwa

My sampling from RefLex includes 7 languages / sources, 2576 nouns, 95 anomalies (3.7%): Chumburung, Gichode, Gonja, Krachi, Nawuri, Igo, Tuwuli.

Table 26

The typical anomalies in Kwa

Meaning	Sources	Meaning	Sources	Meaning	Sources
'bed'	5	'grave'	3	'guinea worm'	2
'yam'	4	'meat'	3	'hand'	2
'animal'	3	'oath'	3	'lie'	2
'bird (sp.; parrot)'	3	'buffalo'	2	'sheep'	2
'face'	3	'child'	2	'snake'	2
'farm'	3				

2.12. Kordofan

Only for two languages in RefLex are noun classes systemically marked: Dagik and Asheron. Add to this the evidence for non-standard correlations in number in Moro identified in (Gibbard et al. 2009: 107).

Table 27

The anomalous meanings in Kordofan

Meaning	Sources	Meaning	Sources	Meaning	Sources
‘sheep’	3	‘buffalo’	1	‘homeland’	1
‘house’	2	‘elephant’	1	‘house’	1
‘stone’	2	‘father’	1	‘tail’	1
‘arm’	1	‘foot; leg’	1	‘woman’	1
‘ashes’	1	‘goat’	1	‘wood’	1
‘baby; child’	1	‘termite’	1	‘tooth’	1

2.13. Summary

Now we are finally in a position to give a summary table of anomalies in the noun class systems of Niger-Cong languages (Table 28).

The meanings in Table 28 are sorted in descending order of their occurrence in anomalous classes. The plus symbol means that an anomaly with a given meaning is attested in this branch of NC. In Table 28, 199 anomalies are marked with pluses, which are distributed over 43 meanings. The last two columns record how many branches (out of 14) and how many languages / sources (out of 243) this anomaly was found in; Table 28 only signals anomalies that are attested in at least three of the 14 branches. The last line fixes the number of the most frequent anomalies in each of the branches. This line, in particular, shows that the Gur and North Mel languages retain the largest number of anomalies typical of NC (25 each).

Table 28

The typical anomalous meanings in Niger-Congo (14 branches; 243 languages)

	Groups															
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
Meaning	**Bantu**	**Bantoid**	**BC**	**Gur**	**Atl. N.**	**Atl. Bak**	**Mel N.**	**Mel S.**	**Lim.**	**Gola**	**Ub.**	**Adam.**	**Kwa**	**Kord.**	**Groups**	**Languages**
‘child’		+	+	+		+	+		+		+		+	+	10	49
‘foot’	+	+	+	+	+	+	+							+	8	57
‘person’		+	+	+	+	+	+				+	+			8	52
‘hand’	+	+	+	+	+		+						+	+	8	47
‘thing’				+	+	+	+	+			+	+			7	34
‘woman’			+	+	+	+			+		+			+	7	28
‘ear’	+		+		+	+		+			+		+		7	21
‘house’	+	+		+			+		+	+				+	7	19
‘mother’	+	+		+		+	+				+				6	22
‘father’	+			+	+		+				+			+	6	21
‘tree’			+	+	+	+	+			+					6	18
‘mouth’	+					+		+	+			+	+		6	10
‘fire’	+			+	+	+							+		5	25
‘chief’		+	+	+		+							+		5	23
‘place’	+					+	+		+			+			5	15
‘man’			+	+			+		+	+					5	11

Table 25 (continuation)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
‘eye’				+	+	+	+	+							5	10
‘village’	+						+	+			+	+			5	10
‘sheep’				+			+						+	+	4	19
‘millet’			+	+	+		+								4	17
‘clothes’					+	+	+	+							4	15
‘brother’	+	+				+	+								4	14
‘smoke’					+	+					+		+		4	13
‘tooth’	+			+			+				+				4	12
‘cow’				+	+		+	+							4	11
‘stone’					+					+			+	+	4	6
‘rope’							+	+	+				+		4	4
‘hair’					+	+					+				3	15
‘face’	+						+						+		3	14
‘animal’				+			+						+		3	12
‘fowl’		+		+				+							3	12
‘moon’	+			+			+								3	12
‘boat’	+	+							+						3	11
‘bow’	+			+							+				3	11
‘fish’				+	+								+		3	10
‘bee’				+	+	+									3	8
‘nail’	+		+								+				3	8
‘tail’			+								+			+	3	6

Table 25 (end)

	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
‘elephant’				+									+	+	3	5
‘heart’					+						+		+		3	5
‘chicken’										+	+		+		3	4
‘egg’						+	+				+				3	4
‘name’							+				+		+		3	3
TOTAL	17	10	12	25	19	19	25	9	8	5	18	5	17	10		

If we look at the anomalies that are found in at least 5 of the 14 branches of NC distinguished here (these 18 anomalies are shaded in gray in Table 28), then it is easy to verify that all of them, without exception, refer to the key concepts expressed by noun classes. I believe that this is the main conclusion that follows from the analysis.

Let us summarize preliminary results:

1. In most of the languages I have examined, anomalies are found in the systems of noun classes or / and class correlations in number. In my collection, of course, there are also "well-behaved" languages that do not allow anomalies. But there are few of these. On average, anomalies affect 1% of nouns, and in some languages they can reach 7%.
2. Anomalies of this kind can apparently be random, and in that case they are of interest only to specialists of the particular language in which they are found. However, a significant fraction of these anomalies involve the same lexical meanings in multiple different languages, meaning that such anomalies should be considered typical for the Niger-Congo family in general. The most typical meanings in anomalies are given in Table 28. I emphasize that the probability that the same anomalies could be found by accident in even three out of 14 branches (let alone 10 out of 14 branches) is negligible, and thus such findings cannot be interpreted as accidental. Classes and class correlations in the nouns which mean 'child', 'person', 'thing', 'place', 'hand', 'leg', 'eye', 'fire', 'woman', 'man', 'mother', 'father' behave *differently* from standard classes in most other nouns. These are exceptional, anomalous classes and correlations.
3. Some anomalies are of undoubted interest for linguistic anthropology, since they clearly show the importance of a particular concept in traditional culture, and it seems that the exclusivity of an agreement pattern or the appearance of an atypical correlation in number can be used as a special marker emphasizing the importance of this concept. So, in the language of the Fulbe cattlemen (and in fact not only among them),

a special class is formed for ‘cow’ nouns; in the tiny fishing villages where the Kim language (South Mel) is still spoken, special correlations in number are found in a wide variety of names for fishing nets; in Casamance, in a number of Joola dialects (and apparently only there), anomalies are found in the correlation for the word ‘rice’, and moreover for the words for both uncooked and cooked rice; in the Bijogo language spoken on the island of Bijagos, a special correlation is formed for the names of sea mollusks (shellfish), etc.

4. The least trivial and, apparently, the most important conclusion is the following. The traditional logic of describing rules and exceptions in noun classes assumes that there are prototypical, “correct” meanings of particular classes, and there are marginal, atypical, deviant meanings that appear in random accidental anomalies.[16] However, my data show that things seem to work differently. The nouns that are most often found to be anomalous across NC languages (see the gray area of Table 28) mainly have those meanings that are most important for the semantics of the noun classes. In order to test the hypothesis that anomalies in the noun classes do indeed correlate with prototypical class concepts, a list of such prototypical nouns must be obtained that can be systematically compared with the anomalies I have detected. Let us try to compile such a list on transparent formal grounds.

3. Prototypical concepts of noun classes in the meanings of nouns in Bantu

Most noun classes include dozens or hundreds of nouns with different meanings. What grounds do we have for claiming that one meaning is

[16] By “random” I refer to anomalies formed under the influence of factors that are not directly related to the features of the paradigmatic semantic classification in noun class systems (but come as the consequence of phonotactic processes, culturally determined deviations, etc.).

"more important" for a given noun class than another? It should be stressed that in this article I would like to avoid the perennial and extremely interesting debate about the semantics of the noun classes as such. In most cases, researchers are entirely satisfied with the rather conditional and approximate formulations that pass from one textbook to another, in which, for example, class 3 is called the class of trees, class 1 is the class of humans, class 9 is the class of animals, class 5 is the class of small round objects, etc. On the other hand, Bantuists are well aware that the semantic content of these noun classes is not reducible to the above key concepts, which, incidentally, turn out to be relevant to other noun classes in many Bantu languages.

Thus, nouns with the generic meaning 'tree' are found in Bantu languages not only in the correlation of classes 3 / 4 (Gusii JE40 *ómòté / émèté* etc.), but also 5 / 4 (Ndamba G52 *lipiki*), 5 / 6 (Kako A93 *bwěl / měl*), 5 / 8 (Kwasio A81 *li / bili*), 7 / 8 (Mwesa B22E *gʸèlí / bʸèlí*), and 12 / 13 (Lega D251 *kà-ré / tò-*). And for the stem **tí* 'tree' in Proto-Bantu, BLR indicates a correlation of 7 / 8, along with 3 / 4. As for the basic correlation of 3 / 4, we will see that the meaning of 'tree' is far from the most stable meaning for nouns that show this correlation in Bantu languages. All this is well known. However, for my specific purposes, it makes sense to step away from attempts at general semantic descriptions of noun classes and put the question differently: what are the most characteristic meanings of nouns that are found in this or that noun class? Is it possible, abstracting from theoretical speculations, to rely on objective data in order to single out, for example, ten or twenty of the most typical meanings in class 3 or in class 11?

Let us try to obtain lists of this kind by using a specific criterion. One can attempt to base the analysis on data concerning the stability of the occurrence of nouns with one meaning or another in the noun classes of modern Bantu languages, compared with the distribution of these meanings in Proto-Bantu classes. In the unique RefLex database, I select the forty most representative languages from different Bantu zones, in which the noun classes are numbered. Essentially, this is the

same list of Bantu languages that was used to detect anomalies in noun class systems. For each language and for each meaning, I fix the distribution of nouns across noun classes and then generalize the results obtained.

So, for example, we often refer to class 9 (in a 9 / 10 pairing) as the class for animals. Let us now see how accurate this characterization is. In my sample (40 languages plus Proto-Bantu), the generic meaning 'animal' is found, in particular, in nouns belonging to the following classes (Table 29).

Table 29

Some class pairings for 'animal' in Bantu

Language	Zones	Form	Meaning	CL SG	CL PL
Lega	D251	*ɲ-ɲàmà / ɲ-ɲàmà*	'animal'	9	10
Ngoni	N12	*ɱ-ɲama*	'animal'	1	2
Makonde	P23	*ɲămà / vá-ɲámà*	'animal'	1a	2
Kwakum	A91	*bùpà*	'animal'	3	4
Basaa	A43a	*tírí / bì-tírí*	'animal'	7	8
Fwe	K402	*cì-pâù / zì-pâù*	'wild animal'	7	8
Mwesa	B22E	*títú / bà-títú*	'animal'	9	2

To be precise, the class pairings listed in Table 29 for nouns which mean 'animal' could be attested in different words. Thus, in my sample, in the pair 7 / 8, there are 15 nouns with the meaning 'animal'. We can of course say that in the 9 / 10 gender, there are even more words which mean 'animal' (19 words), but the meaning 'animal' in class 9 is far from being the most stable, occupying only the 26th rank (!), and the most frequent in class 9 is the meaning 'house', noted in 39 words, that is, in most of the languages of my sample (in 30 languages plus in all forms meaning 'house' in Proto-Bantu without exception). And yet, if we look at the meanings of words that are more stable than words for 'animal', we find the names of the most important domestic and wild animals, as well as words for 'fish', 'bird', and 'meat' (Table 30).

Table 30

Several names of animals in the 9 / 10 class pairing in Bantu

Meaning	Quantity	Meaning	Quantity
‘chicken’	38	‘meat’	25
‘elephant’	33	‘dog’	24
‘fish’	32	‘crocodile’	24
‘goat’	27	‘panther’	24
‘buffalo’	25	‘hippopotamus’	22
‘lion’	25	‘cow’	22
‘bird’	25	‘sheep’	20

It is precisely this, of course, that gives us reason to conditionally call class 9 the animal class, despite the fact that the generic term turns out to be less stable than a number of names of specific animals. However, as already noted, we are interested in each frequent meaning that we find. Thus, the meaning ‘rain’, which in Proto-Bantu was probably part of the 9 / 10 correlation (**búdà*) and, as will be shown below, is still in class 9 in most languages of my sample (e.g. Nyamwezi F22a *mbùlá / mbùlá* ‘rain’ and many others), will be just as important for us as ‘animal’. Consider the most stable meanings in each noun class.

Class 1

Table 31

The most stable meanings in class 1

Meaning	Quantity	Meaning	Quantity
‘child’	39	‘slave’	21
‘woman’	39	‘wizard’	21
‘person’	38	‘friend’	32
‘husband’	28	‘chief’	29
‘girl’	26	‘hunter’	27
‘man’	26	‘medicine-man’	23
‘brother; sibling’	24	‘father’	21
‘stranger’	24	‘wife’	21

Table 31 includes meanings with a frequency of more than 20 in my 40 sources. In the column "Quantity" is noted the number of the attested meanings in 40 sources. There are 15 such meanings.

There is an important point to note. One might think that Table 31 shows the stability of certain Proto-Bantu roots, and in some cases this is indeed the case. Thus, the data of modern Bantu languages show high stability for the Proto-Bantu roots **jánà* 'child', **kádí* 'woman', **ntò* 'person', **dómè* 'husband', **jàdí* 'girl', **bàgàdà* 'man', **gènì* 'stranger', **gìà* 'slave' (also **pìkà*), **dògì* ~ **dògì* 'wizard'. However, we cannot say the same about other meanings. Nouns that mean 'friend', 'hunter' and 'medicine-man' are poorly reconstructed for Proto-Bantu. The stems **jámí* 'chief' and **cànó* 'wife' are reconstructed only for certain Bantu zones. All nouns that mean 'father' are reconstructed not in class 1, but in class 1A (see Table 32). Thus, we have every reason to talk about the stability of certain meanings in the noun class, rather than the stability of specific lexical stems.

Class 1A

Table 32

The most stable meanings in class 1A

Meaning	Quantity	Meaning	Quantity	Meaning	Quantity
'father'	40	'mother'	35	'grandparent'	28

There are few stable meanings in class 1A. It is obvious that in this case we are dealing with the very closest kinship terms. Where class 1A is retained, it includes only a few nouns, above all 'father' and 'mother'.

Class 3

Table 33

The most stable meanings in class 3

Meaning	Quantity	Meaning	Quantity	Meaning	Quantity
'tail'	38	'back'	26	'tree'	21
'heart'	34	'handle'	26	'river'	20
'mouth'	31	'pestle'	25	'body'	20

Table 33 (end)

Meaning	Quantity	Meaning	Quantity	Meaning	Quantity
‘root’	31	‘worm’	25	‘sugar cane’	20
‘head’	30	‘path’	24	‘arrow’	18
‘rope’	30	‘smoke; vapour’	24	‘sand’	18
‘stick’	30	‘trap’	24	‘trunk (tree)’	18
‘moon; month; moonlight’	28	‘vein’	22	‘throat’	17
‘spirit; ghost’	28	‘door’	21	‘finger’	16
‘year’	28	‘intestine’	21	‘fire’	16

The traditional interpretation of class 3 as the “class of trees” is largely arbitrary, as can be seen from Table 33. The meaning ‘tree’ appears in the third column of Table 33, remaining in only 21 of the 40 Bantu languages in my sampling. The names of the so-called “active body parts” clearly predominate, which in class 3 include first of all ‘tail’, ‘heart’, ‘mouth’, and less often ‘finger’.

Class 5

Table 34

The most stable meanings in class 5

Meaning	Quantity	Meaning	Quantity	Meaning	Quantity
‘stone’	48[17]	‘nose’	25	‘ashes’	18
‘hole’	41	‘ear’	23	‘banana’	18

[17] In the “Quantity” column, the indices may exceed the number of languages included in our sample (40), due to the fact that we are not considering exact meanings here but “semantic codes”. Thus in Ndamba G52 in (Edelsten & Lijongwa 2010), three words with the semantic code ‘stone’ refer to class 5, namely *li-ganga* 5 / 4 ‘stone, mud’ (from Proto-Bantu **ganga* 5 ‘stone’, attributed in BLR2 only to CP zones), *li-gongoveli* 5 / 4 ‘stone’, and *li-fiya* 5 / 6 ‘hearthstone for putting pots on’ (from Proto-Bantu **pígà* 5 / 6 ‘cooking-stone’ (zones EFGJLMNPRS in BLR2).

Table 34 (end)

Meaning	Quantity	Meaning	Quantity	Meaning	Quantity
‘eye’	36	‘knot’	23	‘bone’	18
‘egg’	35	‘spear’	23	‘cloud’	18
‘name’	35	‘buttock’	22	‘marriage’	18
‘tooth’	34	‘sun’	21	‘nest’	18
‘knee’	33	‘day’	20	‘drop’	17
‘breast’	31	‘leaf’	20	‘hump’	17
‘cheek’	27	‘testicle’	20	‘liver’	17
‘coal’	26	‘ten’	19	‘lung’	17
‘shoulder’	26	‘twin’	19	‘hand’	16
‘wing’	26	‘voice’	19		

Many of the typical meanings of the class 5 are quite predictable, while others are less obvious. In any case, the list in Table 34 was obtained according to an objective criterion for the stability of meanings in a class, and this may be of interest to specialists.

Class 6A

Table 35

The most stable meanings in class 6A

Meaning	Quantity	Meaning	Quantity
‘water’	32	‘oil’	21
‘milk’	28	‘blood’	20
‘saliva’	26	‘fat’	19
‘urine’	22		

The class 6A is a class containing nouns that do not feature in number correlations, including the names of masses and, above all, liquids.

Class 7

Table 36

The most stable meanings in class 7

Meaning	Quantity	Meaning	Quantity	Meaning	Quantity
‘thing’	45	‘skin’	21	‘wall’	18
‘place’	34	‘plate’	20	‘cough’	17
‘basket’	27	‘shoe’	20	‘fruit’	17
‘iron’	24	‘wound’	19	‘heel’	17
‘piece’	23	‘bed’	18	‘mat’	17
‘bone’	21	‘calabash’	18	‘stump (of tree)’	17
‘food’	21	‘chest’	18	‘lip’	17
‘room’	21	‘corpse’	18	‘sweat’	16

The two most frequent meanings in the class 7, ‘thing’ and ‘place’, attract attention. There are several meanings whose presence in this list is quite unexpected and could hardly have been predicted.

Class 9

Table 37

The most stable meanings in class 9

Meaning	Quantity	Meaning	Quantity	Meaning	Quantity
‘pot’	37	‘meat’	23	‘force’	20
‘hunger’	34	‘neck’	23	‘leopard’	20
‘path’	33	‘animal’	21	‘wound’	20
‘house’	31	‘cow’	21	‘buffalo’	19
‘chicken’	27	‘guineafowl’	21	‘dream’	19
‘elephant’	26	‘goat’	21	‘hippopotamus’	19
‘fish’	24	‘louse’	21	‘moon; month’	19
‘rain’	24	‘seed’	21	‘pepper’	19
‘drum’	23	‘dog’	20	‘crocodile’	18
				‘tortoise’	18

The list in Table 37 once again confirms what was said above. The generic meaning ‘animal’ only appears in the second column of the list. At the same time, the percentage of names of specific animals in the list is certainly high.

Class 11

Table 38

The most stable meanings in class 11

Meaning	Quantity	Meaning	Quantity	Meaning	Quantity
‘tongue’	21	‘fingernail; claw’	16	‘hair’	14

Only three meanings show a relatively high frequency. We have to admit that class 11 mainly consists of nouns with unstable meanings, unlike, for example, class 5.

Class 12

Table 39

The most stable meanings in class 12

Meaning	Quantity	Meaning	Quantity
baby	5	fire	5

Class 12 is a low frequency class, and one that disappears in many languages. Hence the low stability indexes in the table, where the meaning ‘fire’ is unexpected. Perhaps we see traces of class 15 here?

Class 13

Note here the meaning ‘pus’ in 6 languages of the sample, in nouns which come from **píná* ‘pus’, where class 13 is to be interpreted as singular class in correlation 13 / 6. For example, Kiholu L12b? *tú-fíɲà* 13 / 6 ‘pus’.

Class 14

Table 40

The most stable meanings in class 14

Meaning	Quantity	Meaning	Quantity
‘honey’	19	‘lie’	13
‘flour; powder’	17	‘mushroom’	13
‘fear’	16	‘disease’	12
‘brain’	15	‘bow’	11
‘laziness’	14	‘night’	11
‘boat’	13		

Note that none of the meanings reaches an index of 20. It is also curious that we see quite a few nouns with an abstract meaning, which in many languages are typical of class 14.

Class 15

Table 41

The most stable meanings in class 15

Meaning	Quantity	Meaning	Quantity	Meaning	Quantity
‘foot; leg’	10	‘ear’	4	‘broom’	3
‘hand; arm’	8	‘armpit’	3		

A small class that has already been discussed several times in the article, attested only in a very small number of languages (except in the function of marking the infinitive). If it is preserved, then this is primarily for nouns that mean ‘foot’ and ‘hand’. I note that in my sample the noun for ‘moon’ is attested in class 15 only once, as is the noun for ‘knee’.

Class 19

In class 19 (in correlation 19 / 13), only one meaning has an index higher than 3: there are 6 nouns that mean ‘sleep’, mostly reflexes of Proto-Bantu **dó* ‘sleep’.

In the summary Table 42 of the most stable meanings in the Bantu languages are reduced to 100 meanings.

Table 42

The most stable meanings in Bantu noun classes

CL	Meaning	Quantity	CL	Meaning	Quantity	CL	Meaning	Quantity
1	‘child’	39	5	‘stone’	48	9	‘pot’	37
1	‘woman’	39	5	‘hole’	41	9	‘hunger’	34
1	‘person’	38	5	‘eye’	36	9	‘path’	33
1	‘friend’	32	5	‘egg’	35	9	‘house’	31
1	‘chief’	29	5	‘name’	35	9	‘chicken’	29
1	‘husband’	28	5	‘tooth’	34	9	‘elephant’	26
1	‘hunter’	27	5	‘knee’	33	9	‘fish’	24
1	‘girl’	26	5	‘breast ‘	31	9	‘rain’	24
1	‘man’	26	5	‘cheek’	27	9	‘drum’	23
1	‘brother; sibling’	24	5	‘coal’	26	9	‘meat’	23
1	‘stranger’	24	5	‘shoulder’	26	9	‘neck’	23
1	‘medicine-man’	23	5	‘wing’	26	9	‘animal’	21
1	‘father’	21	5	‘nose’	25	9	‘cow’	21
1	‘slave’	21	5	‘ear’	23	9	‘goat’	21
1	‘wife’	21	5	‘knot’	23	9	‘guineafowl’	21
1	‘wizard’	21	5	‘spear’	23	9	‘louse’	21
3	‘tail’	38	5	‘buttock’	22	9	‘seed’	21
3	‘heart’	34	5	‘sun’	21	14	‘honey’	19
3	‘mouth’	31	7	‘thing’	45	14	‘flour; ‘powder’	17
3	‘root’	31	7	‘place’	34	14	‘fear’	16
3	‘head’	30	7	‘basket’	27	14	‘brain’	15

Table 42 (end)

CL	Meaning	Quantity	CL	Meaning	Quantity	CL	Meaning	Quantity
3	‘rope’	30	7	‘iron’	24	15	‘foot; leg’	10
3	‘stick’	30	7	‘piece’	23	15	‘hand; arm’	8
3	‘moon’	28	7	‘bone’	21	15	‘ear’	4
3	‘spirit; ghost’	28	7	‘food’	21	19	‘sleep’	6
3	‘year’	28	7	‘room’	21	1A	‘father’	40
3	‘back’	26	7	‘skin’	21	1A	‘mother’	35
3	‘handle’	26	11	‘tongue’	21	1A	‘grandparent’	28
3	‘pestle’	25	11	‘fingernail; claw’	16	6A	‘water’	32
3	‘worm’	25	11	‘hair’	14	6A	‘milk’	28
3	‘path’	24	12	‘baby’	5	6A	‘saliva’	26
3	‘smoke’	24	12	‘fire’	5	6A	‘urine’	22
3	‘trap’	24	13	‘pus’	6	6A	‘oil’	21
3	‘vein’	22						
3	‘door’	21						
3	‘intestine’	21						
3	‘tree’	21						

For high-frequency classes (1, 3, 5, 7, 9, 6A), Table 42 shows all the meanings that are relevant for more than half of chosen languages (21 out of 40 and above). For classes 11, 12, 13, 14, 15, 19, 1A, we note the meanings that are presented more often than the rest, regardless of the absolute frequencies. Meanings that show high frequency simultaneously in two noun classes are marked in gray Table 42. In the case of words for 'father', this is quite clear: with the disappearance of class 1A in many languages, the word with this meaning goes into class 1. Words for 'ear' have been shown to go into class 5 in many languages, especially where the 15 / 6 correlation disappears. The meaning 'path', which is marked as high-frequency at the same time in both classes 9 and 3, should in fact probably be divided into several meanings, such as 'path', 'road', 'way', 'trail', and this requires a special study.

Now, based on concrete and easily verifiable data, one can test the hypothesis formulated above and see how the meanings of noun class anomalies correlate with the prototypical meanings of the classes, which represent the most stable meanings in each noun class.

4. Discussion: meanings in anomalies and prototypical meanings

In the preceding sections, in different ways, I obtained two completely incomparable (at least at first glance) lists of meanings. In the first list (see Table 28 above), there are 43 meanings typical of anomalies in the noun classes of the Niger-Congo languages. Recall that the list includes anomalies that manifest themselves in at least three of the 14 branches of NC. In the second list (see Table 42 above), there are 100 meanings that I have classified as prototypical in Bantu languages on the grounds that they show a significantly higher stability in certain classes than other meanings do.

The question is: how many meanings from the first list will we also find in the second? Statistically, if there is no link between these lists, then, given the variety of all noun meanings in the dictionaries

of the Bantu languages – and, more broadly, the Niger-Congo languages – even a minor overlap in these two lists (for example, 5 common meanings) would be extremely unlikely.

Now we have a concrete answer: 35 anomalous meanings out of 43 from the first list are included in the list of 100 prototypical meanings. Only 8 anomalous meanings are missing from the list (Table 43).

Table 43

Anomalies which are not on the list of prototypical meanings

Anomalies	Groups	Languages	Anomalies	Groups	Languages
'bee'	3	8	'face'	3	14
'boat'	3	11	'millet'	4	17
'bow'	3	11	'sheep'	4	18
'clothes'	4	15	'village'	5	10

Moreover, if we were more exacting in the selection of typical anomalies, and limited the list to anomalies that are relevant in at least 5 groups, then out of 18 anomalous meanings we would find 17(!) matches in the list of prototypical meanings (all meanings except 'village') (Table 44).

Table 44

The anomalies in NC and the stable meanings in Bantu

Anomalies NC (43)	Groups	Languages	Prototypes Bantu (100)	Quantity
'child'	10	48	'child'	39
'foot; leg'	8	57	'foot; leg'	10
'person'	8	52	'person'	38
'hand; arm'	8	47	'hand; arm'	8
'thing'	7	33	'thing'	45
'woman'	7	27	'woman'	39
'ear'	7	21	'ear'	23

Table 44 (end)

Anomalies NC (43)	Groups	Languages	Prototypes Bantu (100)	Quantity
‘house’	7	19	‘house’	31
‘mother’	6	22	‘mother’	35
‘father’	6	21	‘father’	40
‘tree’	6	18	‘tree’	21
‘mouth’	6	10	‘mouth’	31
‘fire’	5	25	‘fire’	5
‘chief’	5	23	‘chief’	29
‘place’	5	15	‘place’	34
‘man’	5	11	‘man’	26
‘eye’	5	10	‘eye’	36
‘village’	5	10		

The experiment also works in reverse. If we sort the list of 100 prototypical meanings in descending order of their stability in the Bantu languages, we find that it is the most frequent meanings, belonging to the first half of the list, that basically coincide with the list of meanings that are associated with anomalies. Among the 17 most stable meanings, 14 are also noted in the list of typical anomalies in Niger-Congo (Table 45).

Table 45

The most stable meanings in Bantu and the anomalies in NC

Rank	Prototypes (100)	Quantity	Anomalies (43)	Groups	Languages
1	‘stone’	48	‘stone’	4	6
2	‘thing’	45	‘thing’	7	33
3	‘hole’	41			
4	‘father’	40	‘father’	6	21
5	‘child’	39	‘child’	10	48

Table 45 (end)

6	‘woman’	39	‘woman’	7	27
7	‘person’	38	‘person’	8	52
8	‘tail’	38	‘tail’	3	6
9	‘pot’	37			
10	‘eye’	36	‘eye’	5	10
11	‘egg’	35	‘egg’	3	4
12	‘mother’	35	‘mother’	6	22
13	‘name’	35	‘name’	3	3
14	‘heart’	34	‘heart’	3	5
15	‘hunger’	34			
16	‘place’	34	‘place’	5	15
17	‘tooth’	34	‘tooth’	4	12

This finding, almost the maximum possible coincidence between two completely different lists, tells us at least two things. Firstly, the fact that the correlation between the two lists (which is very high in general) is significantly higher at the beginning than at the end of the lists is a powerful additional argument in favor of the observations above: if the lists were not correlated, we would logically expect to observe a uniform distribution of matches, and not a concentration of matches towards the higher-frequency end.

Secondly, this means that we could raise the threshold of significance in both lists and get even more spectacular results: for example, by taking only those meanings that are noted in my sample more than 30 times, and/or considering as typical anomalies in Niger-Congo only those meanings that are associated with anomalies in at least five branches of NC rather than three.

It should be noticed that many of the prototypical meanings of nouns, as well as many of the anomalies in the class systems, belong to the core lexicon and are included in the well-known Swadesh-100 list. Hence the reasonable question arises: are our prototypical and anomalous meanings in fact nothing more than a variation on the list of the most diachronically stable vocabulary, which is what Swadesh’s

list claims to be? Theoretically, this may already seem quite logical, because our diachronic Bantu data captures the meanings of nouns that are most stable in Bantu in terms of preserving their proto-linguistic morphological characteristics (occurrence in one or the other noun class).

At first glance, this consideration could be seen as a strong counter-argument to the main conclusion of this article. To put it starkly, the argument could be formulated as follows: there is in fact no relationship between anomalies and prototypical meanings – it is just that both are concentrated in a limited layer of the basic lexicon, which creates the illusion that they are correlated. It needs to be ascertained that this is not the case and that this counter-argument does not in fact work.

There are 53 nominal meanings in the Swadesh-100 list. In Niger-Congo languages, each of them is associated with one noun class or another.[18] Let us compare these 53 meanings (Swadesh) with the 43 most typical anomalies (Anomalies NC) on the one hand and with the 100 most typical meanings identified in the Bantu classes (Typical Meanings Bantu) on the other. These three lists do indeed reveal many common meanings. Namely, 21 Swadesh meanings occur in both Typical Meanings Bantu and Anomalies NC. Table 46 shows the meanings that seem to be of most interest when describing the noun classes in Niger-Congo languages.

Table 46

Swadesh = Anomalies (NC) = Typical Meanings (Bantu)

Swadesh List	Anomalies (Groups)	Anomalies (Languages)	Bantu Classes (Numbers)	Bantu Classes (Quantity)
‘foot; leg’	8	57	15	10
‘person’	8	52	1	38
‘hand; arm’	8	47	15	8
‘woman’	7	28	1	39
‘ear’	7	21	5,15	27

[18] I do not include specific cases such as the numerals ‘one’ and ‘two’.

Table 46 (end)

Swadesh List	Anomalies (Groups)	Anomalies (Languages)	Bantu Classes (Numbers)	Bantu Classes (Quantity)
‘tree’	6	18	3	21
‘mouth’	6	10	3	31
‘fire’	5	25	12	5
‘man’	5	11	1	26
‘eye’	5	10	5	36
‘stone’	4	6	5	48
‘tooth’	4	12	5	34
‘smoke’	4	13	3	24
‘tail’	3	6	3	38
‘egg’	3	4	5	35
‘name’	3	3	5	35
‘heart’	3	5	3	34
‘moon’	3	12	3	28
‘fish’	3	10	9	24
‘nail’	3	8	11	16
‘hair’	3	15	11	14

On the other hand, almost half (47 out of 100) of the typical (most stable) Bantu nouns do not coincide either with typical anomalies, or with the meanings of the Swadesh list.

It is also important to note that 16 nominal values of the Swadesh list are absent from both the list of Bantu typical noun class meanings and the list of typical anomalies. These are the following: ‘ashes’ ‘, ‘bark’, ‘belly’, ‘bird’, ‘blood’, ‘cloud’, ‘dog’, ‘feather’, ‘ground’, ‘horn’, ‘leaf’, ‘liver’, ‘mountain’, ‘night’, ‘sand’, ‘star’.

Only six meanings are found which we have classified as typical anomalies (Anomalies NC) and which are missing from the other two lists (Swadesh and Typical Meanings Bantu): ‘clothes’, ‘millet’, ‘face’, ‘boat’, ‘bow’, ‘bee’.

Consider also the 15 Swadesh meanings that appear in the list of Typical Meanings Bantu, but are missing from the list of Anomalies NC (Table 47).

Table 47

Swadesh = Typical Meanings (Bantu) ≠ Anomalies (NC)

Swadesh List	Bantu Classes (Numbers)	Bantu Classes (Languages)
'knee'	5	33
'water'	6A	32
'breast'	5	31
'root'	3	31
'head'	3	30
'nose'	5	25
'rain'	9	24
'meat'	9	23
'neck'	9	23
'bone'	7	21
'louse'	9	21
'seed'	9	21
'skin'	7	21
'sun'	5	21
'tongue'	11	21

It remains to consider a list that represents the opposite combination. Let us see, how many meanings from the list of Anomalies NC missing from Bantu's list of Typical Meanings are included in Swadesh's list? In other words, is there a correlation between anomalies and membership of the core vocabulary?

We obtain an unexpected, but very important answer: we cannot find a single such case. There is not a single anomaly from Swadesh's list that does not coincide with the most typical meanings in noun

classes! The conclusion one can now draw from the concrete data given, which can easily be verified from the material given above, is that the typical anomalies that were identified in the first section of the present article are not based on Swadesh's list. They target primarily those meanings that are most important in the noun classes: by formally isolating them, the anomalies emphasize the special role of these meanings.

In conclusion, let us consider one more aspect of the problem – perhaps the most unexpected and difficult to interpret. When in an article written in English we discuss the non-standard plurals of Niger-Congo words for 'woman', 'tooth', 'louse', 'child' etc., it is hard to rid oneself of a feeling of *déjà vu*. Indeed, my lists resemble a list of English nouns with non-standard plural forms. There are apparently less than two dozen such nouns in English, if we count dialectal and archaic forms. We might wish to ask ourselves a question: how many of them semantically match the nouns that are included in my lists of anomalous meanings in noun classes? The intriguing answer can be found in Table 48.

Two substitutions are made in Table 48 (in grey): the European 'goose', which is not native to Africa, was replaced by 'guineafowl' (perhaps the most ancient domesticated African bird), and the English 'sheep' with 'goat'. Taking into account these substitutions, we observe that out of 15 English anomalies, 14 turned out to be found in the short lists. But according to statistics, there is simply no place for English anomalies in these lists! Statistically, this is a remarkable finding, which means that in our interpretations we cannot ignore it.

Let us pay attention to the following detail, which is an even more convincing demonstration of the non-randomness of the coincidence noted here. There are only eight anomalies in my list that are observed in half of the branches of Niger-Congo or more (7 out of 14 branches): 'child', 'foot', 'person', 'hand', 'thing', 'woman', 'ear', 'house'. As we can see, five out of eight anomalies show a non-standard plural in English, although English lacks not only African noun classes, but also Indo-European gender.

Table 48

Prototypes in Bantu, anomalies in NC and atypical plurals in English

Prototypes Bantu	Languages
'child'	39
'foot; leg'	10
'person'	38
'woman'	39
'house'	31
'tree'	21
'man'	26
'eye'	36
'tooth'	34
'cow'	21
'guineafowl'	21
'fish'	24
'goat'	21
'louse'	21

Anomalies NC	Groups	Languages
'child'	10	48
'foot; leg'	8	57
'person'	8	52
'woman'	7	27
'house'	7	19
'tree'	6	18
'man'	5	11
'eye'	5	10
'tooth'	4	12
'cow'	4	11
'guineafowl'	3	12
'fish'	3	10

English atypical PL
child / children
foot / feet
person / people
woman / women
*house / *housen*[19]
*tree / *treen*
man / men
*eye / *eyen*
tooth / teeth
*cow / *kine, ox / oxen*
goose / geese
fish / fish
sheep / sheep
louse / lice
mouse / mice

[19] The asterisk marks dialectal and archaic forms.

Of course, the English anomalies mentioned here are not all synchronically correct in the standard language – for example, non-standard forms were replaced by standard ones in *eyes*, *cows*, *trees*, by analogy with other nouns. In addition, the various English forms arose as a result of completely different processes: we see both archaic suffixes (*children*) and the identical singilar / plural forms (*fish*), as well as the suppletive form (*people*).

But all these types are represented in anomalies in African languages too. And likewise, in African languages many such anomalies have disappeared as a result of banal analogical changes, as in English, where in most contexts the non-standard **brethren* gave way to *brothers* by analogy with *sisters* (note that in Bantu 'brother' was included in the hundred most stable meanings). All this is true.

But for some reason, other non-standard forms have been preserved in English, and it is precisely the forms with the meanings that we see today in Niger-Congo at the center of noun class systems that have been preserved. In English, the non-standard plural form **eyen* has disappeared today, but in Russian the plural form for the noun *glaz* 'eye' is still non-standard and retains a trace of the lost dual number in the genitive plural *glaz-Ø* instead of the morphologically expected **glaz-ov* – a state of affairs which, I note in passing, seems not perceived as anomalous by native speakers.

The question is the following. If we find a similar phenomenon in English, Russian, Gur and Bantu languages, then we may suspect that we have discovered a universal typological phenomenon that is worthy of attention. The question (and it seems to be the most difficult among the numerous questions that have been considered here) is: to what grammatical categories does this phenomenon belong? To noun classes? But these are not a feature of Russian grammar. To Indo-European gender? But this is not relevant to English or Niger-Congo. To the category of number, then?

This seems to be the answer we are looking for. After all, we know that in the typical Niger-Congo noun class system, the categories of noun class and number are synthetic, and we cannot rule out that what

we take to be a characteristic of noun class semantics may in fact characterize the complex semantics of the number category. And if so, we can at least assume that the incredible congruence of anomalies in English and in Niger-Congo may in fact be typologically legitimate, as shown in the article. Indeed, there is nothing preventing us from assuming that the atypical marking of plurals in names of domestic and/or edible animals[20], which we observe in the English and in the Niger-Congo lists, may have relevance for the category of number.

Finally, it is worth considering the following: shouldn't we think of the special marking of number in the 9 / 10 Bantu correlation, where the singular and plural forms of nouns do not differ, as directly comparable to the behavior of English *sheep* or *fish*?

Abbreviations

Adam. – Adamawa
Anom. – Anomalies
Atl. – Atlantic
Atl. N. – North Atlantic
A … S – Bantu zones
Bal. – Balant
BC – Benue-Congo
Bij. – Bijogo
BK – Baga Koba
BLR – Bantu Lexical Reconstructions 2
BM – Baga Maduri
BS – Baga Sitemu
Cang. – Cangin
CL – class
Ful. – Fula
Gr. – group
Jool. – Joola
Kord. – Kordofan
Lang. – language
Lim. – Limba
Manj. – Manjak
Mb – Mboteni
Mel N. – North Mel
Mel S. – South Mel
Nal. – Nalu
NC – Niger-Congo
PL – plural
RefL – RefLex
Ser. – sereer
SG – singular
Tend. – Tenda
Ub. – Ubangi
Wol. – wolof

[20] Let us take the liberty of classifying mice and lice as domestic.

References

Beavon, Keith H. & Beavon, Mary. 1996. *Lexique kóonzime-français*. Yaoundé: Société Internationale de Linguistique (SIL).

Belliard, François. 2005. *Instruments, chants et performances musicales chez les Kwakum de l'arrondissement de Doume (Est-Cameroun): Étude ethnolinguistique de la conception musicale d'une population de langue bantoue A91*. Paris: Université Paris 7. (Thèse de doctorat.)

BLR – Coupez, André & Bastin, Yvonne [Angenot] & Mumba, Kankawa Evariste. 1998. *Reconstructions lexicales bantoues 2 / Bantu lexical reconstructions 2*. Tervuren: Musée Royal de l'Afrique Centrale (MRAC). http://www.cbold.ish-lyon.cnrs.fr (Accessed 10 March, 2023).

Breedveld, J.O. 1995. The semantic basis of noun class systems: the case of the Ki and Nge classes in Fulfulde. *Journal of West African Languages* 25(2). 63–74.

Cobbinah, Alexander. 2010. The Casamance as an area of intense language contact: The case of Baïnounk Gubaher. *Journal of Language Contact* 3(1). 175–204.

Coleman, Karen or Arni. No date. *Esimbi dictionary*. RefLex. http://www.rogerblench.info/Language/Niger-Congo/Bantoid/Tivoid/Esimbi/Esimbi%20dictionary.pdf (Accessed 10 March, 2023).

Connell, Bruce A. 1991. *Phonetic aspects of the Lower-Cross languages and their implications for sound change*. Edinburgh: University of Edinburgh. (PhD thesis.)

Creissels, Denis & Pozdniakov, Konstantin (eds.). 2015. *Les classes nominales dans les langues atlantiques*. Köln: Rüdiger Köppe Verlag.

De Grauwe, Jan. 2009. *Lexique yoómbe-français, avec index français-yoómbe (bantu H16c)*. Tervuren: Musée Royal de l'Afrique Centrale.

Dewos, Maud. 2008. *A grammar of Makwe*. München: Lincom Europa.

Dièye, El Hadji. 2015. Les classes nominales en laalaa (léhar). In Creissels, Denis & Pozdniakov, Konstantin (eds.), *Les classes nominales dans les langues atlantiques*, 291–316. Köln: Rüdiger Köppe Verlag.

Diouf, Jean-Léopold. 2003. *Dictionnaire wolof-français et français-wolof*. Paris: Éditions Karthala.

Dombrowsky-Hahn, Klaudia. 2007. G1. Minyanka; G3. Səcəte. In Miehe, Gudrun & Reineke, Brigitte & Winkelmann, Kerstin (eds.), *Noun class*

systems in Gur Languages: Southwestern Gur Languages (without Gurunsi). Vol. 1, 331–354; 372–388. Köln: Rüdiger Köppe.

Doneux, Jean Léonce. 1967. Données sur la classe 15 nominale en bantou. *Africana linguistica* 3. 1–22.

Ewané Etamé, Jean. 1995. *Lexique mkaa'-français et français-mkaa'*. Yaoundé : Littérature Bakaka.

Ferry, Marie-Paule. 1991. *Thesaurus tenda: dictionnaire ethnolinguistique de langues sénégalo-guinnéennes (bassari, bedik, konyagi)*. Paris: Société des Etudes Linguistiques et Anthropologiques de France (SELAF).

Gibbard, George & Rohde, Hannah & Rose, Sharon. 2009. Moro noun class morphology. In Matondo, Masangu, et al. (eds.), *Selected Proceedings of the 38th Annual Conference on African Linguistics*, 106–117. Somerville, MA: Cascadilla Proceedings Project.

Grollemund, Rebecca. 2006. *Les Okandé du Gabon, locuteurs d'une langue en danger (langue bantoue du groupe B 30) – Langue et culture*. Lyon: Université Lumière Lyon 2.

Hammarström, Harald. 2019. An inventory of Bantu Languages. In Van de Velde, Mark & Bostoen, Koen A. G. & Nurse, Derek & Philippson, Gérard (eds), *The Bantu languages*. 2nd edition, 17–78. London: Routledge.

Higgins, Holly Ann. 2012. *Ikoma vowel harmony: Phonetics and phonology*. Dallas, Texas: SIL International.

Hyman, Larry Michael (ed.). 1979. *Aghem grammatical structure, with special reference to noun classes, tense-aspect and focus marking*. Los Angeles: University of Southern California.

Hyman, Larry Michael. 1980. Esquisse des classes nominales en Tuki. In Hyman, Larry Michael (ed.), *Noun classes in the Grassfields Bantu Borderland*, 27–35. Los Angeles: University of Southern California. (Southern California Occasional Papers in Linguistics 8.)

Kleinewillinghöfer, Ulrich. 2007. *K3. Palɛn*. In Miehe, Gudrun & Reineke, Brigitte & Winkelmann, Kerstin. 2007 (eds.). *Noun class systems in Gur Languages: Southwestern Gur Languages (without Gurunsi)*. Vol. 1, 541–560. Köln: Rüdiger Köppe

Klingenheben, August von. 1963. *Die Sprache der Ful (Dialekt von Adamawa): Grammatik, Texte und Wörterverzeichnis*. Hamburg: J J Augustin.

Maganga, Clement & Schadeberg, Thilo C. 1992. *Kinyamwezi: grammar, texts, vocabulary*. Köln: Rüdiger Köppe Verlag.

Maho, Jouni Filip. 2003. A classification of the Bantu languages: an update of Guthrie's referential system. In Nurse, Derek & Philippson, Gérard (eds.), *The Bantu Languages*, 639–651. London: Routledge.

Maho, Jouni Filip & Segerer, Guillaume. 2006-2023. *WEB Bibiliography for African Languages and Linguistics.* http://reflex.cnrs.fr/Lexiques/webball/index.html (Accessed 10 March, 2023.)

Manus, Sophie. 2003. *Morphologie et tonologie du símákòòndè (parlé par les communautés d'origine mozambicaine de Zanzibar et de Tanga (Tanzanie))*. Paris: Inalco.

Medjo Mvé, Pither. 2011. *Introduction à la langue et la culture des chasseurs-cueilleurs Bkoya (Région de Mékambo, Gabon). Avec un petit dictionnaire*. Köln: Rüdiger Köppe Verlag.

Merrill, John. 2018. *Sereer-English / English-Sereer dictionary*. http://linguistics.berkeley.edu/~merrill/ (Accessed 10 March, 2023).

Miehe, Gudrun. 2007. G7. Palaka. In Miehe, Gudrun & Reineke, Brigitte & Winkelmann, Kerstin (eds.), *Noun class systems in Gur Languages: Southwestern Gur Languages (without Gurunsi)*. Vol. 1, 439–446. Köln: Rüdiger Köppe.

Miehe, Gudrun. 2012. C2. Farıfarı. In Miehe, Gudrun & Reineke, Brigitte & Winkelmann, Kerstin (eds.), *Noun class systems in Gur Languages: Southwestern Gur Languages (without Gurunsi)*. Vol. 2, 269–286. Köln: Rüdiger Köppe.

Miehe, Gudrun & Reineke, Brigitte & Winkelmann, Kerstin (eds.). 2007. *Noun class systems in Gur Languages: Southwestern Gur Languages (without Gurunsi)*. Vol. 1. Köln: Rüdiger Köppe.

Miehe, Gudrun & Reineke, Brigitte & Winkelmann, Kerstin (eds.). 2012. *Noun class systems in Gur Languages: Southwestern Gur Languages (without Gurunsi)*. Vol. 2. Köln: Rüdiger Köppe.

Ngonyani, Deogratias S. 2003. *A grammar of Chingoni*. München: Lincom Europa.

Nurse, Derek & Philippson, Gérard (eds). 2003. *The Bantu Languages*. London: Routledge.

Nurse, Derek & Philippson, Gérard. 1975–1999. The Tanzanian language survey. (Field work material, adapted as a searchable net-database; RefLex 15405.)

Petzell, Malin. 2008. *The Kagulu language of Tanzania: Grammar, texts and vocabulary*. Köln: Rüdiger Köppe Verlag.

Pozdniakov, Konstantin. 1993. *Сравнительная грамматика атлантических языков* (*Sravnitel'naja grammatika atlantičeskix jazykov*) [Comparative grammar of Atlantic languages]. Moscow: Nauka.

Pozdniakov, Konstantin. 2013. Protolanguage and prototype: a "proto-letter" and a "proto-spirit" in noun classes of Niger-Congo. *Histoire Epistémologie Langage* 35(1). 65–82.

Pozdniakov, Konstantin. 2022. *Proto-Fula-Sereer: Lexicon, morphophonology, and noun classes*. Berlin: Language Science Press.

Pozdniakov, Konstantin & Robert, Stéphane. 2015. Les classes nominales en wolof: fonctionnalités et singularités d'un système restreint. In Creissels, Denis & Pozdniakov, Konstantin (eds.), *Les classes nominales dans les langues atlantiques*, 543–628. Köln: Rüdiger Köppe Verlag.

Pozdniakov, Konstantin & Segerer, Guillaume. 2023. Genealogical classification of Atlantic languages. In Lüpke, Friederike (ed.), *Oxford guide to the World's languages: Atlantic*. Oxford: Oxford University Press. (In press.)

RefL – Segerer, Guillaume & Sébastien Flavier. 2011. *Reflex: reference lexicon of the languages of Africa*. Version 1. RefLex. http://reflex.cnrs.fr/database (Accessed 10 March, 2023)

Renaudier, Marie. 2012. *Dérivation et valence en sereer – Variété de Mar Lodj (Sénégal)*. Lyon: Université Lumière Lyon 2. (Thèse de doctorat.)

Rongier, Jacques. 1996. Aperçu sur le moyobe. *Cahiers voltaïques / Gur papers* 1. 115–145.

Sapir, J. David. 1965. *A grammar of Diola-Fogny, a language spoken in the Basse-Casamance region of Senegal*. Cambridge: Cambridge University Press.

SIL 2018 Electronic document, RefLex, WEBBALL : n° 27549 https://www.webonary.org/gusiilaay/ (Accessed 10 March, 2023)

Schaub, Willi. 2018. *Babungo – English Dictionary*. https://www.webonary.org/babungo/ (Accessed 10 March, 2023)

Schwarz, Anne. 2012. A2. Kɔnni. In Miehe, Gudrun & Reineke, Brigitte & Winkelmann, Kerstin (eds.), *Noun class systems in Gur Languages: Southwestern Gur Languages (without Gurunsi)*. Vol. 2, 62–82. Köln: Rüdiger Köppe.

Seydou, Christiane. 2014. *Dictionnaire peul-français (variété du Massina)*. http://reflex.cnrs.fr/database. (Accessed 10 March, 2023)

Van Acker, Sifra. 2018. *A pilot study of Kisamba (Bantu, L12a, DRC): Phonology, morphology, wordlist and some Texts*. Ghent: Ghent University.

Van de Velde, Mark. 2019. Nominal morphology and syntax. In Van de Velde, Mark & Bostoen, Koen A. G. & Nurse, Derek & Philippson, Gérard (eds.), *The Bantu languages*. 2nd edition, 237–269. London: Routledge.

Van der Veen, Lolke J. & Bodinga-Bwa-Bodinga, Sébastien. 2002. *Gedandedi sa geviya / Dictionnaire geviya-français*. Leuven: Éditions Peeters.

Voisin, Sylvie. 2015. Les classes nominales en kobiana. In Creissels, Denis & Pozdniakov, Konstantin (eds), 317–368. *Les classes nominales dans les langues atlantiques*. Köln: Rüdiger Köppe Verlag.

Voorhoeve, Jan. 1980. Noun classes in Adere. In Hyman, Larry Michael (ed.), *Noun classes in the Grassfields Bantu Borderland*, 57–72. Los Angeles: University of Southern California. (Southern California Occasional Papers in Linguistics 8.)

Watters, John R. The Ejagam noun class system: Ekoid Bantu revisited. In Hyman, Larry Michael (ed.), *Noun classes in the Grassfields Bantu Borderland*, 99–138. Los Angeles: University of Southern California. (Southern California Occasional Papers in Linguistics 8.)

Wilkendorf, Patricia. 1985. Sketch grammar of Nɔmaándɛ́. Ms. https://www.sil.org/system/files/reapdata/11/55/78/115578987776459716306448590515738834447/nomaande_wilkendorf2001_2485_o.pdf (Accessed 10 March, 2023).

Winkelmann, Kerstin. 2012. C3. Moore. In Miehe, Gudrun & Reineke, Brigitte & Winkelmann, Kerstin (eds.), *Noun class systems in Gur Languages: Southwestern Gur Languages (without Gurunsi)*. Vol. 2, 287–304. Köln: Rüdiger Köppe.

Received 10.01.2023. Received in revised form 21.03.2023. Accepted 23.03.2023