Proto-Fula-Sereer

Lexicon, morphophonology, and noun classes

Konstantin Pozdniakov

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To the memory of Antonina Koval

Contents

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Separately, I would like to express my gratitude to Antonina Ivanovna Koval, to whose memory this book is dedicated. Antonina Koval and I discussed various problematic points of Atlantic linguistics, starting from 1974, when I entered the post-graduate course of the Institute of Linguistics of the USSR Academy of Sciences, and up until her recent death in 2017. In paying tribute to this outstanding specialist on Fula language, I regret to note that her fundamental works, many of which were published in Russian, have not yet received the worldwide recognition they certainly deserve. I very much hope that the large volume of her selected writings in English, which I know are being actively prepared for publication, will help to fill this gap, at least to a small extent.

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Abbreviations

BP	before present
C	consonant
CL	noun class
Det.	determiner
Dial.	dialect
Dist.	distance localization marker
FJ	Fuuta-Jalon
Imp.	imperative
NC	prenasalized consonant
PFS	Proto-Fula-Sereer
PL	plural
Redupl.	reduplicate
SG	singular
Stat.	statistics
svb	stative verb
V	vowel
vb	verb

1 Introduction

The present monograph proposes a reconstruction of the lexicon, the morphophonology and the noun class system of Proto-Fula–Sereer (henceforth PFS). Fula–Sereer represents one of the six branches of the North Atlantic group. North Atlantic, together with the Bak group of languages, form the Atlantic family, which represents a separate branch within the Niger-Congo macro-family (Pozdniakov & Segerer forthcoming):

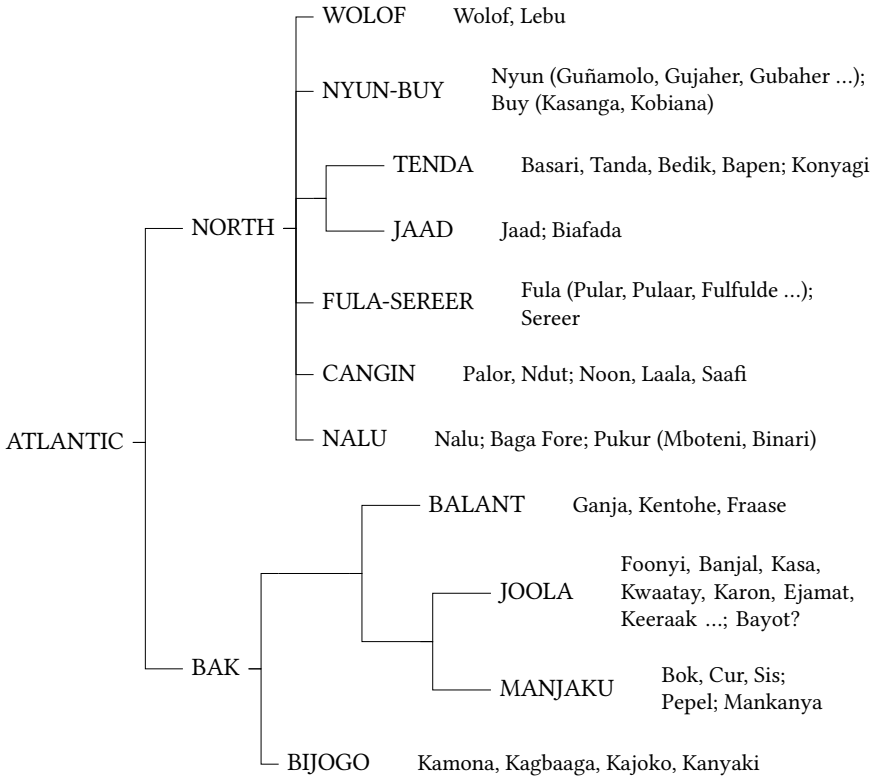

Figure 1.1: Genealogical classification of Atlantic languages (Pozdniakov & Segerer forthcoming)

The idea of writing a book dedicated to the reconstruction of one of the numerous Atlantic subgroups that includes only two languages may seem strange. Here, I formulate the main reasons that prompted me to do so.

First, the lexical reconstruction of the proto-languages of such groups as Fula–Sereer and Tenda–Jaad implies, as I will try to show, the solution to a number of questions that are of interest for the general theory of comparative studies. These questions deal with the morphophonological mutations of root-initial consonants in these languages. Since, as will be argued, consonant mutations were structured into morphological paradigms already at the Proto-Fula–Sereer stage, the evolution of initial consonantism in Fula and Sereer was based not on regular phonetic changes, but on massive irregular analogous changes.

Secondly, when conventionally calling the Fula–Sereer grouping a "subgroup", we should keep in mind that, according to published data (in particular, Sapir 1971: 47), the similarities between Fula and Sereer in Swadesh's 100-word list are 37%, which gives a language division age of 3500–4000 BP (which roughly corresponds, for example, to the age of the Balto-Slavic grouping). Thus, if we accept the conventional gradation of taxonomic terms proposed by George Starostin ("macrofamily": less than 15% similarities between two languages in Swadesh-100; "family": 15–40%; "group": over 40% Starostin 2013: 140), the distance between Fula and Sereer is so great that their unit should not even be called a group, but a language family, and the unit of Atlantic languages, a macrofamily.

Such a venerable age requires respect, and an article is not sufficient in this case. The fact that the comparison is limited to two languages makes the reconstruction much more difficult. If we evaluate the reconstruction prospects for a group of two languages and a group with, for example, five languages, it is obvious that in our first case, firstly, the choice of variant for the reconstruction of the root or morpheme is by definition more difficult, and secondly, the probability of the retention of a proto-language root or morpheme in at least one of the modern languages is significantly lower than in a large group of languages, as will be shown in the last chapter of the book.

The structure of the book is as follows: first, I present the reconstruction of PFS consonant mutations and provide arguments for the proposed evolution of mutation systems in Fula and Sereer (Chapter 2).

In Chapters 3–6, a reconstruction of the initial consonants and the etymological data by giving ~720 lexical reconstructions and their reflexes in Fula and Sereer is presented. I also discuss numerous lexical parallels with other Atlantic languages that are relevant for the proposed cognates.

Next, the reconstruction of final consonants (Chapter 7) as well as vowels (Chapter 8) is given.

In Chapter 9, taking in account the lexical cognates, I rediscuss the long-standing problem of the PFS noun class reconstruction.

Finally, in Chapter 10, I consider separately the perspectives of the reconstruction of the basic vocabulary of PFS and the problems of its lexicostatistical interpretation.

The Appendix provides a full list of the discussed reconstructions and their approximate meanings.

The reconstructions are based on the present state of the etymological Fula–Sereer database (Pozdniakov 2020) developed in the RefLex platform (Segerer & Flavier 2011). This database includes ≈1000 roots in Sereer and Fula (as of January 2021), which could be related. A minimum of 200 roots are clearly borrowings into Sereer and Fula from Arabic, or other African or European languages, which are not listed in this book.

Sources. Fula and Sereer are better documented than the majority of other Atlantic languages. In particular, there are large dictionaries containing dialectal forms, which is especially important in the case of Fula. Besides, for both of the languages, there are also wordlists dating from the 17th century that allow the clarification of certain diachronic-related issues (d'Avezac 1845).

The main sources used for the compilation of the database were those included as electronic documents in the RefLex database, namely:

- Sereer: (Crétois 1973; Merrill 2018a; Greffier 1960 (dictionary of Père Ezzano); d'Avezac 1845).
- Fula: (Seydou 2014; Tourneux & Yaya 1998; Bah 2009; Sweetman 1981; Koelle 1963; d'Avezac 1845).

These sources have been treated in their entirety. The following sources were used as additional data:

- Sereer: (Faye 1978; Renaudier 2012; Wilson 2007).
- Fula: (Adam 1970; Alhassoumi-Sow 2003; Arnott 1970; Ba 1968; Ba 1975; Berhaut 1967; Cremer 1923; Diallo 2015; Eguchi 1986; Gaden 1914; Gamble & Baldeh 1981; Klingenheben 1963; Kropp Dakubu 1980; Labatut 1973; Labouret 1955; Mohamadou 1994; Noye 1989; Osborn et al. 1993; Parietti 1998; Rabier & Dicko 2005; Seydou 1998; Sow 1971; Taylor 1932; Tourneux et al. 2007; Tourneux & Yaya 2017; Wilson 2007; de Wolf 1978; Zubko 1980)

In the illustrations of Fula forms we will limit ourselves to the data mainly from the Maasina dialect recorded by Christiane Seydou (Seydou 2014). First, this dictionary is the most comprehensive one that exists at present for Fula (23,208 words). Second, an important advantage of this dialect for our investigation is that there are fewer (if any) borrowings from Wolof, whereas the Fula dialect of Senegal (Pulaar), as in Sereer, contains hundreds of them. For Sereer, we will limit ourselves mainly to the data in Crétois' dictionary (Crétois 1973) of 21,623 words. When other dialects or sources are cited, it will be indicated.

2 The consonant mutation system

2.1 Data

The question of consonant mutation is by far the central and most difficult issue in PFS reconstruction. Before discussing possible interpretations of the mutations, I will present some data.

2.1.1 Fula

The system of initial consonants in Fula is shown in Table 2.1.

Table 2.1: Initial consonant inventory in Fula

p	t	c	k
f	r	s	h
mb	nd	nj	ng
b	d	j	g
w	l	y	ʔ
m	n	ɲ	ŋ
ɓ	ɗ	ƴ	

Most initial consonants are organized into a mutation series, which have three mutation grades. These mutation grades are traditionally denoted by Roman numerals: “strong” (III), “neutral” (II), and “weak” (I) (Table 2.2).

Table 2.2: Mutation series in Fula

III	p	c	k	mb	nd	nj	ng
II	p	c	k	b	d	j	g
I	f	s	h	w	r	y	w~y~ʔ

In the series of voiceless consonants, Grades III and II converge; in the series of voiced consonants, all three grades differ. Not all consonants are involved in

mutations. Nasal sonorants, glottalized consonants, t[1] and l do not alternate. At the same time, Fula is the only language of the world known to me in which the mutations of the initial root consonants are also accompanied by mutations in noun class markers. Thus, the **nga** III class has the following four allomorphs: **-nga**, **-ga**, **-wa**, **-a**. The mutation of consonants in the class markers is an obvious innovation in Fula, resulting from the suffixation of class markers.

2.1.2 Sereer

The system of initial consonants in Sereer is shown in Table 2.3.

Table 2.3: Initial consonant inventory in Sereer

p	t	c	k	q
f	r	s	h	x
mb	nd	nj	ng	nq
b	d	j	g	
w	l	y	ʔ	
m	n	ɲ	ŋ	
ɓ	ɗ	ƈ		
ɓ	ɗ	ƴ		

Table 2.4: Mutation series in Sereer

III	mb	nd	nj	ng	nq[a]	mb	nd	nj	ng	mb	ɓ	ɗ	ƈ
II	p	t	c	k	k	p	t	c	k	b	ɓ	ɗ	ƈ
I	f	r	(s)	h	x	b	d	j	g	w	ɓ	ɗ	ƴ

[a] Noted as nG by Crétois.

In a series of glottalized consonants, Grades III and II converge. Sonorants (orals and nasals) and glottal stop do not alternate (except w). The mutation of s is also limited. Grades III and II of voiceless as well as voiced consonants converge (Grade III is prenasalized voiced, Grade II is voiceless stop), which is an obvious innovation in Sereer

[1] In order for separate sounds in the text to be visible, they are framed unless they are bracketed or included in the mutation series.

In Fula and in Sereer, the mutations appear in a variety of functions, some of which may be illustrated by the following example:

In Sereer, the Proto-Atlantic root **gas-*[2] 'to dig' is represented by the following three grades of consonant mutation:

(1) Sereer
SG *gas* I / PL *ngas* III 'to dig',[3]
SG *kas a…al* II / PL *kas a…ak* II 'digging',
SG *ngas a…al* III / PL *kas k* II 'well (n.)'.

In Fula, the related root is also represented by three mutation grades, even though they differ considerably from Sereer:

(2) Fula
SG *(w)as* I / PL *ngas* III 'to dig',
SG *gas-ol* II / PL *gas-i* II 'hole, pit',
SG *ngas-ka(are)* III / PL *gaskaa-je* II 'hole; hollow; pit'.

This example, as with many others, allows us to establish a reliable correspondence series: Sereer ng III / k II / g I ~ Fula ng III / g II / w I. In other words, there are no problems with series correspondences in the modern languages in most cases, despite significant differences between the two systems.

2.2 Is the evolution of the PFS consonant mutations phonetic or morphological?

Synchronically, the mutations in Sereer and Fula are well-studied. These mutations manifest an elegant strategy, known to linguists first of all thanks to the Celtic languages, whereby a morpheme is realized not by a segment or even tone, but by a phoneme's distinctive features (voicing, stop closure, nasality, etc.) of an initial consonant phoneme. Importantly, these consonant mutations are not triggered by any phonetic context; instead, the specific consonant alternations identified as "grades" are associated with a particular function; for example, both in Sereer and Fula, verbs with a singular subject require "Grade I" and verbs with

[2] Unlike the Proto-Fula–Sereer reconstructions, the reconstructions of Proto-Atlantic and, moreover, Proto-Niger-Congo, given in the book are not based on a special comparative historical study. Rather, they represent the most probable, from my point of view, phonetic code of the protoforms at deep levels.

[3] The forward-slash in lexical forms here and below separates the SG and PL forms, and in the phoneme's tripartite series it separates mutation alternants.

a plural subject are associated with "Grade III". In most of the Atlantic languages that have consonant mutation, each noun class is associated with one of the three grades. For example, the Fula nouns of the singular class **nde** are characterized by the weak Grade I, with the initial fricatives in the unvoiced series, whereas the plural class **de** is characterized by Grade II with initial stops, hence SG *feɗoo-de* / PL *peɗoo-ɗe* 'button', *peɗ-u-gol* 'buttoning'. The same features are attested for noun classes in the corresponding forms in Sereer: *feɗir o...ol* I / *peɗir a...ak* II.

As a rule, mutations act as additional marking of particular grammatical categories, for example, the noun class of a noun or the SG/PL subject pronoun of a verb. In Atlantic languages, however, there are cases where mutations are the only category marker. For example, in certain paradigms in Biafada, a Grade III acts as the only marker of negation: ***h**aj-d-i* (I.monter-IMP-3SG.IMP) 'Qu'il monte !' vs. ***ŋk**aj-d-i* (III.monter-IMP-3SG.IMP) 'Qu'il ne monte pas !' (Wilson 1993: 73).

While consonant mutation may be restricted to a subset of consonants in some Atlantic languages, in others such as the languages of the Tenda subgroup, all consonants undergo mutation without exception. However, given the complexity of such morphophonological systems as consonant mutations, there are naturally many exceptions to the general rules. Thus, although the Sereer **a-... al** noun class is, in general, associated with Grade II (***k**as a...al* 'creusage' < *gas* 'creuser'), it includes a number of words characterized by Grade III (***ng**as a...al* 'le puits'). These exceptions are, of course, important both for the synchronic interpretation of the mutations and for the reconstruction of diachronic processes that gave rise to them. The question is how to interpret these exceptions? Let us consider a concrete example. In Sereer one mutation series consists of f I / p II / mb III. It is agreed that verbs with a singular subject take Grade I, and verbs with a plural subject Grade III, e.g., *faal* SG I / *mbaal* PL III 'to search'. The question is how to interpret verbs with a singular subject which have the initial p- and not f- (in the Crétois dictionary there are about 130 such verbs), for example, *paang* 'to finish' where we have p- instead of f-? In this study, such examples are proposed to be interpreted as follows: verbs with a singular subject are assigned to mutation Grade I, including a number of verbs which have the initial phonetic consonants of Grade II (*paang* II 'to finish'). Thus, the Sereer singular verb series is f- I (p- II), where I place the exceptional realization in parentheses. Such an interpretation is also given for analogous alternations associated with noun class marking on nouns. Thus, for the class **a-... al**, Grades II (III) are postulated.

In his dissertation, John {Merrill offers a different interpretation. He postulates f- I in the series mb III / p II / f I (Merrill 2018b: Fig. 43), but he adds the "additional mutation series" where p- I is proposed for p III / p II / p I (Merrill 2018b: Fig. 49). Thus, he interprets a Sereer verb with a singular subject as Verb Sg I (f-, p-), that is,

to consider the consonant p- as a consonant of Grade I, as well as the consonant f-.

On the one hand, the difference in interpretation does not seem to be fundamental to me, as all specialists understand perfectly well what the issue is: complex systems of morphophonological alternations produce a lot of deviations (and exceptionality) in specific words. Some of such variations can be directly attributed to the borrowed nature of the word, as alternations often do not apply to borrowings. For example, in Sereer SG *puune o...ox* II / PL *puune w* II 'albino(s)', a root borrowed from Soninke (possibly via Wolof), we observe a retention of initial p- II in the PL form instead of the expected f- I for this noun class[4]. Other deviations can also be associated with the fact that mutations are widely used in derivation as well, especially in Sereer. As a result, in the hierarchy of grammatical categories, morphophononological marking, for example, of diminutives (Grade III) or deverbal nouns, overrides the marking of an inherent noun class, as we have shown in detail in a special publication (Pozdniakov & Segerer 2006). Thus, Sereer *fod* 'être égal' > *mbod o...ox* III 'le compagnon, l'égal' instead of expected **pod* II (cf. *pod-el o...ol / pod-el a...ak* 'la conformité, la dimension'). Irregularities in the system can be attributed to a number of other factors and always deserve close analysis.

With the above established, I now return to the question of how to interpret variations in the alternations:

(3)	a.	mb III / p II / **f I**	faal I 'to search'	paang **II** 'to finish'	Pozdniakov
	b.	**mb, p III** / **p** II / **f, p I**	faal I	paang **I**	Merrill

Analyzing the systems of consonant mutations in a particular language, we must first of all decide: whether one consonant belongs to only one mutation grade (for example, p- II ~ f- I, (a) or does one consonant belong to different mutation grades (b), and, accordingly, one mutation grade in a particular consonant series can include two or more different consonants (p- II ~ p- I, f- I)? A consequence of the two approaches considered is either the allocation of alternative grades in each specific function (in particular, verbs with a singular subject – Grade II (p-), along with grade I (f-), or the allocation of only one grade for each function (in particular, verbs with a singular subject – grade I (f-, p-)). For a number of reasons, which I articulate below, the first interpretation seems preferable to me, although in the original version of the manuscript I did not dwell on this

[4] I will leave out the important question of agreement for now. The mutation grade of consonants in nouns and in dependent words may differ.

issue, given that the goal of this study is only secondarily concerned with the synchronic functioning of mutations. However, since Merrill brings up another view in his review, I will briefly explain why I have not followed his suggestions.

The first issue, a minor one, is his view that I deviate from the Atlantic and cross-linguistic tradition of describing consonant alternations. Although not an actual decisive argument per se (we sometimes revise our traditions), I feel it is important to point out here that the view I espouse is in fact the traditional one in Atlantic, if not beyond. In the vast majority of the published works known to me, mutations are described as I do in this study, that is, two or even three different mutation grades are postulated for some noun classes. Thus, for Biafada, Wilson notes the noun class Ø (gaa-) I, II (1984: 63), Renaudier for Sereer postulates "Class OL I, II, class AL III, II, class FAN II, III" (2015: 499), Storch for Sereer notes the class Ø-… -va, I / II (1995: 151). The same approach is used, in particular, by Pichl (1963: 82), by Fal (1980: 99), by Sapir (1971: 87), in (Creissels & Pozdniakov 2015), in RefLex (Segerer & Flavier 2011) and many other sources. All of these studies have in common that grades are treated as morphological, and despite their phonetic origin (at the appropriate proto stage), that these languages have undergone subsequent changes that complicate the one-to-one relation of consonant type to grade, e.g. borrowings.

Synchronically, within the framework of one mutation series, I consider it counterproductive to put one consonant into different grades. If we take into account verbs like Sereer *mbodir* 'se bouder [mutuellement]', Merrill would have to include the initial prenasalized consonant in his grade I, that is, Verb SG I (f-, p- mb-), which in principle destroys the idea of mutation grades and renders the description opaque.

Second and foremost is the question of whether grades should be established on the basis of their phonetic properties or their morphological functions? This seems to be at the center of the disagreement between Merrill and myself. As will be seen, this issue is of fundamental importance for diachrony as well.

As recognized by everyone, the different consonant types (stops, fricatives, nasals, etc.) do not exist in a vacuum – they are the grades of alternations of *consonants*, such as the consonant f- or p- or mb-. In the mutation systems of the Atlantic languages, the same consonant can be used simultaneously in two different grades. So, in the series of voiceless consonants of most Atlantic languages (but not Sereer!), voiceless stop consonants (p-, t-, c-, k-) are systematically used in Grades II and III. Historically, as I tried to show in a number of publications, this systemic "homonymy" of the grades arose as a result of the change ***N-C > C** in the voiceless series, while maintaining the nasal element ***N-C > NC** in

the voiced series.[5] In this case we can treat it as the neutralization of the opposition II ~ III in the voiceless series. However, even this well-known case does not invalidate the main issue, which is, in my opinion, the following: Atlantic consonant mutations are only indirectly related to phonology – these are morphophonological alternations that are combined into different series and structured into paradigms, like other morphemes. In our case, we are dealing with specific morphemes expressed by phonological features. A phonological feature like "spirantization" is endowed with meaning and gains morphemic status into a paradigm.

One of the main principles of the morphological paradigm structure is that the opposing members of the paradigm do not combine with each other – they work according to the principle "either A / or B", but not "A + B". A noun cannot be both singular and plural, or be both masculine and feminine, or belong to one noun class and another at the same time. If a concomitant marker of a noun class (along with a prefix class marker) is, for example, a feature of spirantization of a root initial consonant (for example, f-), then this morpheme cannot be expressed by a stop (p-). What we call mutation grades is only the labelling (successful or less successful) of morphologically relevant phonological features. Thus, if we say that in Sereer verbs with a singular subject are marked by the Grade I, then to me this means that the morpheme in this case is the phonological feature of "continuity" (fricatives plus sonorants) opposed in the paradigm to the feature "voiced prenasalized" of the Grade III (plural verbs). In this morphological paradigm, the consonant p- has no place in Grade I. In Sereer, the consonant p- can only refer to Grade II and not to any other. Accordingly, the only correct interpretation for me is that verbs with a singular subject are marked with the mutation grade I, but the vocabulary also contains verbs with a singular subject of Grades II and even III, which deserve close analysis. I am quite aware that the general theoretical issues raised here might be controversial, but it is important for me to emphasize that this is where I see my main disagreement with Merrill concerning the nature of Atlantic mutations: Merrill views the evolution of the PFS mutations *phonetically*[6], while I insist that it should be viewed morphophonologically and even *morphologically* – as specific morphological paradigms.

[5] A similar mechanism is found, for example, in the nouns of Class 9 in numerous Bantu languages.

[6] "I do not understand why it is assumed that the same proto-sound could regularly yield two distinct reflexes in Sereer in the same environment …". "It is of course a serious problem that the same proto-sound would have two regular reflexes in Sereer in the same environment"... "A phoneme /g/ in grade I is phonetically identical to a phoneme /g/ in Grade II. As such there can be no account that predicts that they would have different reflexes, without resorting to complicated analogical explanations…"..."The fundamental misunderstanding is that a given phoneme must be consistently associated with a particular mutation grade" (Merrill 2020).

Atlantic mutations are structured in a series within the framework of morphophonological paradigms, arranged in a special way in each individual language. As I will try to show in detail in the next section, one of the main factors of diachronic change in the Sereer mutation series is the convergence of consonants in two mutation series – voiceless (**mb III** / **p II** / f I) and voiced (**mb III** / **p II** / b I), which is not typical for other Atlantic languages. Such overlap actively provokes languages to change by analogy as a result of translating a form from one mutation series to another.

If a native speaker encounters a root with an initial p- II and needs to derive a form of grade I from it, he has the choice whether to derive it with f- I or with b- I. On what basis a speaker makes such a choice, we do not know for certain, but both possible solutions seem to be quite logical. This means that some forms that originally had a voiced consonant in *PFS may change to a voiceless f-, and some forms may reflect as voiced b-.

In a number of publications I have discussed the dramatic diachronic consequences that can be caused by the convergence of consonants in the mutation series of different Atlantic languages. The most striking illustration I have been able to find is the supposed changes in the history of different Tenda languages, where all consonants, without exception, are now part of mutation systems. These are genetically closely related languages, yet in which initial consonants in cognates are radically different. I will only give a small fragment of the reconstructed Proto-Tenda mutation system in which glottalized consonants were not initially included (Pozdniakov 1987):

Table 2.5: **Proto-Tenda I

*Proto-Tenda	1)	**c III / c II / s I	**t III / t II / r I	**nd III / d II / l I	**ɗ

In the modern Basari , Bedik and Konyagi languages, glottalized consonants do alternate, and it seems that the model of unglottalized voiced consonants was originally used to include them in the alternation system:

Table 2.6: *Proto-Tenda II

*Proto-Tenda	1)	**c III / c II /s I	**t III / t II / r I	**nd III /d II / l I	**ɗ
	2)				***nd III** /ɗ II / **l I**

This system is unstable precisely because it allows for ambiguity, when a change is necessary in Grade I > Grade II (l > d? or l > ɗ? ****lap*** I ‘to throw’ > *dap* II or *ɗap* II?), as well as III > II (nd > d? or nd > ɗ? ****ndɔm*** ‘short’ > *dɔm* II or *ɗɔm* II?).

An attempt to eliminate this ambiguity led to radical changes in Konyagi: two new phonemes /nt/, /ry/ were formed in the phonological system (one in each of the two competing series):

Table 2.7: *Proto-Tenda > Konyagi

*Proto-Tenda	1)	**c III / c II / s I	**t III / t II / r I	**nd III / d II / l I	**ɗ
	2)				*nd III / ɗ II / l I
Konyagi		c III / c II / s I	t III / t II / r I	**nt III** / d II / l I	nd III / ɗ II / **ry I**

When solving the same problem the Basari language turned out to be less "decisive". To resolve the conflict, it tried to use only those phonemes that were already available in the phonological system. As a result:

Table 2.8: *Proto-Tenda > **Basari I

*Proto-Tenda	1)	**c III / c II / s I	**t III / t II / r I	**nd III / d II / l I	**ɗ
	2)				*nd III / ɗ II / l I
Basari	1)	c III / c II / s I	t III / t II / r I	nd III / d II / **r I**	**n III** / ɗ II / l I

That is, in Basari , just like in Konyagi , one change occurred in each of the conflicting series. At the same time, the change *nd III > n III integrated the nasal sonorants in the mutation system.

These independent changes in Konyagi and in Basari led, in particular, to the formation of the following correspondences.

Proto-Tenda **nd III / d II / l I: Basari nd III / d II / **r I** ~ Konyagi **nt III** / d II / l I:

- Basari **nd III** ~ Konyagi **nt III:** 'Ficus glumosa': Basari *a-ndan* ~ Konyagi *æ̀-ntànə / və-ntànɔ*; 'travail': Basari *a-ndǐyèn* ~ Konyagi *æ̀-ntíyèl̰ə / væ̀-ntíyèl̰ə* (*ì-díyèl̰ə* 'travailler').

- Basari **nd III** ~ Konyagi **l I**: 'épine': Basari *a-ndʌmbʌn III / ɔ-dʌmbʌn II* ~ Konyagi *ù-ləmpəl̰ I / wæ̀-dəmpəl̰ II*; 'serpent': Basari *a-ndən* ~ Konyagi *lən / wæ̀-lən.*

- Basari **d II** ~ Konyagi **d II:** 'aujourd'hui': Basari *dɔrɔ II* ~ Konyagi *dòlə II.*

- Basari **d II** ~ Konyagi **nt III**: 'sorghum': Basari *dəli II* ~ Konyagi *væ̀-**nt**əlí III* (Bapen *ɓɛ-ndʌɗì / ɛ- III*)

- Basari **d II** ~ Konyagi **l I:** 'tronc': Basari *ɛ-dʌp II* 'arbre; base de l'arbre' ~ Konyagi *ləp I* 'tronc; plant; chef'; 'plume': Basari *ɔ-dɔng^{w} II* ~ Konyagi *ù-lənkw I / wæ̀-dənkw II.*

- Basari **r I** ~ Konyagi **l I**: 'voleur': Basari *rɛk* ~ Konyagi *à-lé / və-lé*

- Basari **r I** ~ Konyagi **d II**: 'voler': Basari *rɛk-a* ~ Konyagi *ì-dé*; 'pyrograver' Basari *a-rèɓ / dèɓ* ~ Konyagi *ì-dèv* (Jaad *rab* 'brûler').

All the cognates provided here are irreproachable as all their sound correspondences are regular. Their diversity is set not only by the indicated phonetic changes within each grade, but also by the transition from one grade to another within the paradigm frame. So, no appeals to the rigor of the comparative-historical method work here, because we are dealing with the analogical alignment of forms within morphological paradigms.

In the series of glottalized consonants, the following correspondence series are consistent: Proto-Tenda *nd III / ɗ II / l I: Basari **n III** / ɗ II / l I ~ Konyagi nd III / ɗ II / **ry I**, from there, in particular, the following combinations appear among these correspondences:

- Basari **n III** ~ Konyagi **nd III**: 'citronier' Basari *a-némúna* ~ Konyagi *æ̀-ndèmúná / væ̀-ndèmúná.*

- Basa**ri n III** ~ Konyagi **ɗ II**: 'hameçon' Basari *ɛ-nəlí* ~ Konyagi *ɗólí / wæ̀-ɗólí.*

- Basari **n III** ~ Konyagi **ry I**: Basari ~ Konyagi *a-nâka* 'endroit où on se couche' ~ *ryəká* 'couche; couchette; lit'; 'tongue': Basari *a-nîw̃* (*lîw̃ù / ɗîw̃ù / nîw̃ù* 'droite, pointu, langue' ~ Konyagi *ryəw̃ / wæ̀-ryəw̃.*

- Basari **ɗ II** ~ Konyagi **ɗ II**: 'citron' Basari *e-ɗémúnà* ~ Konyagi *ɗèmúná / wæ̀-ryèmúná*; Basari *e-ɗəkʌna* 'genou' ~ Konyagi *ì-ɗəkw* 'être à genoux'; 'feu' Basari *xɔ-ɗʊx* ~ Konyagi *xwə-ɗəx / wæ̀-kwə-ɗəx.*

- Basari **ɗ II** ~ Konyagi **ry I**: Basari *ɗaxa* 'où on récolte le vin de palme' ~ Konyagi *ì-ryáxá / wə-ryáxà* 'campement de récolteurs de vin de palme'; 'tourterelle' : Basari *ɛ-ɗɔxɔtɛ* ~ Konyagi ryəkwət / wæ̀-ryəkwət.

- Basari **l I** ~ Konyagi **ry I**: Basari i-lɛf 'liane' (a-lɛf / dɛf 'grimper', a-nʌfɑ 'attacher en liant') ~ Konyagi *fæ̀-ryèf* ~ *ù-fæ̀-ryèf* 'feuille'.

- Basari **l I** ~ Konyagi **ɗ II**: Basari *a-ləɓ / ɗəɓ* 'porter' ~ Konyagi *ì-ɗìbə* 'porter sur la tête'; 'près de' Basari *lɛr* ~ Konyagi *ɗærəl*; 'se coucher sur le dos' Basari *a-laŋa / ɗaŋa / naŋa* ~ Konyagi *ì-ɗàŋá*; 'lécher' Basari *a-lâỹ / ɗâỹ* ~ Konyagi *ì-ɗáỹ.*

However, the story does not end here. The change *** l I** > r I in the Basari Series D resolved the ambiguity in Series D and Ɗ, but provoked ambiguity in Series D (nd III / d II / **r I**) and T (t III / t II **r I**). This caused a new change - * t III / t II / **r I** > t III / t II / **s I**:

Table 2.9: **Basari I > *Basari II

*Proto-Tenda	1)	**c III /c II / s I	**t III / t II / r I	**nd III / d II / l I	**ɗ
	2)				*nd III / ɗ II / l I
Basari	1)	c III /c II /s I	t III /t II / r I	nd III /d II /**r I**	**n III** / ɗ II / l I
			t III /t II / **s I**		

This change led, in particular, to the following correspondences within the Basari correspondence Series T: t III / t II / s I ~ Konyagi t III / t II / r I:

- Basari **s I** ~ Konyagi **r I**: 'trois': Basari *sàs / tàs* ~ Konyagi *rær / tær / tær*; 'père': Basari *səm* ~ Konyagi *rəm / wæ-rəm.*
- Basari **s I** ~ Konyagi **t II**: 'choisir': Basari *a-sâna* ~ Konyagi *ì-tæl̰*; Basari *a-séɓ* 'cesser, abandonner' ~ Konyagi *ì-tév* 'laisser; lâcher'; Basari *a-sɑ̃ / tɑ̃* 'couper un arbre' ~ Konyagi *ì-tɛ́ɛ̃* 'tailler, couper'; 'suivre': Basari *a-sʌf* ~ Konyagi *ì-təf*; 'cracher': Basari *a-sʌp* ~ Konyagi *ì-təp.*
- Basari **t II** ~ Konyagi **t II**: Basari *ɛ-tálá* 'cloche' ~ Konyagi *ì-tælí / wæ-rælí* 'clochette'.
- Basari **t II** ~ Konyagi **r I** 'piège': Basari *a-tʌnd* ~ Konyagi *ù-rənd / wæ-tənd* (*ì-tənd* 'tendre un piège'); 'python royal': Basari *ɛ-tʌf-tín* ~ Konyagi *rəfətín / wæ-rəfətín.*

The final portion of this intriguing story occurred as follows: The change *r I > s I in the *T Series eliminated the ambiguity in Series D and T, but provoked ambiguity of choice in Series T (t III / t II / s I) and C (c III / c II / s I), which caused a new change, *c III / c II / s I > c III / c II / ʃ I. That is, finally, as in Konyagi, the ambiguity was avoided only by introducing a new phoneme /ʃ/ into the system (Table 2.10):

This last change led to the following specific correspondences within the Basari Series c III / c II / ʃ I ~ Konyagi c III / c II / s I:

- Basari **ʃ I** ~ Konyagi **s I**: Basari *a-ʃàn* 'mari, mâle' (i-cʌn 'mari') ~ Konyagi *à-sæ̀n / və-sæ̀n* 'homme; mari'; 'varan': Basari *ʃáɰ̃war* ~ Konyagi *sɛ́ɰ̃wɛ́l / wæ-sɛ́ɰ̃wɛ́l*; Basari *a-ʃaxa* 'porter sur la hanche' ~ Konyagi *sɛ́x / wæ-sɛ́x* 'hanche; rein'

Table 2.10: Consonant mutation evolution in Tenda languages (partial)

*Proto-Tenda	1)	**c III / c II / s I	**t III / t II / r I	**nd III / d II / l I	**ɗ
	2)				*nd III / ɗ II / l I
Konyagi		c III / c II / s I	t III / t II / r I	**nt III** / d II / l I	nd III / ɗ II / **ry I**
Basari	1)	c III /c II /s I	t III /t II / r I	nd III /d II /**r I**	**n III** / ɗ II / l I
	2)		t III /t II / **s I**		
	3)	c III / c II / **ʃ I**			

- Basari **ʃ I** ~ Konyagi **c II**: ‘chasser’ : Basari *a-ʃàl* ~ Konyagi *ì-cáry;* ‘prier’: Basari *a-ʃàlɛ* ~ Konyagi *ì-cálìŋ*; ‘sortir’: Basari *a-ʃan* ~ Konyagi *ì-cáɭ*; ‘fendre’; Basari *a-ʃap* ~ Konyagi *ì-càèp;* Basari *a-ʃəg* ‘voler, bondir, plonger’ ~ Konyagi *ì-cəg* ‘voler (pour un sorcier)’; ‘fumer; enfumer’: Basari *a-ʃən* ~ Konyagi *ì-cəɭ.*

- Basari **c II** ~ Konyagi **c II**: Basari *a-cac* ‘panier recouvert, portoir à volailles’ (*a-ʃac* ‘fermer un panier’) ~ Konyagi *ì-câc / wə-sâc* ‘panier pour les récoltes’; ‘buisson’: Basari *a-cʌc* ~ Konyagi *æ̀-cəc / væ̀-cəc.*

- Basari **c II** ~ Konyagi **s I**: ‘panthère’ : Basari *ɛ-càw̃* ~ Konyagi *ì-sæ̀w̃ / wæ̀-cæ̀w̃*; ‘oiseau’: Basari *a-cəl* ~ Konyagi *səry / wæ̀-səry*; ‘prénom du premier fils’: Basari *càrâ* ~ Konyagi *sàrá (= fə-càrá).*

I have only considered a small fragment of mutation transformations in two Tenda languages, which nevertheless quite clearly demonstrates the problems associated with the reconstruction of initial consonants in North Atlantic languages. I have chosen exactly these Tenda languages as an illustration, because genetically they are much closer to each other than Fula and Sereer, thus the cognates are more transparent – the reliability of the cognates is beyond doubt.

As can clearly be seen from these examples, along with correspondences within the same grade, there are numerous correspondences in which two closely related languages have different mutation grades. Moreover, in a number of cases such correspondences of divergent grades are more frequent than correspondences within the same grade. Thus, in Basari, the infinitive is marked with noun class **a I**, and in Konyagi, with noun class **ì II**. Accordingly, the correspondence of the grades Basari I ~ Konyagi II is established for most verbs. Therefore, it seems naive to postulate that only those correspondences which are established within the same grade are regular – data from North Atlantic languages suggest otherwise.

The mutation systems in Fula and Sereer apparently developed just as dramatically as in the Tenda languages, and, especially in Sereer, where the systemic convergence of Grades II and III in the voiced and voiceless series became a constant provocation for analogical changes with the transition of consonants from one series to another.

It is quite natural that Merrill cannot accept this fact, for he insists that there were no consonant mutations in *PFS, thereby forcing him to view the evolution of consonants phonetically rather than morphologically, and hence his persistent appeal to the comparative-historical method.

Here it is necessary to discuss the second fundamental question. Everyone agrees that consonantal mutations emerged as phonetically motivated. The question is: when did they break away from the phonetic context and become restructured into morphological paradigms?

To begin with, I do not see any serious arguments in favor of the hypothesis of the independent development of mutations in these two languages. The arguments summarized in Merrill (2018b: 370–371) seem unconvincing to me.

Atlantic consonant mutations are geographically localized: they are attested in only one of the two Atlantic groups, namely in the Northern one. The latter group contains six subgroups (Pozdniakov & Segerer forthcoming) and five of them have either mutations or traces thereof. Mutations are found in the following North Atlantic subgroups: 1) Fula–Sereer, in both languages, 2) Tenda–Jaad–Biafada (in all languages), 3) Nyun–Buy (mutations are attested in the Buy branch – in Kobiana and Kasanga, 4) Wolof (traces of mutations), 5) Nalu–Baga-Fore–Pukur (traces of mutations are attested in Baga Fore and Pukur).[7] As for the Bak Atlantic group, mutations are not found in any of its four subgroups.[8]

No matter how we interpret the system, this distribution clearly shows that mutations are an important innovation in the North Atlantic group. It is therefore more appropriate to assume that PFS inherited a mutation system from Proto-North Atlantic; our goal is to reconstruct it.[9]

There is important additional evidence showing that, in Proto-North Atlantic consonant mutations were no longer phonetically conditioned. This exempts us

[7] In the Cangin subgroup, consonant mutations are largely absent, but some traces can be found: Laala *ka-gud* 'to cut' / *ngud* 'stump'; Palor *wət* 'to surpass' / *mbət* 'to be numerous'; Saafi *nuhun* 'to point at' / *ndukun* 'finger' (Pozdniakov & Segerer forthcoming).

[8] The attempt of Doneux (1967) to find mutations in Manjaku seems unconvincing. The mutations attested in this language are triggered by the phonetic context that is cross-linguistically common.

[9] Merrill (2020: 10) writes: "It is in principle not convincing to take typological features as evidence for genetic affiliation". I would argue that this is such a rare and clearly localized typological feature that it is preferable to consider it as a genetic innovation.

from the necessity to enter into a long-standing debate concerning the genesis of mutations in Atlantic languages. The question remains valid for Proto-North Atlantic where these mutations have apparently evolved, but not for PFS[10].

Second, as I have already noted, the most rigorous evidence for the existence of mutations in *PFS is precisely the presence of numerous ambiguous correspondences within the various series of alternations.

We will now return to the example illustrating the voiced velar series correspondences. As shown below, Series G in Sereer (ng III / k II / g I) ~ Fula G (ng III / g II / w, y,ʔ I)[11] is likely to have originated from Series ***G** (***ng** III / ***g** II / ***g** I) in PFS. Considering that mutation grades easily change in the course of derivation (to change grade it is sufficient, for example, to form a noun of the noun class of Grade II from a verb of Grade I or to derive a diminutive of Grade III from a noun of Grade II), we are obliged to consider the correspondences in Table 2.15 regular.

Table 2.11: Direct correspondences Sereer ~ Fula for the voiced velar series

***G**	**Fula I**	**Fula II**	**Fula III**
Sereer I	g ~ w,y,ʔ[a]	g ~ g	g ~ ng
Sereer II	k ~ w,y,ʔ	k ~ g	k ~ ng
Sereer III	ng ~ w,y,ʔ	ng ~ g	ng ~ ng

[a]In the table (here and henceforth) the Sereer consonants are given first, followed by the symbol / ~/, then by the regular correspondence in Fula.

The examples in Table 2.12 use the correspondences listed above.

The nine correspondences between Sereer and Fulapresented in Table 2.12 are regular. This drastically enlarges the number of possible cognates as compared to languages that do not have consonant mutations.

Yet, there are other problems with identifying correspondences. As will be shown, in Sereer, the alternants of Grades II and III have become the same for the voiceless and the voiced series, whereas in Fula they remain distinct. Thus, in Sereer, along with the series ng III / k II / g I originating from ***G**, we have the

[10]I believe that the consonantal alternations were phonetically conditioned in the first stage of Proto-Atlantic, but became morphological in the last stage of its existence. This contrasts with Merrill's (2018b) view.

[11] Fula shows a tendency for the following complementary distribution of allophones for the Grade I: w- before back vowels, y- – before front vowels, ʔ- – before [a].

Table 2.12: An example of direct correspondences Sereer ~ Fulafor the voiced velars series

*G	Fula I	Fula II	Fula III
Sereer I	gas ~ was	gas ~ gasol	gas ~ ngaska
Sereer II	kas ~ was	kas ~ gasol	kas ~ ngaska
Sereer III	ngas ~ was	ngas ~ gasol	ngas ~ ngaska

series ng III / k II / h I that originates from ***K**. As can be seen from the absence of the Grade I consonant, it is impossible to determine whether the Sereer velar originates from the voiced or from the voiceless PFS consonant. This decision can only be made based on evidence from Fula.

The convergence of two grades (III and II) permits consonants in Sereer to easily pass from the voiced to the voiceless series by analogy: k II (< ***g**) > k II (< ***k**) > h I.

This results in the situation where the voiceless consonant in Sereer in the form *hiiy o...ol* I corresponds to the voiced consonant in Fula in the form *gi?-al* II: PFS ***giiy* II** 'bone, thorn' > Sereer **kiiy* II > ***hiiy* o... ol** I ~ Fula gi?-***al*** II. As will be shown, such transitions are regular in Sereer.

Theoretically, there are no restrictions banning the opposite transition in Sereer from the original voiceless to the voiced series, yet, in practice, no correspondences are attested between Sereer voiced and Fula voiceless consonants.

Therefore, along with the nine regular correspondences represented in Table 2.11, there are reasons to postulate the following possible correspondences (Table 2.13).

As can be seen, the rows corresponding to Grades II and III are the same for the left and the right sections of the table, but the first row adds three more correspondences that are not only possible, but in fact, regular.

So far, we distinguished twelve regular correspondences for consonants originating from ***G**. Yet, this still does not exhaust the list of regular correspondences. In the Fula voiced series, the velars in Grade I are the same as the labials in Grade I: ng III / g II / **w,y,ʔ** I and mb III / b II / **w,y,ʔ** I. This opens up a means for the replacement of the velar series by the labial series and the other way round. Fula dialect specialists know that this potentiality is indeed actively used. Thus, the allomorphic noun class variation **nga ~ mba** is widely attested across Fula dialects.

Table 2.13: Regular correspondences between Sereer ~ Fula with original *G

*G	I	II	III	*G (> Sereer K)	I	II	III
I	g ~ w,y,ʔ[a]	g ~ g	g ~ ng	I	h ~ w,y,ʔ	h ~ g	h ~ ng
II	k ~ w,y,ʔ	k ~ g	k ~ ng[b]	II	k ~ w,y,ʔ	k ~ g	k ~ ng
III	ng ~ w,y,ʔ	ng ~ g	ng ~ ng	III	ng ~ w,y,ʔ	ng ~ g	ng ~ ng

[a]The first consonant in each cell represents the regular reflex in Sereer and the second consonant (following the sign /~/) represents the regular reflex in Fula. Thus, g ~ w,y,ʔ means Sereer g ~ Fula w,y,ʔ.

[b]Gray shading is used in the tables for the correspondences that are the same in different correspondence sets.

This adds six more possible consonant correspondences[12] originating from ***G**.

Table 2.14: Regular correspondences in the voiced velar series (continued)

*G(> Fula B)	I	II	III
I	g ~ w,y,ʔ[a]	g ~ b	g ~ mb
II	k ~ w,y,ʔ	k ~ b	k ~ mb
III	ng ~ w,y,ʔ	ng ~ b	ng ~ mb

[a]The consonants of the first column overlap with the reflexes of ***G** considered above.

Now, we have 18 different regular consonant correspondences that can be traced back to ***G**.

Finally, let us consider one more, already the fourth, systematic process that adds to the diversity of the correspondences between the consonants of the two languages. As will be shown below, there are good reasons to reconstruct for PFS at least three series of labialized consonants despite the fact that these consonants have not been preserved neither in Sereer nor in Fula:

(4) *BW (*mbw III / bw II / w I, bw I),
*GW (*ngw III / gw II / ɣw I, gw I)
*KW (*kw III / kw II / hw I).

[12]In the first column, the correspondences are the same as those in the analogous column of Table 2.13. These cells are highlighted in gray.

Recall that in Sereer , along with the voiced labial series mb III / p II / b I (that is parallel with respect to other voiced series of Sereer in other places of articulation), there is one more voiced labial series mb III / b II / w I that has no analogy either in dentals, palatals or velars. The reconstruction of ***BW-** allows us to explain this.

It is assumed that the labialized velar series in Sereer goes back to ***GW** and ***KW**, which in Sereer became labials, whereas in Fula the series remained velar. Accordingly, Sereer has the following regular changes: PFS ***ngw** III / ***gw** II / ***ɣw** I > Sereer mb III / b II / w I (i.e. in Sereer, the reflexes of ***GW** and ***BW** merged) and PFS ***kw** III / ***kw** II / ***hw** I > Sereer mb III / p II / f I (i.e. in Sereer, the reflexes of ***KW** and ***P** merged). This hypothesis allows us to explain the numerous regular correspondences between labial consonants in Sereer and velar consonants in Fula. These correspondences will be considered further in Chapter 4. For the time being, it is important to note that while considering all the correspondences involving voiced velars, we are obliged to add the following correspondences to those given above:

Table 2.15: Direct correspondences in *GW reflexes

***GW**	**I**	**II**	**III**
I	w ~ w/y/ʔ	w ~ g	w ~ ng
II	b ~ w/y/ʔ	b ~ g	b ~ ng
III	mb ~ w/y/ʔ	mb ~ g	mb ~ ng

To summarize, if we exclude the duplicate correspondences, we have 27 different regular correspondences for voiced velar Fula–Sereer consonants. They are given in the table below, in which the duplicate correspondences are shaded in gray:[13]

A similar situation is attested with respect to correspondences for other places of articulation, even though each of them, along with the regular and parallel correspondences, is characterized by its specific features.

2.3 The PFS mutation system and its evolution

The following sections provide arguments for the reconstruction of the PFS mutation system as presented in Table 2.17.

[13]To remind the reader, the first consonant in each cell represents the regular reflex in Sereer and the second consonant (following the sign /~/) represents the regular reflex in Fula.

Table 2.16: Regular correspondences in the voiced velar series (summary)

Proto-Fula–Sereer	ALT	I	II	III
*G[a]	I	g ~ w,y,ʔ	g ~ g	g ~ ng
*G	II	k ~ w,y,ʔ	k ~ g	k ~ ng
*G	III	ng ~ w,y,ʔ	ng ~ g	ng ~ ng
*G (> Sereer K)	I	h ~ w,y,ʔ	h ~ g	h ~ ng
*G (> Sereer K)	II	k ~ w,y,ʔ	k ~ g	k ~ ng
*G (> Sereer K)	III	ng ~ w,y,ʔ	ng ~ g	ng ~ ng
*G (> Fula B)	I	g ~ w,y,ʔ	g ~ b	g ~ mb
*G (> Fula B)	II	k ~ w,y,ʔ	k ~ b	k ~ mb
*G (> Fula B)	III	ng ~ w,y,ʔ	ng ~ b	ng ~ mb
*GW	I	w ~ w/y/ʔ	w ~ g	w ~ ng
*GW	II	b ~ w/y/ʔ	b ~ g	b ~ ng
*GW	III	mb ~ w/y/ʔ	mb ~ g	mb ~ ng

[a] As already mentioned, the capital letters in the reconstructions here and henceforth represent the mutation series. Thus, *G stands for the voiced velar series *ng III / *g II / *g I.

Table 2.17: Proto-Fula –Sereer mutations

grade	*P		*T	*C	*K	*KW	*Q
III	p		t	c	k	kw	q
II	p		t	c	k	kw	q
I	f		r	s	h	hw	x

grade	*B	*BW	*D	*J	*G	*GW	*NG
III	mb	mbw	nd	nj	ng	ngw	nG
II	b	bw	d	j	g	gw	(n)G
I	b	bw? w?	d	j	g	gw?	(n)G

PFS had three manner features that did not participate in mutations, namely, the voiced glottalized consonants *ɓ, *ɗ, *ƴ, as well as the nasals *m, *n, *ɲ, *ŋ and the sonorants *w?[14], *l, *y.

I feel obliged to mention that this reconstruction differs considerably from the one I proposed in (Pozdniakov 1988). The main systematic difference is the following: as will be shown below, the etymological data force us to reject the hypothesis according to which stops (Grade II) alternated with sonorants (Grade I) in the consonantal voiced series of PFS.

The main features of the system are the following:

- Both the voiced and voiceless types have two grades each: stop / fricative in the voiceless series and prenasalized / non-prenasalized in the voiced series, possibly with the exception of the series ***BW**.
- According to this reconstruction, PFS had three labialized phonemes ***KW**, ***GW** and ***BW** that disappeared in both modern languages.
- In both languages, and accordingly in the proto-language, mutations are particularly closely tied up with the noun class system. As in other Atlantic languages with mutations, every noun class is associated with one of three mutation grades.

2.3.1 The evolution of the PFS mutation system in Fula

The evolution from the PFS mutation system in Fula is presented in Table 2.18.

As can be seen from Table 2.18, the current mutation system of Fulahas undergone the following changes:

- ***t/t/r** > t/t/t, i.e. t- has been removed from the mutation system.
- Sonorants (except *l) have been integrated into the mutation system of the modern languages: similar to voiceless consonants, voiced stops in Grade I underwent a lenition process so as to become sonorants. Thus the three grades in each of the voiced sets have become distinct: ***ng/g/g** > ng/g/w,ʔ etc. At the same time, the lenition has resulted in the conflation of the labial and velar sets (w,ʔ) into Grade I. Since the mutation ***t/r** has disappeared in the voiceless series, there was nothing to prevent the sonorant ***r**- to occupy a position in the Grade I voiced dentals series: ***nd/d/d** > nd/d/r.

[14] It is possible that ***w**- was part of the labialized mutation series ***BW**.

Table 2.18: PFS mutation changes in Fula

grade	*P		*T	*C	*K	*KW	*Q
III	*p =[a]		*t =	*c =	*k =	*kw > **k**	*q > **k**
II	*p =		*t =	*c =	*k =	*kw > **k**	*q > **k**
I	*f =		*r > **t**	*s =	*h =	*hw > **h,ʔ**	*x > **h,ʔ**
	***B**	***BW**	***D**	***J**	***G**	***GW**	***NG**
III	*mb =	*mbw > **mb**	*nd	*nj =	*ng =	*ngw > **ng**	*nG > **ŋ**
II	*b =	*bw > **b**	*d	*j =	*g =	*gw > **g**	*(n)G >?
I	*b > **w/y**	*bw?*w? > **w**	*d > **r**	*j > **y**	*g > w,y,ʔ	*gw > **w,y,ʔ**	*(n)G >?

[a]The equal sign, =, indicates that a reflex in Fula is the same as a reconstructed consonant in PFS.

- Labialized consonants have disappeared by fusing with non-labialized consonants.
- The postvelar consonants have disappeared by fusing with velar consonants.

The diachronic interpretation proposed here was not understood by the book's manuscript reviewer, who, in particular, writes: "I don't understand what's being claimed about the nature of the changes in Fula. It is said for example that ***g** does not change when it is Grade II, but lenites when it is Grade I. This is presented as the same phoneme, and since there is no proposed difference in the segmental environment, it is not a regular sound change. What then is the claim for why the same phoneme undergoes an entirely regular change when in Grade II but not Grade I? I can only guess at what the author's assumptions are. Perhaps the idea is that some sort of very abstract phonetic analogy is being made, whereby mutations like f ~ p are taken as the template for innovating a w ~ b mutation. If this is indeed the claim, it requires a substantial amount of discussion and citation of relevant literature on analogical change and related topics. As it stands, the argument (to the extent that is made at all) is threadbare. The fact is that this sort of cross-grade, phonetically-based analogy forming new alternations is never convincingly attested in the history of any mutation system in the world" (Merrill 2020: 58). This quote once again confirms Merrill's phonetic approach to the interpretation of morphological paradigms. In fact, Merrill is forced to adhere to it precisely because he insists that mutation paradigms were absent from *PFS.

2.3.2 The evolution of the PFS mutation system in Sereer

The evolution of the Sereer mutation system radically differs from Fula. The evolution from the PFS mutation system in Sereer is presented in Table 2.19.

Table 2.19: PFS mutation changes in Sereer

grade	*P		*T	*C	*K	*KW	*Q
III	*p > **mb**		*t > **nd**	*c > **nj**	*k > **ng**	*kw > **mb**	*q > **nɢ**
II	*p =[a]		*t =	*c =	*k =	*kw > **p?f?**	*q =
I	*f =		*r =	*s =	*h =	*hw > **f**	*x =
	***B**	***BW**	***D**	***J**	***G**	***GW**	***Nɢ**
III	*mb =	*mbw > **mb**	*nd =	*nj =	*ng =	*ngw > **mb**	*nɢ =
II	*b > **p**	*bw > **b**	*ɗ > **t**	*ʄ > **c**	*g > **k**	*gw > **p?w?**	*(n)ɢ > **q**
I	*b =	*bw?*w? > **w**	*ɗ =	*ʄ =	*g =	*gw > **w**	*(n)ɢ >?
	***Ɓ**		***Ɗ**	***Y**			
III	*ɓ > **ɓ**		*ɗ > **f**	*ƴ > **c**			
II	*ɓ > **ɓ**		*ɗ > **f**	*ƴ > **c**			
I	*ɓ =		*ɗ =	*ƴ =			

[a] I remind the reader that an equal sign, =, indicates that a reflex in Sereer is the same as a reconstructed consonant in PFS.

- For Grades III and II, mutation grades have undergone a systematic unification:

- By analogy with the voiced series, Grade III has also changed in the voiceless series: ***p**, ***t**, ***c**, ***k** III > Sereer mb, nd, nj, ng III, for example, PFS: Sereer *rod* I 'être sale', *todgel o...ol* II / *todgel a...ak* II 'saleté, malpropreté, ordure' > *ndod n* III / *tod k* II 'saleté, malpropreté, tache' (Fula *tunndi* / *tunndiiji* ~ *tuundi* (< **tod-n-*) 'saleté, souillure; impureté').

- In the series of voiced consonants, Grade II has undergone a systematic change following the model of voiceless consonants: ***b**, ***d**, ***j**, ***g** II > Sereer p, t, c, k II, for example: ****mbel*** III / ***bel*** II 'ombre' > Sereer *mbel-* n III / *pel- k* II (Fula *mbeelu* III / *beeli* II).

- As a result of two changes by analogy, voiced and voiceless consonants have become identical in Grades III and II, which led to a radical simplification of the system in general. The reflexes of voiced and voiceless consonants now only differ in Grade I. When Grade I is absent, it is therefore no longer possible to decide whether the initial consonant can be reconstructed back to a voiced or a voiceless consonant. Thus, for *mbel- n* III / *pel- k* II 'ombre' with the variant *pel- a...al* II / *pel- a...ak* II, only the correspondence Fula *mbeelu* III / *beeli* II 'ombre, reflet' allows reconstruction of the root ***bel-** rather than ***pel-**.
- The devoicing of the consonants in Grade II has spread to voiced glottalized consonants which did not participate in mutations in the proto-language. Apparently, labialized velar consonants which are reconstructed for other branches of Atlantic languages have also systematically changed into labials: ***kw** > p, ***hw** > f, ***ngw** > mb, ***gw** > w.

As can be seen from Tables 2.18–2.19, mutations in contemporary Fula and Sereer differ radically.

Yet, the main principle of using mutations in SG/PL oppositions remains practically identical in Fula and Sereer. Thus, we can reconstruct this principle for PFS (Table 2.20).

Table 2.20: The general schema of Sereer and Fula mutations in number oppositions

PFS	**SG**	**PL**
verbs	*I	*III
humans	*II	*I
neutral	*I, II, III	*II
diminutives	*III	*III

In both Sereer and Fula, verbs with a singular subject are associated with mutation Grade I, whereas verbs with a plural subject are associated with Grade III. Plural nouns in both Sereer and Fula attest the following distribution of mutation grades: the plural classes for humans are associated with Grade I, size classes (diminutives) are associated with Grade III, and all other plural classes are associated with Grade II.

In singular classes the only important difference between Fula and Sereer is that Grade II is associated with all dimension noun classes of Fula. Apparently,

this Fula innovation is due to the fact that this language has developed a specialized subsystem of singular noun classes associated with size, and all markers of this subsystem include the velar k-. The postulated transition *k- III > Fula k- II is simplified by the fact that the voiceless consonant in Fula is the same for the two grades: k III = k II.

The similar structure of SG/PL oppositions in Fula and Sereer that has been presented above provides us with a strong argument to consider that these structures do not represent parallel innovations – they were inherited by Sereer and Fula from PFS.

2.3.3 Initial consonants in PFS verbs and their reflexes

As has already been mentioned, for objective reasons, it is easier to reconstruct the mutation grades in verbs than in nouns. Let us consider the data from two languages taking into account the phonostatistics.

2.3.4 Fula

The statistics relevant to the discussion were retrieved from Seydou's dictionary and are presented in Table 2.21.

Table 2.21 represents frequencies of consonants grouped by their manner features, in accordance with the specificities of consonantal mutations. The left portions of the table show the frequencies of initial consonants for verbs and the right sections show the frequencies of initial consonants for singular nouns.

Let us first make sure that the statistics adequately reflect what we already know without counting. Comparing the frequencies for verbs to those for SG nouns, we find that frequencies of Grade I consonants are considerably higher for verbs as compared to nouns: 47.4% of verbs start with a voiceless fricative or a sonorant (including r-), whereas there are only 18.9% of nouns of this type. This is expected considering that verbs (SG) are systematically in Grade I. Accordingly, the percentage of stops (Grade II) for verbs is considerably lower as compared to SG nouns, and the same is true for the percentage of prenasalized (Grade III). The frequencies of consonants that do not participate in mutations are approximately the same for verbs and nouns SG.

Let us now look at the distribution of frequencies that are far from obvious. First, the following fact is unclear. Even if verbs are associated with Grade I, some exceptions are expected. For such a big dictionary that includes 8,695 verbs, it is not surprising to find 35 verbs with initial prenasalized consonants and 46 verbs with initial voiceless stops. In total, these exceptions represent less than

Table 2.21: Frequencies of initial consonant sets in Fula

Verbs	**grade**	**N**	**%**	**Nouns SG**	**grade**	**N**	**%**
f s h	I	2818	32.4	f s h	I	1706	13.0
b d j g	II	1531	17.6	b d j g	II	3309	25.2
w r y	I	1304	15.0	w r y	I	775	5.9
p c k q	II, III	46	0.5	p c k q	II, III	2544	19.3
mb nd nj ng	III	35	0.4	mb nd nj ng	III	676	5.1
ɓ ɗ ƴ	0	642	7.4	ɓ ɗ ƴ	0	750	5.7
m n ɲ ŋ	0	953	11.0	m n ɲ ŋ	0	1367	10.4
Vowels, ʔ	0	494	5.7	Vowels, ʔ	0	769	5.8
l	0	347	4.0	l	0	489	3.7
t	0	525	6.0	t	0	760	5.8
Sum		8695	100.0	Sum		13145	100.0

1% of the whole, and can be attributed to several factors including ideophones (*cuuca* ‘avoir une respiration sifflante; souffler fort (avec les narines)’), recent borrowings (*peesa* ‘peser; mesurer’), and denominal verbs (*mbaaldʼa* ‘être docile comme un mouton’ <*mbaalu* ‘mouton’).

The emergence of such exceptions can also be due to the specificities of derivation. There has been little research on this topic, but it certainly merits attention. Thus, for example, more than one third of Fula verbs with an initial prenasalized or an initial voiced stop (Grade III) include the suffix **-oo** (Table 2.17).

In Seydou’s dictionary, the suffix **-oo** is attested in all grades and is very frequent in general: It appears in 1,988 verbs out of 8,695, i.e. in 22.9%. Yet, the percentage of verbs with the suffix **-oo** which have Grade II initial consonants is almost two times greater: thus, the percentage of verbs with the suffix **-oo** which also have an initial voiceless consonant is 41%.

As will be shown below, the correlation between certain derivational suffixes and initial consonant mutations is also found in Sereer.

At any rate, the exceptions for prenasalized and voiceless stops are not numerous and can be explained in most cases. This is nevertheless not true for the

Table 2.22: Grade III in Fulaverbs with the suffix -oo

mbaaloo	être comme un mouton, stupide	*pardoo*	faire le salut militaire
mbabboo	être une mère-poule	*peeloo*	enlever d'un geste rapide et brusque
mbaccoo	être un apprenti berger	*piipoo*	se moucher
mbaddoo	gagner dans un jeu; être gagnant	*pokoo*	être malpropre
mbadoo	s'arrêter dans son développement	*poroo*	vider (un poisson)
mbiloo	pratiquer la magie, la prestidigitation	*puccoo*	jouer au cheval, faire le cheval
mbonkoo	dire du mal de..., médire de...	*puncoo*	sauter hors de l'eau
ndaarndoo	chercher à obtenir; tenter d'avoir	*puucoo*	glisser de..., tomber de...
ndakoo	se conduire en âne	*caapoo*	arracher au vol
njawnoo	faire brouter les feuilles tombées	*capoo*	se coucher dans le sens de la largeur
ngokoo	heurter avec l'angle des phalanges	*ceegoo*	pêcher avec un filet {ceeguwal}
paapoo	sortir brusquement, jaillir	*kalmoo*	porter plainte
paaporoo	sortir de telle ou telle façon;jaillir	*kurnoo*	appeler un animal (âne, chien)
pappitoo	ressortir brusquement de...; jaillir	*kurrinoo*	souffler son nom dans l'oreille d'un nouveau-né

"exceptions" in the voiced stop series. Seydou's dictionary includes 1,531 (!) verbs with initial voiced stops, representing Grade II instead of Grade I as we would expect according to the commonly known rule. It is no longer possible to refer to these as exceptions.

This, apparently, provides the main argument in favor of the assumption that, in the proto-language, voiced consonants of Grades I and II were not distinguished and were expressed by a voiced stop, rather than a sonorant as is the

case in present-day Fula. Thus, the divergence between Fula variations II / III ~ I / III in the verbs could be explained in the following way:

(5) *PFS ***bon*** I / ***mbon*** III ‘bad (svb)’ > Sereer *bon* I / *mbon* III ~ Fula *bon* II / *mbon* III
*PFS ****woɲ*** ‘spread (vb), avoid (vb)’ > Sereer *woɲ* ~ Fula *woɲ* I / *ngoɲ* III.

It is necessary to explain why verbs display the mutation w/b in some cases, and the mutation w/g in other cases. Let us examine this apparent contradiction.

Seydou’s dictionary has 285 verb roots with initial w-, not including numerous verbal derived forms. Most of them alternate with forms starting with b-, and a smaller part with verbs beginning with g-. Finally, some isolated roots allow both series of mutations.

It appears that the choice of mutation series correlates with the root vowel. Here we examine the descriptive statistics derived from Seydou’s dictionary (Table 2.23).

Table 2.23: The correlation between consonant mutations and vowels

	a	**e**	**i**	**o**	**u**	**Sum**
w/b	69	42	34	25	18	188
w/g	14	0	0	29	41	84
w/b ~ g	2	0	0	7	4	13
Sum	85	42	34	61	63	285

As can be seen from the table 2.18, w- cannot alternate with g- if the root has a front vowel. Accordingly, the frequency of w~g is considerably higher for back vowels.

By arranging the vowels according to their place of articulation we can easily view the frequencies of the sets in question Table 2.24.

This distribution confirms that in the proto-language, *w- was not part of the mutation system. Verbs with initial *w- were included in mutations after the separation of Fulafrom Sereer . At the same time, with only few exceptions, *w > w/g before back vowels, *w > w/b before front vowels and a.

When we mention “exceptions” it should be kept in mind that a verb with an initial w- could have appeared in Fula not only as a result of the involvement of *w- in mutations but also as a result of a mutation change, which is in general natural for Fula verbs, namely *g- > Fula w-. How, for example, did Fula verbs

Table 2.24: The correlation between consonant mutation and vowels (%)

%	Front (i + e)	Back (u + o)	Central (a)	Sum
w/b	**40.4**	22.9	**36.7**	100%
w/g + w/g ~ b	0.0	**83.5**	16.5	100%
Sum	26.7	43.5	29.8	100%

wa- I / ga- I appear, in contrast to the proposed scenario ***wa** > Fula wa- I / ba- II? Sereer correspondences help to clarify this question:

(6) PFS ***gad/ɗ* I** 'carry (vb), charge (vb)': 'Sereer *gad* I ~ Fula *wad-* I / *gad-* II,
PFS ***gar* I** 'come (vb)': Sereer *gar* I ~ Fula *war-* I / *gar-* II,
PFS ***gas* I** 'dig (vb)': Sereer *gas* I ~ Fula *was-* I / *gas-* II.

Instead of considering these examples as exceptions, it is simpler and more logical to assume that these verbs originate not from verbs with an initial ***w-**, but rather from verbs with an initial ***g-** I with the subsequent change ***g-** I > w- I in Fula.

Thus, Fula verbs with initial w- may originate from verbs either with ***w-** or ***g-** I in PFS (as well as from verbs with ***b-**, ***bw-**, ***gw-**).

The difference found in Fula between *woɲ* I 'spread (vb), avoid (vb)' and *was* I 'dig (vb)' is that the first verb has preserved the proto-language consonant but has changed its grade (**woɲ* 0 > *woɲ* I), whereas the second verb has preserved the proto-language grade but has changed the consonant (**gas* I > *was* I). These two competing strategies create, as we will see, the possibility of alternative reconstructions in a number of Sereer and Fula correspondences.

2.3.5 Sereer

As in Fula, Sereer statistics mostly confirm the facts that have been previously established. When we compare the frequencies for verbs and nouns, we see that the frequencies for Grade I are much higher in the case of verbs. Accordingly, the percentage of Grade II as well as Grade III consonants is considerably lower for verbs as compared to SG nouns. Frequencies of consonants that do not participate in mutations are approximately the same for verbs and singular nouns. Nevertheless, as in Fula, a considerable number of Sereer verbs show deviations from the ascribed rule.

Table 2.25: Frequencies of initial consonant sets in Sereer

Verbs	grade	№	%	Nouns SG	grade	№	%
f s r h x	**I**	2390	30.8	**f s r h x**	**I**	2005	18.3
w l y	**0**	1176	15.2	**w l y**	**0**	1073	9.8
p t c k q	**II**	731	9.4	**p t c k q**	**II**	2572	23.5
mb nd nj ng	**III**	68	0.9	**mb nd nj ng**	**III**	1709	15.6
ɓ ɗ ƴ	**0**	530	6.8	**ɓ ɗ ƴ**	**0**	546	5.0
m n ɲ ŋ	**0**	993	12.8	**m n ɲ ŋ**	**0**	1444	13.2
Vowels, ʔ	**0**	159	2.1	**Vowels, ʔ**	**0**	190	1.7
Sum		7754	100	**SUM**		10959	100

First, Crétois' dictionary contains 68 verbs with initial prenasalized consonants that belong not to Grade I, but rather to Grade III. Apparently, as in Fula, this deviation can be explained by the specificities of verb derivation in Sereer. As has been shown above, Grade III in Fula correlates with the suffix **-oo**. Most Grade III verbs in Sereer (40 out of 68!) include the reciprocal suffix **-ir**. The examples in Table 2.26 substantiate this claim.

As in Fula, some morphophonological features of verbs cannot be explained by derivational specificities. The main oddity is the following: 731 verbs (9.4%) in Sereer contain an initial Grade II consonant, namely a voiceless stop. As for Fula, occlusiveness in verbs is found only in the voiced consonant series (1,531 verbs start with b-, d-, j-, g-), whereas voiceless stops (Grade II as well) in verbs are almost never attested. In Sereer, on the other hand, as we know, Grade II is represented only by voiceless stops.

Some of these verbs, as I have shown, are formed in Sereer due to a regular process of consonant devoicing in Grade II. Yet, the majority of verbs with an initial voiceless stop that interest us show correspondences with fricatives in Fula, i.e. with Grade I consonants, rather than with stops. At the same time, verbs beginning with a voiceless stop (Grade II) are almost absent in Fula. Here we will examine some indicative examples:

Table 2.26: Grade III in Sereer verbs with suffix **-ir**

mbaŋir	se détester	*ndiimbir*	se brouiller
mbaagir	se convenir	*ndokir*	s'emboiter
mbexir	s'aimer mutuellement	*ndoomir*	s'entre-blesser
mbiiqir	se coudoyer	*ngambir*	courir après quelqu'un qui se sauve
mbonir	se bouder mutuellement	*ngamir*	mélanger un habit
mbugir	s'entre-vouloir	*ngiɓir*	joindre deux bouts de corde
mbuuxir	se mettre mutuellement en colère	*ngindir*	se jeter à l'envie sur...
ndamir	être uni ensemble	*ngiigir*	se frotter mutuellement
ndeɓir	se jeter mutuellement	*ngoɓatir*	s'accuser mutuellement
ndekir	courir après quelqu'un qui se sauve	*ngukir*	confier un secret
nderir	faire un accord	*ngumir*	accoster [personnes]
ndeefir	marcher à la file	*njiicir*	se regarder de travers
ndeerir	avoir des rapports mutuels	*njofir*	être vis-à-vis
ndimleir	s'entr'aider	*njopir*	avoir lieu simultanément

- Sereer *puc* 'percer un abcès, une pustule, écacher, crever (en parlant d'un sac plein)' ~ Fula *fucc-* 'pincer, exercer une pression en pinçant (la peau); extraire (une épine, une écharde), percer (un abcès); (moy.) percer (tr.)'.
- Sereer *toɓ-* 'cueillir des fruits, effeuiller, égrener [avec la main]' ~ Fula *teɓa* 'chercher à cueillir des fruits; brouter le sommet des herbes'.
- Sereer *coox* 'donner, attribuer, accorder, offrir' ~ Fula *sooka* 'accorder de la chance; (moy.) être chanceux'.
- Sereer *kuf* 'gonfler; écumer en bouillant' ~ Fula *huuf-* 'écumer; écrémer; prélever ce qui surnage'.

These types of examples point to the existence of innovations in Sereer, especially considering that many Sereer verbs with voiceless stops have free variants with an initial fricative: Sereer *cop* 'becqueter [donner des coups de bec], picoter'

as well as *sop* ‘frapper à coups de bec, becqueter [donner des coups de bec], picoter’ ~ Fula *soppa* ‘abattre d’un coup bref et tranchant; sabrer, faucher; frapper à coups de hache, de sabre; picorer, becqueter; (serpent) mordre’.

2.4 Potential reflexes of the PFS initial consonants in Fula and Sereer

In the previous sections we examined the hypothetical reconstruction of the mutation system in the proto language of the Fula–Sereer subgroup, the main paths of its evolution in each language, and the main problems of the diachronic analysis of these mutations. I briefly presented the main problem in languages with mutations, namely the variability of potentially possible regular correspondences. In the following chapters (3–6) I will present the comparative etymological data with attested correspondences and the most probable reconstructions. In order to do this, we need to systematically consider the problem of the potential correspondences between Fula and Sereer, to identify the potential alternative reconstructions and formulate the principles that will be followed in the choice between possible reconstructions. These are the issues to which the present section is dedicated.

Let us go back to the question of the multiplicity of potential correspondences and, based on the preliminary observations, formulate the factors that condition this multiplicity.

Even without taking into account the fact that the same phonetic reflexes can correspond to different grades (e.g. Sereer h- I ~ Fula k- II, Sereer h- I ~ Fula k- III), we can identify, for example, ten possible correspondences involving k- in Fula (Table 2.27).

Sereer mb- can systematically correspond to at least nine different consonants in Fula (Table 2.28).

For the one proto-language series a multiplicity of Fula–Sereer correspondences can be identified.

Thus, the series ***G** can result in 27 phonetic correspondences (see Table 2.16). By taking the example of the series ***G** (***ng** III / ***g** II / ***g** I), we can identify the main factors defining the diversity of the resulting correspondences. These factors, some of which have been mentioned, are summarized below:

- The change of grade with the retention of the proto-language consonant:

PFS ***g** I: Fula *g I > g II; the correspondence: Sereer g I ~ Fula g II.

Table 2.27: Potential correspondences of Fulak-

Series	Alternant	Sereer	grade	Fula	grade
***K**		h	I	**k**	II, III
***K**	***k**	k	II	**k**	II, III
***K**	***k**	ng	III	**k**	II,III
***K (> Sereer G)**		g	I	**k**	II,III
***KW**		f	I	**k**	II,III
***KW**	***kw**	p	II	**k**	II,III
***KW**	***kw**	mb	III	**k**	II,III
***Q**		x	I	**k**	II,III
***Q**	***q**	q	II	**k**	II,III
***Q**	***q**	nɢ	III	**k**	II,III

Table 2.28: Potential correspondences of Sereer mb-

Series	Alternant	Sereer	grade	Fula	grade
***P**		mb	III	f	I
***P**	***p**	mb	III	p	II,III
***B, *BW, *GW**		mb	III	w,y,ʔ	I
***B, *BW**		mb	III	b	II
***B, *BW**	***mb**	mb	III	mb	III
***KW**		mb	III	h	I
***KW**	***kw**	mb	III	k	II,III
***GW**		mb	III	g	II
***GW**	***ngw**	mb	III	ng	III

- The change of the consonant with the retention of the proto-language grade:

PFS *g II: Sereer g II > k II; the correspondence Sereer k II ~ Fula g II.

- The change of the series through a grade that is the same for two series: Sereer k II from Series *G (ng III / k II / g I) = k II from Series *K (ng III / k II / h I), resulting in:

Sereer *G > K: the correspondence Sereer h I ~ Fula w, y, ʔ I;
Sereer *K > G: the correspondence Sereer g I ~ Fula h I.
Fula w,y,ʔ I in Series G (ng III / g II / w, y, ʔ I) = w, y, ʔ I in Series B (mb III / b II / w, y, ʔ I) resulting in:
Fula *G > B: the correspondence Sereer ng III ~ Fula mb III;
Fula *B > G: the correspondence Sereer mb III ~ Fula ng III.

- The change of the series due to the loss of the proto-language series:

PFS *Q > Fula K; the correspondence Sereer x I ~ Fula h I.

- The integration of immutable consonants into the mutation system:

PFS *y > Fula y I: correspondence Sereer y ~ Fula nj III / j II / y I.
Most of the variability in the correspondences is the result of various combinations of these five factors:

- A language could change a consonant (2) and a mutation grade (1);
- A language could change a consonant series (3) and a mutation grade (1);
- One language could change a consonant (2) and second language could change a mutation grade (1) etc.

With so many potential combinations, it does not make sense to construct *ad hoc* scenarios of the evolution that the mutation systems can undergo. It seems that the only strategy that can be effective in handling the diachronic evolution of the two systems is to try to find the overlap between the attested and potential correspondences. This allows us to confirm one of the possible reconstructions and to exclude others that are not less probable theoretically but that do not occur in practice. Thus, it can be noted that in the equally possible scenarios *G > K and *K > G in Sereer, the correspondence of voiceless consonants in Sereer to voiced

consonants in Fula is highly frequent and parallel (it is found in all places of articulation), whereas the reliable correspondences in which voiced consonants in Sereer would correspond to voiceless consonants in Fula are almost non-existent. Therefore, the change ***G** > Sereer K is confirmed, and the change ***K** > Sereer G is not.

Let us present all possible correspondences in each of the five places of articulation by arranging them in accordance with the proto-language sets of consonants.

Table 2.29: Potential reflexes of initial labials in *PFS

PFS	Sereer	grade	Fula	grade	PFS	Sereer	grade	Fula	grade
***P (*f)**	f	I	f	I	***BW (*w)**	w	I	w,y,ʔ	I
***P**	f	I	p	II,III	***BW**	w	I	b	II
***P**	p	II	f	I	***BW**	w	I	mb	III
***P (*p)**	p	II	p	II,III	***BW**[a]	b	II	w,y,ʔ	I
***P**	mb	III	f	I	***BW (*bw)**	b	II	b	II
***P (*p)**	mb	III	p	II,III	***BW**	b	II	mb	III
***P (> Sereer B)**	b	I	f	I	***BW**	mb	III	w,y,ʔ	I
***P (> Sereer B)**	b	I	p	II,III	***BW**	mb	III	b	II
***B (*w)**	b	I	w,y,ʔ	I	***BW (*mbw)**	mb	III	mb	III
***B**	b	I	b	II	***ɓ**	ɓ	0	ɓ	0
***B**	b	I	mb	III	***m**	m	0	m	0
***B**	p	II	w,y,ʔ	I					
***b (*b)**	p	II	b	II					
***B**	p	II	mb	III					
***B**	mb	III	w,y,ʔ	I					
***B**	mb	III	b	II					
***B (*mb)**	mb	III	mb	III					
***B (> Sereer P)**	f	I	w,y,ʔ	I					
***B (> Sereer P)**	f	I	b	II					
***B (> Sereer P)**	f	I	mb	III					

[a]The duplicate correspondences are highlighted in gray.

In opposition to the labial series, where the "zero grade" characterizes only glottalized and nasal consonants (Table 2.29), the dental series (Table 2.30) has a zero grade for l- in Sereer and t- in Fula. This accounts for the possibility of the correspondence between Sereer l- and Fula t-. We can assume for Sereer a chain of events consisting of three stages: 1) PFS ***t/t/r**; ***nd/d/l** > 2) Sereer ***nd**/t/r; *nd/**t**/l> 3) Sereer nd/t/r; nd/t/**d**. If this scenario is correct, at the second stage, voiceless dentals could have developed into voiced dentals, including Grade I in the output. This could account for such correspondences as Sereer *lud* 'puiser au moyen d'un récipient, transvaser' ~ Fula *tuɗɗita* 'vider (un récipient) de ce qui s'y est aggloméré entassé' (the root with two variants *tuɗɗ-* ~ *tiɗɗ*) < PFS ***t-** II

Table 2.30: Potential reflexes of initial dentals in *PFS

PFS	Sereer	grade	Fula	grade	PFS	PFS	Sereer	grade	Fula
***T (*r)**	r	I	t	I,II,III	***D (*l)**	l	0	l	0
***T (*t)**	t	II	t	I,II,III	***D**	l	0	r	I
***T (*t)**	nd	III	t	I,II,III	***D**	l	0	d	II
***T (> Fula D)**	r	I	l	0	***D**	l	0	nd	III
***T (> Fula D)**	r	I	r	I	***D**	d	I	l	0
***T (> Fula D)**	r	I	d	II	***D (*l)**	d	I	r	I
***T (> Fula D)**	r	I	nd	III	***D**	d	I	d	II
***T (> Fula D)**	t	II	l	0	***D**	d	I	nd	III
***T (> Fula D)**	t	II	r	I	***D**	t	II	l	0
***T (> Fula D)**	t	II	d	II	***D**	t	II	r	I
***T (> Fula D)**	t	II	nd	III	***D (*d)**	t	II	d	II
***T (> Fula D)**	nd	III	l	0	***D**	t	II	nd	III
***T (> Fula D)**	nd	III	r	I	***D**	nd	III	l	0
***T (> Fula D)**	nd	III	d	II	***D**	nd	III	r	I
***T (> Fula D)**	nd	III	nd	III	***D**	nd	III	d	II
***T (> Sereer D)**	l	0	t	I,II,III	***D (*nd)**	nd	III	nd	III
***T (> Sereer D)**	d	I	t	I,II,III	***D (> Sereer T)**	r	I	l	0
					***D (> Sereer T)**	r	I	r	I
					***D (> Sereer T)**	r	I	d	II
					***D (> Sereer T)**	r	I	nd	III
					***ɗ**	ɗ	0	ɗ	0
					***n**	n	0	n	0

in the voiceless series > Sereer t II in the voiced series > Sereer *l I in the voiced series > Sereer l. This might be the origin of the root variants present in Sereer that cannot be explained by the synchronic alternations *tumba...al / tumba...al* 'calebasse, gourde sp.', *lumb o...ol / lumb a...ak* 'fruit du calebassier, la calebasse cultivé, fruit d'une cucurbitacée' ~ Fula *tummbude / tummbuɗe* 'demi-calebasse hémisphérique, servant de récipient'.

There are also a number of series with ambiguous reconstructions (highlighted in gray). Thus, the correspondence Sereer *tuda...al / tuda...ak* 'vulture' 'vautour' ~ Fula *dutal / dute* 'vautour' can theoretically go back to ***tut*** (accompanied by the transition to the voiced series in Fula: Fula **tut-* II > **rut-* I > *dut-* II), as well as to ***dut-** (with the transition into the voiceless series in Sereer: **dut-* II > *tud* II). As can be seen, the scenario with ***dut-** is easier and therefore preferable for the reconstruction. Nevertheless, at this stage we will leave the two alternative variants.

Interestingly, palatals (Table 2.31) are the only consonants that do not yield any alternative reconstructions (hence the absence of gray in the table). This means that each of the potential correspondences can be unambiguously interpreted

Table 2.31: Potential reflexes of initial palatals in *PFS

PFS	Sereer	grade	Fula	grade	PFS	Sereer	grade	Fula	grade
***C (*s)**	s	I	s	I	***J**	y	0	y	I
***C**	s	I	c	II,III	***J**	y	0	j	II
***C**	c	II	s	I	***J**	y	0	nj	III
***C (*c)**	c	II	c	II,III	***J (*y)**	j	I	y	I
***C**	nj	III	s	I	***J**	j	I	j	II
***C (*c)**	nj	III	c	II,III	***J**	j	I	nj	III
***C (> Sereer J)**	y	0	s	I	***J**	c	II	y	I
***C (> Sereer J)**	y	0	c	II,III	***J (*j)**	c	II	j	II
***C (> Sereer J)**	j	I	s	I	***J**	c	II	nj	III
***C (> Sereer J)**	j	I	c	II,III	***J**	nj	III	y	I
					***J**	nj	III	j	II
					***J (*nj)**	nj	III	nj	III
					***J (> Sereer C)**	s	I	y	I
					***J (> Sereer C)**	s	I	j	II
					***J (> Sereer C)**	s	I	nj	III
					***ƴ**	ƴ	0	ƴ	0
					***ɲ**	ɲ	0	ɲ	0

diachronically. Owing to this circumstance, we can rely on actually attested correspondences (see the following chapters) to readjust the outline of the development of the mutation system.

In the next chapter, we will turn to the discussion of the actually attested etymological series keeping in mind the matrix of potential correspondences. We will group the consonants into different manner features in order to find out how parallel certain processes are.

Table 2.32: Potential reflexes of initial velars in *PFS

PFS	Sereer	grade	Fula	grade	PFS	Sereer	grade	Fula	grade
***K (*h)**	h	I	h	I	***G (> Fula B)**	k	II	w,y,ʔ	I
***K**	h	I	k	II,III	***G (> Fula B)**	k	II	b	II
***K**	k	II	h	I	***G (> Fula B)**	k	II	mb	III
***K (*k)**	k	II	k	II,III	***G (> Fula B)**	ng	III	w,y,ʔ	I
***K**	ng	III	h	I	***G (> Fula B)**	ng	III	b	II
***K (*k)**	ng	III	k	II,III	***G (> Fula B)**	ng	III	mb	III
***K (> Sereer G)**	g	I	h	I	***G (> Sereer K)**	h	I	w,y,ʔ	I
***K (> Sereer G)**	g	I	k	II,III	***G (> Sereer K)**	h	I	g	II
***KW (*hw)**	f	I	h	I	***G (> Sereer K)**	h	I	ng	III
***KW**	f	I	k	II,III	***G (> Sereer Q)**	x	I	w,y,ʔ	I
***KW**	p	II	h	I	***G (> Sereer Q)**	x	I	g	II
***KW (*kw)**	p	II	k	II,III	***G (> Sereer Q)**	x	I	ng	III
***KW**	mb	III	h	I	***G (> Sereer Q)**	q	II	w,y,ʔ	I
***KW (*kw)**	mb	III	k	II,III	***G (> Sereer Q)**	q	II	g	II
***G (*w, y, ʔ)**	g	I	w,y,ʔ	I	***G (> Sereer Q)**	q	II	ng	III
***G**	g	I	g	II	***GW (*w, y, ʔ)**	w	I	w,y,ʔ	I
***G**	g	I	ng	III	***GW**	w	I	g	II
***G**	k	II	w,y,ʔ	I	***GW**	w	I	ng	III
***G (*k)**	k	II	g	II	***GW**	b	II	w,y,ʔ	I
***G**	k	II	ng	III	***GW (*gw)**	b	II	g	II
***G**	ng	III	w,y,ʔ	I	***GW**	b	II	ng	III
***G**	ng	III	g	II	***GW**	mb	III	w,y,ʔ	I
***G (*ng)**	ng	III	ng	III	***GW**	mb	III	g	II
***G (> Fula B)**	g	I	w,y,ʔ	I	***GW (*ngw)**	mb	III	ng	III
***G (> Fula B)**	g	I	b	II	***ʔ**	ʔ, Ø	0	ʔ, Ø	0
***G (> Fula B)**	g	I	mb	III	***ŋ**	ŋ	0	ŋ	0

Table 2.33: Potential reflexes of initial postvelars in *PFS

Proto-SF	Sereer	grade	Fula	grade
***Q (*x)**	x	I	h	I
***Q**	x	I	k	II,III
***Q**	q	II	h	I
***Q (*q)**	q	II	k	II,III
***Q**	nG	III	h	I
***Q (*q)**	nG	III	k	II,III

3 Initial voiceless consonants

Before introducing the corpus of PFS reconstructions, it is important to specify the unusual symbols used below. Along with the standard symbols, reconstructions will be represented by capital letters and a slash sign.

The slash in reconstructions will be used when it is difficult to give a diachronic interpretation of the postulated correspondence. In these cases, the Sereer consonant (or vowel) is placed before the slash, and the Fula consonant (or vowel) is placed after the slash. Thus, the reconstruction of PFS ***suul/r*** 'to smell' suggests that Sereer *suul* and Fula *suur* are proposed as related words, but the regular correspondence of the root-final Sereer -l ~ Fula -r is left without a diachronic interpretation. The presence of the slash means that the proposed reconstruction is unproven in one of its segments and should have been given with a question mark.

Note the fundamental difference from capital letters, which are also used in reconstructions. A capital letter in the notation adopted here means a problematic reconstruction; one in which it is legitimate to reconstruct both variants. Thus, the reconstruction ***Puc*** **(p-~f-)** 'pierce (abscess) (vb)': Sereer *puc* ~ Fula *fuccita* means that both *__p-__ and *__f-__ consonantal reconstructions are possible in initial position. On the contrary, the reconstruction ***suul/r*** implies that within the framework of the proposed system, it is impossible to reconstruct either *__-l__ or *__-r__ in a given root – it is only an attestation of modern forms not satisfactorily explained.

3.1 Proto *P: *p/p/f > Sereer mb/p/f ~Fula p/p/f

For the purposes of the proposed reconstruction, the numerous examples of potential correspondences presented above can be summarized by the following three cases:

1. we can reconstruct *__f-__,
2. we can reconstruct *__p-__,

3. we cannot chose between specific alternants and we are obliged to limit ourselves to the reconstruction of the mutation series ***P-**.

Here, we examine potential correspondences and compare them with those attested in the database. The last column provides the number of examples that I have in my database for each correspondence (Table 3.1).

Table 3.1: Reflexes of *P-

Series	Alternant	Sereer	grade	Fula	grade	Stat.
***P**	***f**	f	I	f	I	25
***P**		f	I	p	II,III	4
***P**		p	II	f	I	8
***P**	***p**	p	II	p	II,III	4
***P**		mb	III	f	I	1
***P**	***p**	mb	III	p	II,III	1
***P** (> **Sereer B**)		b	I	f	I	
***P** (> **Sereer B**)		b	I	p	II,III	

The most reliable examples of each of these three reconstructions (***f-**, ***p-**, ***P-**) are provided as follows.

3.1.1 Sereer f I ~ Fula f I

faɓ 'toad': Sereer *faaɓ l / paaɓ a...ak* 'crapaud, grenouille', *mbaaɓ o...ong / mbaaɓ fu...n* 'petit crapaud, petite grenouille' ~ Fula *faaɓ-ru / paaɓ-i* 'crapaud, grenouille'.

fal 1 'mistake (vb)': Sereer *fal* 'faire une erreur, se tromper' ~ Fula *falja* 'manquer, faire défaut; se tromper, faire une erreur'.

fal 2 'calabash': Sereer *fal o...ol / pal a...ak* 'gourde sp.' ~ Fula Adamawa *faandu / paali* 'gourde'.

faaf 'pass (vb); meet (vb)': Sereer *faaf (~ faaw)* 'passer (s'écouler), disparaître, s'éclipser, avoir une fin ...' ~ Fula *faapoo* 'surgir soudainement, jaillir, sortir brusquement'.

fed 'fix (vb), button (vb)': Sereer *fed* 'boutonner (plante, habit)' ~ Fula *feɗa* 'ajuster soigneusement; mettre bien en place; fixer avec soin (une chose à une autre); (spéc.) boutonner'.

fed/tt 'tick': Sereer *feed l / peed k* 'tique' ~ Fula (FJ) *fetto* 'espèce de tique'.

fel-ox ‘ search (vb)’: Sereer *fel-ox* ‘chercher un objet perdu’ ~ Fula *fel-oo* ‘faire le tour de...; contourner; chercher par tous les moyens possibles à...’

fen ‘lie (vb)’: Sereer (Merrill) *fen* ~ Fula *fena* (Wolof[1] *fen*, Palor *fel*, Ndut *fɛl*).

fer ‘ open (vb), begin (vb)’: Sereer *fer* ‘commencer, débuter, naître, ouvrir’ ~ Fula *feera* ‘s’ouvrir, éclore; (fleur) s’épanouir’.

fes incise (vb)’: Sereer *fes* ‘écorcher, inciser, percer un abcès’, *fes o...ol / pes a...ak* ‘instrument pour percer les abcès, bistouri’, *mbes n / pes a...ak* ‘adolescence, jeunesse’ ~ Fula *fesa* ‘inciser; scarifier; balafrer; (spéc.) vacciner (avec lancette)’, *fes-annde / pes-andɗe* ‘incision, scarification’.

few ‘right’: Sereer *few* ‘dans l’expr. intensive *jof few:* être très droit’ ~ Fula *feewa* ‘être droit, rectiligne; aller droit sur..., se diriger directement sur; (fig.). être correct, être bien’.

feeŋ ‘appear’: Sereer *feeŋ* ~ Fula *feeŋ* (Wolof *feeñ* ‘apparaître’, Jaad *feeŋiŋ* ‘apparaître’).

fi ‘act (vb); thing’: Sereer *fi* ‘faire, commettre, exécuter, se comporter, aller (santé), devenir, se faire, agir, fabriquer, former, placer, poser’ ~ Fula *fii / piiji ~ fiijiiji* ‘chose; affaire, question, sujet; (spéc.) bien, fortune’.

fiɗ ‘shake (vb), stir (vb)’: Sereer *fid ~ fiɗ* ‘agiter, remuer, mouvoir, mettre en mouvement’ ~ Fula *fiɗɗa* ‘secouer; épousseter’.

fiip ‘sniff (vb)’: Sereer *fiip (fiib)* ‘dans l’expr. intensive *ñitox be fiip*: se moucher bruyamment’ ~ Fula *fiipa (fiifa)* ‘moucher (en faisant souffler)’.

fok/w ‘hot (svb)’: Sereer *fok-in* ‘chauffer (liquide), faire chauffer (liquide), réchauffer, tremper le couscous dans l’eau chaude’, *mbok-tir n / pok-dir k* ‘pot en terre [servant à chauffer de l’eau pour se baigner]’, *pok-an a...al / pok-an a...ak* ‘la fièvre’ ~ Fula *foowa* ‘être tiède’, *poow-gol* ‘tiédeur’.

fol ‘jump (vb)’: Sereer *fool* ‘sauter, bondir, cabrioler, gambader, rebondir ...’ ~ Fula *fola* ‘marcher à grandes foulées, faire de grandes enjambées; (spéc.) gambader’.

fop ‘clean (vb)’: Sereer *foop* ‘nettoyer, essuyer, frotter’ ~ Fula *foppa* ‘enduire abondamment de...; oindre en frottant; (techn.) assouplir une peau (en la frottant, la battant)’.

[1]Many Atlantic parallels which are proposed for the Fula–Sereer cognates in this book were found by the author together with Guillaume Segerer and are extracted from our common Atlantic etymological database in RefLex (Pozdniakov & Segerer 2021). My co-author, however, has the advantage that only the author is responsible for erroneous etymologies in this book.

foƭ 'equal (svb)': Sereer *fod* 'être égal à, égaliser, être borné par, confiner, être juste', *mbod o...ox* 'le compagnon, l'égal', *podel o...ol / podel a...ak* 'conformité, exactitude, symétrie …' ~ Fula *fonda* (< **fot-d-)* 'comparer; mettre à égalité …', *fodde* 'à proportion de..., selon...; environ', *pondugol* 'égalisation de...', *fota* 'être égal'.

fu(f) 'all': Sereer *fuuf* 'beaucoup, tout' ~ Fula *fuu* 'totalement, entièrement, en totalité; tout, tous, toutes; quelque... que...; chaque; (nég.) rien, aucun' (Merrill: Fula *fuu* < **fow*?). In Sereer also *fop* 'tout, entier, total, tous', which finds parallels in many Atlantic languages.

fud/ɗ 'henna; yellow': Sereer *fudan(d) n / pudan(d) k* 'henné (Lawsonia inermis)' (Merrill: < Wolof *fuddën* 'henna'), *fuuɗ* 'teindre en kaki, en jaune ou en roux foncé' ~ Fula *fuuɗa* 'teindre au henné; (pass.) être de couleur rouille', *pu(u)ddi (puundi* 'henné (plante et pâte)' (Wolof *puur* 'être jaune').

fus 'pustule': Sereer *fus o...ol / pus a...ak* 'bouton, *mbus-nan o...ong / pus-nan a...ak* 'petite variole' ~ Fula *fus-ir-de / pus-ir-ɗe* 'endroit où la peau s'est percée'.

fut 'pustule; bloom (vb)': Sereer *fut* 'fleurir [en parlant du gros mil déjà formé]', *fut o...ol / put a...ak* 'épi de gros mil qui a fleuri' ~ Fula *futta* 'regermer, repousser; bourgeonner de nouveau; être déjà bien formé, bien apparaître, devenir bien visible', *futtere / putte* 'pustule, ampoule, bouton'.

fVŋ 'bloom (vb)' : Sereer *fuuŋ* 'fleurir, s'épanouir [fleurs]' ~ Fula *fiina* 'fleurir, s'épanouir'.

fVVr 'tear (vb)': Sereer *faar* 'déchirer' ~ Fula *feer-* 'déchirer, fendre'.

3.1.2 Sereer p II ~ Fula p II,III

paxt 'whip': Sereer *paxte o...ol / paxte xa...xe* ~ Fula *paatawol / paataaji.*

pimpi 'soot': Sereer *pimpi* ~ Fula *pimpiti.*

poroc/ƴ 'split (vb)': Sereer *poroc* 'cracher' ~ Fula *puryʼa* 'cracher en pulvérisation'.

pəs 'horse': Sereer *pis (gi)...n / pis k* ~ Fula *puccu / pucci.*

3.1.3 Sereer mb III ~ p II,III

pin/l-pin/l 'flea': Sereer *mbiimbiin n / piimbiin k* ~ Fula Adamawa *pilpil / pilpilhon.*

3.1.4 Sereer f I ~ Fula p II,III

****Pet (p-~f-)*** 'bounce (vb)': Sereer *fet-ox* 'rebondir' ~ Fula *pittugol* 'rebond'.

****Peeɗ/ƴƴ (p-~f-)*** 'crack': Sereer *feeɗ o...ol / peeɗ a...ak* 'crevasse' ~ Fula *peƴƴol / peƴƴi* 'crevasse, fissure; fente dans la corne des pieds'.

****Pool/re (p-~f-)*** 'rubber': Sereer *foole fan* ~ Fula *poore*. This root which is found in other Atlantic languages as well (for example, in Bedik *pɔrɛ*, Jaad *poore*) is apparently a borrowing from Mande languages (possibly, from Soninke), Soninke *pòorê*, Maninka *fóórèè*, Jalonke *fòorê*.

****Pɔd/r (p-~f-)*** 'bowels': Sereer *fud o...ol / pud a...ak* 'ventre, abdomen, panse [de l'homme], sein [les entrailles], entrailles [le ventre]' ~ Fula *poro / porooji* 'viscères, tripes; intestins (de poisson, de rat...)' (Jaad *pa-puutɛ* 'estomac, panse', Biafada *bu-bur / maa-bur* 'bowels', Pukur *o-búrùk* 'intestin, entrailles'; Balant *m-mbùté / ŋ-mbùté* 'intestin', Mankanya *ka-pəʂ / i-pəʂ* 'tripes, intestins', Manjaku *ipəs* 'intestins, viscères', Pepel *pʊl* 'intestins' (cf. Kim *pùtì* 'intestines', Mmani *pùt* 'intestine', Kisi *pùléí / pùlóŋ* 'stomach, intestines, guts'; Limba *fɔle* 'abdomen, belly, bowels, matrix, stomach, womb').

3.1.5 Sereer p II ~ Fula f I

****Pac (p-~f-)*** 'pour (vb)': Sereer *pac a...al / pac a...ak* 'seau [pour puiser]', *pac-pacin* 'vider rapidement une bouteille' ~ Fula *facca* 'déverser, verser (d'un contenant dans un autre); transvaser', *paccol / pacci* 'rigole, écoulement d'eau'.

****Peƴ/cc (p-~f-)*** 'take the bait (vb)': Sereer *peƴ* 'mordiller à l'hameçon, mordre à l'hameçon' ~ Fula *ficca* 'hameçonner; tendre un piège'.

****Pɪɗ/r (p-~f-)*** 'sapling': Sereer *piiɗ* 'fustiger au moyen d'une gaule flexible [en général sur les fesses] fouetter [sur le derrière au moyen d'une gaule flexible]', *piiɗ a...al / piiɗ a...ak* 'gaule flexible pour fustiger' ~ Fula *fera* 'gauler (des fruits)'.

****Pɔr (p-~f-)*** 'cross (vb)': Sereer *por* 'traverser de part en part' ~ Fula *far-n* 'faire traverser un cours d'eau'.

****Puc (p-~f-)*** 'pierce (abscess) (vb)': Sereer *puc* 'percer un abcès, une pustule' ~ Fula *fuccita* 'pincer, exercer une pression en pinçant (la peau); extraire (une épine, une écharde), percer (un abcès)'.

****Puut (p-~f-)*** 'inflate (vb)': Sereer *puutuuru* 'gonflé, ballonné' ~ Fula *fuura* 'gonfler, enfler; monter; s'élever en pente douce'.

****Pʊmp (p-~f-)*** 'grope (vb)': Sereer *pum-pumin* 'aller à tâtons' ~ Fula *fompoo* 'tâtonner, chercher à tâtons'.

Pəmb/mp (p-~f-) ‘rock, mountain, obstacle’: Sereer *pimb a...al / pimb a...ak* ‘montagne, colline tertre, dune’ ~ Fula *fampa* ‘obstruer, boucher le passage’, *fampaare / pampaaje* ‘gros rocher isolé; colline rocheuse’, *fampaawo / pampaaje* ‘bloc de rocher faisant obstacle; crête rocheuse faisant écran’.

3.1.6 Sereer mb III ~ Fula f I

Poot (p-~f-) ‘syphilis’: Sereer *mboot n* ‘syphilis’, *mboot o...ong* ‘pénis’ ~ Fula *fotee* ‘être atteint de syphilis; être vérolé’, *foto* ‘syphilis’.

The absence of examples for ***P** (> Sereer B) allows us to exclude from our reconstruction a speculative scenario of the transition from voiceless to voiced series in Sereer.

3.2 Proto *T: *t/t/r > Sereer nd/t/r (l, nd/t/d) ~Fula t/t/t

Table 3.2: The reflexes of *T-

Series	Alternant	Sereer	grade	Fula	grade	Stat.
***T**	***r**	r	I	t	I,II,III	2
***T**	***t**	t	II	t	I,II,III	14
***T**	***t**	nd	III	t	I,II,III	2

3.2.1 Sereer r I ~ Fula t

ramb ‘ball, grip’: Sereer *ramb* ‘faire une motte de tamarin’, *ramb o...ol / tamb a...ak* ‘la boule, la motte de tamarin’ ~ Fula *tama* ‘tenir dans sa main fermée; avoir au creux de sa main; refermer le poing sur...; empoigner; former une boule; avoir la forme d’une boule faite à la main’, *tamre / tame* ‘poing; poignée (i. e. le contenu d’une poignée gardant la forme du creux de la main); une boule de...’.

regeƴ/w ‘meat’: Sereer *regeƴ l / tegeƴ a...ak* ‘au singulier = un morceau de viande, au pluriel = la viande’ ~ Fula *teewu ~ teew / teewuuji* ‘viande, chair’.

3.2.2 Sereer t II ~ Fula t

taŋi ‘three’: Sereer *tadik, tadak, daduk* ~ Fula *tati* (Niger-Congo root).

tayl/ɗ 'slow, lazy (svb)': Sereer *tail* 'être paresseux, être fainéant' ~ Fula *taaɗa* 'être lent; aller lentement; tarder, prendre du retard' (Wolof *tayal* 'être paresseux', Nalu *talhet* 'être lent').

taan 'anvil': Sereer *taan n ~ a...al / taan k ~ a...ak* ~ Fula *taande / taaɗe, taaneere / taaneeje.*

tedd 'weighty, important, honored (svb)': Sereer *ted* 'être honoré, être honorable, être retenu' ~ Fula *tedda* 'être lourd, être pesant; être sérieux; avoir du poids, de l'influence; être honorable' (Merrill : Sereer < Wolof *tedd*).

tir 'tie (vb)': Sereer *tir* 'attacher deux sacs, au moyen d'une seule corde' ~ Fula *tira* 'ficeler, attacher en ballot, faire un paquet de..., empaqueter (en tirant bien sur les ficelles), emballer'.

toɗ 'dirty (svb)': Sereer *roɗ* 'être sale', *toɗgel o...ol / toɗgel a...ak* 'saleté, malpropreté, ordure', *ndoɗ n / toɗ k* 'saleté, malpropreté, tache' ~ Fula *tunndi / tunndiiji ~ tuundi* (< **toɗ-n-*) 'saleté, souillure; impureté'.

tok/ng 'hinder (vb)': Sereer *tokoj* 'entraver [un animal]' ~ Fula *tonnga* 'entraver'.

topat 'take care of (vb)': Sereer *topatox* 's'occuper d'une affaire ou d'une personne, avoir soin, gérer, soigner...' ~ Fula (FJ) *toppitagol* 's'occuper de, prendre soin de' (Wolof *tɔppatɔɔ* 's'occuper de, 'prendre soin de', Laala *tɔpatukɔx* 's'occuper de', Nyun *tɔpɔtɔɔr* 'prendre soin de', Jaad *topotiŋ* 'prendre bien soin de'; Joola Foonyi *ka-tɔpɔtɔɔr* 's'occuper de quelqu'un, quelque chose avec beaucoup de soins', Joola Kwaatay *ka-tɔɔfɔtɔɔr* 'prendre soin').

toƴ 'break (vb)': Sereer (Merrill) *toƈ* 'to crack or break open, e.g. a peanut' ~ Fula *toƴa* 'briser par un petit choc; casser en cognant (avec un objet pointu, par ex., poussin cassant la coquille de l'œuf)' (Wolof *toj* 'briser, casser').

took/w 'high (svb)': Sereer *took* 'être en haut; être élevé' ~ Fula *toowa* 'être haut, être en position élevée; être haut perché; se situer en hauteur; monter'.

tool 'alone, solitary (svb)'; Sereer *tool* 'être seul, impair, manquer d'un correspondant' ~ Fula *toll* 'qui a quelque chose de dépareillé; restant seul d'une paire; impair; (spéc.). (bovin) à une seule corne' (Wolof *tool* 'être impair, ne pas être complet; manquer').

tooɲ 'accuse (vb), offend (vb)': Sereer *tooɲ* 'offenser, faire tort, endommager, taquiner' ~ Fula *tooɲa* 'causer un tort à...; commettre une injustice envers...; léser, agresser; opprimer' (cf. Jaad *tooɲiŋ* 'accuser, offenser', Laala *tɔɲ* 'offenser, faire tort, causer du dommage, nuire', Nalu *tɔɔɲŋah* 'accuser').

tuɗ/r 'bend (vb)': Sereer *tuuɗ* 'courber, froisser, chiffonner' ~ Fula *tura* 'ployer, incurver; courber, fléchir; (moy.) se courber, s'incliner'.

tVɓ ‘gather fruits (vb)’: Sereer *toɓit* ‘cueillir des fruits, effeuiller, égrener [avec la main]’ ~ Fula *teɓa* ‘chercher à cueillir des fruits; partir procéder à une cueillette; brouter le sommet des herbes’ (Joola Kasa *tub* ‘prendre par poignée, arracher des feuilles d’un arbre, enlever avec la main’).

3.2.3 Sereer nd III ~ Fula t

tumb- ‘Strychnos spinosa (fruit)’: Sereer *ndumbuʏ n / tumbuʏ k ‘Strychnos spinosa’, rumbuʏ o...ol / tumbuʏ a...k* ‘le fruit du *ndumbuʏ n*’ ~ Fula Adamawa *tummukon-baali* ‘Strychnos spinosa Lam. (Loganiaceae)’.

It should be noted though, that in dentals, along with the correspondences “voiceless ~ voiceless” considered above, there are multiple examples of the correspondence “voiced ~ voiced”, “voiceless ~ voiced” and “voiced ~ voiceless” (Table 3.3).

Table 3.3: Correspondences of the series T and D

Correspondence		Sereer	Fula
T ~ T	‘attacher’	tir	tir-
T ~ D	‘pousser’	rooŋ, tooŋ	dooŋ-
D ~ T	‘couper’	daʏ	taʏ
D ~ D	‘dépasser’	daɗ	daɗ

At the same time, there is a whole range of correspondences that, as mentioned earlier, yield ambiguous reconstructions, i.e. they can originate from either ***T** or ***D**. Taking this into account, we will leave the possible reflexes of ***T/D** without illustrations and return to them in the following section after considering voiced dentals’ reflexes.

3.3 Proto *C: *c/c/s > Sereer nj/c/s ~ Fula c/c/s

As can be seen in the last column of the table, only the first four potential correspondences are confirmed by our examples. We examine them as follows.

3.3.1 Sereer s I ~ Fula s I

saɓ ‘designate (vb), point (vb); index’: Sereer *saɓ* ‘manier, fouiller’, *saɓ-in* ‘manier (toucher), fouiller, manipuler, palper, tâter, toucher’ ~ Fula *sappaango / cappaali*

Table 3.4: The reflexes of *C-

Series	Alternant	Sereer	grade	Fula	grade	Stat.
***C**	***s**	s	I	s	I	52
***C**		s	I	c	II,III	7
***C**		c	II	s	I	4
***C**	***c**	c	II	c	II,III	8
***C**		nj	III	s	I	
***C**	***c**	nj	III	c	II,III	
***C** (> **Sereer J**)		j	I	s	I	
***C** (> **Sereer J**)		j	I	c	II,III	

'désignation du doigt, action de pointer l'index vers...; énumération d'exploits qu'on s'engage à accomplir', *sappo / cappandɗe* 'dix; dizaine'.

saɗ 'hard, difficult (svb)': Sereer *saɗik* 'être dur, être ferme, être rigide, être solide, être dense, être épais. ..', *saɗ fa...fan / caɗ k* 'audace, intrépidité, courage, assurance; valeur ...' ~ Fula *saɗa* 'être difficile; être difficile à obtenir, être rare'.

saf/h 'grill (vb)': Sereer *saaf* 'griller, torréfier des grains, rôtir', *caaf n / caaf k* 'la grillade, la torréfaction, le rôti' ~ Fula *saʔa* 'faire frire; griller; (moy.) souffrir de la chaleur', *saha* 'brûler, consumer, embraser', *caʔu ~ cahu* 'fait de rôtir' (at least the Proto-Atlantic root, found as well in Wolof but also in Joola Kasa, Manjaku, Mankanya, Pepel and even in Gola).

sam 'fall (vb)': Sereer *sam* 'tomber en parlant d'une chose ou d'un objet, perdre, se perdre [en parlant d'un objet qui tombe]' ~ Fula *saama* 'tomber, choir; se placer, se positionner'.

samb/nw 'disperse (vb); abandon (vb)': Sereer *samb-ir* 'se disperser, se séparer, se quitter, divorcer' ~ Fula *sanwa* 'être totalement démuni, abandonné, sans ressources'.

samb/bb 'nest': Sereer *saam(b)* 'enrouler [une chose autour de la main], rouler [une corde]; nicher', *saam(b) n / saam(b) k* 'nid', ~ Fula *sabboondu / caabooli* 'nid d'oiseau'.

sangal 'porcupine': Sereer *sangal ~ sangol a...al / sangal ~ sangol a...ak* 'porc-épic' (Merrill *siŋeel*) ~ Fula *sanŋalde / canŋale* 'porc-épic' (possibly, a Proto-Niger-Congo root).

sanj ‘weave (vb), braid (vb)’ cf. ****Caŋ-it***: Sereer *saanj*[2] ‘faire la canette [pour tisser]’, *sanxani fan / sanxani k* ‘chape de la poulie du métier à tisser [c’est le bois qui supporte la poulie]’ ~ Fula *saŋa* ‘tresser, confectionner une vannerie (natte, panier)’, *sanŋa* ‘tisser; (fig.), faire la navette entre..., faire le va et vient entre deux personnes; servir d’intermédiaire; transmettre de l’un à l’autre’, *sensenƴoowal / sensenƴooje* (*cancanɗoowal / cancanɗooje*) ‘araignée’. Cf. pour ‘araignée’: Jaad *kayancayancɛ*, Biafada *gu-nkakanja / bwa-h-*, Bedik *ã-sɔŋãsɛy*; cf. Kisi *sóóŋtɛndɔɔ*.

****sank*** ‘scatter (vb), lose (vb)’: Sereer *sank* ‘perdre, détruire etc.’ ~ Fula *saaka* ‘éparpiller, disperser, répandre; (moy.) se répandre, s’égailler’, *sanka* ‘semer à la volée, disperser’.

****sal*** ‘branch (vb; n)’: Sereer *sal* ‘être fourchu, bifurquer, diverger, se séparer’ (Merrill: ‘to branch, split’), *sal* (Merrill: ‘a branching stick; two can be used to support a roasting spit’) ~ Fula *salndu / calɗi* ‘tout embranchement, ramification; branche adjacente, fourche d’un tronc (du poteau central d’une case); affluent; membre (du corps humain)’. A semantically interesting word. Its basic meaning may have developed into Fula *sal-* ‘refuser’. In Wolof *sel* ‘bifurquer; s’écarter de la norme’.

****sawta*** ‘adze’: Sereer *sawta a...al / sawta a...ak* ‘petite herminette des laobés’ ~ Fula *sawta / sawtaaji* ‘herminette de boisselier’ (Wolof *sawta* ‘herminette de bûcheron’).

****saaɗ*** ‘hook someone’s leg (vb)’: Sereer *saaɗ o...ol / saaɗ a...ak* ‘croc-en-jambe’ ~ Fula *sannda* (< **saaɗ-n*) ‘faire un croc-en-jambe (prise de lutte)’, *canndal / cannde* ‘(prise de lutte) croche-pied maintenu, la jambe s’enroulant autour de celle de l’adversaire’.

****saafaandu*** ‘lycaon, wild dog’: Sereer *saafaandu o...ol / saafaandu a...ak* ‘lycaon, guépard, caracal’ ~ Fula *saafaandu / caafaali* ‘lycaon, cynhyène’ (this word is also attested in Wolof *saafàndu*, and, judging by the ending, it is a borrowing from Fula. Cf. also Bedik *ʃáfā* ‘cynhyène, lycaon’).

****seɓ*** ‘skin (vb)’ : Sereer *seɓ* ‘fendre du bois, débiter du bois’, *njeɓ o...ong / njeɓ fu...n* ‘la petite parcelle, la petite partie’ ~ Fula *seɓre (semre) / ceɓe* ‘éclat de bois, copeau; écharde; écorce, coque; pulpe sèche du fruit de doum’.

****sed/ll*** ‘urinate (vb)’: Sereer *seed* (Merrill: < **sayid*) ‘uriner, suinter, couler’ ~ Fula *silla* ‘uriner’.

[2]Merrill states, “a better comparison is with Sereer *sañ-it-* ‘unbraid’, and so the root can be reconstructed as ****sañ̃ñ̃***; note also Fula *sañ-c-* ‘unbraid’ in all dialects” (Merrill 2020: 31).

sel/r ‘flute’: Sereer *seelir a...al / seelir a...ak* ‘la flute, le pipeau’, *seel o...ol / seel a...ak ~ seer o...ol / seer xa...ax* ‘cri aigu, perçant, strident; cri du porc; stridulation; grillottis’ ~ Fula *sera* ‘souffler; (spéc.) jouer de la flûte; émettre un son aigu, pousser un cri aigu’, *sereendu / cereeli* ‘flûte (en bambou)’, *sereendu / ceri* ‘tube, tuyau; canon (de fusil); partie effilée; poupe d’une pirogue’.

send ‘tremble (vb), shiver (vb)’: Sereer *send* ‘frissonner, trembler, claquer des dents, frémir’ ~ Fula *siŋŋa* ‘trembler, trembloter; grelotter’ (cf. Wolof *sedd* ‘être frais, froid’, Balant *ceera* ‘frissonner au vent (feuilles d’arbres)’; Joola Foonyi *cɛrɛnkɛrɛŋ* ‘coup de froid (du corps)’. Cf. Landuma *sɛrɛŋ* ‘frissonner’).

sex ‘carve (wood) (vb)’: Sereer *sex* ‘tailler, charpenter, sculpter’ ~ Fula *seha* ‘tailler (spéc. du bois); (ext.) couper le chemin à (un gibier)’.

seeɓ ‘dampness’: Sereer *seeɓ a...al / seeɓ a...ak* ‘la moiteur’, *seeɓ* ‘être moite; suinter’ ~ Fula *seɓannde / ceɓandɗe* ‘moiteur’, *seɓa* ‘être moite; suinter’.

seel ‘cut into strips (vb)’: Sereer *seel* ‘découper en lanières, couper de la viande en tranches très minces, tailler des lanières’ ~ Fula *seela* ‘découper en bandes, déchirer en lanières’ (Wolof *seel* ‘couper en lanières, lacérer, découper en minces filets; lanière; viande boucanée et séchée au soleil’, Konyagi *ì-cæ̀l* ‘couper en lamelles’; cf. Kisi *sèlùlló* ‘carve, plane, or sculpt for someone; sharpen; hurt’; cf. Gola *ɕɛlɛ* ‘schneiden’).

sɛd/r ‘skillful, agile (svb)’: Sereer *sed* ‘être habile, être capable’ ~ Fula *sara* ‘être très agile (ex. singe, chat qui retombe toujours sur ses pattes); être invincible, imbattable (à la lutte); être très habile (dans un domaine)’ (Wolof *ceddowu* ‘parler habilement à qqn’, Konyagi *ì-cèry* ‘être habile; être artiste’, Jaad *seed* ‘être adroit, être habile’, Joola *seli* ‘adroit; habile; industrieux’).

sibw ‘flow (vb), filter (vb)’: Sereer *sib* ‘suppurer, couler [vin de palme]’ ~ Fula *siiwa* ‘filtrer, faire couler goutte à goutte; faire s’infiltrer’.

sir ‘tear into strips (vb)’: Sereer *sir* ‘déchirer en bandes, en lanières; arracher l’écorce en lanières, découper en bandes en lanières, fendre en petits morceaux’, *sir o...ol / sir a...ak* ‘fibres [pour faire des cordes], écorce arrachée en lanières, morceau [bande d’étoffe] que l’on a déchiré, le petit morceau fendu’ ~ Fula *sira* ‘écorcer en tirant des lambeaux d’écorce; rayer, zébrer’ (Jaad *seer* ‘déchirer, fendre, scier’).

sirɗ ‘squirt’ (vb), ‘saliva spray’ (Merrill 2018a: 20): Sereer *siiɗ* ‘faire jaillir de la salive’, *siiɗ a...al / siiɗ a...ak* ‘jaillissement de la salive’ ~ Fula *siryʼa* ‘projeter un jet de salive’, *siryʼaango / ciryʼaali* ‘projection d’un jet de salive’. I accept this reconstruction by Merrill, although it is the only correspondence that confirms his postulated ***rɗ** > Fula ryʼ. It is quite possible, however, that we are not dealing

with a regular phonetic change, but with an analogical change under the influence of two roots in Fula: *sury-* 'gicler (jet d'eau, pus)' and *pury-* 'cracher en pulvérisation' (Sereer *poroc* 'cracher').

sis 'stink (vb)': Sereer *sisand* 'répandre une odeur forte' ~ Fula *sicca* 'dégoûter en dégageant une odeur pestilentielle, avoir une odeur infecte; être nauséabond; montrer son dégoût pour...; être écœuré par..., avoir de la répugnance pour...; éprouver de la répulsion pour...', *siccere / cicce* 'matière puante, chose nauséabonde'.

siwd 'twin' (= Merrill 2018b: < **siwd*): Sereer *siid o...ox / siid w* 'jumeau, jumelle', *siwnox* 'aller demander l'aumone pour des jumeaux', (Greffier 1960): *siiw* 'faire l'aumône aux jumeaux' ~ Fula Adamawa *siwt (ciwt, ciwt)* 'jumeau, double', FJ *siwtaaɗo* 'jumeau, jumelle'.

sɪɗ 'filter (vb), sift (vb)': Sereer *siɗ* 'filtrer, clarifier, passer, cribler' ~ Fula *seɗa* 'tamiser, sasser (pour séparer, sur un van, la farine des grains restés entiers)' (Laala *ka-siɗ* 'filtrer', Palor *sid* 'filtrer (eau)').

sod 'choke' (vb)': Sereer *soɗoq* 'engouer, s'engorger, avaler de travers, passer de travers [en avalant]' (Sereer *soɗ* 'jeter ou mettre une chose dans un contenant'?) ~ Fula *sonndoo* (< **soɗ-n-oo*) 's'engouer; suffoquer (par fausse déglutition)' (Wolof *soddax* 'avaler un liquide de travers').

sof 'exchange (vb)': Sereer *sof* ' échanger, troquer, substituer', *sof n / sof k* 'l'échange, la substitution' ~ Fula *sof-* 'extraire; trier…' (the cognate proposed by Merrill) (Wolof *soppi* 'changer' (reversive from *sof* 'joindre' > 'disjoindre' > 'changer')

sombe 'ax sp.': Sereer *sombe fan / sombe k* 'petite hache de charpentier, petite luminette' ~ Fula *sommbere / sommbeeje* 'hache à douille'. Fula attests an interesting doublet form *jammbeere / jammbe* 'hache'. It is also attested in the lexical list of Fula of the 17th century: *jambare* 'hache' (d'Avezac 1845. Koelle 1963 provides it with a voiceless consonant in the 19th century: *cámbɛɛrɛ / cámbɛ* 'axe' (cf. Maninka dial. *sɔnbɛ,* Bambara *sɛmɛ*).

song 'assault (vb)': Sereer *song* 'se jeter sur quelqu'un, tomber sur quelqu'un, se précipiter sur', *song a...al ~ n / song a...ak* 'l'agression, l'attaque, l'invasion' ~ Fula *sonnga* 'bondir sur..., se jeter sur (une proie); chasser (le petit gibier); poursuivre, pourchasser; menacer, attaquer; agresser, harceler', *sonngere / conngeeje*, capture, chasse, pêche (de petits animaux)', *sonngooru / conngooji* 'surnom de l'hyène (et de tout fauve qui poursuit sa proie et bondit sur elle)' (Wolof *song* 'attaquer; charger; se jeter sur qqn; donner l'assaut').

sop 'reclaim (soil) (vb), peck (vb)': Sereer *sop* 'frapper à coups de bec, becqueter [donner des coups de bec], picoter' ~ Fula *soppa* 'abattre d'un coup bref et tran-

chant; sabrer, faucher; frapper à coups de hache, de sabre; picorer, becqueter; (serpent) mordre'.

***sox** 'grind (vb), pound (vb)': Sereer *sox* 'piler le mil pour la première fois - ôter le son' ~ Fula *soha* 'piler de nouveau des grains déjà sassés pour les débarrasser des restes de balle', *sokka* 'égrainer par pilage; détacher (les grains des rafles) et décortiquer par un premier pilage' (Wolof *soq* 'piler du mil pour en ôter le son', Proto-Atlantic ***sokw**?)

***sow** 'milk' (?): Sereer *fo-soow* ~ Fula **ko-so-am* > *kos-am* (class **ɗam**). The argumentation is given further in Chapter 9. (Wolof *soow* 'lait caillé, Wolof 17th, Avezac *m-seau*).

***sooc** 'scrub (vb)': Sereer *sooc* 'nettoyer, frotter, curer, rincer [nettoyer en frottant]' ~ Fula *socca* 'frotter; nettoyer, effacer en frottant'.

***sool** 'foreskin': Sereer *sool o...ol / sool a...ak* 'prépuce' ~ Fula *soolde / coole* 'pénis' (Jaad *soli* 'prépuce'; cf. Susu *soli* 'foreskin').

***soox** (with the alternative form ***sux**) 'stuff (vb), cram (vb)': Sereer *soox* 'charger une arme à feu, être chargé [arme à feu], bourrer', *sux* 'obstruer, engorger, être bouché', *soq* 'presser [en enfonçant], bourrer', *suqax a...al / suqax a...ak* 'le bouchage, la fermeture, l'engorgement' ~ Fula *soka* 'fermer (un verrou, une serrure); boucler (une porte); bloquer; (spéc.) emprisonner; (moy.) se laisser bloquer; immobiliser, retenir sur place', *sukka* 'boucher, fermer, obturer, emboîter; obstruer, rendre impénétrable', *sokka* 'enfoncer, piquer (dans); ficher'. Most Atlantic languages display correspondences for the doublet form **soox* (Basari *a-ʃɔ* 'boucher avec des feuilles', ' *a-ʃòkɛ* 'fermer à clé, enfoncer', Bedik *u-ʃù / còyú* 'boucher, charger', *ɔ-ʃɔk* 'fermer à clef', Konyagi *ì-còy* 'charger (le fusil)'; Jaad *soj* 'charger un fusil traditionnel', Biafada *soog-* 'load (gun)'; Wolof *sox* 'charger (un fusil), bourrer (une pipe)'. Cf. Sherbro *sɔnk* 'to cork a bottle; to load a gun', Proto-Bantu **còng* (zone A) 'load gun / charger un fusil'.

***sɔmp** 'pound (vb)': Sereer *soom* 'piler le mil après l'avoir lavé pour obtenir la farine de mil' ~ Fula *sampa* 'piler le riz (pour débarrasser les grains de leur pellicule rouge) (Palor *som (sob-)* 'piler des grains de mil mouillés pour les décortiquer', Nalu *sɔɔm* '(of rice, of peanuts etc.) flour (mortared flour) / farine du riz?, farine'.

***sɔɔf/ɓɓ** 'tasteless (svb)': Sereer *soof* 'être fade, être insipide, être importun' (Merrill: < Wolof *soof*) ~ Fula *saɓɓita* 'être fade, insipide; perdre son goût, s'affadir'.

***sɔɔy** 'melt (svb)': Sereer *sooy* 'être dissous [dans un liquide], se dissoudre, fondre, se fondre' ~ Fula *saaya* 'se dissiper, se dissoudre, s'estomper; disparaître;

(enflure) dégonfler, fondre' (cf. *taaya* 'fondre' (Palor *sooy* 'dissoudre (dans un liquide)', Saafi *seey*, Laala *sɛy*, Wolof *seey ~ sooy* 'fondre').

sum 'hot (svb); burn (vb)': Sereer *sum* 'être chaud, être bouillant, être tiède' ~ Fula *suma* 'brûler, se consumer, brûler, incendier; (spéc.) marquer au fer rouge; pyrograver', *cumu / cumuuji* 'incendie, feu de brousse' (Joola Kwaatay *bʊ-sʊmɔ* 'se chauffer').

sunj/ƴ 'bump': Sereer *sunj n / sunj k* ~ Fula *suuƴo* 'protubérance, légère bosse, proéminence'.

sut 'exit (vb)': Sereer *sut* 'mettre dehors, faire sortir' ~ Fula *suuta* 'sortir de... extraire'.

suuf 'graze (vb)': Sereer *suuf* 'brouter, pâturer' ~ Fula *suufoo* 'paître dans un pâturage inondé, brouter de l'herbe mouillée'.

suul/r 'smell (vb)': Sereer *suul ~ suur* 'répandre des parfums, parfumer', *suul n* 'action de répandre des parfums' ~ Fula *suurta* 'poudroyer, fumer, dégager de la brume, de la vapeur', Fula FJ *cuuraay* 'encens' (Wolof *suur* 'enfumer d'encens ou autre; exposer qqn, qqch à une fumée ou à une vapeur', Kobiana *ceeraar* 'smell', Kasanga *cuul (ceel)* 'smell'). Apparently, PFS had other forms with different final consonants (cf. Sereer *cuurax ka* 'encens; résine répandant une odeur parfumée', *sud* 'donner un bain de vapeur, fumiger, faire transpirer quelqu'un', cf. Fula *sunnere / cunne* 'bonne odeur alléchante; fragrance').

suup/w 'dye (vb)': Sereer *suup* 'teindre, colorer, bleuir, tremper' (Merrill : < Wolof *suub*), *suupel o...ol / suupel a...ak* 'couleur' ~ Fula *suuwa* 'tremper dans..., mettre dans (un liquide)'; Avezac, 17th century: *subenjo* 'teindre'. (Wolof–Palor *suub*, Saafi *suup*, Nalu *cuuf* 'dip (e.g. bread in coffee)').

suus 'anus': Sereer *suus o...ol / suus a...ak* ~ Fula *susuuru / susuuji.*

suuy 'lower (slowly) (vb)': Sereer *suuy* 'parsemer, asperger, joncher, disséminer' ~ Fula *suuya* 's'abaisser lentement jusqu'à terre; s'incliner doucement très bas'.

səp 'plug (soil) (vb), plant (vb)' ((Merrill 2018b): < PFS **siXt* 'stick into'): Sereer *sip* 'ficher [en terre], planter [enfoncer en terre, poser droit, poser debout, dresser, fixer' ~ Fula *suppa* 'enfoncer dans, planter, ficher en terre' (Jaad *cif* 'planter', Bedik *cíp* 'droit vertical', Kobiana-Kasanga *cif* 'planter', Laala *ka-yip* 'planter, fonder', Nalu *cɛɛp* 'transplant (object is only rice)'; Manjaku *capəj* 'planter', Mankanya *θepi* 'planter', Pepel *jɪp* 'ficher en terre'; cf. Landuma *cɛp* 'transplanter').

sVmb 'bathe (vb), wash (vb)': Sereer *sumb* 'baigner, patauger dans l'eau' ~ Fula *semmboo* 'se laver les mains, la bouche, les pieds (comme pour les ablutions avant de prier)' (Wolof *sumb* 'faire la lessive, laver le linge à l'eau savonneuse').

sVnɢ 'assemble (vb)': Sereer *suung* 'entourer, encercler; s'assembler, être réuni' ~ Fula *sig(g)a* 'assembler (les charges) en les équilibrant (pour les fixer sur le dos d'une bête de somme); bien arranger (des ballots); disposer d'une manière harmonieuse'.

sVr 'slip (vb)': Sereer *sar* 'glisser, déraper' ~ Fula *sora* (*soora*) 'se glisser sous..., s'introduire en se baissant dans...; s'abriter sous...; se mettre à l'ombre de...'.

3.3.2 Sereer c II ~ Fula c II,III

caga 'prostitute': Sereer *caga* 'se prostituer', *asaxaɲ o...ox / asaxaɲ a...ak* 'prostituée' ~ Fula (FJ) *cagaajo* 'prostituée' (Wolof *caga* 'jeune femme célibataire veuve ou divorcée (peu employé dans ce sens); prostituée', Laala *cagə*, Nyun *caga*; cf. Landuma *ʌ-cʌkʌ*).

cal-cal 'chain': Sereer *calaali l / calaali k* (*njalaali n / calaali k*) 'chaîne' ~ Fula *callalol / callali* 'chaîne' (Wolof càllala G ~ calala G 'grosse chaîne pour esclave par exemple', Wolof 17th, Avezac *kialalal*).

canɢ 'shoulder blade, back (n)': Sereer *janɢay fan / canɢay k* (*caŋay fan, cangay fan*) 'l'omoplate [le derrière des épaules]' ~ Fula *caggal / cagge* 'l'arrière, le dos (du milieu du dos au fessier)'.

caam 'harpoon': Sereer *caamen o...ox / caamen w* 'pêcheur au harpon, très habile', *caamen o...ol / caamen a...ak* 'tas de squelettes de poisson ou d'arêtes, près de l'habitation d'un pêcheur' ~ Fula *caam* 'mouvement brusque pour attraper en se jetant sur...', *ceemuwal / ceemuuje* 'harpon à long manche et à deux, trois ou quatre dents', *caamu caamu* 'petits déchets (tombés); petits restes épars; miettes'.

cɛq 'necklace': Sereer *ceq n / ceq k* (*ciq (gi)...n / ciq k*) 'collier, collier de perles' ~ Fula *cakka / cakkaaji* 'collier de larges disques de cornaline ou de plastique' (Wolof *caq* 'collier', Laala *cax* 'collier'; Bijogo *eʈenk / iʈenk* 'bijou').

coggal 'herd': Sereer *cogal n / cogal k* 'grand troupeau de chèvres ou de moutons conduit par des Maures et destinée à la vente. En général, ce troupeau n'est pas du pays' ~ Fula *coggal / cogge* 'troupeau conduit au marché pour être vendu', *sogga* 'conduire en poussant devant soi; (spéc.) mener le troupeau au pâturage avant le lever du jour', *soggirdu / coggirdi* 'long bâton de berger' (Wolof *coggal* 'troupeau', Jaad *cokal* 'troupeau'). Considering the form of the endings and the particularities of derivations, most probably, all these forms were borrowed from Fula.

cuq 'digging stick': Sereer *cuq* 'introduire un bâton dans un trou', *cuq (cuq-cuq)* 'agacer [une chose qui se trouve dans un trou, au moyen d'un bâton]' ~ Fula

cukkawal / cukkaaje 'bâton pointu utilisé pour creuser (un trou dans la terre où semer le gros mil) ou pour fouir', *cukkirgal / cukkirɗe* 'bâton à fouir; bâton pointu utilisé pour creuser (un trou dans la terre où semer le gros mil)'.

***cVng** 'basket sp.': Sereer *cong a...al / cong a...ak* 'panier large vers le bas et qui va en se rétrécissant vers le haut' ~ Fula *cenngalal / cenngele* 'panier rigide en vannerie, profond, à bord circulaire mais à fond plat et carré'.

3.3.3 Sereer s I ~ Fula c II,III

***Caŋ-it (s-/c-)** 'untangle (vb), untwist (vb)' (Merrill: < PFS **saXŋ-it* 'unbraid, unweave'): Sereer *saŋ-it* 'peigner, démêler, défaire les tresses de cheveux, détordre…', *njaŋtorn* 'le peigne [pour se peigner] ~ Fula *cancorgal / cancorɗe* (< ***caŋ-t**) 'démêloir, peigne, brosse à cheveux' (cf. PFS ***sanj** 'tisser, tresser'). This root is widespread in Atlantic and in Mel.

***Caas** 1 **(s-/c-)** 'Acacia sp.': Sereer *saas n / saas k* 'Acacia de Faidherbe', *njaas o...ong* 'petit acacia albida' ~ Fula *caɣ-ki / caɣ-ɗe* 'acacia albida', Fula Adamawa *cas-ki / cas-ɗe* 'Faidherbia albida (Del.) A.Chev. (Mimosaceae); = Acacia albida L.'.

***Caas** 2 **(s-/c-)** 'spindle': Sereer *saasaam a...al / saasaam a...ak* 'fuseau' ~ Fula *caasgal / caasɗe* 'baguette sur laquelle on enroule le fil de coton, fuseau'.

***Coow (s-/c-)** 'fly sp. (n)': Sereer *soow o...ol / soow a...ak* 'grosse mouche de la famille des asilidés' ~ Fula (FJ) *coo-ngii* 'mouche'.

***Cut (s-/c-)** 'fog (n)': Sereer *sut a...al* 'le brouillard, la brume' ~ Fula *cuddi / cuddiiji* 'brume; nuage de brume', *sudda* 'couvrir'.

***Cəll** 'Acacia sp.': Sereer *sul n / sul k* 'acacia sauvage, acacia sieberiana' ~ Fula (Osborn et al. 1993): Fula Maasina *cilluki / cillude* 'Acacia sp. (A. raddiana, A. flava or A.seyal)', Fula Adamawa *cilluki / cilluɗe* 'acacia seyal Del. (Mimosaceae)'.

***Cəw (s-/c-)** 'bucket; extract (vb)': Sereer *siwoo l* 'seau' ~ Fula *cawgal (< *caf-gal) / cawle* 'seau en peau pour puiser', *safa* 'tirer de bas en haut; extirper; extraire; dégainer' (Wolof *siwo* 'seau', Jaad *siyo* 'seau', Nyun *siyo* 'seau', Nalu *siyoŋ* 'bucket, pail'; Balant *f-síyò / g-síyò* 'seau', Bayot *ɛ-sɪɔ* 'seau'; cf. Landuma *ʌ-siyoŋ* 'seau').

3.3.4 Sereer c II ~ Fula s I

***Caar (s-/c-)** 'diarrhea': Sereer *caar* 'avoir une très forte diarrhée', *caar a...al / caar a...ak* 'action de verser en inclinant, le versement [d'un liquide ou de graines] …' ~ Fula *saara* 'être atteint de diarrhée', *caarol* 'diarrhée' (Wolof *caar* 'avoir la diarrhée'; Balant *saara* 'déféquer').

Cir (s-/c-) 'jump (vb)': Sereer *cirox* 'sauter', *cirax o...ol / cirax a...ak* 'le saut' ~ Fula *suura* 'sauter sur place; sauter à pieds joints; sautiller (comme un oiseau); faire un bond', *suuraango / cuuraali (suurannde / cuurandʼe* 'saut à pieds joints; bondissement' (Nyun *bʊ-cir* 'sauter, voler'[3], Jaad *cirəmpa* 'sauter'; Bijogo *ŋu-cir* 'sauter'). The evidence of the external comparison is in favor of the ***i** reconstruction, but in this case Fula has to admit an irregular vowel.

Coy (s-/c-) 'very (red)': Sereer *coy* 'dans les expressions intensives: être très rouge; d'un rouge vif' ~ Fula *sooy* 'd'un brun rouge; marron clair, bronzé; de couleur brique' (= Wolof *coy(y)*).

Coox (s-/c-) 'give (vb)': Sereer *coox* 'donner, attribuer, accorder, offrir, transmettre, fournir, permettre, pourvoir' ~ Fula *sooka* 'accorder de la chance; (moy.) être chanceux', *sooke(ejo) / sooke?en* 'magicien; guérisseur; chasseur ou pêcheur chanceux'. For the link of these meanings, see, in particular, Joola Gusilay *gə-jiw* 'offrir, donner, chance, inspiration'.

3.4 Proto *K: *k/k/h > Sereer ng/k/h ~ Fula k/k/h

Table 3.5 provides potential correspondences of the series ***K** with the number of attested examples.

Table 3.5: The reflexes of *K-

Series	Alternant	Sereer	grade	Fula	grade	Stat.
***K**	***h**	h	I	h	I	17
***K**		h	I	k	II,III	**1**
***K**		k	II	h	I	**2**
***K**	***k**	k	II	k	II,III	**7**
***K**		ng	III	h	I	**1**
***K**	***k**	ng	III	k	II,III	
***K** (> **Sereer G**)		g	I	h	I	
***K** (> **Sereer G**)		g	I	k	II,III	

As follows, we consider the most reliable cognates.

[3]To quote Merrill's opinion (2020: 33): "The citation of the Bainunk form is unconvincing, as the Proto-Nyun root is ***kịd**, and was subject to regular palatalization in the southern part of Bainunk. Compare Kobiana *-kkil*, which does not undergo palatalization".

3.4.1 Sereer h I ~ Fula h I

hadd ‘circumcise (vb)’: Sereer *haat o...ol / kaat a...ak (*< ***had-it**?) ‘un incirconcis, jeune homme qui se prépare à la circoncision, qui est à l’âge d’être circoncis’ ~ Fula *hadda* ‘mettre un pagne autour des reins de...; nouer un pagne; vêtir; (spéc.). faire circoncire, faire exciser’, *kaddoowo / haddooɓe* ‘circonciseur; femme chargée de l’excision des filles’ (Wolof *aat* ‘adulte / enfant qui n’est pas encore circoncis’, Laala *aat* ‘jeune homme avant la circoncision, aspirant, candidat’, cf. Konyagi *xácí* ‘circoncision’, Basari *a-xac-kac* ‘circoncis’).

haf ‘joke (vb), revel (vb)’: Sereer *haf* ‘plaisanter comme un bouffon’, *kaf* ‘s’amuser, jouer, plaisanter comme un bouffon’ ~ Fula *hapta* (< ***haf-t-**, reversive) ‘être en désaccord total; être ennemis; se disputer (qqch.); (moy.) se fâcher (en prenant mal une plaisanterie)’ (cf. *hamtoo* (< ***haɓ-t-**) ‘se vexer, prendre mal; se froisser; “prendre la mouche” (en prenant au sérieux une plaisanterie)’ (Wolof *kaf* ‘plaisanter’).

hakw ‘snap (vb); pounce on food (vb)’: Sereer *haf* ‘se jeter sur la nourriture [dial. ‘être glouton’] [cf. *halaf*]’ ~ Fula *hawɲa* ‘se jeter sur la nourriture comme un affamé, bâfrer’, *hawloo* ‘happer avec le mufle; brouter’ (Basari *a-xaká* ‘happer, attraper au vol’).

hap ‘measure (vb)’: Sereer *hap* ‘estimer [faire l’estimation], évaluer, taxer’ ~ Fula Adamawa *hapakannde / kapakanɗe* ‘mesure de longueur égale à la distance entre l’extrémité du pouce et celle du majeur dans leur écart maximal (de 20 à 22 cm).

heb ‘fill (vb), charge (vb)’: Sereer *heb* ‘charger un navire, embarquer des choses, être chargé [navire]’ ~ Fula *hebbina* ‘emplir, remplir; combler; rendre abondant, faire proliférer’, *kebbingol* ‘remplissage de...’, *heewa* ‘être abondant, être nombreux; abonder en...; être plein de...; avoir beaucoup de...’. (Wolof *yeb* ‘charger’, Saafi *ʔeɓ* ‘charger’, Nalu *hɛb* ‘embarquer’).

hebw ‘surround (vb), fence (vb)’: Sereer *heɓ* ‘clôturer, faire des clôtures’, *keɓ a...al / keɓ a...ak* ‘palissade faite en tiges de mil, l’entourage, la clôture d’une maison, l’enclos’ ~ Fula *howa* ‘faire un enclos circulaire, dresser une clôture (d’épineux); (spéc.) dresser le toit d’une paillote, couvrir une maison; entourer, cerner, cercler’, *kohogol / kohogi* ‘clôture délimitant un petit champ; jardin clos; petit champ clôturé’ (Laala *kɛɓ* ‘palissade’, Laala *kɛw* ‘clôture d’une maison’, Palor *keb* ‘clôturer une maison’).

hid/ɗɗ ‘old (svb), worn (svb)’: Sereer *hiid* ‘être vieux [en parlant des choses], être usé’ ~ Fula *hiɗɗa* ‘s’user, s’affaiblir, décliner, s’altérer; vieillir; être ancien’ (Laala *ɓʊʊ-həət* ‘anciens’, Nalu *hiit* ‘être vieux; vieillard, aîné, ancien’).

hir ‘evening’: Sereer *hir* ‘faire la veillée, veiller’, *kirand n / kirand k* ‘après-midi, soir’, *ngirin n / kirin k* ‘la veillée’ ~ Fula *hiira* ‘être au soir; (soir)’, *kiikiiɗe* ‘soir’.

hiiʈ ‘year’: Sereer *hiid o...ol / kiid a...ak* ‘année’ ~ Fula *hitaande / kitaale* ‘année’.

hool-ox ‘trust (vb)’: Sereer *hool-ox* ‘mettre sa confiance en, avoir confiance en, apprécier’ ~ Fula *hool-oo* ‘avoir confiance en..., se fier à...; compter sur...’ (Merrill: = Wolof *wóolu* ‘avoir confiance; se fier à’).

hoor ‘fast (abstain from eating) (svb); abstinence’: Sereer *hoor* ‘jeûner’, *koor (gi)...n / koor k* ‘le jeûne’ ~ Fula *hoora* ‘jeûner; (fig.) être à sec; (cours d’eau) tarir’, *koorgol* ‘action de jeûner’.[4] (Wolof *woor* ‘jeûner; fêter la fin du ramadan ou du carême’ > *koor G* ‘célébration de la fin du mois de ramadan’; Joola Kwaatay *ka-wɔɔrʊ* ‘jeûner’, *ba-wɔɔr* ‘jeûne’).

hum ‘tie (vb)’: Sereer *hum* ‘lier, ficeler, bander’, *humnorand o...ol / kumnorand a...ak* ‘lieu où l’on entre pour s’attacher des gris-gris’ ~ Fula *huma* ‘lier, attacher; boucler’, *humtirde / kumtirɗe* ‘endroit où s’est défait un noeud; marque laissée par un noeud qui s’est défait’.

humb ‘float (vb)’: Sereer *humb* ‘flotter; laver le mil après le premier pilage’ ~ Fula *hummba* ‘surnager, flotter; rester à la surface; pagayer, conduire à la rame’ (‘flotter’: Basari *a-xʌmb*, Bedik *ɔ-hɔmb / kūmbú*, Konyagi *ì-kúmb*).

hut ‘skin (vb)’ (Merrill < PFS **huXt* ‘flay’): Sereer *hut* ‘dépiauter, dépecer, écorcher, vider un poisson, une volaille [enlever les viscères d’une bête tuée]’ ~ Fula *hutta* ‘dépouiller (une bête), dépiauter; écorcher; (spéc.) ôter (une épine, une écharde) en fendant et soulevant la peau’, *kuttirgal / kuttirɗi* ‘viande du cou d’un animal (part qui revient à celui qui l’a dépecé)’ (Nalu *huut* ‘écorcher (peau d’un animal)’).

həs ‘save (vb)’: Sereer *hus* ‘se sauver, cacher dans les buissons [quand le village est pillé], s’enfuir’ ~ Fula *hisa* ‘être sauvé; être sain et sauf’.

hʌll ‘deceive (vb)’ (*-**ll** according to the vowel correspondence): Sereer *hal* ‘se tromper, faillir [se tromper], confondre’ ~ Fula *hiila* ‘tromper, duper, induire en erreur; trahir’ (Palor *xəl* ‘tromper; être faux’; Joola Kasa *hola* ‘tromper, induire en erreur’).

[4] Let us use this example in order to clarify an important detail concerning the statistics. As can be easily seen from the example one should have reconstructed two words here: a verb with ***h**- and a noun with ***k**-. The present study is mainly concerned with the reconstruction of roots and not any possible derivatives, and the priority is given to verbs. This is responsible for the fact that fricative Grade I is considerably more frequent as compared to other grades, yet this is not relevant for our purposes. The statistics are used here primarily in order to identify the lacunae for potential correspondences that allow us to clarify the diachronic interpretation of consonant mutations.

hVp/f ‘comb sp. (vb)’: Sereer *hep* ‘coiffer d’un bandeau’, *kep a...al* ‘le bandeau [employé comme coiffure]’ ~ Fula *huwna* ‘coiffer d’un bonnet’ (Seydou: *huwna* < **hufn-* < *kufune* ‘bonnet’).

3.4.2 Sereer k II ~ Fula k II,III

kab/ɓ ‘slave’: Sereer *kab o...ox / kab w* ‘esclave d’un esclave’ ~ (Osborn et al. 1993): Fula Maasina *kaaɗo /haaɓe~haɓɓe* ‘Dogon; non-Fulani African’, Fula (FJ) *kaaɗo* (< ****kaɓ-ɗo***?) ‘esclave, personne d’origine servile’, (Sweetman 1981): *kaɓɓaaɗo* ‘captif (homme)’, Fula Bourkina (Rabier & Dicko 2005): *kaɓdiiɗo / haɓdiiɓe* ‘se dit d’une personne privée de sa liberté …’.

****kakaraw*** ‘pharaoh hen’: Sereer *kakaraw a…al / kakaraw a…ak ~ kakadam a...al / kakadam a...ak* ‘poule de pharaon de la famille des otididés’ ~ Fula *kakkarawal / kakkaraaje* ‘poule de Pharaon ou poule de Carthage’.

****kilikoko*** ‘hornbill’: Sereer *kiliŋ-kok a...al / kiliŋ-kok a...ak* ‘calao gris à bec noir du Sénégal (n’est pas autre chose que l’onomatopée de son cri)’ ~ Fula *kil(i)koko-wal / kil(i)kokooje* ‘petit calao à bec rouge’.

****kudu*** ‘spoon’: Sereer *kudu l / kudu k* ~ Fula (dial.) *kudu / kuduuci* (Wolof *kuddu*, Laala *kudu*, Nalu *kudu*; Landuma *kudu*).

****kuru*** ‘circle’: Sereer *kurulox* ‘être rond’, *kurulax a...al / kurulax a...ak* ‘cercle’ ~ Fula (FJ) *kurunwol* ‘cercle, ronde’, (Osborn et al. 1993): Fula Maasina *huur-* ‘to cover, surround’, (Zubko 1980): *hura ~ huura* ‘couvrir une maison de chaume’, huure ‘peleton de fil’.

****kurup/feŋ*** ‘punch’: Sereer *kurpeŋ* ‘gourmer [donner un coup de poing]’, *kurpeŋ o...ol / kurpeŋ a...ak* ‘gourmade [le coup de poing]’ ~ Fula (FJ) *kurfere* ‘coup de poing’ (Wolof *kurfeŋ (kurpeŋ)* ‘donner un coup de poing; poing’, Ndut *kurfəŋ* ‘poing’, Jaad *kurufeeŋ* ‘donner un coups de poing, boxer’; Joola Foonyi *ɛ-kʊrʊpɛn* ‘poing’; cf. Mandinka *kùrùféŋè ~ kùrùpéŋè* ‘boxer; poing’).

****kʊɗ*** ‘dwell (vb)’: Sereer *kuɗ a...al / kuɗ a...ak* ‘concubinage’ ~ Fula *koɗugol* ‘installation, emménagement; stationnement’ < *hoɗa* ‘habiter, demeurer; être domicilié; séjourner; stationner; (moy.) s’installer; élire domicile; se fixer’.

3.4.3 Sereer h I ~ Fula k II,III

****Kees*** ‘solid (svb), stiff (svb)’: Sereer *hees* ‘être cruel, être brutal, être mauvais, être dur [inhumain - insensible], être méchant …’ ~ Fula *kes* ‘intens. très dur’ (Wolof *xiis* ‘être méchant et distant’).

3.4.4 Sereer k II ~ Fula h I

Kɨp (h-/k-) 'push (vb), turn over (vb), pour out (vb)': Sereer *kɨp* 'dans les expressions intensives: *sag be kɨp*: 'renverser complètement' / *ɓang be kɨp*: 'verser entièrement, complètement', *kɨp-ir* 'pousser la pirogue, alternativement, de bout en bout [pour la mettre à la mer ou l'en sortir]', *kɨp-ir n / kɨp-ir k* 'la poussée de la pirogue [pour la mettre à la mer ou l'en sortir]', *kɨp-o* 'pousser en avant [en parlant des cornes des bovins]' ~ Fula *hɨppa* 'renverser, mettre sens dessus dessous, mettre à l'envers, retourner; (spéc.) faire stationner un troupeau transhumant (en un lieu donné)'; (moy.). être posé la partie concave en-dessous; se courber au-dessus de...; se coucher sur le ventre; être dessous; (troupeau transhumant) stationner ...', *kippirgal / kippirɗe* 'panier ou grande calebasse renversés sur le sol, sous lesquels on enferme les poussins la nuit pour les mettre à l'abri des prédateurs', *kippokippongel* 'puissance surnaturelle qui s'abat sur les gens endormis et les écrase de son poids'.[5] (Wolof *këpp* 'déverser', Laala *xəp* 'verser', Nyun Guñamolo *bʊ-hʊpp*, Nyun Gubaher *bʊ-hʊp* 'pour out'; Bayot *ka-kʊb* 'verser'; Landuma *kəp* 'déverser, verser; vider').

Kʌɓɓ (h-/k-) 'light up (vb)': Sereer *kaɓ* 'prendre feu, s'allumer, flamber, s'enflammer [feu]', *kaɓan a...al / kaɓan a...ak* 'flamme' ~ Fula *huɓɓa* 's'allumer, s'enflammer; brûler; briller; (pass.) avoir très chaud, être brûlant', *huɓɓinirde / kuɓɓirɗe* 'tout endroit où on allume un feu; foyer'.

3.4.5 Sereer ng III ~ Fula h I

Kʊɓ/f (ng-/h-) 'knee': Sereer *nguɓay n / kuɓay k* 'genou' ~ Fula *howru ~ hofru / koppi* 'angle; genou; jointure', *hofa* 'former un angle, faire un coude; replier (un membre)'.

3.5 Proto*Q: *q/q/x > Sereer nɢ/q/x ~ Fula k/k/h

The following table provides correspondences in the voiceless velars series (Table 3.6).

3.5.1 Sereer x I ~ Fula h I

xande 'today': Sereer *xande (xane, xani)* ~ Fula *hannde(n).*

[5] Sometimes it is difficult to deny the pleasure of citing the meanings of the derived forms especially when the meaning of the root is difficult to formulate.

Table 3.6: The reflexes of *Q-

Series	Alternant	Sereer	grade	Fula	grade	Stat.
*Q	***x**	x	I	h	I	32
*Q		x	I	k	II,III	2
*Q		q	II	h	I	
*Q	***q**	q	II	k	II,III	
*Q		nɢ	III	h	I	1
*Q		nɢ	III	k	II,III	1

xaq ‘wrongly accuse (vb), slander (vb)’: Sereer *xaq* ‘terme employé par les circoncis quand on les menace ou que l’on parle devant eux de choses pénibles’ (Merrill: ‘to go find someone/seek someone out, in order to complain or fight’) ~ Fula (FJ) *hakkee* ‘injustice, tort, péché’ (Wolof *àkk* ‘se présenter devant une personne pour se plaindre d’une chose dont elle est censée répondre). < Arabic?

xas ‘new (svb)’: Sereer *xas* ‘être neuf, nouveau, récent’, *nɢas n / qas k* ‘la chose neuve, le neuf’ ~ Fula *hes* ‘neuf, nouveau’, *hecc* ‘jeune, neuf; tendre, frais, nouveau; cru’ (Basari *xaʃax / kaʃax / ngaʃax*, Tanda *kaz*, Bedik *ɣàʃá / gàʃá / ngàʃá*, Konyagi *xàsək / kàsək / kàsək*, Jaad *(u)kuca*, Saafi-Noon *ʔas*, Palor *xas*, Wolof (archaic) *enkes, lu-xes*).

xaw ‘braid (vb), twist (vb)’: Sereer *xaw* ‘corder’, *xawit o...ol / qawit a...a k* ‘une longue corde’ ~ Fula *hawa* ‘tresser, corder; cordeler’, *kawgol* ‘confection d’une corde’.

xaw/ɓ ‘hit (vb), beat (vb)’: Sereer *xaw* ‘frapper, corriger, battre, punir, fouetter, battre le linge, forger’, *nɢawir* ‘se battre, se frapper’ ~, Fula *hawa* ‘vaincre, remporter la victoire sur...’, cf. Fula *haɓa* ‘combattre, lutter; se battre avec. .., se disputer avec...; (moy.) se battre; se donner beaucoup de mal’.

xaƴ ‘separate (vb), divide (vb)’: Sereer *xaƴir* ‘se séparer, s’écarter, renoncer, répudier, divorcer’ (Sereer *xaaj* ‘séparer [en deux parties], couper [partager], fractionner, isoler’, *qaaj a...al / qaaj a...ak* ‘la division, la portion, le rationnement, la part’ < Wolof) ~ Fula *hejja* ‘partager (abs.), faire participer; mettre en commun’ (Seydou: < ****heƴ-d-***) (Wolof *haaj* ‘diviser’).

xaaɗ ‘bitter (svb)’: Sereer *xaaɗ* ‘être amer, être âpre au goût; être fort, âcre, rêche au goût, être rude au goût, être piquant [boisson], enflammer [piment] ~ Fula *haaɗa* ‘avoir une saveur amère, être amer; être piquant, pimenté’ (Wolof *xàtt*

'être très (amer, acide)', Wolof *xadar* 'rage; colère; bile'; cf. Proto-Bantu **kád(ɪ)* 'amer, aigre; aigu; féroce').

****xeƴ*** 'contain (vb); suffice (vb)': Sereer *xeƴ* 'trouver place, avoir place, pouvoir entrer dans, tenir [être contenu], tenir dans, contenir, pouvoir être contenu dans' (Merrill: *xec* 'fit') ~ Fula *heƴa* 'suffire, être suffisant; être à l'exacte mesure nécessaire; avoir la juste mesure; aller parfaitement; être, par excellence (tel...); (pass.) avoir suffisamment, se contenter de ce que l'on a; être aisé'.

****xemb*** 'repair (vb)': Sereer *xemband (hemand)* 'réparer, arranger, préparer, former, organiser, refaire, restaurer' ~ Fula *hemmba* 'réduire une fracture, une luxation; renforcer, consolider; (spéc.) soutenir un mur par un contrefort'.

****xeŋ/n*** 'wind; odor': Sereer *xeŋ* 'faire du vent, venter', *nɢeŋ n / keŋ k* 'vent' ~ Fula *hennoo* 'éventer; vanner', *henndu / keni* 'vent, air; souffle; émanation, odeur' (Palor *xeeŋ*, Saafi *ʔɛŋ*, Ndut *heeŋ-*, Wolof *xeeŋ*).

****xes/jj*** 'stay up (vb), spend the night (vb)': Sereer *xes* 'se lever matin, être matinal', *nɢes n / qes k* 'aube' ~ Fula *hejja* 'veiller tard, rester éveillé pendant la nuit; se mettre en route au milieu de la nuit, avant l'aube' (with the variant *hawja*), *kejjugol* 'veille observée jusqu'au coeur de la nuit'.

****xeeŋ*** 'liver': Sereer *xeeŋ gi...l / qeeŋ a...ak* ~ Fula *heeŋere / keeŋe, heeyre / keeƴe* (a Proto-Atlantic root).

****xeex/g*** 'hunger': Sereer *xeexel* 'avoir faim, être affamé', *nɢeex n / qeex k* 'faim, famine' ~ Fula *heegee* 'être affamé; souffrir de famine', *heege / heegeeji* 'faim; disette, famine'.

****xɛwt*** 'gather (vb)': Sereer *xet* 'rencontrer, accoster [quelqu'un], se rassembler, se réunir' ~ Fula *hawta* 'se réunir, se rassembler; se rencontrer; (moy.) avoir en commun'.

****xɛɛf*** 'disregard (vb)': Sereer *xeef* 'mépriser, dédaigner, refuser, repousser', *nɢeef n / qeef k* 'mépris, nargue, mésaventure' ~ Fula *hafoo* 'mépriser, dédaigner; regarder de haut; mésestimer' (Wolof *xeeb* 'sous-estimer, mépriser, dédaigner'; Joola Kwaatay *ka-hɛɛbɔ* 'minimiser; sous-estimer').

****xiris*** 'slay (vb)': Sereer *xiris* 'couper le cou, décapiter, égorger' (Merrill: 'slit the throat') ~ Fula *hirsa* 'égorger; sacrifier (un animal, pour en rendre licite la consommation)'.

****xit/d*** 'tight, narrow (svb)': Sereer *xit* 'être étroit, serré, encombré, embarrassé' ~ Fula FJ *hiiɗugol* 'être serré, étroit'.

****xoɓ*** 'bark' (n) ((Merrill 2018b) < **xoɓit* 'strip, deshell'): *Sereer xoɓ o...ol / qoɓ a...ak* 'feuille d'arbre, de plante, de tabac, la cosse [vide], la gousse [vide], la

coque [vide], certaines écorces de plantes ou d'arbres, le vase [vide], un contenant [vide], la carapace', Merrill: *xoβit* 'strip, deshell' ~ Fula *hoɓa* 'écorcer; décortiquer (une arachide); casser une coquille (d'oeuf); (moy.) s'écailler'. A stable Atlantic root (we found the final glottalized consonant, e.g. in Konyagi *và-kùɓ* 'écorce', Bedik *ga-ngɔɓʌtɛl* 'écorce'). This root may have Niger-Congo origin.

***xojil** 'Anogeissus leiocarpus': Sereer *xojil n / qojil k* 'Anogeissus leiocarpus' (Merrill: *nqojil / qojil* 'Anogeissus leiocarpus tree') ~ Fula Adamawa *hojolo* 'feuilles d'Anogeissus leiocarpus', *kojoli / kojole* 'Anogeissus leiocarpus'.

***xol** 'sheath': Sereer *xol o...ol / qol a...ak* 'la gaine, le fourreau' ~ Fula *huulna* 'garnir d'une gaine, d'un étui de cuir (une gourde, un talisman...)', *kuulnoowo / huulnooɓe* 'bourrelier: fabricant de ceintures, de fourreaux,. ..'.

***xomb** 'tortoise': Sereer *xomb n / qomb a...ak* 'en général tortues terrestres et palustres', *nɢomb o...ong / nɢomb fu...n* 'petite tortue terrestre' ~ Fula *huumere / kuume (kuumeeje)* 'petite tortue palustre à carapace sombre'.

***xonɢ** 'kernel, grain, nut': Sereer *xonɢ l ~ o...ol / qonɢ a...ak* 'noyau, graine, amande [noyau]', *xongoɓ o...ol / qongoɓ a...ak* 'le noyau du rônier [*fonɢoɓ o...ol*]' ~ Fula *huʸʸere / kuʸʸe* 'noyau; noix, amande; (spéc.) noix de cajou (amande de fruit d'anacardier)', *huʸʸoo* 'ramasser des noix, des amandes; (spéc.). extraire des noix (de cajou); ôter les graines (des flocons de coton)' (Wolof *xɔɔx* 'noix'; Joola Foonyi *ɛkɔnk* 'noix', Joola Kwaatay y*ɛkɔnk* 'noyau de mangue'). The doublet form *fonɢoɓ o...ol* can originate from ***kwonɢ**, ***qwonɢ** (see §4.1–4.2 on labialized velars).

***xorb** 'layer (vb), garnish (vb)': Sereer *xoob* (*-**Vrb** > -VVb) 'mettre une couche, garnir avec des métaux, dorer, argenter', *nɢoob n / qoob k* 'une virole [pour réparer une tabatière]' ~ Fula *horwoo* 'garnir une canette de fil de trame; bobiner (du fil); (fig.). faire la navette; aller et venir'.

***xot/ʸ** 'take (vb)': Sereer *xot* 'prendre, quérir, occuper [donner du travail], suivre un chemin' ~ Fula *hooʸa* 'prendre (en soulevant), ramasser; (+ *faa*). aller, se diriger'.

***xoor/d** 'star': Sereer *xooro...ol / koora...ak* ~ Fula *hoodere / koode*. The Proto-Atlantic root is likely **koɽ*.

***xool** 'naked, clean (svb)': Sereer *xool* 'être propre, être net, être clair, être pur, être visible (évident) ...' ~ Fula *hola* 'être nu, dénudé; être démuni'.

***xoos** 'scrape (vb)': Sereer *xoos* 'racler, gratter', *qoos-t a...al* 'ratissage, râtelage, action de racler le dessus de la terre' ~ Fula *hoosa* 'gratter le sol (pour dégager la terre fraîche, humide, après la décrue, pour y semer le mil)' (the root is widely attested in Atlantic and in Mel languages).

xoox 'head': Sereer *xoox (gi)...l / qooxa...aq* ~ Fula *hoore / koʔe* (possibly, a Proto-Niger-Congo root).

xooƴ 'soak (vb)': Sereer *xooƴ* 'tremper, détremper, mettre dans un liquide, laver du linge neuf pour la première fois', *qooƴ a...al / qooƴ a...ak* 'trempage, lavage d'un habit pour la première fois' ~ Fula (FJ) *hoynugol* 'ramollir dans de l'eau, tremper' (Wolof *xooj* 'faire tremper', Konyagi *ì-kòʃ* 'plonger; tremper; verser').

xɔɔt 'lack (vb)': Sereer *xoot* 'ne pas observer [manquer à une observance], transgresser, enfreindre' ~ Fula *hattoo* 'souffrir de l'absence de...; éprouver un manque de...; constater la disparition de...; (pass.) faire défection, faire défaut, manquer à l'appel; (spéc.) disparaître par magie' (Manjaku *kaʈ* 'manquer, perdre, avoir tort', Bijogo *kata* 'manquer').

xuuc 'return (vb), come back (vb)': Sereer *xuƴin* 'retourner', *xuƴox* 'se contorsionner, s'en aller, se retrier, partir, repasser [passer de nouveau], revenir à l'endroit d'où l'on était parti, revenir, revenir sur ses pas, rentrer chez soi', *kuuc* 'faire des détours, éviter de rencontrer quelqu'un' ~ Fula *huuca* ~ *hucca* 'tourner le dos à..; se détourner de...; repousser', *huuccita* 'retourner à.., refaire face à...' (Wolof *kuuj* 'tourner à gauche ou à droite sur une voie').

xəl/r 'snore (vb)': Sereer *xil* ~ Fula *hara* (Palor *xir*, Laala *ka-hil*, Nyun Guñamolo *bu-huur*; Balant *hiir*, Mankanya *p-hiirənʈ*, Joola Banjal *ɛ-xʊrʊt*).

3.5.2 Sereer x I ~ Fula k II,III

Qoos (x-/q-) 'leg': Sereer *xoos o...ol / qoos a...ak* 'le devant de la jambe; tibia' ~ Fula *koyngal / koyɗe* 'pied; jambe; patte', Fula Adamawa *kosngal / kosɗe* 'pied, patte, jambe'. A Proto-Atlantic, and possibly, a Proto-Niger-Congo root.

QɔrɔnC- 'whiskers': Sereer *xorondi o...ol / qorondi a...ak* 'les favoris [touffe de poils sur les joues]' ~ Fula *karankammbeeji* 'favoris'.

3.5.3 Sereer nɢ III ~ Fula k II,III

Qel (nɢ-/q-) 'Grewia bicolor': Sereer *nɢel n / qel k* ~ Fula *kelli / kelle* (Wolof *kel G*).

3.5.4 Sereer nɢ III ~ Fula h I

Qol (x-/q-) 'finger': Sereer *nɢol n / qol k* ~ Fula *holndu / kolli (honndu / kolli).*

Interestingly, we do not have a single reliable example in which Sereer q- corresponds to Fula k-, which would allow us to unambiguously reconstruct the alternant *q.

We have not considered the reflexes of series *KW yet. Thus, in the following sections, we examine this series against the backdrop of the two voiced labialized series reflexes, *GW and *BW.

4 Initial labialized consonants

Except in a few cases of palatalization before front vowels, each mutation series usually contains consonants of the same place of articulation, for example, Sereer mb/p/b (all labial consonants). Yet, the situation is more complicated in the case of the Fula voiced labial and velar consonants. In the absence of a special velar sonorant, the hole in Grade I is occupied by the labial sonorant: mb/b/**w**, ng/g/**w**. This opens up the possibility for consonants to transit from the labial series to the velar series or vice versa. This is the reason why, in Fula dialects, it is relatively frequent to find a b- in one dialect which corresponds to g- in others.

The most well-known example of this is the complementary distribution between the noun classes **nga** (-nga/-ga/-wa/-a) and **mba** (-mba/-ba/-wa/-a) across Fula dialects. There is no doubt that this is, in fact, one single noun class (in manuals it is referred to as "the class of large animals") that has two allomorphs. This distribution is illustrated in Table 4.1 using examples from Maasina and Adamawa dialects.

Table 4.1: Noun classes mba ~ nga

	Maasina	**CL**	**Adamawa**	**CL**
jeune animal	ɓota / ɓoti	mba / ɗi	ɓota / ɓoti	nga / ɗi
gazelle sp.	lella / lelli	mba / ɗi	lelwa / lelji	nga / ɗi
chèvre	mbeewa / beeʔi	mba / ɗi	mbeewa / beʔi	nga / ɗi
antelope cobe	ndumsa / dumsi	mba / ɗi	ndumsa / dumsi	nga / ɗi
éléphant	ɲiiwa / ɲiibi	mba / ɗi	ɲiiwa / ɲiibi	nga / ɗi
crocodile sp.	norwa / noodi	mba / ɗi	norwa / norji	nga / ɗi
dromadaire	ngeelooba / geelooɗi	mba, nga/ ɗi	ngeelooba / geelooɗi	nga / ɗi

This variation between the classes in question is possible also within one dialect. Thus, according to Seydou's dictionary of the Maasina dialect, along with the class variation attested for 'dromadaire', other cases of such variation appear as follows: *temmba / tenɗi* 'pou de tête' ~ *tennga / tenɗi* 'pou' (root *ten-*). In Fula Adamawa the following variants of the verb 'percer' are attested: *wurɗitit / burɗit / gurɗit / mburɗit / ngurɗit* (Tourneux & Yaya 2017).

Such lexical correspondences can also be identified as a result of the comparison of Fula and Sereer lexemes, for example: 'solitaire, seul': Sereer *woot* 'être solitaire, être isolé, être désert, être seul [solitaire]', *boot a...al / boot a...ak* 'solitude, isolement, retraite', *mbootu* 'isolée, écarté' ~ Fula *woot* 'unique, un(e), seul; même', *gooto* 'un, un seul; unique', *ngootaaku* 'fait d'être seul unique et unique; solitude'.

At first glance, it is not difficult to explain such correspondences, considering that in Fula, the same consonants of Grade I (the weak grade) are attested in four series as shown in Table 4.2.

Table 4.2: Grade I consonants in four voiced series in Fula

Fula	Grade I
*labial	ʔ ~ w ~ y
*palatal	y
*velar	ʔ ~ w ~ y
*postvelar	ʔ ~ w ~ y

The case of postvelar reflexes in Fula is clear: they changed into velars in all grades (in voiced as well as in voiceless series). As for the three other series, the situation is more complex. These three places of articulation are preserved in Fula despite the fact that they converge in Grade I. Theoretically, in Fula, this opens up the possibility of a transition from one place of articulation to the another through the shared Grade I (w, y, ʔ): ***B** > Fula G, ***B** > Fula J, ***G** > Fula B, ***G** > Fula J, ***J** > Fula B, ***J** > Fula G.

If we accept the transition hypothesis via Grade I, the correspondences between different places of articulation in Fula and Sereer seem to be easily interpretable. At first glance, when such correspondences are found, one should reconstruct for the proto-language a series attested in Sereer for which there is no evidence for any transition taking place. For example, for the correspondence Sereer w/b/mb ~ Fula w/g/ng in 'solitaire' one should reconstruct ****boot*** and not ****goot***.

Yet, despite the apparent simplicity and attractiveness of such interpretation, one is confronted with a multitude of contradictions to this hypothesis, for example:

- My etymological database contains numerous examples of the correspondence Sereer mb/b/w (< ***bw**) ~ Fula ng/g/w (some of which will be shown

below). However, there is not a single example of the correspondence Sereer mb/p/b (< ***b**) ~ Fula ng/g/w, i.e. there are no cases when a simple labial changes into a simple velar via Grade I.

- There are no examples of correspondences between the velar series in Sereer and the labial series in Fula, namely Sereer ng/k/g ~ Fula mb/b/w, i.e. there are no examples of the change of velars into labials through Grade I in Fula.
- An explanation for the existence in Sereer of two different voiced series, mb/p/b and mb/b/w, will be proposed.
- Though Sereer has two voiced labial series, only one of them, namely mb/p/b, corresponds to the Fula labial series mb/b/w. The second Sereer series mb/b/w can correspond either to the labial or to the velar series in Fula. In general, there is only one correspondence in which the Fula velar series corresponds to a series of a different place of articulation in Sereer, that is the correspondence Sereer mb/b/w ~ Fula ng/g/w.
- The correspondence between the Fula velar and Sereer labial series is found, not only in the voiced consonant series, but also in the that of voiceless consonants, where no alignment in Grade I is attested (Sereer mb/p/f; ng/k/h ~ Fula p/p/f; k/k/h).

Any diachronic hypothesis has to deal with the questions concerning the structure of the mutation system as well as the regular correspondences between the two languages. The traditional hypothesis according to which the series was replaced via Grade I in Fula does not answer these questions. As I will attempt to show, a more productive analysis is the opposite. This hypothesis assumes that the correspondence between Fula velars and Sereer labials appears as a result of a system of diachronic changes that took place in Sereer and not in Fula. These changes are apparently due to a radical transformation of three labialized series of consonants in Sereer, and these three series should be reconstructed for PFS. In the following subsection, we will examine the etymological data and arguments supporting this analysis.

4.1 Proto*KW: *kw/kw/h ~ ʔ > Sereer mb/p/f ~ Fula k/k/h

The voiceless labial series in Sereer corresponds, not only to labials, but also to velars in Fula. Apart from Sereer P ~ Fula P (Sereer *fes* ~ Fula *fes* ‘inciser’), another

regular and frequent correspondence is Sereer P ~ Fula K (Sereer *fob* ~ Fula *hob-* 'essaim'). The most natural explanation for this is the reconstruction of ***KW** that as will be shown below is parallel, i.e. it is confirmed by a parallel reconstruction ***GW** in the voiced series (***GW** > Sereer B ~ Fula G, for example Sereer *was / bas* ~ Fula *was- / gas-* 'laisser').

The reconstruction of ***KW** is also important for the grammar. In particular, it allows us to account for the noun classes **fo** I (Sereer) ~ **ko** I (Fula) via the reconstruction of Class ***kwo** I. In Sereer, this class includes liquids and mass nouns. In Fula, this is a collective class as well; in it are concentrated words with the following collective properties: 1) leaves (*haako* 'feuillage, feuilles', *ɓokko* 'feuillage de baobab'), herbs and cereals (*huɗo* 'herbe; graminée', *dumo* 'son de céréales'), sauces (*fonndo* 'sauce; ragoût', *laalo* 'sauce végétale à base de jeunes feuilles de baobab'), and facial and body hair (*fasko* 'poil pubien', *nafko* 'poil d'aisselle', *safo* 'poil du torse', *sumsumko* 'moustache', *waywayko* 'sourcils', *ɲamambo* 'cil'). Some words in the **ko** class are semantically similar to Sereer words denoting mass nouns in the **fo** class (for example, Fula *booko* 'argile boueuse, terre crue', *botoboto* 'boue', *mbuso* 'moelle') and vice versa (for example, Sereer *fo-ɲeex* 'bouillon quelconque avec lequel on trempe le couscous ou dans lequel on fait cuire le riz; le bouillon, la sauce, le potage', *fo-xuut* 'feuilles du *ncuut n* = *cassia tora* que l'on mange comme des épinards ou qui servent comme laalo' etc). It should also be noted that the Sereer noun class **fo** directly corresponds to the noun class **kwo** from Tenda-Jaad-Biafada, a different North Atlantic subgroup with an analogous transformation ***kw** > f in Biafada: Proto-North Atlantic ****kwo-cun*** 'smoke' > Sereer *fo-suun*, Basari *ɔ-k^{w}ɔ-cʌn* (*a-ʃʌn* 'enfumer'), Tanda *o-ko-cən*, Konyagi *xwə-cìcə (ì-cə̰l)* '(en)fumer', Jaad *ku-ci*, Biafada ***fu**-cu*.

To my knowledge, the cognate hypothesis between Sereer Class I **fo** and Fula Class I **ko** (Pozdniakov 1988; 1993) has not received any attention (at least, Merrill 2018b does not take it into account). The reason may be because this hypothesis was not reinforced by any lexical cognates. Thus, here, we illustrate this regular phonetic correspondence with some examples. The possible correspondences in various grades are given in Table 4.3.

4.1.1 Sereer f I ~ Fula h I:

****hwad/ɗ*** 'reach (vb)': Sereer *fad* 'atteindre, parvenir, arriver jusqu'à, être arrivé jusqu'à, être accompli, être achevé, être complet, être consommé, s'élever, être fini, gagner (arriver à), être parfait, être réussi, tomber (en parlant de la nuit)', *mbadand n / padand k* 'l'accomplissement, l'achèvement', *pad a...al / pad a...ak* 'arrivée, complément, expiration' ~ Fula *haaɗa* 'arriver à son terme; atteindre sa

Table 4.3: The reflexes of *KW-

Series	Alternant	Sereer	grade	Fula	grade	Stat.
***KW**	***hw**	f	I	h	I	19
***KW**		f	I	k	II,III	2
***KW**		p	II	h	I	
***KW**	***kw**	p	II	k	II,III	
***KW**		mb	III	h	I	
***KW**	***kw**	mb	III	k	II,III	

limite; se terminer; s'arrêter', *kaaɗdi / kaaɗdiiji* 'terme, limite, frontière, borne; aboutissement, fin'.

***hwa(n)kV** 'yesterday': Sereer *faak* 'hier', *paafaak a...al / paafaak a...ak* 'ce qui est d'hier, ce qui est passé' ~ Fula Adamawa *hanki* 'hier', (d'Avezac 1845: *anki*, Koelle 1963: *háánki*), in Fula Maasina the root has apparently not been preserved but Osborn et al. 1993 gives *HANKEN (hanki, haŋki, hankin, hanken)* 'last night'. The cognate is disputed. In most of Atlantic languages, the reconstructed ***kw**- is expected to give the reflex ***k**-, yet we find the following reflexes: Jaad *paaki*, Bedik *bákájɔ*; cf. Limba *feeŋ*.

***hwanx/ŋ** 'crazy (svb)': Sereer *fanxoy* 'déraisonner (commencer à perdre la tête, devenir fou, faire des actes de folie)' ~ Fula *haaŋ-ɗ-a* 'devenir fou, perdre la raison', *kaanɗi* 'folie, déraison'.

***hwar** 'snatch (vb)': Sereer *fuur* 'arracher, déraciner', *puur a...al* 'l'arrachage, le déracinement', *puur n / puur k* 'l'arrachage' ~ Fula *harbitoo* 'arracher (qqch.) à (qqn); s'approprier', *harboo* 'forcer (qqn) à...; contraindre; prendre par force; (spéc.) violer' (possibly in Sereer ***kwa-** > fuu- : thus, a trace of PFS consonant labialization in ***a** > uu).

***hwayx** 'throw down (vb); lose (vb)': Sereer *foox* 'jeter par terre un fardeau', *mboox n / poox k* 'le jet d'un fardeau [à terre]' ~ Fula Adamawa *hawkugol* 'jeter, se débarrasser de, faire perdre', Fula Maasina *hawkugol* ~ *haykugol* 'jeter, se débarrasser' (possibly in Sereer ***kwa-** > foo-).

***hwex** 'love (vb)': Sereer *fex* 'aimer, affectionner, chérir, s'attacher à qq'un par affection', *mbeq o...ong* 'l'amour, l'affection', *pexel o...ol / pexel a...ak* 'l'affection, l'amour, la tendresse' ~ Fula *hekka* 'aimer les femmes'.

***hwɪr** 'solid (svb)': Sereer *fiir* 'être fidèle, être dévoué, tendre, solide (fixe), rigide, serré, être sûr, constant, persévérant, stable, tenace, tenir (être solide)', *mbiir n*

'fidélité, persévérance, stabilité, constance, force morale, courage', *piir n* 'constance, persévérance, ténacité' ~ Fula *hera* 'être solide, stable; être toujours égal à soi-même', *kelɗugol* 'être solide, dur, de bonne qualité, efficace'.

hwob 'amass (vb); swarm': Sereer *fob l / pob a...ak* 'essaim' ~ Fula *hobannde / kobanɗe* 'amas, accumulation de..., amoncellement de...; multitude rassemblée; essaim', *hoboo* 's'amasser en foule, s'accumuler, s'agglutiner; enrober totalement', *kobugol* 'rassemblement en essaim'.

hwof 'enclose (vb), hug (vb), kiss (vb)': Sereer *fof* 'envelopper, empaqueter, emballer, paqueter, contenir, renfermer, embrasser, englober', *mbof n / pof k* 'paquet, enveloppe' ~ Fula *huufa* 'tenir serré contre sa poitrine; faire face, avancer de front; occuper une place sur toute sa largeur; se déployer en avançant', *kuufondiral* 'embrassement poitrine contre poitrine; manière de se serrer sur le coeur l'un l'autre'.

hwong/kk 'stop (wind, rain) (vb)': Sereer *fong* 'cesser, tomber, mollir (vent)', *pong a...al* 'l'accalmie [du vent]' ~ Fula *hokkugol* 'cesser, s'arrêter (en parlant de la pluie pendant l'hivernage), faire beau temps', *hokkere* 'arrêt de la pluie, beau temps'.

hwor 1 'try (vb)': Sereer *for* 'valoir mieux; être actif' ~ Fula *horna* 'faire un essai, une tentative; tenter de..., essayer de...; (spéc.) proposer (qqch.) à (qqn); tenter une requête ...', *kornugol* 'tentative de...; lancement d'un essai' (yet cf. Sereer *hor* 'examiner avec soin, ressasser [examiner à plusieurs reprises]').

hwor 2 'thin (svb)': Sereer *for* 'être maigre, être décharné, chétif, maigrir, être sec' ~ Fula FJ *horagol* 'maigrir, être maigre', cf. (Osborn et al. 1993) Fula Maasina *hor-* 'to dry up, be dry' (Fula Maasina has the verb *fooʸa* 'être maigre, être affaibi; dépérir', based on which one could reconstruct ***foʸ/r***, but difficulties arise as to the explanation of how the final consonant evolved).

hwor-it 'rub (vb), cure (vb)': Sereer *for-it* 'effacer, essuyer, frotter, nettoyer, brosser, décrotter, cirer, curer, écurer, récurer, biffer, raturer, rayer (effacer)' (Merrill: 'to wipe down or dry with a towel') ~ Fula *hork-it-a* 'évider, creuser en raclant l'intérieur de...; vider (une calebasse) de sa pulpe'.

hwoos 'hoof': Sereer *foxos o...ol / poxos a...ak* 'sabot (d'un animal: équidé, bovine, ovine, antilopine...]; trace de sabots 'd'un animal)' ~ Fula *holsere / kolce* 'ergot, partie saillante du boulet, au-dessus du sabot; (ext.) pied, patte'. This is possibly the Proto-Atlantic root (**kwɔɔʈ* (?) 'sabot; trace') with the labialized velar preserved in Tenda languages *(*kwʌr* 'sabot, trace': Basari–Bedik *ɛ-kʷʌr* 'trace de sabot', Konyagi *xwər / wæ̀-xwər ~ wæ̀-kwər* 'patte; membre inférieur', Jaad *kiir* 'tracer, inciser'), cf. also Nalu *gbɔrɔ-* 'sabot', Baga Fore (with a labial as in Sereer) *cì-fó kì*

'trace'. A possible development is ***kwɔɔs*** > Sereer *foxos* involving the passage of the initial velar to the medial position in the ɔ-ɔ context. ***hwɔm*** 'pregnant (svb)': Sereer *fomer* 'être enceinte (poli)', *pomer o...ox / fomer w* 'femme enceinte' ~ Fula *haamila* 'être enceinte, être grosse'.

hwuɗ/r 'roast (vb), grill (vb)': Sereer *fuuɗ* 'griller', *mbuuɗ n /puuɗ k* 'le grillage [sur un tesson de canari ou de tôle] des arachides', *puuɗaak* 'rôtir' ~ Fula *hurma* 'être trop grillé; être calciné, carbonisé; brûler à la cuisson', *kurmugol* 'aspect brûlé, calciné (d'un morceau de viande)'.

hwus 'arm; biceps': Sereer *fuuxand o...ol / puuxand a...ak (mbuuxand n, puuxand a...al)* 'le bras [de l'épaule au coude], le biceps' ~ Fula *huyre / kuse* 'morceau de chair, morceau de viande; partie charnue, muscle'.

hwʌnx 'hit (vb), bump (vb)': Sereer *fanx* 'donner un croc-en-jambe, heurter du pied', *panx a...al / panx a...ak* 'le croc-en-jambe' ~ Fula *honk-a* 'heurter du dos des doigts; toquer; taper sur; choquer', along with *fonka* (!) 'cogner brusquement (qqch, qqn); heurter, percuter'.

4.1.2 Sereer f I ~ Fula k II:

KWaɗ (hw-/kw-) 'neck, throat': Sereer *faɗang o...ol / paɗang a...ak* 'gorge' ~ Fula *konndondol* (< ***KWaɗ-n***) 'gorge, gosier; œsophage (et trachée artère et larynx)' (cf. Laala *hɔn* 'gorge', Nyun Guñamolo *kʊntʊk / kʊntʊk-ɔŋ* 'bosse, protuberance, saillie, arrière du cou'; Joola Foonyi *ɛkɔndɔɔr* 'cou', Bayot *ɛkɔndɔ* 'cou').

KWo (hw-/kw-) – a noun class: Sereer *fo...ol* I ~ Fula *ko/ho/o* I. This cognate theoretically allows us to relate the words for 'milk': PFS ***kwo-sow*** > Sereer *fo-soow* ~ Fula **ko-so-am* > *ko-s-am* (class **ɗam**).

The majority of existing examples involve a correspondence in Grade I.

In seven of the examples that have been thus far considered, Sereer long vowels correspond to Fula short vowels. This allows us to suppose that, in these examples, the Sereer long vowel has evolved as a compensation for the loss of labialization: ***hwa(n)kV*** 'yesterday' > Sereer *faak*, ***hwar*** 'arracher' > Sereer *fuur,* ***hwayx*** 'to throw down; to lose ' > Sereer *foox,* ***hwɪr*** 'solid' > Sereer *fiir,* ***hwuɗ*** 'to roast' > Sereer *fuuɗ* 'griller', ***hwus*** 'arm; biceps' > Sereer *fuuxand.*

4.2 Proto *GW: *ngw/gw/ɣw > Sereer mb/b/w ~ Fula ng/g/w

The series ***GW** is necessary to account for numerous voiced labial correspondences in Sereer with voiced velars in Fula. Yet, the correspondence in Grade I

(Sereer w ~ Fula w,y,ʔ) can extend not only to ***GW**, but also to ***BW**, and simply to ***w** (with the subsequent involvement of w- into the mutation system). Therefore, in this section, we only consider those correspondences of the type Sereer w ~ Fula w,y,ʔ, in which the Fula counterpart contains a velar consonant, therefore the reflexes of ***BW** are excluded.

Potential regular correspondences (Table 4.4).

Table 4.4: The reflexes of *GW-

Series	Alternant	Sereer	grade	Fula	grade	Stat.
***(G)W**	***(g)w**	w	I	w, y, ʔ/**g**	I	12
***(G)W**		w	I	g	II	
***(G)W**		w	I	ng	III	
***(G)W**		b	II	w, y, ʔ /g	I	3
***(G)W**	***gw**	b	II	g	II	2
***(G)W**		b	II	ng	III	
***(G)W**		mb	III	g	II	
***(G)W**	***ngw**	mb	III	ng	III	

4.2.1 Sereer w I ~ Fula w,y,ʔ I (/ g II):

***(g)was** ‘leave (vb)’: Sereer *waas* ‘laisser, abandonner, cesser, lâcher, quitter …’, *baas a...al / baas k* ‘action de laisser pousser ses cheveux [en parlant d’une jeune fille qui laisse pousser ses cheveux pour les faire tresser, plus tard, en vue du mariage]’, *wac* ‘cesser une occupation, un travail, descendre du travail, quitter le travail’, *mbacker* ‘qui ne cessera pas [en parlant d’une occupation, d’un travail]’ ~ Fula *ʔacca* ‘laisser, quitter, renoncer à…; cesser de…; laisser (faire), permettre, autoriser à…; laisser le temps de...’, Fula Adamawa *gaynugol* ‘finir, terminer; avoir du succès’, *gasugol* ‘être réussi, parfait, bien fait; finir, arriver à terme; être possible’, *ʔaccugol* ‘laisser, cesser, céder, abandonner, tolérer’, *gasa* ‘être achevé, accompli; aboutir, finir’ (Atlantic root ***wac / was** ‘lâcher, laisser, quitter’).

(g)wer** ‘dry (svb)’: Sereer *weer* ‘être sec, être désséché, sécher, échouer’, *beer o...ol / beer a...ak* ‘sécheresse’ ~ Fula *yoora* (Cwe** > Coo?) ‘sécher; être ou devenir sec; se dessécher; tarir; (spéc.) être privé de lait’ (Basari *a-ɣar* ‘boucaner, sécher une peau au feu’, Bedik *u-ɣárà* ‘se sécher’, Jaad *war* ‘sécher sur le feu, boucaner’, Nyun Gubaher *bʊ-yir* ‘be dry’, Wolof *wer-i* ‘enlever ce qu’on avait étalé pour le faire sécher’ (reversive); Joola Kwaatay *ka-wɛɛrʊ* ‘faire sécher’, Manjaku *wal*

'assécher un plan d'eau'; cf. Kisi *wèlàá* 'become dry, as in water drying up at a well site or in a stream').

****(g)weɣ*** 'forget (vb)': Sereer *weec* 'oublier', *beec n / beec k* 'l'oubli' ~ Fula *yejj- / g- / ng-* 'oublier' (*yeɣɣ- / j- / nj-, yegg- / j- / nj-*). Fula variants show transitions from the velar to the palatal series through Grade I (y-).

****(g)wir*** 'twirl (vb), go around (vb)': Sereer *wir* 'tournailler, virer de bord [navire]', *wiril n / biril k* 'le tour [circuit]', *biril a...al / biril a...ak* 'le tour, le contour, le pourtour' ~ Fula *yirloo 'to*urner sur soi-même, tourbillonner', *girlagol* 'tourbillonnement; tournoiement' (Konyagi *ì-kwər* 'entourer' < **gwər*, Wolof *war* 'faire le tour de, encercler, entourer; aller à la recherche de', Palor *wırı* 'tourner en rond' etc).

****(g)wog*** 'scrub (vb)': Sereer *wor* 'battre le briquet, faire du feu en frottant deux bâtonnets, frotter une allumette', *bor a...al / bor a...ak* 'morceau de bois en 'siindin' [Sesbania bispinosa], dont on se sert pour allumer le feu, le briquet, feu allumé en frottant deux morceaux de bois' ~ Fula *wogga* 'frotter fort; polir; limer, râper', *woogirde / googirɗe* 'pierre ponce; pierre utilisée pour frotter avec du sable (les calebasses à blanchir)'. *-**g** > Sereer -r as a dissimilation of two fricative velars (***gw**- and *-**g**)? (cf. Wolof *woogu* 'se frotter les dents avec un bâtonnet fibreux').

****(g)wor*** 'exit (vb)': Sereer *wor-* 'sortir' ~ Fula Adamawa *wurtaago / (gurt, ngurt)* 'sortir; lever' (< ****wor-t***).

****(g)wox/f*** 'bark (vb)': Sereer *wowox o...ox / bowox w (<*wox-wox)* ~ Fula *wofa (ŋofa).*

****(g)woot*** 'lonely, alone': Sereer *woot* 'être solitaire, être isolé, être désert, être seul [solitaire]', *boot a...al / boot a...ak* 'la solitude, l'isolement, la retraite', *mbootu* 'isolé, écarté' ~ Fula *woot* 'unique, un(e), seul; même', *gooto* 'un, un seul; unique', *ngootaaku* 'fait d'être seul, unique; solitude'. Sereer has also preserved the variant with the initial velar consonant: *xoot* 'être solitaire, être isolé, retiré, écarté'.

****(g)wuɗ*** 'wormy (svb)': Sereer *wuɗ* 'être vermoulu (bois, mil], être piqué [bois]', *buɗ a...al / buɗ a...ak* 'la vermoulure [trou percé dans le mil ou le bois par un insecte]', *mbuɗu* 'qui est vermoulu [bois], qui est piqué [bois]' ~ Fula *wuɗa* 'être vermoulu; être rongé intérieurement', *guɗugol* 'état vermoulu de...'.

****(g)wur*** 'turn (vb), drill (vb)': Sereer *wur* 'tourner; percer de part en part, transpercer', *wurnir o...ol / burnir a...ak* 'instrument pour percer, la vrille', *wurur o...ol / burur a...ak* 'coléoptère [sans nom spécial], le scarabée, le bousier' ~ Fula *wuroo* 'percer, poinçonner (spéc. un tissu pour y percer des œillets)', *wurannde / guranɗe* 'trou profond, tunnel, galerie; chas'. In Fula Adamawa, Tourneux gives labial as well as velar variants: *wurɗititgo / (burɗit, gurɗit, mburɗit, ngurɗit)* 'percer (une

surface peu épaisse)', *wurde / burɗe* 'trou (dans un tissu, dans une feuille...); ouverture latérale n'atteignant pas le sol, dans une construction (fenêtre, par exemple)'.

(g)wuus/r 'renounce (vb)': Sereer *wuusox* 'renoncer à un projet, au fig. = tourner le dos' ~ Fula *wuur-t-a / guur-t-a* 'renoncer à (une affaire), revenir sur (un accord), dénoncer (un contrat); (spéc.) être dépassé; (heure) être déjà passé'.

(g)wuuƴ 'whistle (vb)': Sereer *wuuƴ* 'siffler [avec la bouche]', *wuuƴ o...ol ~ a...al / buuƴ a...ak* 'le sifflement [avec la bouche]' ~ Fula *wuuttoo* 'siffler', *wuuttaango / guuttaali* 'sifflement'.[1] (Fula: root + suffix **t**?)

4.2.2 Sereer b II ~ Fula g II:

gwad 'Cissus sp.': Sereer *badbad n* 'Plante dressée de la Famille des Ampélidacées: Cissus Waterlotii A.CHEVALIER' ~ Fula Adamawa *gaadal / gaade* 'Cissus quadrangularis L. (Vitaceae); divers géophytes, plantes à bulbes'.

gwuɓ 'knock (vb) / pull down (vb)': Sereer *buuɓ (fuuɓ)* 'abattre, couper l'arbre au tronc' ~ Fula *guɓa* 'abattre (un arbre); couper (un tronc) à la hache'.

4.2.3 Sereer b II ~ Fula w,y,ʔ I (/ g II):

(G)Waɓ/b 'seed': Sereer *ɓaɓ n / ɓaɓ k* 'graine qui est restée dans les champs, après la récolte, repousse aux premières pluies suivantes; plante qui a ainsi poussé' ~ Fula *wabbere / gabbe* 'grain (de grenade...), pépin (de citron...); graine'. ***GW** > Sereer b, with the subsequent glottalization b > ɓ under the influence of the final consonant (?) cf. ***ɓaɓ** 'tomber'.

(G)Wor 'pluck (vb)': Sereer *bor* 'effeuiller; décolorer' ~ Fula Adamawa *woortugo / (goort, ngoort)* 'effeuiller (un arbre sur pied) en faisant glisser la main fermée le long d'une branche ou d'un rameau'.

(G)Wors 'noose': Sereer *boos o...ol / boos a...ak* 'le noeud coulant' ~ Fula *worca* 'faire un nœud coulant', *worcoode / gorcoɗe* 'noeud coulant', *gorcol* 'confection d'un nœud coulant; nœud coulant'.

As with the transformation of the voiceless labialized stop ***kw**, compensatory vowel lengthening is found in a number of Sereer forms: ***(g)was** > waas, ***(G)wors** > *boos,* ***(g)weƴ** > *weec.* In Fula, the vowels remain short in this case.

[1] Merrill (2020: 38) states, "Fula *wuud-* 'whistle' (Pulaar, Adamawa, Nigeria) should be considered".

4.3 Proto *BW: *mbw/bw/w > Sereer mb/b/w ~ Fula mb/b/w,y

Sereer has two voiced labial series: mb/p/b and mb/b/w. Other places of articulations have only one series, which is parallel to the series mb/p/b, and not to mb/b/w. Therefore, w- is the only sonorant that participates in Sereer mutations. The most natural explanation of this anomaly is that, along with labialized velar consonants, PFS had the labial labialized ***BW** (***mbw/*bw/*w**).

The following examples illustrate these correspondences:

Sereer mb/b/w ~ Fula mb/b/w: Sereer *wayʼ* 'bouillir, être bouillant', *wayʼand o...ol / bayʼand xa...axa* 'la bouilloire', *bayʼ a...al* 'le bouillage' ~ Fula *waayʼa* 'bouillir en écumant; être cuit, bien saisi', *mbaayʼam* 'eau bouillante', *bayʼyingol* '(act.) ramollissement de grains par trempage dans de l'eau bouillante'. This root, as well as a number of other roots involving the correspondence in question, contains a labialized consonant in some Atlantic languages, such as in Biafada *bwaj-* 'boil'. Assuming that the proto-language had a labial labialized consonant (involving the series ***mbw/*bw/*w**), the existence of two voiced labials mutation series in Sereer would be expected. The transition ***mb/*b/*w** > Sereer mb/p/b destroyed the opposition ***b** ~ ***bw** in Grade II and, accordingly, ***bw** lost its secondary articulation: ***bw** II > b II. Therefore, the root under consideration can be reconstructed as ***bwayʼ***, which finds a direct parallel in Biafada.

Considering the above, the Sereer mb/b/w ~ Fula mb/b/w,y correspondence should originate from ***BW** rather than ***B**. Yet this is only justified for such correspondences in which Sereer is represented by the Grade I consonant, namely w-. The question which now requires posing is, how could one account for the seemingly simple correspondence Sereer b- ~ Fula b-?

We can imagine several theoretically possible variants:

- PFS ***bw** II > Sereer b II ~ Fula b II
- PFS ***B** > Sereer p II > b I ~ Fula b II
- PFS ***w** 0 > Sereer b II ~ Fula b II
- PFS ***GW** > Sereer b II ~ Fula g II > w I > b II.

In principle, all of these variants are possible. Therefore, we will only retain those examples for which the most plausible reconstruction is ***BW** or ***w**.

Table 4.5 presents the possible correspondences.

Table 4.5: The reflexes of *BW-

Series	Alternant	Sereer	grade	Fula	grade	Stat.
***(B)W**	***(b)w**	w	I	w,y,ʔ/b	I	16
***(B)W**		w	I	b	II	3
***(B)W**		w	I	mb	III	

For the reconstruction of Grade I (Sereer w ~ Fula w,y,ʔ), the decisive argument is not the correspondence, but rather the Sereer series w/b/mb itself. In those cases where this series corresponds to the Fula series w/b/mb we reconstruct ***BW**, whereas if it corresponds to w/g/ng, we reconstruct ***GW**.

My database comprises the following examples.

4.3.1 Sereer w I ~ Fula w,y,ʔ I:

***(b)waj** 'reduce (vb), decrease (vb)': Sereer *waaj* 'diminuer, raccourcir, réduire …', *baajax a...al / baajax a...ak* 'diminution, décroissance, la faiblesse [après une maladie]…' ~ Fula *waja* 'rappeler à (qqn) ce dont (il) est redevable en guise de reproche implicite; reprocher à (qqn) son ingratitude; faire des reproches à...', *bajagol* 'fait de reprocher à [qqn] son ingratitude en lui rappelant le bien qu'on lui a fait' (Balant *wà à j* 'décroître' > *gì -ŋwà à jí*).

***(b)wal** 1 'greet in the morning (vb)': Sereer *walid* 'saluer quelqu'un le matin, dire bonjour; bonjour [salut du matin]', *baldid n / baldid k* 'le bonjour' ~ Fula *waalna* 'saluer le matin, donner le bonjour', *baalnoygol* 'fait d'aller donner le bonjour, d'aller saluer le matin'.

***(b)wal** 2 'fluid (svb)': Sereer *wal* 'couler rapidement, fluer, être fluide, ruisseler', *wal n / bal k* 'le ruisseau, un courant d'eau' ~ Fula *waltoo* 'prendre le tournant avec le courant (dans un cours d'eau qui se déverse dans un autre)', *waltorde / baltorde* 'vallée – lit d'un cours d'eau' (Wolof *wal* 'couler; ruisseler').

***(b)wax** 'carry (vb)': Sereer *waxu* 'porter sur le dos', *bax n / bax k* 'pagne servant à porter l'enfant sur le dos; enfant que l'on porte sur le dos, mais qui ne marche pas encore' ~ Fula *wakkoo* 'se mettre (qqch.) à l'épaule; porter au côté; porter en bandoulière ou sur l'épaule; mettre le bras autour des épaules de...', *bakkol / bakki* 'bandoulière', *bakkorgol / bakkordi* 'bandoulière; bretelle de fusil; écharpe pour bras cassé...'.

***(b)way** 'boil (vb)': Sereer *way* ~ Fula *waay-a*.

(b)waag/w 'can (vb)': Sereer *waag* 'pouvoir', *waag o...ol / baag a...ak* 'capacité, compétence, habilité, art, métier, le pouvoir' ~ Fula *waawa* 'pouvoir, être apte à..., être capable de...; (absol.) être puissant, avoir le pouvoir, détenir l'autorité', *mbaawgu / baawguuji* 'pouvoir, capacité, puissance, autorité…; compétence, savoir-faire'.

(b)waam/b 'flood (vb), overflow (vb)': Sereer *waame* 'inonder, déborder', *waame fan / waame k* 'l'inondation, affluence d'eaux, le débordement [des eaux], très forte marée accompagnée d'un grand vent' ~ Fula *waaboo* 'mousser (sous l'effet de la fermentation, de l'ébullition...); produire de l'écume; déborder en moussant; (fig.) être soupe au lait', *waabiliire / waabiliije* 'pluie d'orage, tornade de pluie, trombe d'eau' (Jaad *waamiŋ* 'être en crue, inonder'). Possibly borrowed from Manding: Mandinka *wá á mè* 'inondation, forte marée, humidité excessive; peut par extension s'appliquer à tout phénomène qui se produit par intermittences', Bambara *wá mɛ* 'inondation, crue', Maninka Niokolo *wà à mè* 'déborder'.

(b)waaŋ 'kitchen': Sereer *waaŋ fan / baaŋ k* 'la cuisine [l'endroit où l'on fait cuire les aliments]' ~ Fula *waaŋa* 'faire cuire légèrement, saisir (de la viande)' (Wolof *waaŋ* 'cuisine'; Joola Kwaatay *ɛ-waŋ* 'cuisine').

(b)wec 'rib, side': Sereer *wectilox* 'regarder de côté' ~ Fula *wecco / becce* 'flanc, côte; muscle pectoral; (pl.) poitrine'.

(b)well 'sharp (svb)': Sereer *weel* 'être tranchant [couteau - poignard], être aiguisé, être aigu', *weel l / beel a...ak* 'le tranchant, le taillant, la pointe' ~ Fula *wela* 'être tranchant, bien affûté; être aiguisé', *welnirde / belnirɗe* 'pierre à aiguiser', *mbelndi* 'lame, partie tranchante'.

(b)wen 'insult (vb)': Sereer *wen* 'injurier, insulter, dire des sottises, outrager', *ben a...al / ben a...ak* 'outrage, injure, insulte' ~ Fula *yenna* 'injurier, insulter', *jennugol* 'énonciation d'insultes, action d'injurier' (Biafada *bwən-* 'insult').

(b)wind/r 'side, flank': Sereer *wind o...ol / bind a...ak* 'le bordage [le côté d'une pirogue]' ~ Fula *wirngo / birɗe* 'flanc, côté de la cage thoracique', *biral / bire ~ birɗe* '(anat.) côte; côté de la cage thoracique'; flanc (Nyun *bid* 'côté', Kasanga *gu-bidd / ŋa-* 'côté').

(b)wis 'shake (fingers) (vb); sprinkle (vb)': Sereer *wis* 'répandre à la volée, jeter à la volée, asperger, bruiner, répandre, jeter avec dédain', *wis-ox* 'se démener, se secouer les doigts de dépit' ~ Fula *wisa* 'saupoudrer, asperger (de la main)', *wicca* 'faire gicler, projeter (un liquide) en aspersion; éclabousser, arroser de la main; secouer, balancer', *wiccannde / biccanɗe* 'une projection de liquide, éclaboussement', *mbiccam* 'liquide dont on asperge (qqch.)' (Wolof *wicc* 'secouer (la tête) en signe de regret', Wolof *wiccax* 'secouer vigoureusement les mains pour les

débarrasser de qqch'; cf. Mel: Kisi *wè só ó* 'shake water on something, splash', Baga Sitemu *wɛs* 'shake (wrist)').

***(b)wiir** 'sail': Sereer *wiir fan / biir k* 'toile à voile, voile de navire' ~ *Fula wiiru / wiiruuji* 'voile de pirogue' (Wolof *wiir* 'toile').

***(b)wɪl** 'swing (vb), balance (vb)': Sereer *wil* 'entortiller', *wilkiŋox* 'se balancer en courant, serpenter, se tortiller', *bilax a...al / bilax a...ag* 'l'entortillement', *mbil fan* 'sorte de jeu d'anneaux...' ~ Fula *weelta* 'être en suspens dans les airs, s'étendre dans l'espace; se balancer dans les airs (comme une araignée au bout de son fil); flotter; être sur le point de...', *beelgol* 'fait d'être suspendu dans les airs, de se balancer en l'air', *beelte* 'testicules (littéralement «les balançantes»)'.

***(b)wɔnd** 'lie down (vb), repose (vb)': Sereer *wond-in* 'coucher, faire coucher' ~ Fula *wanndoo* 'compter sur..., se reposer sur...; s'en remettre complètement à...', *banndagol* 'action de s'en remettre à..., de compter sur, de se reposer sur (qqn)'.

4.3.2 Sereer w I ~ Fula b II:

***(B)Wan/ŋ** 'side': Sereer *waan* 'passer d'un côté à l'autre, traverser', *baan a...al / baan a...ak* 'le gué, le passage d'une rivière', *mbaangor n / pangor k* 'le bouclier [pour se protéger à la guerre]' ~ Fula *banŋe* 'côté, à côté, *banngeere / banngeeje* 'côté, flanc' (Kobiana *ka-mbaand / ŋa-* 'côté'; Mankanya *mban* 'côté').

***(B)War** 'kill (vb)': Sereer *war* 'tuer, faire mourir, exterminer, assassiner...', *bar a...al / bar a...ak* 'tuerie, abatage [d'une bête], meurtre, massacre, assassinat' ~ Fula *baroowo / waroobe* 'meurtrier, assassin; bourreau', *bardugal / barduɗe* 'instrument de mort; arme mortifère'.

***(B)Woq** 'throat': Sereer *wooq o...ol / booq a...ak* 'gésier, jabot [des oiseaux]', *booq o...ol / booq a...ak* 'gésier, jabot, nœud de la gorge, dessous du menton, fanon' ~ Fula *bokkol / bokki* 'gorge (pour les humains); partie antérieure du cou; fanon (bovin)' (Saafi *mbɔx* 'cou').

As in the case of the transformation of the labialized ***KW** and ***GW**, Sereer shows compensatory vowel lengthening in a number of forms coming from ***BW**: ***(b)waj** > *waaj*, ***(b)well** > *weel*, ***(B)Woq** > *wooq*.

4.4 Proto *GW? Proto *BW?

To conclude, we consider roots for which both ***GW** and ***BW** can be reconstructed. In Sereer, these roots attest to the series mb/b/w, which according to our reconstruction, provides evidence in favor of a labialized consonant in the

proto-language (a possible reconstruction is ***w**-). Yet, Fula simultaneously has either both the velar and the labial series or the glottal stop ʔ-. The problem with the diachronic interpretation of ʔ- in Fula is that we do not know whether it originates from a proto-language glottal consonant (if this were the case it would be difficult to explain the reflexes in Sereer), or whether it historically represents Grade I of the velar or labial series. The interpretation problem of the glottal stop will be considered separately in section 6.3. At this point, we only consider possible alternative reconstructions:

***(G/B)wan** 'orphan': Sereer *baan o...ox / waan w* 'l'orphelin [m.]', *waan o...ol / baan a...ak* 'l'orphelin', *mbaan o...ong / mbaan fu...n* ~ Fula *ʔanwa* 'être orphelin', *ʔanwudo / ʔanwuɓe* 'orphelin(e)' (Jaad *u-bəndə*).

***(G/B)waaŋ** 'eliminate (vb)' (possibly related to ***ɣwoŋ** 'écarter, éviter'): Sereer *waaŋ* 'écarter [pour se frayer un passage]', *baaŋ a...al / baaŋ a...ak* 'écartement [pour se frayer un passage]' ~ Fula *ʔaaŋa* 'écarter (les bords d'une fente, les lèvres d'une plaie, les fesses), faire béer; tenir (ses jambes) écartées', *ʔaaŋugol* 'action d'écarter (les lèvres d'une fente, d'une plaie, les fesses)'.

***(G/B)weɣ-ox** 'look back (vb)': Sereer *weɣ-ox* 'tourner la tête [regarder en arrière]', *beɣlax a...al / beɣlax a...ak* 'action de tourner la tête, action de regarder en arrière' ~ Fula *yeeɣ-oo /j- / nj-* 'regarder en arrière, tourner la tête pour regarder derrière soi', *jeccitagol* 'action de regarder en arrière'. In Fula, we find a transition into the palatal series before a front vowel via Grade I.

***(G/B)woŋ** 'spread (vb), avoid (vb)': Sereer *woŋ* 'éviter, éviter un coup, fuir [éviter]' ~ Fula with two variants – w/b and w/g: *woŋannde / boŋandɗe* 'écart (pour céder le passage)', *woŋorde / goŋorɗe* 'endroit où se ranger pour laisser le passage libre', *goŋagol* 'action de céder le passage, de s'écarter du chemin de...; écart pour faire place à...'.

***(G/B)wos** 'pull (vb), remove (vb)': Sereer *woos* 'enlever de force, tirer, dégainer [une épée], ôter ce qui était enfilé], désenfiler', *boos* 'avoir un mort-né, avorter [en parlant des animaux], mettre bas, avant terme' ~ Fula *wosa* 'esquiver, éviter (un danger): échapper à (une catastrophe); s'écarter devant (par ex. un taureau qui fonce)', *wosindorde / gosindorɗe* 'refuge, lieu où se ranger pour éviter un danger, lieu de repli'. Based on the last Fula form, one should reconstruct ***GW**-, yet it should be noted that in other Atlantic languages we find correspondences with labials: Kobiana–Kasanga *boos* 'tirer', Wolof *boseet* 'exprime l'idée de dégainer brusquement (une arme blanche)', Jaad *woosət* 'retirer de la paille d'un toit ou d'une botte, retirer quelque chose d'un ensemble'. This rather suggests the reconstruction **bwos* with the transition ***BW** > GW via Grade I in Fula.

5 Initial voiced consonants

Now we will discuss voiced series reflexes, with the exception of labialized ***BW**, ***GW**, as these were considered in the previous sections. Here, we are confronted with two main difficulties:

1. The voiced series in Sereer corresponds to the voiced series in Fula, but there are approximately ten cases across all places of articulation where we find the correspondences between the voiceless Sereer series and the voiced Fula series.

2. The dentals show all possible combinations of regular correspondences by the voicing feature, i.e. we additionally find a systematic correspondence between the dental voiced series in Sereer and t- in Fula. As in many other cases, dentals attest various deviations from the systematic mutation processes.

Considering the above-mentioned caveats, we first examine the voiced series correspondences in the two languages, and then interpret the correspondences between Sereer voiceless and Fula voiced consonants. Next, we look at the problems of dental reflexes in general.

5.1 The retention of the voiced series in Sereer and Fula

5.1.1 PFS *B: *mb/b/w > Sereer mb/p/b ~ Fula mb/b/w

Recall that the gray shading highlights the correspondences that offer alternative reconstructions (also noted in Table 5.1 as an alternative in PFS). Therefore, the statistics for these cases are rather approximate. Thus, the correspondence Sereer b ~ Fula b reflects both the regular ***B** reflexes (assuming the existence of correspondences between consonants of different Sereer b I ~ Fula b II grades), and the ***BW** reflexes (involving the correspondences between aligned grades: Sereer b II ~ Fula b II). As follows, we define the main criteria that could be used to choose between the alternative reconstructions in question.

Table 5.1: The reflexes of *B-

Series	Alternant	Sereer	grade	Fula	grade	Alternates in PFS	Stat.
***B (Fula *b I > w I)**	***b**	b	I	w,y,ʔ	I	*B(*BW, *GW)	8
***B (Fula *b I > b II)**	***b**	b	I	b	II	*B(*BW)	12
***B**		b	I	mb	III	*B(*BW)	1
***B**		p	II	w,y,ʔ	I		
***B**	***b**	p	II	b	II		2
***B**		p	II	mb	III		
***B**		mb	III	w,y,ʔ	I	*B(*BW, *GW)	4
***B**		mb	III	b	II	*B(*BW)	4
***B**	***mb**	mb	III	mb	III	*B(*BW)	6

In the cases of alternative reconstructions of labials (***B**, ***BW**), or velar consonant reconstructions (***GW**), as already mentioned, we use the following principle: if Sereer labial consonants (mb,b,w) correspond to the Fula velar series (ng/g/w), we reconstruct ***GW**, whereas if they correspond to the Fula labial series (mb/b/w), we reconstruct ***B** or ***BW** (see the sections §4.2–4.4 above).

When a choice has to be made between ***B** and ***BW**, we follow two criteria:

1. If the Fula series mb/b/w corresponds to Sereer mb/b/w, and not to mb/p/b, we reconstruct ***BW**, and not ***B**.

2. On the other hand, for Sereer mb/p/b ~ Fula mb/b/w, we reconstruct consonants that involve the fewest diachronic changes. Thus, for the correspondence Sereer b ~ Fula b, we reconstruct ***BW**, but with identical grades (Sereer b II ~ Fula b II), rather than ***B**, since the latter implies a correspondence between different grades (Sereer b I ~ Fula b II). The correspondence Sereer mb ~ Fula mb is explained from ***B**, rather than ***BW**, because this interpretation is simpler.

5.1.2 Sereer b I ~ Fula w I:

baf[1] 'leave (vb), get up (vb)': Sereer *baf* 'se lever, partir, s'en aller, se déplacer [partir], provenir, venir de, sortir [être parti], lever l'ancre, mettre à la voile', *paf a...al / paf a...ak* 'le lever, le départ, la sortie' ~ Fula *wafa* 'sortir, apparaître'.

[1]According to that which is indicated in the table, one should reconstruct ***B** (***b**-? ***w**-?) for the numerous correspondences between Sereer b- ~ Fula b-, since in these two languages b- belongs to two different grades. Taking this into account, we do not complexify the reconstruction.

bajj 'unique (svb); only child': Sereer *bajo fan / bajo k* 'fils unique' ~ Fula *wajj* 'unique', *bajjo* 'enfant unique'.

ban/nd 'plant sp. (Pennisetum pedicellatum)': Sereer *ban o...ol* 'Pennisetum pedicellatumˀ ~ Fula Adamawa *waanduuho* 'Pennisetum polystachion'.

bind 'write (vb), trace (vb)': Sereer *bind* 'écrire, créer [en parlant de Dieu]', *bindir o...ol / pindir a...ak* 'ce qui sert pour écrire - la plume', *mbindand n / pindand k* 'le bureau [endroit où l'on écrit]' ~ Fula *winnda* 'écrire, inscrire, consigner, noter', *binndirgal / binndirɗe* 'crayon; stylo', Fula FJ *mbinndudi* 'écriture, manière d'écrire, orthographie'.

bɪd/r (b-/w-,ɓ-) 'hide (vb), cover (vb), bury (vb)': Sereer *ɓeed* 'cacher, surveiller' (ɓ- < ***b**-?) ~ Fula *wira* 'enterrer, ensevelir, inhumer', *wirna* 'cacher, dissimuler, voiler; (moy.) se cacher, se dissimuler, disparaître aux regards, s'évanouir' (Basari *a-wéd*ˀ 'cacher à la vue', Biafada *wad-* 'hide'). Merrill expresses doubts as to possible link between the meanings 'hide' and 'bury'. I will take this opportunity to promote the *Homonymy & Polysemy* database created by G. Segerer within (Segerer & Flavier 2011). Some prospects for using this database to verify semantic reconstructions were demonstrated in (Pozdniakov & Segerer 2019). Therein, we find 30 African languages in which a common word expresses the meanings of 'hide' and 'bury' or 'hide' and 'cover' or 'cover and 'bury' or a combination of these three meanings. Thus, the typological possibility of the proposed semantic convergence is shown to be reliable.

bet/d (b-/w-) 'throw (vb), launch (vb)': Sereer *bet I* 'lancer, jeter' ~ Fula *wedoo* 'lancer, jeter'.

buub/w (b-/w-) 'scan (vb), brush (vb)': Sereer *buub* I 'traîner à terre, balayer le sol [en parlant d'un habit qui touche le sol]', *mbuubin n / puubin k* 'le fait de trainer à terre' ~ Fula *wuuwa* I 'balayer; nettoyer; débarrasser des impuretés', *mbuuwri / buuwdi* 'balayures' (Atlantic root).

5.1.3 Sereer b I ~ Fula b II:

ball 'get in the way (vb)': Sereer *bal* 'percer, passer à travers une haie' ~ Fula *balla* 'mettre en travers; disposer un obstacle; placer en oblique'.

ban 'plant sp. (Pterocarpus erinaceus)': Sereer *baan n / baan k* ~ Fula Adamawa *banoohi / banooje*.

bang 'build a dike (vb)': Sereer *bang* 'faire une digue', *pang a...al / pang a...ak* 'digue' ~ Fula *bannga* 'faire une digue, endiguer; construire un barrage', *bannguure / bannguuje* 'digue, bassin d'eau retenue par une digue' (Manjaku *bank* 'faire une digue; digue').

baaba 'father': Sereer *baaba* 'père (terme affectueux) ~ Fula *baaba* 'père (terme d'appel)', *baabiraaɗo / baabiraaɓe* 'père (classificatoire); oncle paternel' (a Proto-Atlantic root).

bet 'many': Sereer *bet* 'être beaucoup, être trop; énormément …' ~ Fula FJ *bete* 'au moins', *betekee* 'trop, exagérément' (Wolof *mbët* 'en grande quantité'), Zubko 1980) Fula *bete* 'très; bien; au moins, quand même' (Valentin Vydrin, p.c . – Fula from Mande).

betex 'lead (metal)': Sereer *betex n* ~ Fula (d'Avezac 1845) *betek* (cf. Fula *mbudu* 'plomb') (Wolof *betteex* 'plomb'; Joola Banjal *ɛ-bɛtɛx* 'étain').

bomb 1 'cover (vb)': Sereer *bomb l / bomb a...ak* 'paille préparée pour la toiture', *bomb-ik* 'aller mettre une toiture, aller couvrir une case' ~ Fula FJ *buum-, buumugol* 'couvrir, voiler, enveloppe'.

bon 'bad (svb)': Sereer *bon* 'être mauvais, être méchant, être maigre', *ponu l / ponu k* 'le mal [la chose mauvaise]' ~ Fula *bona* 'être mauvais, être mal; être méchant', *mbonki / bonkiiji* 'méchanceté; malfaisance; perversité' (widespread root in Atlantic and Mel).

buɓ 'hit (vb)' (Merrill: < **buXɓ* 'crash into, slam'): Sereer *buɓ* 'heurter, choquer, se cogner, aborder', *mbuɓ n / puɓ k* 'le choc, le scandale, l'offense' ~ Fula FJ *buɓɓagol* 'heurter violemment', (Zubko 1980): Fula *buɓɓa* 'battre à coups de cornes', *buɓɓawii* 'sanglier'.

bukVnek/t 'slave' – an interesting word that is attested only in the 17th century source (d'Avezac 1845) both for Sereer and for Fula: Sereer *bukenek* 'serviteur, valet'[2] ~ Fula **bukunet*.

bul 'blue (svb)': Sereer *bule* 'bleu' ~ Fula *bula* 'rincer au bleu (du linge blanc); passer au bleu de lessive; colorer en bleu pâle' (The root ****bulu*** is common for Atlantic and Mel languages. It is not a European borrowing).

bʌɓ/bb 'fish sp. (vb)': Sereer *baɓ* 'pêcher du poisson sans aller en pleine mer; pêcher avec la nasse appelée: '*iis*'; ramasser du poisson échoué sur le rivage; pêcher en commun, dans les marigots, à l'aide des '*sarap*' ~ Fula *wubba* 'pêcher au filet ', *bubbugol* 'pratique de la pêche au filet'.

bVg 'want (vb), love (vb)': Sereer *bug* 'vouloir, désirer, falloir [vouloir], se proposer, souhaiter, aimer', *pug a...al ~ o...ol / pug a...ak* 'volonté, avidité' ~ Fula *beege(e)* 'aimer (avec affection ou dilection); aimer d'amour mystique, adorer' (Atlantic root).

[2] Merrill (2020: 39) notes: "Undoubtedly borrowed from Wolof *bëkk-néeg* with the same meaning, containing native Wolof roots. Note that Crétois has *fugneg (fan-)*, showing the common f:b correspondence between Sereer borrowings and their Wolof source".

5.1.4 Sereer p II ~ Fula b II:

bomb- 2 'drum sp.'[3]: Sereer *pomboli o...ol* 'sorte de petit tambour en bois, creusé, longitudinalement dans un petit tronçon d'arbre...' ~ Fula *bummbutu(uru) / bummbutuuji* 'tambour d'eau: instrument de musique' (Jaad *bambooli* 'petit tambour à lèvres utilisé pour chasser les prédateurs des champs', Nyun Guñamolo *bombooli / bombooli-eŋ* 'grand tam-tam pour initiés'; Joola Kwaatay *ɛ-bʊmbʊlʊŋ* 'tam-tam sp.', *ka-βbɔlɔŋ* 'tambour d'appel', Manjaku *mbumbaloŋ* 'tamtam d'appel', *i-mbumbluŋ* 'instrument traditionnel à percussion mancagne, utilisé pendant les funérailles').

bos 'plant sp. (Gardenia ternifolia)': Sereer *pos n / pos k* 'Gardenia ternifolia' ~ Fula *bose* (FJ) 'Gardenia ternifolia, Rubiacae'.

5.1.5 Sereer mb III ~ Fula mb III:

mbat/ɗ 'antilope sp.': Sereer *mbat n / pat k* 'gazella rufifrons' ~ Fula *mbaɗɗa / baɗɗi* 'Cob léché, Cob de Buffon' (Basari *ɛ-mbar* 'Cobe de Buffon').

mbaal 'sheep': Sereer *mbaal gi...n / paal k* 'mouton' ~ Fula *mbaalu / baali* 'ovin; mouton, brebis'. Possibly goes back to a Proto-Niger-Congo root.

mbe 'goat': Sereer *mbe fa...fan* ~ Fula *mbeʔa / be'i*. Possibly goes back to a Proto-Niger-Congo root.

mbedd 'road, path': Sereer *mbed o...ong / ped k* 'petit chemin laissé entre deux champs à l'hivernage, ruelle, rue, allée' ~ Fula *mbedda / mbeddaaji* 'grand route' (Wolof *mbedd* 'rue', Jaad *mbɛdɛ* 'grand route'; Manjaku *umbɛra* 'chemin carrossable, route'). May be an ancient Soninke borrowing: < *béddè* 'rue principale, route'.

****mbeɗ*** 'round; circle': Sereer *mbeɗ n / peɗ k* 'le bandeau de perles', *peɗ o...ol / peɗ a...ak* 'ceinture composée de boutons et de perles' ~ Fula *mbeɗu / bedi* 'rond, disque; disque de vannerie rigide servant de couvercle, de van, de plateau', *mbeɗuwol* 'cercle (figure géométrique)'.

mbel 'shadow': Sereer *mbel-yook n / pel-yook k* 'ombre [d'un homme ou d'une case]'[4] ~ Fula *mbeelu / beeli* 'ombre portée'; (spéc.) 'ombre (l'un des principes constitutifs de la personne); double (de la personne); reflet, image'. A difficult word.

[3] One can certainly reconstruct ***b**- II rather than ***B**- I-II for this Sereer root which begins with p- II, and not b- I. The simplification of reconstruction used here is explained in the preceding footnote.

[4] In Sereer, a compound word: *fel-* (*pel, mbel*) 'dépister (découvrir la piste), suivre le gibier à la trace' (= *fel o ... ol* 'python sp.?), *yook* 'faire de l'ombre', *yook n* 'ombre (d'un arbre, d'un mur)'.

5.1.6 Sereer b I ~ Fula mb III:

Baal (mb-/b-) 'rainbow': Sereer *baali l* ~ Fula *mbaalu-*.

5.1.7 Sereer mb III ~ Fula w~y I:

Beel (mb-/w-) 'lake, pond': Sereer *mbeel a...al / peel k* 'étang, lac, marigot, mare, marais, rivière, abreuvoir [par extension]' ~ Fula *weendu / beeli* 'mare (alimentée par un cours d'eau); lac'.

Bill (mb-/b-) 'antelope sp. (Kob)': Sereer *mbiil n / piil k* 'antilope de la famille des bovidés, redunca, reedbuck' ~ Fula *willere / bille* 'cobe onctueux' (Wolof *mbill* 'Kob (Redunca, Bovidés); grande antilope rougeâtre sans raies').

Birq (mb-/w-) 'manure': Sereer *mbiqi n* 'fumier, tas de fumier' ~ Fula *wirga* 'labourer le sol en éparpillant la terre (en luttant au sol ou pour la mélanger ou encore pour brouiller des traces...); disperser du fumier (sur un champ)'.

Bu(u)d (mb-/w-) 'loincloth sp.': Sereer *mbuud n/puud k* 'pagne d'homme' ~ Fula *wudere / gude* 'pièce de tissu; pagne'. A parallel form with a final voiceless consonant: ***But** (mb-? w-?)*: Sereer *mbuut n / puut k* 'pagne d'homme' ~ Fula *wutu / wutuuji* 'pagne en bandes de coton blanc marquées d'une raie noire dans le sens de la longueur'.

5.1.8 Sereer mb III ~ Fula b II:

Bajj (mb-/b-) 'blanket': Sereer *mbaj n ~ a...al / mbaj a...ak ~ paj k* 'couverture de laine ou de coton', *mbaj o...ong / paj k* 'la voile [d'un bateau]' ~ Fula *bajjel / bajjoy* 'type de pagne porté par les femmes peules et composé de bandes de coton tissé, alternées noires et blanches, ces dernières comprenant une rayure centrale rouge' (Jaad *baji* 'couverture', Wolof *mbàjj* 'couverture (laine, coton) pour protéger du froid'; Joola Foonyi *fʊ-mbanj* 'couverture', Joola Kwaatay *hɪ-mbanj* 'couverture'). May be a Mande borrowing (Bambara *bájɔ* 'couverture d'une seule pièce, couverture en coton, couverture', Mandinka *bàjà ~ mbàjà* 'couverture en laine'), yet the root is also found in other families (Gur: Boore *báyō* 'couverture tissée d'une seule pièce', Adamawa: Day Bouna *bájɔg* 'couverture').

Ban (mb-/b-) 'when?': Sereer *mban* ~ Fula (17th century) *bane*.

Baax (mb-/b-) 'custom': Sereer *mbaax o...ong / baax k* 'coutume, usages, droit coutumier, habitude, tribut' ~ Fula (17th century) *baak* 'accoutumer'.

Boɓ (mb-/b-) 'plane tree sp.': Sereer *mboɓ n / poɓ k* 'grand arbre de la famille des sterculiacées - platane du Sénégal' ~ Fula Adamawa *boɓori / boɓore* 'Sterculia setigera Del. (Sterculiaceae)'.

5.1.9 PFS *D: *nd/d/l > Sereer nd/t/d ~ Fula nd/d/r

Table 5.2: The reflexes of *D-

Series	Alternant	Sereer	grade	Fula	grade	Stat.
***D (Fula d I > r I)**	***d**	d	I	r	I	5
***D (Fula d I > d II)**	***d**	d	I	d	II	22
***D**		d	I	nd	III	
***D**		t	II	r	I	
***D**	***d**	t	II	d	II	4
***D**		t	II	nd	III	
***D**		nd	III	r	I	1
***D**		nd	III	d	II	1
***D**	***nd**	nd	III	nd	III	4

5.1.10 Sereer d I ~ Fula r I:

daaɗ 'root; vein; creeper; grass': Sereer *daaɗ l* 'plante herbacée [en général], plante, herbe, paille sèche, fourrage', *ndadel n / tadel k* 'liane, le crinédola' ~ Fula *raɗoo* 'attacher à la patte d'une vache son petit veau, une fois qu'il a amorcé la tétée, afin qu'elle se laisse traire', *raɗo / daɗi ~ daɗooji* 'gros tendon tiré du dos des bovins', *ɗaɗol / ɗaɗi* 'racine; (spéc.). nerf, tendon; veine', Fula Adamawa *rayɣere / dayɣe* 'nom générique désignant les graminées hautes', *dayɣere* 'pied d'un arbre, touffe d'herbe'. Assuming that the given Fula forms are related etymologically, then r- forms indicate that the Fula glottalization ***d-** > ɗ- is secondary and supposedly took place under the influence of the final glottalized -ɗɗ (Nalu *nar* 'veine; liane; tendon'; Joola Foonyi *fʊ-rar / gʊ-rar* 'racine', Joola Banjal *ɛ-rarax* 'liane herbacée').

dɪd/r 'greedy (svb)': Sereer *diid* 'être gourmand, être glouton', *ndiid n / tiid k* 'la gourmandise', *tiid a...al* 'gourmandise' ~ Fula *reerɗa* 'être avide, insatiable; convoiter; être passionné de..., attaché profondément à...; souhaiter vivement', *deereero / reererɓe ~ reereeɓe* 'glouton, goinfre, gourmand insatiable', Fula FJ *ndeereraaku* 'gourmandise, gloutonnerie' (Merrill 2020: 40 states: "Fula *reer-ɗ-* must be related to *reedu* 'belly'". It is possible.).

doxon/nd 'lay something on (vb)': Sereer *doon* 'poser sur, appliquer, déposer, apposer, entreposer, grever, mettre, poster, imposer l'obligation, faire un devoir

de, rejeter une faute sur (quelqu'un), imputer, attribuer à, prêter (imputer), infliger', *toon (ga)...al* 'la pose sur [action de poser]' (cf. Sereer : *roq* ~ *roxond* ~ *roxand* 'charger un fardeau sur la tête ~ Fula *ronnda* 'poser sur la tête, charger sur la tête; (moy.) porter sur sa tête; (fig) prendre à son compte, assumer (la faute de qqn)'.)

duɗ 'raise (vb)': Sereer *duɗand* 'hausser, surélever une chose, élever une chose', *duɗand l ~ o...ol / tudand a...ak (tuɗand a...al / tuɗand a...ak)* 'base, support, piédestal, trône (*tudand a-al*), socle, petit banc, petit siège' ~ Fula *runnda* **(<** ****ruɗ-n-*****)** 's'élever en volute vers le ciel; (fumée, poussière) monter dans les airs'.

5.1.11 Sereer d I ~ Fula d II:

****dab*** 'join (vb)' (supposedly ***-bb?** if the vowel correspondence is taken into account): Sereer *dab* 'atteindre, rejoindre quelqu'un sur la route, attendre en secret, guetter' ~ Fula *doba* 'joindre bout à bout; rajouter, faire un rajout; raccrocher; (spéc.) greffer; (moy.) se joindre à..., rejoindre, rattraper, venir se raccrocher à...' (Wolof *dab* 'rattraper, rejoindre', Ndut *dabb* 'joindre').

****daɗ*** 'exceed (vb)': Sereer *daɗ* 'échapper, dépasser (à la course), devancer, s'écarter [se détourner], s'enfuir', *ndaɗatir n / taɗatir k* 'rivalité à la course, sport, concurrence' ~ Fula *daɗa* 'laisser (qqn) derrière soi; devancer, distancer, dépasser (à la course)', *ndaɗu* 'première place gagnée dans une course; arrivée en tête d'un concours'.

****dag/jj*** 'walk sp. (vb)': Sereer *daag-ox* 'marcher sans se presser, ralentir sa marche, marcher fièrement (d'une manière lente et affectée)' ~ Fula *dajja* 'marcher d'un pas majestueux; aller d'un pas assuré et d'un air arrogant', *dayʼo* 'démarche fière et majestueuse (dénotant orgueil, vanité)' (Wolof daagu 'marcher lentement; se pavaner').

****dag/h*** 'captive': Sereer *daaga fan / taaga k* 'village habité par les 'captifs de la couronne' ou 'captifs de guerre'' ~ Fula *dahugol* 'mise en captivité de...', *ndahandaari* 'butin constitué de captifs'.

****dal*** 'prove (vb)': Sereer *daland* 'montrer (prouver), prouver, indiquer, être une marque de..., être la preuve de...' ~ Fula *dallina* 'fournir la preuve de..., justifier; faire ses preuves; (moy.) avoir pour preuve. .., se fonder sur...', *daliili / daliiliiji ~ daliiluuji* 'raison, cause, motif; sujet, objet de...; argument, preuve, justification; garantie'.

****dam*** 'hold (vb); grab (vb)': Sereer *dam* 'tenir, attraper, prendre, saisir, posséder, avoir envie de, s'appuyer de la main (ou sur la main) ...', *tam a...al / tam a...ak*

'préhension, capture, fidélité' ~ Fula *dammba* 'confier à la garde de..., remettre entre les mains de...; attribuer à...', *damdamta* 'ne pas tenir en place; aller et venir sans but (en particulier pour un cheval)'.

***dank** 'heel': Sereer *dang l / tang a...ak* 'talon (du pied)', *dang o...ol / tang a...ak* 'sabot indigène à patins (sabot dont la semelle porte des crampons, taillés à même le bois)' (Merrill: in Saalum 'palm of hand') ~ Fula *danka* 'danser sur place en sautant alternativement sur un pied puis sur l'autre; sauter à cloche-pied', *danku-gol* 'action de sauter à cloche-pied' (cf. a different root in Sereer: *rak* 'envoyer un croc-en-jambe, mettre quelqu'un sur la hanche pour le faire basculer', *rak o...ol / tak a...ak* 'hanche, le croc-en-jambe; façon, manière de danser').

***day/ɣ** 'reach (vb), stop (vb)': Sereer *day* 'atteindre (un but), arriver jusqu'à, s'arrêter à, en rester là' ~ Fula *daaɣa* 'arrêter, stopper; faire cesser; bloquer; (moy.) s'arrêter, faire halte'.

***daar** 'stand (vb), be up (vb)': Sereer *daar* 'calfater (un grenier), crépir'; écarter les jambes, l'une en avant et l'autre en arrière, en se tenant debout', *daarand l / taaraand a...ak* 'le pas (de marche)', *ndaarand n / taarand k* 'abri des champs...' ~ Fula *darna* 'mettre debout, dresser; ériger, édifier', *ndaraaki* 'taille, stature'.

***daa(s)k** 'magpie': Sereer *daaskor o...ol (taaskor a...al) / taaskor a...ak* 'oiseau noir de la famille des corvidés, pie africaine' ~ Fula *daakal / daake (dowdaakal / dow-daake)* 'corbeau-pie'.

***deɓ** 'rain (vb; n)' 'cf. ***toɓ** 'pleuvoir, pluie': Sereer *deɓ* 'pleuvoir, tomber de l'eau' ~ Fula *deɓɓa* 'sombrer au fond de l'eau', *dewa* 'prendre l'eau par le sol (maison mal protégée des infiltrations)', *ndewam* 'eau de pluie infiltrée dans une paillote dont on n'a pas protégé le pourtour par un remblai; débordement d'eau dans une maison'.

***dir** 'drag (vb), roll (vb)': Sereer *dir* 'rouler', *dirin* 'traîner à terre' ~ Fula *dirboo* 'traîner en faisant rouler sur le sol' (Wolof *dir-ee-k-u* 'se traîner à terre').

***diw** 'jump (vb), fly (vb)': Sereer *diw-ox* 'se jeter à l'eau, sauter à l'eau' ~ Fula *diwa* 'voler, sauter; s'envoler'.

***diid/r** 'afraid (svb); panic': Sereer *diid* 'avoir peur, s'effrayer, être effrayé, s'épouvanter, craindre, s'alarmer, être effaré, être consterné, appréhender (craindre), être anxieux, tressaillir, être éperdu, être surpris, se troubler', *tiidu* 'peureux' ~ Fula *diira* 's'élancer précipitamment tous ensemble (dans un mouvement de panique, par ex.); prendre soudain la fuite d'un commun accord'.

***diir** 'surpass (vb), overcome (vb)': Sereer *diirox* 'être décidé, vouloir continuer (à faire une chose), être transporté de colère, se débattre pour continuer la lutte (en parlant de quelqu'un que l'on sépare dans une lutte)' ~ Fula *diirta* 'surpasser,

l'emporter dans (dans un concours); avoir la préférence (sur des rivaux), évincer (un concurrent, spéc. un prétendant à la main d'une femme)' (cf. ***dir** 'drag (vb), roll (vb)).

***dog** 'run (vb); trample (vb)': Sereer *dogor* 'piétiner', *ndogor n / togor k* 'piétinement' ~ Fula *doga* 'courir; fuir, s'enfuir en courant, se sauver'.

***doŋ/n** 'follow (vb)': Sereer *doŋ* 'suivre un chef', *doŋ a...al / doŋ a...ak* 'le sous-chef, le second (celui qui vient après le chef)' ~ Fula *doonoo* 'continuer, poursuivre; persévérer, persister', *doonagol* 'poursuite de...; continuation de..., persévérance à (faire qqch.)' (Kobiana *duŋuna* 'suivre'; Balant *dɔɔŋ* 'suivre', Mankanya *p-dookan* 'poursuivre', Pepel *dɔk* 'poursuivre').

***dor** 'fold (vb), wrap (vb)': Sereer *dor ~ dol* 'enrouler, plier, envelopper', *ndor n / tor k* 'l'enveloppe' ~ Fula *dorwoo* 'embobiner; enrouler du fil sur une canette; préparer une canette', *dorawal / doraaje* 'canette de tisserand'.

***dug/h** 'attach (vb); belt': Sereer *dug* 'attacher une chose au bout d'une autre pour l'allonger, pousser sur, croître sur', *ndugand n / tugand k* 'endroit où l'on a ligaturé les deux bâtons pour les allonger', *tug a...al* 'action d'attacher deux bâtons bout à bout [pour les allonger]' ~ Fula *duha* 'serrer la ceinture coulissante d'un pantalon, mettre un pantalon à...; (moy.) mettre son pantalon; (pass.) porter un pantalon; (fig.) être pubère (pour un garçon)', *duhodee* 'être de la même classe d'âge ({litt.} avoir été culottés ensemble); (euphém.) avoir été circoncis en même temps'.

***dʊf/bb** 'stick (vb), plant (vb)': Sereer *duf* 'planter, ficher un bâton à terre', *duuf* 'semer, ensemencer, planter, enterrer', *tuuf a...al / tuuf a...ak* 'ensemencement, le plantage, la plantation, les semailles', *duup* 'semer' ~ Fula *dobba* 'enfoncer avec force, ficher' (Konyagi *dùɓ* 'enfoncer dans la terre humide', Nyun *rʊfʊn* 'planter'; Bijogo *rɔb* 'planter, enfoncer').

***dəbb** 'pound (vb)': Sereer *dib* 'piler le mil, donner quelques coups de pilon' ~ Fula *dubba* 'piler en tapant très fort, pilonner; assener un coup violent de haut en bas sur...' ('pound (vb) : Wolof *dëbb*, Palor–Ndut *ɗaab*, Konyagi *ì-ɗæ̀w̃*).

***dVr** 'start (vb)': Sereer *door* 'commencer, débuter' (Merrill : borrowed from Wolof *door*) ~ Fula *deerta* 'se mettre en marche, démarrer (pirogue, véhicule); être bien lancé'.

5.1.12 Sereer t II ~ Fula d II:

***damp**- 'kick (vb)': Sereer *tampas* 'donner un coup de pied', *tampas a...al / tampas a...ak* 'coup de pied' ~ Fula *dampa* 'taper des pieds, piétiner fortement; damer (le

sol)', *dampagal / dampale* 'coup de pied (répété)' (Manjaku *tapəsi* 'donner un coup de pied').

***daq** 'sap': Sereer *taq n / taq k* ~ Fula (17th century) *dake* 'gomme'. This is a difficult word. Merrill (2020: 40) comments, "The Fula word from D'Avezac's Pulaar wordlist is likely borrowed from Wolof *dakaande* 'gum Arabic' (also given by D'Avezac for Wolof), which is borrowed also in Sereer. Given that there is no evidence for a word of this meaning in other Fula sources, it can't be viewed with much confidence". Indeed, Wolof dictionaries give a variety of lexical forms with unclear suffixes in terms of Wolof synchrony: *dakarne, dakandey, dàkkaande*. In Sereer, they correspond directly to Crétois' forms *dakande* and *dakarnde*, apparently borrowed from Wolof. However, whatever the origin of these forms, the root ***daq** was obviously contaminated with the root ***ɗaq** 'glue (vb)': Sereer *daax* ~ Fula *ɗakk-* (this root is discussed in the chapter on glottalized consonants).

***das-** 'disperse (vb)': Sereer *tas* 'détruire, dissoudre, dévaster, mettre en désordre, renverser, éparpiller, défaire …', *tasarox a...al / tasarox a...ak* 'la dispersion, l'éparpillement, le débandement' ~ Fula *daccita* 'disperser; (moy.) s'égailler', dispersion, action de s'égailler' (< ***das-t**?) (Wolof *tas* 'disperser', Laala *tas* 'disperser', Bayot *ka-ʈa* 'démolir (maison)').

***duʈ** 'vulture': Sereer *tuda...al / tuda...ak* 'vautour' ~ Fula *dutal / dute* 'vautour'.

5.1.13 Sereer nd III ~ Fula nd III:

***ndo(n)x** 'plant sp. (Annona senegalensis)': Sereer *ndonx n (ndonx n) / tonx k ~ ndong* 'Annona senegalensis' ~ Fula *ndukuuhi / dukuuje* 'papayer de brousse, pommier cannelle', Fula Adamawa *dukuuhi-ladde / dukuuje-ladde* 'Annona senegalensis', *dukuuhi-wuro / dukuuje-wuro* 'papayer, Carica papaya L. (Caricaceae)'.

***ndɔw** 'ash': Sereer *ndaw k* 'cendre' ~ Fula *ndoondi / dooɗe* 'matière poudreuse, poudre, farine; cendre'.

***ndubale** 'Ficus sp.': Sereer *ndubale n / tubale k, ndobale n / tobale k* 'ficus thonningii' ~ Fula *nduballeehi / duballeeje* 'espèce de ficus (le "doubalin")' (possibly in PFS already a borrowing from Manding).

***ndəg/ɓ** (?) 'rainy season': Sereer *ndiih n / tiih k* 'saison des pluies' (Merrill : *ndiig / tiig* 'rainy season, *riig* 'to spend the rainy season somewhere') ~ Fula *ndunngu ~ nduunngu / duuɓi* 'saison des pluies (mi-juillet- mi-septembre), hivernage; unité de décompte du temps cyclique; année'. The final consonant is unclear.

5.1.14 Sereer nd III ~ Fula r I:

***Dim**[5] 'ficus sp.': Sereer *ndim-naak n* 'Ficus polita' ~ Fula Adamawa *rimirhi / rimirje* 'Ficus sur Forsk. (Moraceae)'.

5.1.15 Sereer nd III ~ Fula d II:

***Dung** 'hive': Sereer *nduung n / tuung k* 'ruche creusée dans un tronc de rônier' ~ Fula (FJ) *dunngeere* 'ruche'.

5.1.16 PFS *J: *nj/j/j > Sereer nj/c/j ~ Fula nj/j/y

Table 5.3: The reflexes of *J-

Series	Alternant	Sereer	grade	Fula	grade	Stat.
***J (Fula *j I > y I)**	***j**	j	I	y	I	5
***J (Fula *j I > j II)**	***j**	j	I	j	II	23
***J**		j	I	nj	III	
***J**		c	II	y	I	
***J**	***j**	c	II	j	II	4
***J**		c	II	nj	III	
***J**		nj	III	y	I	
***J**		nj	III	j	II	
***J**	***nj**	nj	III	nj	III	3

5.1.17 Sereer j I ~ Fula y I:

***jag** 'go (vb)': Sereer *jag* I 'aller' ~ Fula *yaha* I 'aller à, se rendre à..., chez...; partir à...'; marcher, faire route, cheminer', *jaagol* (< **jag-gol*) 'marche; aller; déplacement, voyage' (a Proto-Atlantic root).[6]

[5] We cannot decide between consonant grades ***nd-** or ***d-**.

[6] Merrill (2020: 41) gives the following objections, "Sereer *jag* is noted by Crétois as a form confined to the Baol dialect. Why is Fula /h/ admitted as a reflex of *g? <...> Fula *jaagol* is transparently from /*jah-gol*/, not **jag-gol*; ***gg** would result in a geminate, but VhC > VVC is a regular process in many Fula dialects, cf. *yaare* 'scorpion' from /yah-re/. Thus the two roots are Baol Sereer /jag/ and Fula /yah/, which cannot be cognate...".

jank 'refuse (vb)': Sereer *jeŋox* 'refuser', *jang* 'dans l'expression intensive: *xox jang*: refuser obstinément' ~ Fula *yankira* 'refuser d'admettre, ne pas reconnaître; ignorer (volontairement), méconnaître', *jankiral* 'refus de reconnaître (qqch.); méconnaissance de...'.

jay/ƴ 'balance (vb)': Sereer *jaay* I 'balancer le corps', *caay o...ol II / caay a...ak* II 'hauban attaché au mât pour contrebalancer la poussée du vent' ~ Fula *yaƴƴa* I 'secouer, balancer'[7] (Wolof *jaayu* 'balancer la tête pour manifester un sentiment de jouissance, jouir (de qqch)').

jeer 'winnow (vb)': Sereer *jeer* 'vanner', *njeer n / ceer k* 'vannage, triage du mil sur le van' ~ Fula *yeeroo* 'sasser (pour débarrasser le grain des impuretés, pour séparer les gros grains de couscous des plus fins...)', *jeerorgal / jeerorɗe* 'van, disque en paille utilisé pour vanner le grain'.

jir 'ill (svb)': Sereer *jir* 'être malade', *jir l / cir k* 'maladie, le mal' ~ Fula *yirba* 'être sans force, épuisé; être faible, abattu, défait; être mou, sans vigueur; être flasque' ('être malade': Palor *jer (~ jeɗ)*, Laala *jɪr*, Saafi *jir*).

5.1.18 Sereer j I ~ Fula j II:

jaɓ 'accept (vb)': Sereer *jaɓ* 'accepter [ce que l'on donne], agréer, admettre, autoriser, devoir [falloir], prendre [accepter], recevoir ...' ~ Fula *jaɓa* 'accepter, admettre; agréer; bien vouloir; recevoir; prendre (ce qu'on vous offre)' (a Proto-Atlantic root).

jaɗ 'stall (vb)' (Merrill: < **jaXɗ* 'prop up'): Sereer *jaɗ* 'caler [en arrêtant], soutenir [mettre un tuteur à un arbre]', Merrill *jaf* 'prop up' ~ Fula *jaɗɗa* 'être engourdi, être enkylosé; être roide, rigide; (membre) être endormi; avoir une crampe; (moral.). être endormi, engourdi, abruti (par l'alcool, par ex.); être comme sidéré'.

jaj/w 'bracelet sp.': Sereer *jaj o...ol / caj a...ak* 'sorte de bracelet en étoffe contenant des gris-gris que les lutteurs s'attachent aux jambes' ~ Fula *jawo / jawe* 'bracelet'.

jal 1 'laugh (vb)': Sereer *jal* 'rire, se moquer', *njaland n / caland k* 'la plaisanterie', *cal k* 'le rire, le hennissement [cheval]' ~ Fula *jala* 'rire'.

jam 'torch': Sereer *jam o...ol / cam a...ak* 'torche' ~ Fula *jamre / jame* 'torche'.

[7] While that which Merrill (2020: 25) states may be correct, "For Sereer *jaay* 'balancer' note Pulaar *jaay-* 'balancer', a much safer cognate candidate than Masina *yaƴƴ-* (both words are found only in a single dialect), another cognate is preferable – cf. ****jaab/w*** 'canter (vb)'".

jamb ‘speak against (vb), accuse (vb)’: Sereer *jamb* ‘accuser’ ~ Fula *jammb-oo* ‘trahir, tromper’ (Merrill objects to this semantic link, but it is typologically proven – see, e.g. Belanda *muun* ‘accuser / témoigner contre / trahir’, Majang *gàɓ-ɛɛr* ‘accuser / trahir / emballer / donner’ – both Eastern Sudanic languages).

jang ‘learn (vb)’: Sereer *jang* ‘lire, étudier, apprendre, prier’, *jangand o...ol / cangand a...ak* ‘salle de classe, école’ ~ Fula *jannga* ‘étudier; apprendre’.

jap/b ‘buddle of rice’: Sereer *jap l / cap a...ak* ‘gerbe de riz’ ~ Fula *jaba* ‘faire une gerbe (de riz)’, *jabaare / jabaaje* ‘botte, gerbe (de riz)’ (Wolof *jàpp* ‘gerbe de basi (variété de mil)’.

jar ‘cost (vb)’: Sereer *jar* ‘coûter, valoir, être valable, bon’ ~ Fula FJ *jarugol* ‘coûter, valoir, avoir pour prix’, Fula (17th century) *jari* ‘coûter’ (this root is attested in many Atlantic languages).

jar-it ‘comb (vb)’: Sereer *jar-it* ‘démêler les cheveux avec un démêloir, peigner’ ~ Fula *jaar-t-a* ‘démêler, peigner (avec brosse)’ (Palor *jerɪt* ‘peigner les cheveux’, Laala *jarto* ‘peigne’, Wolof *jarto* ‘peigne’).

jat/d ‘clitoris’: Sereer *jac fan* (Merrill: Sereer *o jof* = Wolof *cott* ‘(vulgaire) vagin’) ~ Fula *jadiire / jadiije* (‘clitoris’: Manjaku *njɔnt*, Mankanya *ka-njunt*, Balant *gì-jèttí / jèttí*).

jaw ‘light a fire (vb); cook (vb)’: Sereer *jaw* ‘cuire, faire cuire, assaisonner’, *cawel k (cawir k)* ‘viande, poisson ou autres mets que l’on mange avec le riz, couscous ou les légumes’ ~ Fula *jawa* ‘flamber vivement; (fig.) être vif, nerveux; (cheval) être ombrageux’, *jaaɓa* ‘prendre feu (par contact); (tison, allumette) s’allumer’.

jaab/w ‘canter (vb)’: Sereer *jaab* ‘aller au petit galop, galoper’ ~ Fula *jaawa* ~ *jaaya* ‘aller au petit galop’, *yappa* ‘trotter, aller au trot’ (cf. Fula *yaawa* ‘être rapide’) (Wolof *jaab* ‘galoper’).

jeg/y ‘have (vb)’: Sereer *jeg* ‘avoir, posséder, appartenir, tenir [posséder], gagner, obtenir’ ~ Fula *jeya* ‘posséder, avoir; être propriétaire de..., être le maître de...; (pass.) appartenir à..., être de...’.

joŋ/ng ‘suspend (vb)’: Sereer *joŋ* ‘mettre le repas sur le feu, poser la marmite sur le trépied pour faire le repas’ ~ Fula *jonnga* ‘suspendre, accrocher; poser en équilibre; (spéc.) poser (un récipient) sur les pierres du foyer; mettre sur le feu (une marmite); (moy.) s’accrocher, se suspendre (des boucles d’oreille par ex.), *yonnga* ‘relever (la partie du turban passant sous le menton pour le ramener sur la tête, les pans d’une moustiquaire pour les mettre en boule sur le sommet); suspendre (des boucles aux oreilles)’ (Kobiana *yoong* ‘suspendre’).

jor 'harpoon': Sereer *jor* 'harponner obliquement', *cojor o...ox / jojor w* 'harponneur' ~ Fula *jorewal / joreeje* 'harpon'.

jox/r 'point (with a finger) (vb)': Sereer *joox* 'montrer du doigt [indiquer du doigt], désigner [en montrant du doigt], tracer avec le doigt', *njooxir n* 'index' ~ Fula *juroo* 'désigner du doigt (qqn) en clamant son nom et ses louanges; se faire fort de...; se vanter de....'. (Nyun Guñamolo *bʊ-jɔhʊn* 'montrer du doigt').

jɔgɔɲ 'cold (svb)': Sereer *jogoŋ* 'faire froid', *cogoŋ o...ol / cogoŋ a...ak* 'le froid' ~ Fula *jaangol* 'le froid, la froidure' (Joola Kwaatay *ka-jɔkɔkan* 'être froid').

jɔl 'sprout (vb)': Sereer *jol* 'germer' ~ Fula Adamawa *jalɓugo / (jalɓ, njalɓ)* 'germer, sortir le germe (sans que les feuilles ne soient encore visibles)' (cf. Fula *jalte* 'variole').

juɗ 'roast (vb), grill (vb)': Sereer *juɗ* 'rôtir', *njuɗ n / cuɗ k* 'grillade', *cujuɗ o...ox / jujuɗ* w 'rôtisseur' ~ Fula *juɗa* 'griller, rôtir', *njuɗu* 'grillage (de viande)'.

julm 'pile up (vb)': Sereer *juumb* 'amonceler, accumuler, agglomérer, amasser', *juum l / cuum a...ak* 'amoncellement, amas, ramas, tas, monceau, pile' ~ Fula *julm-oo (juml-oo)* 'rassembler, mettre tout ensemble'.

jʊx 'join (vb)': Sereer *juuxin* 'joindre [ajouter], mêler [mettre dans]' ~ Fula *jokka* 'suivre, marcher à la suite de..., marcher le long de...; mettre à la suite de..., mettre bout à bout, raccorder', *jokkere / jokke* 'articulation, jointure; rajout, prolongement; suite' (Wolof *jokk* 'relier une chose à une autre', Bedik *ɔ-jɔkɛ / jo¯ kè gú* 'suivre, succéder'; cf. Limba *yokandi* 'join').

jVn (?) 'arm': Sereer (17th century) *guenna* [jenna?] 'bras' ~ Fula *junngo / juuɗe* 'main, bras'.

5.1.19 Sereer c II ~ Fula j II:

jaf/ɓ 'walk (vb); foot plant': Sereer *caf al* 'pied', *jaf ol* 'pied', *jaf l* 'fois' ~ Fula *jaaɓagol* 'marche sur...', *yaaɓa* 'poser le pied sur..., marcher sur...', *njaaɓirdi III / jaaɓirdi* II 'plante du pied; semelle'.

jal 2 'shine (vb), light (moon) (vb)': Sereer *cal* 'éclairer fortement [lune]', *cali l* 'jeu qui se joue au clair de lune' ~ Fula *jalba* 'luire, briller; être lumineux', *jalɓa* 'briller, scintiller, resplendir' (Konyagi *cíl̰á* 'halo').

jip 'descend (vb)': Sereer *cipu* (Grade II) 'descendre d'un lieu élevé [en sautant ou en glissant le long d'une corde]' ~ Fula *jippoo* 'descendre; s'abattre sur...; (spéc.) descendre d'une monture, mettre pied à terre'.

juul 'circumcised (n)': Sereer *cuul o...ox / juul w* 'circoncis' ~ Fula *juulnugol* 'circoncision; excision', *juulnoowo / juulnooɓe* 'circonciseur; exciseuse'.

5.1.20 Sereer nj III ~ Fula nj III:

njakw 'antelope sp. (Guib)': Sereer *njaf n / caf k* 'guib ou antilope harnachée' ~ Fula *njawa ciiwa / jawe ciiwe* 'guib harnaché' (Konyagi *ì -ncæ̀w / wæ̀-ɟæ̀w* ì-ncæ̀w / wæ̀-ɟæ̀w 'guib harnaché femelle (Tragelaphus scriptus)', Jaad *wan-cafɛ* 'guib harnaché'; Balant *jàfó / g-jàfó* 'antilope sp.).

njɛlɛm 'iron': Sereer *njelem n / celem k* 'fer', *celem a...al / celem a...ak* 'fer pour égrener le coton' ~ Fula *njamndi / jamɗe* 'fer, métal' (Wolof *njelem* 'tige métallique servant à égrener le coton', *jelem* 'flamme').

njɔgɔy 'lion': Sereer *njogoy (gi)...n / cogoy k* ~ Fula Adamawa *njagaawu / jagaaji.*

It remains unclear how to interpret the correspondence Sereer y ~ Fula j. In this book, this correspondence is derived from *y.

5.1.21 PFS *G: *ng/g/g > Sereer ng/k/g ~ Fula ng/g/w,ʏ,ʔ

Table 5.4: The reflexes of *G-

Series	Alternan	Sereer	grade	Fula	grade	Stat.
***G (Fula g I > w, y,ʔ I)**	***g**	g	I	w,y,ʔ	I	12
***G (Fula g I > g II)**	***g**	g	I	g	II	14
***G**		g	I	ng	III	
***G**		k	II	w,y,ʔ	I	
***G (Sereer g II > k II)**	***g**	k	II	g	II	3
***G**		k	II	ng	III	1
***G**		ng	III	w,y,ʔ	I	1
***G**		ng	III	g	II	3
***G**	***ng**	ng	III	ng	III	4

5.1.22 Sereer g I ~ Fula w,y,ʔ I:

gad/ɗ 'carry (vb), place (vb), charge (vb)': Sereer *gad* 'charger un fardeau sur les épaules, porter sur les épaules', *gador o...ol / kador a...ak* 'la bandoulière, la bretelle, tout ce qui sert à porter quelque chose sur le dos ou sur les épaules', *ngad-nir* 'se charger mutuellement un fardeau sur les épaules' ~ Fula *waɗina* 'mettre,

placer'[8], *gaɗugol* 'confection de…; réalisation de…'. Phonetically it is also possible to link this cognate with Fula *gannjoo* (< **gaɗ-n-oo*) 'porter en bandoulière; suspendre à son épaule' (Bedik *u-ɣá nd / gò ndú* 'porter sur les épaules', Wolof *gà ddu* 'porter sur l'épaule, supporter; assurer, assumer la responsabilité de').

gar 'come (vb), arrive (vb)': Sereer *gar* 'venir, arriver', *karu* 'venu [quelqu'un qui est venu], arrivé [quelqu'un d'arrivé]' ~ Fula *wara* 'venir, arriver', *gargol* 'venue; action de venir', *ngarki* 'venue; arrivée'.

gas 1 'dig (vb)': Sereer *gas* I 'creuser, piocher', *gasand o…ol / kasand a…ak* 'cimetière', *ngas a…al / kas k* 'puits, fontaine' ~ Fula *wasa* I 'creuser, excaver', *waynde / gayɗe* 'trou, excavation' (***-s-** > -y- is regular in Fula), *ngayka / gayɗe ~ ngaska(are) / gaskaaje* 'trou, excavation; creux; fosse; terrier' (a Proto-Atlantic root).

gay 'herd (vb)': Sereer *gay* 'paître, garder un troupeau, veiller sur…', *kaynaak o…ox / gaynaak w* 'pasteur d'un troupeau de bœufs, berger', *ngayand n / kayand k* 'pacage, pâturage' ~ Fula *wayna* 'être bouvier professionnel; s'engager comme bouvier, comme berger; faire des allées et venues, circuler', *gaynaako / waynaaɓe* 'bouvier, berger professionnel', *ngaynaaka* 'garde d'un troupeau au pâturage' (interestingly, in Bak languages this root is attested with a voiceless velar: Bijogo *kay(ɛ)* 'garder (animaux)', Manjaku *ʔay* 'garder, surveiller' ~ *ka'ay* 'action de garder').

gim 'sing (vb)': Sereer *gim* 'chanter', *kim a...al / kim a...ak* 'chant, chanson' ~ Fula (***gim*** > *jim*) *yima* 'chanter', *jimol / jimi (gimol / gimi)* 'chant; poème'.

gir 'tremble (vb)': Sereer *gir* 'trembler' ~ Fula *yerɓa* 'vaciller, chanceler; être branlant; osciller', *njerɓu* 'tremblement, ébranlement, vacillement' (***G** > Fula J via Grade I).

girg 'scrub (vb)' (Merrill: < **ɣirg* 'scrub'): Sereer *giig* 'presser, frictionner, masser [fortement], comprimer' ~ Fula *yirga* 'frotter vigoureusement en faisant rouler (sous la paume, par ex.); faire rouler (au fond d'une cuvette)', *yirgotoonde / jirgotooɗe* 'pendentif descendant sur le front' (***G** > Fula J via Grade I).

goɗ 'far (svb)' (Merrill: < **ɣoXɗ* 'be far'): Sereer *goɗ* 'être éloigné, être distant, s'éloigner, être loin, être lointain, être reculé, être écarté, être long [en parlant d'un chemin], *koɗu* 'loin, éloigné', Merrill *gof* 'be far' ~ Fula *woɗɗa* 'être loin, être éloigné; (moy.) s'éloigner de…', *goɗɗugol* 'état d'éloignement, distance (par rapport à l'objet)', *goɗɗo / woɓɓe* 'quelqu'un d'autre, un(e) autre; un(e) certain(e)'.

[8] It should be noted that Seydou's dictionary does not indicate the three mutation grades for verbs if they are obvious; the author often choses Grade II as the default. In some dictionaries, all three grades are given, but Grade I is taken as the basic one. Thus, in (Tourneux & Yaya 1998) the verb in question is represented as *wadgo / (gad, ngad)* 'faire; mettre'.

gubb 'forage (vb); fodder (n)': Sereer *gub* 'couper de l'herbe humide, faucher, fourrager', *gub l / kub a...ak* 'herbe coupée, fauchée, le fourrage' ~ Fula *wubba* 'couper du fourrage, couper de la paille (pour nourrir un animal)', *wubbo* 'fourrage'.

guɗ/jj 'steal (vb); thief': Sereer *guuɗ* 'voler, dérober', *kuuɗ o...ox / guuɗ w* 'voleur' ~ Fula *wujja* 'voler, dérober', *gujjo / wuyɓe* 'voleur'.

gərd/j 'collapse (vb)': Sereer *girid* 'renverser, jeter à bas, faire crouler', *girdox* 's'effondrer, s'ébouler, s'écrouler, abîmer', *kirdatin k* 'les ruines [débris d'un édifice écroulé]' ~ Fula *wurja* 'crouler, s'écrouler; s'effondrer; dégringoler; tomber en ruines; (fig.) se disperser', *gurjidingol* 'ruine totale de..., effondrement, écroulement définitif'.

5.1.23 Sereer g I ~ Fula g II:

gace 'shame': Sereer *gace fan / kace k* 'confusion, honte, pudeur, le déshonneur' ~ Fula *gacce* 'action indigne, déshonorante; acte honteux, faute; déshonneur, opprobre; injure, offense' (Wolof *gàcce* 'honte', Laala *gacɛ* 'honte', Nalu *ŋɔɔθ* 'honte').

gak 'pack (vb); stain (vb)': Sereer *gak* 'être tâché [avoir des tâches], être souillé, être sali, être crasseux' ~ Fula *gakka* '(techn.) tasser le fil de trame en rabattant d'un coup sec le battant du peigne sur la bande de tissu; (moy.) être tissé bien serré'; (pass.) recevoir un choc; être atteint fortement; être choqué, très abattu' (Wolof *gàkk* 'être taché, être souillé').

gakw 'millet': Sereer *gaaf o...ol / kaaf a...ak* ~ Fula *gawri / gawriije*.

gaaɲ 'hurt (vb)': Sereer *gaaɲ* 'blesser, meurtrir', *ngaaɲ n / kaaɲ k* 'blessure' ~ Fula *gaaɲa* 'blesser' (also found in other North Atlantic languages: Wolof *gaañ*, Saafi *gaaɲ*, Bedik *u-ɣàɲɛ / gàɲègú* 'se blesser').

gaar 'cotton thread': Sereer *gaare fan / kaare k* 'coton filé et bien retors avec lequel on ourdit; echeveau de coton acheté dans le commerce' ~ Fula *gaarawol / gaaraaji* 'fil de coton' (Wolof *garey* 'fil à tisser, en écheveau', coton filé', Bedik *gí-ngārá* 'fil enroulé', Jaad *kaare* 'fil de chaîne sur un métier à tisser').

gekw 'break (vb)': Sereer *gef* 'casser, être brisé, être fendu, rompre, détruire, ruiner, saccager' ~ Fula *gewa* 'se fendiller, se fêler, se lézarder; se craqueler'.

gen/ng 'set (vb)': Sereer *genox* 'se fixer' ~ Fula *gennga* 'fixer (qqch. en l'enfonçant); planter (un clou)'.

gend 'dwell (vb)': Sereer *gen* 'habiter, demeurer, séjourner, être de tel pays', *kenu o...ox / genu w* 'celui qui habite, l'habitant', *kend o...ox / gend w* 'le prochain, le semblable [au sens large], l'égal, le confrère, camarade, le pair' ~ Fula *genndiraaɗo*

/ *genndiraaɓe* 'épouse; époux, épouse', Merrill: Fula (Nigerian dialects) *yen~ngen* 'dwell' (Saafi *gen* 'habiter', Nyun Gubaher *bə-jin* 'habiter').

geƴ/s 'lean (vb)': Sereer *geƴ* 'être adossé, étayer, accoter, appuyer, soutenir, supporter', *keƴ a...al / keƴ a...ak* 'dossier, appui, soutien, support, colonne' ~ Fula *geesa* 'adosser contre...; (moy.) s'adosser à..., s'accôter à...; (fig.) être collé à..., être en rapport étroit avec...'.

gid 'scold (vb), thunder (vb), threaten (vb)': Sereer *gid* 'gronder, réprimander, assaillir de paroles brusques ou dures', *gidi fan / kidi k* 'fusil', *ngid n* 'gronderie, réprimande, brusquerie', *kid a...al / kid a...ak* 'gronderie, brusquerie' ~ Fula *gida* '(tonnerre) gronder; tonner; (ciel) menacer; (moy.) tenter d'effrayer ou d'intimider par des menaces' (cf. Kobiana *ba-ŋindi* 'tonnerre', Kasanga *ŋidd* 'tonner').

goon 'sap; tear': Sereer *goon fo...ol* 'sève', *koon-it o...ol* / *koon-it a...ak* 'larme' ~ Fula *gonngol* / *gondi* 'larme' (Bedik *gɛ-ngɔl* 'larme', Bak languages **kol* 'larme').

gurb 'weed (vb), reclaim (vb)': Sereer *guur* 'nettoyer un champ, avant de semer, défricher; essarter [un terrain pour les semailles]', *kuur a...al / kuur a...ak* 'nettoyage d'un champ avant les pluies, défrichement' ~ Fula *gurboo* 'effectuer un second sarclage (dans un champ cultivé)', *gurborgal / gurborde* 'petite houe de jardin pour sarcler les mauvaises herbes' (Saafi *guur* 'cultiver' < Sereer?).

gʌll 'dizziness' (*-**ll?** taking into account the vowel correspondence): Sereer *gal* 'avoir des vertiges [ce qui arrive souvent aux nouveaux circoncis]', *ngaalax n / kaalax k* 'bêtise, stupidité, abâtardissement' ~ Fula *giila* 'étourdir, abasourdir; (pass.) être abasourdi d'étonnement; (spéc.) avoir la tête qui tourne', *giilol / giili* 'vertige, tournis'.

gVmp 'hit (vb)': Sereer *gom* 'heurter, choquer, tamponner, donner des coups de tête', *ngom n / kom k* 'heurt, choc, tamponnement, coup de tête' ~ Fula *gempa* 'heurter, cogner, percuter; entrer en collision avec..., tamponner'.

5.1.24 Sereer k II ~ Fula g II:

gawul 'griot': Sereer *kawul o...ox / gawul w* 'griot', *ngawleem a...al* 'lieu où habitent les griots' ~ Fula *gawlo / awluɓe* 'griot' (Wolof *gewel* 'griot', Laala *xawul*, Saafi *xawur*).

gaaɓ 'jaw; cheek' (Merrill: < **gaXɓ* 'jaw'): Sereer *kaaɓ a...al/ kaaɓ a...ak* 'mâchoire - [par extension] = les mandibules', Merrill *a-kaɓ-aar* 'jaw' ~ Fula *gaaɓugal / gaaɓule* 'maxillaire, mâchoire; joue; ganache', *waɓɓugo ~ waaɓugo / gaɓɓule* 'joue' (in other North Atlantic languages this root contains a voiceless velar: Laala *kaaɓ (qaaw)* 'joue, mâchoire', Saafi *kaɓaɓki* 'joue', Nyun Gubaher *gʊ-xəbəət* 'mâchoire', Wolof *kaabaab* 'mâchoire', Bedik *ɔ-hɔɓ* 'joue ou plaque').

goor 'man': Sereer *koor o...ox / goor w* 'homme [par opposition à la femme], mari, époux', *ngoor n / goor k* 'courage, bravoure, virilité, hardiesse' ~ Fula *gorko / worβe* 'homme, garçon, personne de sexe masculin; époux, mari', *ngorgu* 'virilité, courage, bravoure, vaillance' (Wolof *góor G*; Bijogo *o-gude / ya-gude*).

5.1.25 Sereer ng III ~ Fula ng III:

ngand 'brain': Sereer *ngan(d) k* 'cerveau, cervelle, (parfois) la moelle' ~ Fula *ngaandi / gaandiiji* 'cerveau; cervelle; (fig.) cœur d'un tubercule'.

ngowl 'python' (Merrill: < **gowl, *ɣowl*): Sereer *fa-ngol fan / pa-ngol k* 'serpent' ~ Fula *ngowla / gowli* 'python'.

ngɔbw 'Acacia sp.': Sereer *ngoɓoɓ n / koɓoɓ k* 'Acacia polyacantha' (Merrill: *ngoβoβ* 'Acacia kamerunensis tree') ~ Fula *ngawdi / gawɗe* 'acacia épineux', Fula Adamawa *gawaari / gawaare* 'Acacia nilotica (L.) Willd. ex Del. ssp. tomentosa (Benth.) A. F. Hill (Mimosaceae)'.

ngɔɔx 'bull': Sereer *nɢoox n / qoox k* (Sereer ***ng** > nɢ under the influence of the final -x) 'bœuf [non châtré], taureau' ~ Fula *ngaari / gaʔi* 'bovin mâle; taureau; bœuf'.[9]

5.1.26 Sereer k II ~ Fula ng III:

Guf 'foam': Sereer *kuf* 'gonfler, écumer en bouillant', *kuf a...al / kuf a...ak* 'écume de la mer, à la marée montante' ~ Fula *ngufo / (n)gufooji* 'mousse, écume' (cf. Fula *ɣufa* 'mousser, écumer (intrans.)', *ɣufo* 'mousse, écume') (Laala *kuuɓ* 'mousse', Nyun Gubaher *gʊ-gʊfʊri* 'mousse', Nyun Guñamolo *tɪ-gʊf / tɪ-gʊf-ɔŋ* 'écume, mousse'; Joola Foonyi *ka-gʊf* 'bave, écume de mer, mousse du savon').

5.1.27 Sereer ng III ~ Fula w,y,ʔ I:

Giɻ 'eye': Sereer *ngid a...al / kid a...ak* ~ Fula *yitere / gite* (Proto-Atlantic ****giɻ***).

[9] Merrill argues, "Can any corroborating evidence be provided for such a change? Note that in this word, there is in fact an explanation of the vowel correspondence that does not resort to reconstructing additional phonemes. The regular development of the anticausative suffix *-oox (Sereer *-oox*) before a consonant is Fula *-aa*, thus e.g. *mud-aa-de* 'sink' from *mud-oox, etc. Lowering of vowels before a uvular consonant has parallels elsewhere in the languages, e.g. Sereer *yeeq* 'red (adj.),' *yax-ig* 'be red.' So a reconstruction of *rin-goox is probably sufficient to account for the Fula vowel" (Merrill 2020).

5.1.28 Sereer ng III ~ Fula g II:

***Gan** 1 'Soldier termite': Sereer *ngangaŋ n / kangaŋ k (ngakaŋ n / kakaŋ k, ngangar n / kangar g)* 'le soldat [chez les termites], guerrier [des termites]' ~ Fula FJ *ganngu* 'termite' (cf. Fula Adamawa *galgal / galgalji* 'soldat de termite Macrotermes et Bellicositermes (Isoptera, Macrotermitinae))'.

***Gan** 2 'plant sp. (Celtis intergrifolia)': Sereer *nga(a)n n / ka(a)n k* ~ Fula *ganki / ganḍe*.

***Gang** 'chest': Sereer *ngang n / kang k* ~ Fula *gannde / ganndeeje* (Fula < *gangnde*?).

To sum up our statistical data concerning the two possible evolutions of voiced consonants **(*b, *d, *j, *g)** in Fula, the following can be formulated: there is no doubt that Fula has strong tendency to modify the original grade and to preserve the proto-language consonant (***b** I, ***d** I, ***j** I, ***g** I > b II, d II, j II, g II, 76 examples), rather than to preserve the original grade and to change the proto-language consonant (***b** I, ***d** I, ***j** I, ***g** I > w I, r I, y I, w/y/ʔ I, 27 examples).

5.2 Sereer loss of voicing

5.2.1 PFS *B: *mb/b/w > Sereer mb/p/f ~ Fula mb/b/w

Here, we shall examine the following example: Sereer *fel* 'être agréable, bon' should be reconstructed as ***Pel**. However, the undisputed Fula correspondence must be reconstructed as ***Bel**: Fula *wela* 'être agréable, être bon', *belaaḍe* 'plaisir', i.e. Sereer mb/p/f ~ Fula mb/b/w.

Such correspondences are numerous, not only for labials but also for other places of articulation. The question is, how could they have evolved? Apparently, the only possible historical interpretation is following (Table 5.5).

Certainly, the convergence of the voiced and voiceless sets in Grades III and II in Sereer creates the possibility of a transition of the voiced mutation series to the voiceless one. At the same time, considering the attested correspondence, we assume for the proto-language a form which is found in Fula because the voicing change was not motivated in this language. Therefore, the examples from Fula are decisive for the reconstruction.

It should be noted that such transitions can be reconstructed only if Sereer attests a voiceless consonant of Grade I f-, since the alternants p-, mb- are regular for the voiced series as well. Here, we focus our attention the following correspondences. As I show through examples here, such transitions are systematic in Sereer.

Table 5.5: Transition PFS *B- > Sereer P-

		III	II	I			III	II	I	
PFS	***B:**	*mb	*b	*b		***P:**	*p	*p	*f	***bel**
> Sereer 1		mb					**mb**			
> Sereer			**p**					p		
> Sereer	***B**				⟹	P				**Bel** > **Pel**
> Fula		mb	b	**w**			p	p	f	**Bel**

Table 5.6: Transition PFS *B- > Sereer P-

Series	**Alternant**	**Sereer**	**grade**	**Fula**	**grade**	**Stat.**
***B (> Sereer P)**	***b**	f	I	w,y,ʔ	I	14
***B (> Sereer P)**	***b**	f	I	b	II	3
***B (> Sereer P)**		f	I	mb	III	3
***B (> Sereer P)**	***b**	p/f	II / I	w,y,ʔ	I	
***B (> Sereer P)**	***b**	p/f	II / I	b	II	1
***B (> Sereer P)**		p/f	II / I	mb	III	

5.2.2 Sereer f I ~ Fula w y,ʔ I:

***babw** 1 'mortar': Sereer *faɓ o...ol / paɓ a...ak* 'mortier, pipe, calumet, brûle-gueule, bouffarde' ~ Fula *wowru / boɓi* 'mortier'.

***babw** 2 'molar': *faɓ n / paɓ k* 'molaire, dent, mâchelière' ~ Fula *wowru / boɓi* 'molaire, prémolaire' (= ***babw** 1?)

***baŋ** 'refuse (vb); hate (vb)': Sereer *faŋ* 'refuser, ne pas vouloir, s'abstenir, désagréer, résister, haïr...', *mbaŋ n / paŋ k* 'la haine, l'antipathie, le refus, la résistance' ~ Fula *waɲa* 'haïr, détester, abhorrer, exécrer; avoir en aversion; être hostile à...', *baɲugol* 'prise en aversion de...; hostilité à l'égard de...; haine envers...', *bannjo* 'personne qui hait, déteste...; ennemi'. As in some other examples, the same Fula source shows initial labial as well as velar variants: *gaɲo / wayɓe* 'ennemi, adversaire', *ngayngu / gaynguuji* 'aversion, haine, hostilité'. A comparison with the forms of other Atlantic languages and, more broadly, of other Niger-Congo languages shows that the initial consonant in the proto-languages of greater depth

was 1) voiced, 2) labial: Basari *a-ɓaɲí* 'interdire, défendre', Konyagi *ì-ɓǽŋ* 'interdire', Wolof *baŋ* 'refuser, résister, refuser de; détester'; cf. Limba *baŋina ~ baŋinie* 'decline, refuse, deny, forsake, object'; Mandinka *bàŋ* 'refuser', Lele *bán*, Kono *bàn;* Proto-Bantu **béng* 'haïr; refuser'; Proto-Gbaya **bɛ̨* 'refuser'.

basak 'Hibiscus esculentus, okra': Sereer *fasak l ~ o...ol / pasak a...ak* 'plante herbacée de la famille des Malvacées ressemblant à l'oseille de Guinée (*mbassaɓ n*). Hibiscus cannabicus. Gombo-chanvre, chanvre de Guinée, chanvre indien, chanvre de Deccan', *mbasak l / pasak a...ak* 'Hibiscus cannabinus, le chanvre de Guinée', Sereer (Merrill): *mbasaaɓ / pasaaɓ* 'Hibiscus (Guinea sorrel) plant, Hibiscus flowers (in pl.)' ~ Fula Adamawa *waskoore / baskooje* 'gombo, Abelmoschus esculentus (L.) Moensch (Malvaceae); = Hibiscus esculentus L.'.[10]

bel 'pleasant (svb)': Sereer *fel* 'être agréable, bon, plaire, convenir, satisfaire, sourire' with various derivatives as *mbelakin n / pelakin k* 'enthousiasme, joie', *pel* 'agréable, bon, beau' etc' ~ Fula *wela* 'être agréable; être doux, être bon; plaire', *belaaɗe* 'plaisir', *beldiiɗo / weldiiɓe* 'ami, copain ({littéralt} qui partage le plaisir)', *mbelam / bele* 'joie, plaisir', *mbelɗam* 'sel'.

bes 'winnow (vb)': Sereer *fees* 'vanner (en laissant tomber le grain en plein vent)', *mbees n / pees k* 'vannage' ~ Fula *wesa* 'cribler (du grain); trier (du grain)', *wesirde / besirɗe* 'van utilisé pour trier le grain' (Wolof *bees* 'vanner').

bes/c 'change (vb), switch (vb)': Sereer *fes* 'transformer, changer de face, virer de bord', *mbesandax n* 'transformation' ~ Fula *wecca* 'faire de la monnaie; changer de l'argent', *mbecca* 'échange de billets contre petite monnaie; petite monnaie' (Laala *wɛc-uk* 'se changer, se transformer', Wolof *wécci* 'changer; convertir', Jaad *bac* 'changer', Konyagi *ì -bàcà* 'se métamorphoser; se transformer', Biafada *bac-* 'exchange', Nyun Guñamolo *bʊ-wɔcc* 's'échanger, échanger, changer, modifier, troquer', Kobiana–Kasanga *mbec* 'échanger'; (cf. Joola Kwaatay *ka-wɛj-ɛt* 'faire monnaie', Balant Ganja *gbaθ-i* 'échanger', Balant Kentohe *baθatna* 'échanger', a Proto-Atlantic root)).

beeʈ 'dawn (vb; n)': Sereer *feed* 'faire aurore', *mbeed n / peed k* 'l'aurore, l'aube' ~ Fula *weeta* 'être au matin; (matin) se lever ', *beetol* 'petit matin', *weetgo / (beet, mbeet)* Fula Adamawa 'faire jour, être le matin; passer la matinée' (Wolof *bët-set ~ bër-set* 'faire jour'.

biɗ/l 'bat sp.': Sereer *fiɗ o...ol / piɗ a...ak* 'chauve-souris (petite)' ~ Fula *wilwilndu / bilbilɗi* 'petite chauve-souris ordinaire'.

[10]It should be noted that in the last version of his dictionary, Henri Tourneux & Yaya (2017) defines the Fula Adamawa form as borrowed from Kanuri "*waskoore / baskooje* (**nde/ɗe**), n.; *var. du plur.: basko;* < Kanuri (*cf.* dialecte du Manga) [*gobasko*] « gombo » (Dalziel1937, cité par Mohamadou 1994, p. 280)".

biʔ/g 'heifer': Sereer *fi' (gi) l / pi' a…ak* 'génisse' ~ Fula *wiige* 'génisse'.

box 'bark (vb)': Sereer *fox* (with the variant *box* < ***bwox***) ~ Fula Adamawa *wohgo / (boh, mboh).*

boor 'pus; ripe (svb)': Sereer *foor* 'être mûr', *poor a...al / poor a...ak* 'maturité', *mboor n / mboor k ~ poor k* 'pus, sanie' ~ Fula *worɗa* 'être purulent; (abcès) mûrir; (pus) s'amasser; (ext.) être douloureux (comme une plaie infectée)', *mbordi* 'pus, sanie' (Wolof *mbér* 'pus'). (Merrill provides different forms for the two meanings: *foor* 'to be ripe', *mbor* 'pus', but the polysemy found in Fula indicates that these meanings are related, and thus it is the same root).

bɔmb 'bump': Sereer *fomboroj o…ol / pomboroj a…ak* 'bosse à la tête' ~ Fula *wammbo* 'bosse, gibbosité'. Apparently it evolved from a widely attested Fula root *wammba / bammba* 'porter sur son dos', *mbammbu* 'adoption; prise en charge de…; tutorat'. Cf. Bedik *ga-mbɔmb* 'porte-bébé', Nyun *bambɪl* 'le porte-bébé', Manjaku *bamb* 'porter sur le dos (bébé, fardeau)', Nalu *bambraa* 'écharpe (pour porter bébé)'; cf. Temne *bamba* 'carry on back (child)'; Boore *bàābá ~ bàābáā* 'porter sur le dos'; Dogon *bámbɛ* 'porter (enfant) au dos'. It can be an ancient Mande borrowing (cf. Mandinka *bàmbù ~ bàmpù* 'porter sur le dos', Susu *bạ̀bá*, Jalonke *bàmbú* etc.). Yet, we cannot exclude the possibility that this is a Proto-Niger-Congo root. At any case, it is clear that these forms go back to voiced ***b-**.

bʊt 'dine (vb)': Sereer *fut* 'donner à dîner, donner un repas', *puta…al / puta…ak* 'le repas de midi, le déjeuner' (the voiceless consonant is already attested in Sereer in the 17th century (d'Avezac 1845): *futokhi* 'dîner' ~ Fula wottoo 'déjeuner', *bottaari / bottaariije ~ bottaaje* 'déjeuner (premier repas de la journée)'). The same source contains the parallel form with a velar consonant: *gottagol* 'prise d'un déjeuner'.

5.2.3 Sereer f I ~ Fula b II:

baɗ/nt 'slap (vb)': Sereer *faɗ* 'gifler, claquer, souffleter (appliquer un soufflet), talocher (appliquer une taloche), calotter', *mbaɗ n / paɗ k* 'gifle, soufflet, claque' ~ Fula FJ *banto* 'gifle, soufflet' (Saafi *paɗ*, Noon *pat*, Laala *paar* 'gifle').

baɗ/yʔ 'submit (vb)': Sereer *faɗ-ox* 'faire l'esclave, adorer, se soumettre (faire sa soumission), se prosterner (devant quelqu'un)', Merrill *o paɗ* 'slave' ~ Fula *bayʔa* 'faire acte de soumission ou d'allégeance; se rendre (vaincu)'.

berekw 'watermelon': Sereer *feref n / peref k* 'graine de melon d'eau ou pastèque', *beref l / beref* k 'melon comestible de la Famille des Cucurbitacées; la pastèque',

mberef-a-koy n ‘espèce de pastèque sauvage – Colocynthis vulgaris’ (the variant: *weref l* < ***bwerekw*** ‘Colocynthis citrullus’) ~ Fula *birkindaare / birkindaaje* ‘pastèque sauvage (ronde, à peau tachetée et à chair blanche)’.

5.2.4 Sereer f I ~ Fula mb III:

Bak ‘drum sp.’: Sereer *fak* ‘battre le tam-tam’, *mbak n / pak k* ‘battement de tam-tam, batterie de tam-tam’ ~ Fula *mbaggu (< *mbak-gu) / baɗi* ‘tambour (portatif); (ext.). rythme tambouriné’.

Baam ‘donkey’: Sereer *faam o…ol / paam a…ak* ‘âne’, *mbaam o…ong / mbaam fu…n* ‘l’ânon’ ~ Fula *mbabba / bamɗi(iji)* ‘âne, baudet’. This form is doubtlessly a borrowing, possibly, an ancient one – with an initial voiced consonant (Wolof *mbaam M* ‘âne; porc’, *mbaam* ‘âne’ > *mbamʔal* ‘hippopotame’, Laala *mbamalə* ‘phacochère’, *mbamxʊx* ‘porc domestique’; Joola Kwaatay *ɛmbam* ‘âne’ etc.).

Bonɢ/s ‘porridge’: Sereer *fonɢ* ‘faire de la bouillie (appelée *fonɢ o-ol*)’, *fonɢ o…ol* ‘bouillie faite de farine de mil délayée dans du lait et de l’eau sucrée; on en prépare également pour les libations aux pagnol’ ~ Fula *mboy-ri* ‘bouillie faite de farine de riz (de mil, ou de maïs) mouillée et cuite dans de l’eau bouillante’ (Fula Adamawa, Fula FJ *mbusiri*).

5.2.5 Sereer p/f II / I ~ Fula b II:

bayl ‘forge (vb); blacksmith’: Sereer *paal o…ox / faal w* ‘forgeron; le wolof’ (p II / f I instead of the expected p II / b I) ~ Fula *baylo / wayluɓe* ‘forgeron’, *mbayla / mbaylaaji* ‘forge; atelier de forgeron’.

Theoretically, one could imagine that fact that we find the same grade in two different mutation series could license the voicing process PFS ***P** > Sereer B. Yet, we could not find any correspondence Sereer B ~ Fula P, whereas the correspondence Sereer P ~ Fula B is confirmed by about twenty relatively reliable examples. The conclusion is clear: at least for labial consonants, the change of the voicing series in Sereer is unilateral, namely ***B** > P. We shall test this observation on the data from series of other places of articulation. Considering that the dental place of articulation is a special case due to a number of reasons, we first consider a change of voicing in palatal and velar consonants.

5.2.6 PFS *J: *nj/j/j > Sereer nj/c/s ~ Fula nj/j/y

In Sereer, palatal devoicing follows the same model as that applied to labials.

The following correspondences are pertinent (Table 5.8).

Table 5.7: Transition PFS *J- > Sereer C-

		III	II	I			III	II	I	
PFS	***J:**	*nj	*j	*j		***C:**	*c	*c	*s	***jaaw**
> Sereer 1		nj					**nj**			
> Sereer			**c**					c		
> Sereer	***J**				⟹	*C				**Jaaw > Saaw**
> Fula		nj	j	**y**			c	c	s	**Jaaw**

Table 5.8: Transition PFS *J- > Sereer C-

Series	**Alternant**	**Sereer**	**grade**	**Fula**	**grade**	**Stat.**
***J** (> **Sereer C**)	***j**	s	I	y	I	
***J** (> **Sereer C**)	***j**	s	I	j	II	5
***J** (> **Sereer C**)		s	I	nj	III	

Here, we consider specific examples:

jaj/ƴ 1 'rub (vb), clean (vb)': Sereer *saj* 'frotter avec force [pour nettoyer], curer, briquer, se frotter les dents' ~ Fula *jonnja* (< **joƴ-n-*) 'nettoyer une gourde en y mettant eau et gravillons et en la secouant'.

jaaw 'Guinea fowl': Sereer *saaw a...al / saaw a...ak* ~ Fula *jaawngal / jaawle.*

jop/b 'rice sp.': Sereer *sopin o...ol / sopin a...ak* 'riz [ou mil] trempé dans de l'eau, on y met parfois du sucre' ~ Fula *joba* 'riz cuit à l'eau et auquel on ajoute du lait'.

jɔɔɓ 'Tamarisk': Sereer *sooɓ n / sooɓ k* 'le tamarinier', *njooɓ o...ong / njooɓ fu...n* 'petit tamarinier' ~ Fula *jaɓɓere / jaɓɓe* 'tamarin; gousse de tamarinier' (Fula Adamawa: *yaɓɓere / jaɓɓe*).

jʌnɢ 'stake': Sereer *sanɢul a...al / sanɢul a...ak* (*sanɢil a...al / sanɢil a...ak)* 'piquet où l'on attache les vaches' ~ Fula *juggal / jugge* 'piquet (où l'on attache le cheval, dans la cour); (ext.) coin d'une cour servant d'écurie', *jugga* 'ficher dans le sol, enfoncer en terre'.

It is worth mentioning that, whereas in the case of labials the majority of examples attest Grade I for both languages, there are no such examples for palatals. All nine examples provided here attest the correspondence Sereer s I ~ Fula j

II. Thus, we ask, what does this indicate? The most justified conclusion is the following: PFS *j- I,II did not change in Fula into y I.

We must also note that, as in the labial series, there are no examples in which the voiced palatal series in Sereer would correspond to the voiceless palatal series in Fula. In other words, the use of a similar grade for changing the voicing feature of the mutation series in Sereer only works in one direction.

5.2.7 Proto *G: *ng/g/g > Sereer ng/k/h ~ Fula ng/g/w,y,ʔ

First, we consider the following reflexes (Table 5.9).

Table 5.9: The transition PFS *G- > Sereer K-

Series	Alternant	Sereer	grade	Fula	grade	Stat.
***G (> Sereer K)**	***g**	h	I	w,y,ʔ	I	5
***G (> Sereer K)**	***g**	h	I	g	II	1
***G (> Sereer K)**		h	I	ng	III	

As shown below, there also is a regular correspondence between the velar voiced series G in Fula and the voiceless series Q in Sereer. This means that we should either reconstruct the voiced postvelar series in the proto-language, a distinction which would apparently lack supporting evidence, or we should assume that velars in Sereer could systematically change into postvelars: ***G** > Sereer K > Q. The second solution is preferable for a number of reasons. Therefore, we consider three more correspondences in Table 5.10.

Table 5.10: The transition PFS *G- > Sereer Q-

Series	Alternant	Sereer	grade	Fula	grade	Stat.
***G (> Sereer Q)**	***g**	x	I	w,y,ʔ	I	4
***G (> Sereer Q)**	***g**	x	I	g	II	5
***G (> Sereer Q)**		x	I	ng	III	2

The data supporting these correspondences are provided as follows.

5.2.8 Sereer h I ~ Fula w,y,ʔ I:

***gand** 'nipple': Sereer *hand* 'être pleine [femelle], être en gestation, porter [femelle]', *hand l / qand a...ak* 'mamelle [des animaux], pis', *and l / and a...ak* 'mamelle [des animaux], pis, téton, tétine' (to note a variety of Sereer forms: h-, q-, Ø-) ~ Fula *ʔenndu / ʔendi* 'sein, mamelle; pis, trayon'.

***gayw** 'tired (svb)': Sereer *hay* 'fatiguer' ~ Fula *ʔoyw-* 'fatiguer, harasser, épuiser'.

***git** 'take off (vb)': Sereer *hit* 'enlever une épine [qui se trouve dans le pied]', *kit a...al* 'l'enlèvement d'une épine' ~ Fula *ʔitta* 'enlever, ôter, retirer; prélever, tirer de..., prendre une partie de...; se servir une part de...; cueillir (un fruit)'.

***gul/dd** 'cover (vb)': Sereer *hul* 'couvrir d'une étoffe, draper, vêtir, habiller, envelopper', *kulox* 'se couvrir, s'habiller, se revêtir' ~ Fula *ʔudda* 'fermer, couvrir (d'un couvercle); boucher, bloquer, barrer; masquer'. This cognate is not evident. First, it should be noted that Sereer attests the root *wul* with a similar meaning 'couvrir, affubler', *wul-ox* 'se couvrir'. This root possibly retains the proto-language model of mutation ***ng/g/w**, and finds a parallel in Jaad *wudd* 'couvrir' in Biafada *wudd*, and also in Nalu *wuren* 'couvrir', *wuriy* 'découvrir' and Mankanya *p-gur* 'couvrir', i.e. it is a Proto-Atlantic root. On the other hand, in Fula, in the same source (Seydou 2014), along with the root *ʔudd* one finds the root *kur* (*huurtira* 'découvrir'), and some other Atlantic languages also attest a voiceless velar: Konyagi *ì-kúrá* 'se couvrir', Nyun *kud* 'couvrir', 'Manjaku *kul* '(se) couvrir'. We may be dealing with two Atlantic variants of the same root.

***gəd** 'fatten (vb)': Sereer *hud* 'engraisser [une bête]' ~ Fula *ʔida* 'engraisser (un animal), rendre gras, faire enfler; (moy.) être gros et gras, être adipeux' (Wolof *wudd* 'mettre (un animal) au repos)'.

5.2.9 Sereer h I ~ Fula g II:

***gaam** 'yawn (vb)': Sereer *haam-ox* 'bâiller ~ Fula *gaam-oo* 'bâiller; (spéc. Nég.) mourir', *gaamaango / gaamaali* 'bâillement; bruit de bâillement'.

5.2.10 Sereer x I ~ Fula w,y,ʔ I:

***gos/c** 'pluck (vb)': Sereer *xosit* 'effeuiller les tiges de riz, enlever la paille de riz' ~ Fula *woocoo* 'effeuiller, écosser', *woocannde / goocaɗe* 'poignée (de feuilles ou de pois, de graines) obtenue en faisant glisser entre ses doigts (un rameau, une cosse, un épi)'.

goyl (?) 'rust': Sereer *xoy* 'être rouillé [en parlant du fer], se rouiller, s'oxyder', *xoylar* 'être jaune, jaunir [devenir jaune]' ~ Fula *ʔool* 'jaune clair, de couleur fauve', *ʔool* 'couleur jaune, fauve'.

guyɓ/b 'wet (svb)': Sereer *xuɓ* 'être mouillé, être humide', *quɓu* 'mouillé, humide, fraîche' ~ Fula *ʔuyba* 'être trempé, être tout dégoulinant' ~ *ʔibba* 'être très mouillé, être trempé, être dégoulinant'.

guur 'smell (vb), mold (vb)': Sereer *xuur* 'être moisi, moisir, rancir, sentir le renfermé ou le vieux', *quur a...al / quur a...ak* 'moisissure, chancissure, relent' ~ Fula *ʔuura* 'sentir bon, embaumer, exhaler un parfum agréable; sentir, exhaler une odeur'.

5.2.11 Sereer x I ~ Fula g II:

gaɗ/d 'indigo; dye (vb)': Sereer *xaaɗ* 'teindre', *nɢaaɗ n / qaaɗ k* 'teinture; tissu à moitié teint', *nɢaaɗ o...ol / qaaɗ a...ak* 'indigo préparé en pains pour la teinture' ~ Fula (dial.) *gad* ~ *ngad* 'feuilles d'indigo broyées pour la teinture; teinture à l'indigo', *gara* 'teindre à l'indigo; (ext.) teindre (quelle que soit la couleur)', *ngarahi* Adamawa 'indigotier (Lonchocarpus cyanescens)'. In Atlantic and Mel languages we find both voiced and voiceless velar cognates: Bedik *ga-ngárà* 'indigo', Konyagi *gàrâ* 'indigotier (Indigofera simplicifolia); indigo'; Baga Koba *kare* 'indigo', cf. Temne *k-ara / ʈ-ara ~ a-kara* 'indigo', Landuma *karnɛ* 'bleu'.

ganj/ŋa 'okra': Sereer *xajang n ~ nɢajang n / kajang k* 'gombo', *xanja o...ol / qanja a...ak* 'le fruit du gombo' ~ Fula *gaŋaawi ~ ganaahi / gaŋaaje* 'gombo (plante)', *gaŋaare / gaŋaaje* 'gombo, fruit d'hibiscus'. The voiced velar is attested in Balant Ganja: *m-ngáánjɔ / ngáánjɔ* 'pied de gombo' (possibly, this form is the source for the name of the idiom; a noteworthy form is *f-ntàànjūù / ng-tàànjūù* 'fruit du gombo'). In other languages we find a root with initial voiceless stops: Wolof *kaanja;* Pepel *kanja*, Joola Banjal *fɔ-kkanja* etc. Yet, the latter Atlantic forms could have also been borrowed directly from Manding (cf. Mandinka *kánja*, Xasonka *xánja*). It should be noted that these roots deserve a separate investigation in Mande languages (considering the forms in Vai and Lele as well as in South-Western Mande, specifically, in Mano and Boko), as well as more generally in Niger-Congo.

gas 2 'roar (vb)': Sereer *xas* 'mugir', *qas a...al* 'action de mugir' ~ Fula *gaytoo* 'mugir plaintivement, gémir' (< ***gas-t***-?).

gaw 'hunt (vb); throw (vb)': Sereer *xayʸ* 'lancer, envoyer un projectile, tirer une arme à feu, lancer un dard, pêcher au harpon', *nɢawlax n / qawlax k ~ nɢayʸlax n / qayʸlax k* 'la chasse [gibier]' ~ Fula *gawoo* 'chasser, être chasseur (professionnel)'.

giɣ/ʔ ‘bone’: Sereer *hiiɣ o...ol / kiiɣ a...ak* ~ Fula *giʔal / giʔe ~ ɣiʔal / ɣiʔe* (Fula Adamawa *ɣiɣal / ɣiɣe*); in (Koelle 1963) for one of the Fula dialects: *gíial / íyee*. Theoretically, considering the data presented here, this cognate can be found to be justified, which is important considering that this word comes from the Swadesh 100-wordlist. It can therefore be compared with Joola forms that in many idioms have the root *joj*, for example, Joola Keeraak *hu-joj əh / ku-joj ək* with the expected devoicing in Joola Karon *kaa-cɛc*.

5.2.12 Sereer x I ~ Fula ng III:

Gat/d ‘sterile (svb)’: Sereer *xat l / qat a...ak* ‘animal stérile; stérilité [femelle]’ ~ Fula *ngaada* ‘stérile, sans résultat; sans intérêt’.

Gʊʊl/rʊ ‘snake sp. (Corn snake)’: Sereer *xuulul a...al / quulul a...ak (quulul a...al / quulul a...ak, kuurur a...al / kuurur a...ak)* ‘élégante couleuvre de la famille des colubridés, psamophis élégant’ ~ Fula *ngoroondi / gorooje ~ goroodɛ* ‘couleuvre’ (Basari *a-ngarɛ-ɣarɛ*, Wolof *xulool*, Laala *kəəlu*).

Thus, we see that velars attest the same type of systematic changes in Sereer, the type that leads to a correspondence between the voiceless series in Sereer and the voiced series in Fula. At the same time, as with the other places of articulations, there are no opposite correspondences.

5.2.13 The question of postvelar voiced stop reconstruction

Did the PFS voiced postvelar series ***nɢ III / *ɢ II / *ɢ I** exist?

Recall that Sereer Grade III (mb, nd, nj, ng) and Grade II (p, t, c, k) became identical in the voiced and voiceless series. The Grade III voiceless series copied by analogy the model of voiced consonants, i.e. they changed into prenasalized voiced consonants. Yet, in this case, what could be the source for the postvelar nɢ in the series nɢ III / q II / x I? Did it appear in row with the other voiceless series ***q/q/x** > nɢ/q/x? Theoretically, this hypothesis is not excluded. But we can ask the question differently: if PFS had the postvelar series ***nɢ III / *ɢ II / *ɢ I**, what could this series yield in contemporary languages? In Sereer, we can distinguish between the voiced and voiceless series only for Grade I; the series nɢ/q/ɢ does not exist in Sereer. In Fula, postvelars disappeared and became velars. Besides, PFS apparently did not have a postvelar sonorant.

Nevertheless, there is one regular set of correspondences that allows us to suggest, with caution, that PFS had a voiced postvelar series. The correspondence in question is Sereer q/x ~ Fula ŋ. We first look at two examples and then we try to legitimate this curious correspondence.

Nɢakwal ‘neigh (vb)’: Sereer *xafal (kafal)* ‘hennir’ (Sereer *ŋeexel* ‘hennir’ < Wolof ŋexal) ~ Fula *ŋawla* ‘(cheval) pousser un petit hennissement d’appel; (chien) pousser un cri plaintif’.

Nɢereɲ ‘clever (svb)’: Sereer *xereɲ* ‘être adroit, être habile, être ingénieux, être industrieux, être capable [habile], savoir bien faire, s’entendre à’, *nɢereɲ* ‘adresse, habileté, ingéniosité’ ~ Fula *ŋeeɲa* ‘être adroit, habile; être ingénieux; être talentueux’, *ŋeeɲaaku* ‘qualité d’artisan; statut de griot, d’artisan’. It should be noted that both in Sereer and Fula these forms are considered irregular, which is supported by the existence of multiple irregular variants. Thus, along with a postvelar, Sereer has a velar in etymologically related forms: *kereɲu* ‘habile, adroit’. Fula, along with ŋ-, attests forms with ɲ-: *ɲeeɲa* ‘être adroit, habile’ (Wolof *xereñ* ‘être ingénieux’).

The only possibility to explain this correspondence is to assume that it originates from a postvelar series, so that ***nɢ** > Fula ŋ (this corresponds to the general tendency of changes that postvelars undergo in Fula) and ***(n)ɢ** > Sereer Q (this corresponds to the general devoicing tendency typical for the voiced series in Sereer, which has been considered in this section).

5.2.14 PFS *D: *nd/d/d > Sereer nd/t/r ~ Fula nd/d/r.

The examples for which such transitions can be found are relatively numerous. The problem is that they allow for an alternative diachronic interpretation. Besides, dental consonants are the only place of articulation for which the opposite correspondences are also found, so that the voiced series D in Sereer corresponds to voiceless t- in Fula. In the following subsection we consider all the data that is available for dentals.

5.3 The correspondence of the voiceless and voiced dental series and their interpretation

In North Atlantic languages with consonant mutations the interpretation of dentals represents a particular difficulty. Dentals often reveal specific phonological and morphophonological properties that are otherwise atypical for the languages’ systems. Dentals in Wolof represent a good example. Wolof final consonants attest the following distribution (Table 5.11).

Another deviation witnessed among dentals in Wolof is their behavior in final consonant mutations in combination with certain verbal derivational suffixes. Thus, for example, in combination with the reversive **-i**, the root-final consonant

Table 5.11: The inventory of Wolof final consonants (a portion)

Voiceless	–	-t	–	–
Voiced	-b	–	-j	-g
Phonetic realization	[p]	[t]	[c]	[k]

is strengthened in that a singleton final stop becomes a geminate: *ub* 'fermer' > *ubb-i* 'ouvrir'; *boot* 'porter sur le dos' > *botti* 'enlever du dos'. In the same way, no quality change is found for sonorants: *suul* 'enterrer' > *sulli* 'déterrer'. Only voiceless fricatives change their quality, and the same is true for the glottal stop (all these consonants become voiceless geminate stops): *sof* 'joindre' > *soppi* 'disjoindre, changer', *fas* 'nouer' > *fecci* 'dénouer', *xëx* 'être essoufflé' > *xekki* 'reprendre son souffle', *dee?* 'mourir' > *dekki* 'ressusciter'. Yet, -r behaves differently: it alternates with the voiced stop instead of a voiceless one: *ñoor* 'enfiler' > *ñoddi* 'désenfiler, tirer vers soi', *teer* 's'arrêter' > *teddi* 'démarrer', *xaar* 'attendre' > *xàddi* 'ne plus attendre', *buur* 'ne pas être bien enfoncé' > *buddi* 'arracher', etc.

Such deviations in the behavior of dentals are attested for the majority of the North Atlantic languages. Fula and Sereer are no exception to this. In Fula, t- is the only voiceless stop that is not included in the mutation system. This circumstance has great importance for the diachronic interpretation of dental correspondences. As explained above, we have reason to assume that t- in Fula has been excluded from the mutation system as a result of the following change: ***t** III / ***t** II / ***r** I > Fula t III / t II / t I. This change has created the possibility of using r- in voiced series mutations: ***nd** III / ***d** II / ***d** I > Fula nd III / d II / r I.

If this reconstruction is accepted, it implies that in the proto-language, roots with an initial ***r-** in the voiceless series corresponded to ***T**, automatically change in Fula into a voiced series, i.e. ***T** > Fula D.

Nevertheless, the change of series voicing is possible in Sereer as well. First, as in other places of articulation, there are regular changes in which ***D** becomes Sereer T (in Grade I – r-).

Second, the dental place of articulation is the only one in Sereer where one finds a systematic transition, not only from voiced to voiceless, but also from voiceless to voiced consonants. This can be shown by an example of a borrowing where we are certain about the source form. As in many African languages, the words for 'a European, a white man' have developed in Sereer and Fula from Arabic *tubab*. Here, we consider the specific forms found in these languages: Sereer *tuɓaaɓ o...ox / duɓaaɓ* 'européen, homme blanc', *nduɓaaɓ* 'européen, français,

d'Europe',dial. *dubaablux* 'imiter les blancs, vouloir passer pour un blanc' ~ Fula *tuubaako ~ tuubaaku / tuubakooɓe ~ tuubako'en* 'Européen, Blanc'. The Sereer plural form clearly points to the change of the voiceless series T to the voiced series D: *tuɓaaɓ* > pl. *duɓaaɓ*.

In summary, we draw the following conclusions:

- For the correspondences Sereer D ~ Fula t, we can only reconstruct ***T**, and we have to admit that this change is not typical for other places of articulation in Sereer;
- For the correspondences Sereer T ~ Fula D we have no evidence (except for external comparative data) that would allow us to decide whether the compared roots originate from ***T-** or ***D-**, and we are obliged to limit ourselves with the unspecified reconstruction ***D/T**.

After examining specific examples, we will return to an interpretation of the data.

5.3.1 Proto *T: *t/t/r > Sereer nd/t/d ~ Fula t

Table 5.12: Correspondence Sereer d- ~ Fula t-

Series	Alternant Sereer	grade	Fula	grade	Stat.
***T (> Sereer D)**	d	I	t		12

5.3.2 Sereer d I ~ Fula t:

Taf 'forge (vb; n); blacksmith': Sereer Merrill: *dabax* 'to forge metal', Crétois: *tafax o...ox / dafax w* 'artisan qui travaille le fer; forgeron', *tafax n / tafax k* 'forge', ~ Fula *tafa* 'forger; façonner (objet métallique)', *tafoowo / tafooɓe* 'forgeron' (Tanda *tap / zap* 'forge; forger').

Tay 'cut (vb); block (vb)': Sereer *day* 'couper un chemin ou une route (à quelqu'un, pour l'empêcher de passer), couper la retraite (à quelqu'un)', *nday n / tay k* 'la coupure [d'une route]' ~ Fula *tayɗa* 'couper, trancher; couper à travers; (moy.) se couper de..., rompre avec...; couper court, s'arrêter brusquement' (for the semantic justification of the link 'cut' > 'block the path', cf. e.g., Wolof *dog* in both meanings and the similar polysemy of several other African languages

(8 languages in the polysemy database of African languages Segerer & Flavier 2011).

Taan 'ancestor; grandchild': Sereer *daan w* 'ancêtres, aïeux, ascendants; antiquité', *taan o...ox / daan w* 'aïeul', *ndaan o...ong / daan fu...w* 'petit-fils, petite-fille, petit-neveu, petite-nièce...' ~ Fula *taan* 'petit-enfant de...; (ext.) descendant de...'.

Teɓ/p 'throw (vb)': Sereer *deɓ* 'jeter, lancer, abattre des fruits en lançant des bâtons', *teɓ* 'jeter, lancer, précipiter ~ Fula *tippoo* 'lancer, jeter; précipiter'.

Teng/kk 'thick (svb)': Sereer *deng* 'être épais', *deng a...al / teng a...ak* 'l'épaisseur, la grosseur' ~ Fula *tekka* 'être épais; être résistant, dur', *tekkugol* 'épaisseur, densité de...'.

TenkV 'sit on the ground (vb)': Sereer *denkelu* 's'asseoir par terre, à la manière des tailleurs' ~ Fula Adamawa *tenk-agol* 's'asseoir'.

Tir 'swell (vb)': Sereer *dirig ~ dirix* 'marquer de coups, de meurtrissures, porter les marques de sévices ou de piqûres reçues, meurtrir, enfler (après coup)', *ndirix n / tirix k* 'l'enflure' (Merrill : *dirig* 'be bruised' < *dir* 'be stained/discolored' ~ Fula *tiira* 'enfler, gonfler; être tuméfié', *tiirde / tiire* 'cloque, bouton, pustule; petite tumeur'.)

Toɓ 'rain (vb; n)': Sereer *doɓ* 'pleuvoir', *toɓan a...al ~ (ga)...l / toɓan a...ak* 'pluie' ~ Fula *toɓo / toɓooji* 'pluie'.

Ton 'lip': Sereer *don o...ol / ton a...ak* 'bouche, bec, gueule, groin, ouverture, entrée, orifice, fond (d'un tonneau)' ~ Fula *tonndu / toni* 'lèvre' (cf. Wolof *tuɲ* 'lèvre'; Bijogo *kɔ-tɔnɔ / ŋa-tɔnɔ* 'lèvre' etc.).

Tuf 'drill (vb)': Sereer *duf* 'percer, trouer', *tufir* 'trouer, percer' ~ Fula *tufa* 'percer, faire un trou; perforer; transpercer; (spéc.) raccommoder (une calebasse)' (Proto-Atlantic root ****ʈʊf*** 'percer').

Tuɽ 'spit (vb)': Sereer *dud* 'cracher', *tud a...ak* 'crachats' ~ Fula *tutta* 'recracher; cracher, crachoter' (a Proto-Atlantic, and possibly a Proto-Niger-Congo, root with initial ***t-**).

Tuy/ɣɣ 'bleed (nose) (vb): Sereer *duuy* 'avoir une hémorrhinie, saigner du nez', *nduu n / tuu k* 'saignement de nez [hémorrhinie]' ~ Fula *tuɣɣa* 'saigner du nez'.

5.3.3 Proto *D/T: *t/t/r? *nd/d/d? > Sereer nd/t/r ~ Fula nd/d/r

The following three correspondences concern us here (Table 5.13).

A specific example illustrating the correspondence is Sereer *ran / tan /ndan* 'blanc' ~ Fula *ran-/ dan-/ndan-* 'blanc'. Yet, we must ask: from which proto-form

Table 5.13: Correspondence Sereer r- ~ Fula D-

Série	Sereer	grade	Fula	grade	Stat.
***D(*T?)**	r	I	r	I	8
***D(*T?)**	r	I	d	II	6
***D(*T?)**	r	I	nd	III	

could it have originated? On the one hand, there is nothing that prevents its reconstruction as a PFS voiced series as we have done this for the correspondences of other places of articulation as shown in Table 5.14.

Table 5.14: Transition PFS *D- > Sereer T-

		III	II	I			III	II	I	
PFS	***D:**	*nd	*d	*d		***T:**	*t	*t	*r	***dan**
> Sereer 1		nd					**nd**			
> Sereer			**t**					t		
> Sereer	***D**				⟹	*T				**Dan > Tan**
> Fula		nd	d	**r**			t	t	**t**	**Dan**

On the other hand, the change of ***r-** into the Fula voiced series accompanied by the loss of the t/r alternation allows us to imagine the existence of the opposite direction of evolution of the correspondence in question from the voiceless series (Table 5.15).

Table 5.15: Transition PFS **T- > Sereer D-*

		III	II	I			III	II	I	
PFS	***D:**	*nd	*d	*d		***T:**	*t	*t	*r	***tan**
> Sereer 1		nd	**t**	d			**nd**	t	r	tan
> Fula	D	nd	d	**r**	⟸	*T	t	t	r	**Tan > Dan**
> Fula		nd	d	**r**			t	t	**t**	**dan**

For the specific root with the meaning 'white', one should probably reconstruct a voiced consonant based on external comparative evidence (for example,

cf. Noon *danao* 'blanc'), and yet Sereer and Fula forms themselves do not allow for an unequivocal reconstruction.

Nevertheless, there are numerous examples of these correspondences that we consider here.

5.3.4 Sereer r I ~ Fula r I:

***D/Taɓ** 'short (svb)' (Merrill: < **raXɓ* 'be short'): Sereer *raɓ* 'court', *taɓel o...ol / taɓel a...ak* 'petitesse, brièveté, concision', Merrill *raƥ* 'be short' ~ Fula *raɓɓ* 'court, petit', *daɓɓiɗingol* '(état) rapetissement, raccourcissement', *ndaɓɓandaɓɓaw(u) / daɓɓandaɓɓaaji* 'petit poisson gras ressemblant à la sardine'.

***D/Tan** 'white (svb)': Sereer *ran / tan /ndan* ~ Fula *ran-/ dan-/ndan-* (see discussion above).

***D/Tekw** 'follow (vb)': Sereer *reef* 'suivre, continuer, garder, observer, poursuivre …', *teef a...al / teef a...ak* 'la suite, la continuation' ~ Fula *rewa* 'suivre, poursuivre; obéir à..., être un fidèle de...; (ext.) poursuivre de ses assiduité, aimer', *riiwa* 'chasser, éloigner, renvoyer; poursuivre, pourchasser, mettre en fuite', *diiwgol* 'mise en fuite de..., action de chasser'.

***D/Tew** 'woman': Sereer *rew, ndew* 'femelle, du genre féminin', *tew o...ox / rew w* 'la femme, la femelle' ~ Fula *rew* 'féminin, femelle', *debbo / rewɓe* 'femme, fille; personne de sexe féminin; épouse', *ndewaaku* 'gente féminine; ensemble des femmes; féminité; état, condition de femme', *ndebbaaku* 'état de femme (qui a déjà eu des relations sexuelles)'.

***D/Teer/d** 'belly; middle': Sereer *reer* 'mettre au milieu, encadrer, être en compagnie', *ndeer a...al / teer a...ak* 'milieu, centre, intervalle, distance, compagnie' ~ Fula *reeda* 'être enceinte, être en état de grossesse; être ventripotent; être gros mangeur, vorace, glouton', *reedu/ deedi* 'ventre, abdomen; intérieur, fond, centre, coeur de..., le plein milieu de...'.

***D/Tim** 'birth (vb)': Sereer *rim* 'enfanter, donner le jour, engendrer, mettre bas (animaux), produire (arbres), fructifier', *ndim fa...fan / tim a...ak* 'enfantement, les couches, production (arbres), reproduction (animaux), génération' ~ Fula *rima* 'enfanter, donner le jour à; mettre bas; se reproduire; (arbre) être productif, porter des fruits; (moy.) être bienvenu, être né sans défaut', *dimgol* 'enfantement, accouchement; mise bas', *ndimaaku* 'condition de personne libre de naissance'. Here, we are dealing with a North Atlantic root for which one can unequivocally reconstruct a voiced consonant: Konyagi *ì-dɔ́w̃* 'donner des fruits; avoir des fruits; être productif', *ù-lɔ́w̃ɔ́l̩ / wæ̀-dɔ́w̃ɔ́l̩* 'pédoncule du fruit', Bedik *ɔ-rʌ̀m/ dùmú* 'accoucher, enfanter, produire', Biafada *(w)-nrəma / ma-nrəma* 'fruit', Wolof *dɔɔm*

B ‘enfant; fruit; clé; comprimé, pion’, *Noon kə-lim* ‘mettre au monde’, Palor *lim* ‘donner naissance à; être à l’origine de’, Nyun Gubaher *bʊ-diim* ‘fruit; famille’ etc. Therefore, we have a clear example of a transition from a voiced series (nd/t/d) to a voiceless series (nd/t/r) in Sereer, similar to the changes in other places of articulation that have been considered thus far.

***D/Tof/ɓ** ‘palm sp.’: Sereer *rof l / tof a...ak* ‘fruit mur du rônier’, *ndof n / tof k* ‘arbre de la famille des Palmées (Arécacées), rônier’ ~ Fula *ruɓɓere / duɓɓe* ‘noix de palmier rônier’, *nduɓɓi / duɓɓe* ‘palmier rônier’.

***D/Tox** ‘give (vb)’: Sereer *rox* ‘donner à quelqu’un une part de diner, servir le repas, donner une part à quelqu’un, ôter une part d’un mets’, *ndoxir n / toxir k* ‘la part [que l’on se donne mutuellement]’ ~ Fula *rokka* ‘donner, remettre à; offrir, octroyer, accorder à, doter (qqn de)’, *dokkal / dokke* ‘don, présent, cadeau; générosité’.

5.3.5 Sereer r I ~ Fula d II:

***D/Tay** ‘float (vb)’: Sereer *ray ~ rey* ‘glisser sur l’eau, aller à la dérivé, flotter, voguer, surnager’, *tey a...al* ‘action de flotter, action d’aller à la dérive’ ~ Fula *doya* ‘flotter; (ext.) voyager (par voie fluviale); (fig.) être indécis’.

***D/Taang/g** ‘branch of rônier; mat sp.’: Sereer *raang o...ol / taang a...ak* ‘gros pédoncule des feuilles de ronier, la branche de ronier, feuille de ronier complètement développée’ ~ Fula *daago / daage* ‘natte tressée, en folioles de rônier ou de doum’ (Basari *ndàgó* ‘natte de rônier’, Bedik *dágɔ* ‘natte en rônier’, Laala *laang (laag)* ‘feuille de rônier’).

***D/Tud/r** ‘graze (vb)’: Sereer *ruud* ‘s’introduire dans un champ pour manger jusqu’à en être repu [vaches]’, *ruudin* ‘faire brouter’ ~ Fula *dura* ‘partir pour le pâturage; mener au pâturage, faire paître; conduire (un troupeau à la pâture); garder le bétail’, *duroowo / durooɓe* ‘berger; bouvier; pasteur’.

***D/Tʊŋ** ‘push (vb)’: Sereer *ruuŋ-ox* ‘se transporter, se déplacer, se transférer’, *tuuŋ* ‘pousser’, *tooŋ a...al* ‘action de pousser une pirogue, à la perche, le déplacement’, *donit* ‘enlever, déplacer’, *rooŋ* ‘pousser une pirogue à la perche, déplacer, transporter’ ~ Fula *dunŋa* ‘pousser’, *dunʸita* ‘repousser avec vigueur’, *dunʸugol* ‘poussée brutale, bourrade; bousculade’ (Bijogo *duŋ(ɛ)* ‘bousculer; donner un coup d’épaule’).

***D/TVm** ‘dwarf’: Sereer *rimaag o...ol ~ ndimaag o...ol / timaag a...ak* ‘nain, avorton, courtaud, nabot’ ~ Fula *dommaa* ‘atteint de nanisme’, *ndomma(ajo) / dommaaɓe* ‘nain(e), nabot’.

ga-D/Tur ‘pig, boar’: Sereer (17th century) *grul l* ‘cochon, sanglier’ ~ Fula Adamawa *gaduuru / gaduuji*, (Sweetman 1981): *gaduuru* ‘porc, cochon’. Tourneux & Yaya (1998) treats the Fula form as a borrowing from Kanuri. I am not sure they take into account some forms in Sereer like *ruul / a-tuul* ‘pig’ (Merrill 2018a), where initial ***g-** could be reinterpreted as a class marker. [11] (Cf. also Konyagi *ì-ntùr / wæ̀-lùr* ‘phacochère mâle’).

It should be noted that in cases where external parallels are available, we reconstruct ***D** rather than ***T**. This allows us to discard, as totally hypothetical, the scenario of the transition Fula ***T** > D via the grade r-. Apparently, for all given examples, it is preferable to reconstruct *D and the Sereer change of voiced into voiceless in all places of articulation including dentals. In general, only one Sereer transition remains disproportional, namely *T > Sereer D.

[11] Merrill (2019) gives a similar opinion: “The form <groulle> in D’Avezac’s list must be *gu-ruul*, which lines up perfectly with modern *ruul (l-)*, which in the Nyominka dialect is *gi-ruul*. Many unprefixed nouns in the modern language have *gu-* in D’Avezac’s list; the issue is thoroughly discussed in (Merrill 2019). There is even a form given with noun class agreement in D’Avezac’s list: <groulgourer> » representing *gu-ruul gu-rew* ‘female pig’ given for ‘truie.’” (Merrill 2020).

6 Initial unmutated consonants. Unclear correspondences. Conclusions

Apparently, there were non-mutating consonants in PFS composed of sonorants, i.e. nasals and approximants (excluding ***w-**), as well as glottalized consonants. We consider their reflexes as follows.

6.1 Nasals

Reflexes of nasals do not pose any difficulties as, apparently, they were not involved in the proto-language mutation system. As nasals do not mutate in contemporary languages, the correspondences are unambiguous.

6.1.1 *m-:

****maf*** 1 'falcon': Sereer *maf o...ol / maf a...ak* 'nom générique de tous les petits oiseaux de proie ou éperviers qui n'ont pas un nom spécial' ~ Fula *mafindalnde / mafindalɗe (mawndalde / mawndale)* 'faucon chiquera' (Wolof *maf* 'faucon').

****maf*** 2 'support (vb), take (vb)': Sereer *maf* 'prendre une chose avec l'intention de la remettre' ~ Fula *maf-oo* 'soutenir (qqn qui marche) en prenant par les épaules ou en tenant sous les bras; étreindre en prenant les épaules; prendre à pleins bras'.

****magw*** 'big; old (svb)': Sereer *mag-in* 'être gros, être énorme, être volumineux. ..', *maag* 'être l'ainé, être plus âgé [que], être supérieur à, surpasser' ~ Fula *maw* 'grand; important (en taille, en volume, en nombre); âgé' (Proto-Atlantic root **mag / *mak*).

****mal*** 'rich (svb); happiness': Sereer *mal* 'porter bonheur, être favorable, être utile, être bon, convenir' ~ Fula *malee* 'être chanceux, heureux, fortuné, béni du sort; (spéc.) être un bienheureux' (Laala *ka-mal* 'porter bonheur', Bedik *ɔ-mʌ́l / múlú* 'être propre, avoir de la chance').

****mal/ro*** 'rice': Sereer *maalo n / maalo k* ~ Fula *maaro / maarooje*. The reconstruction of this root, which is widespread across Atlantic and Mande languages and

beyond, raises doubts. Apparently, these words penetrated into Sereer and Fula through different channels. The Fula word could have been borrowed at some stage from Soninke *máarò*.

man 'flatter (vb)': Sereer (Merrill 2018a) *man* 'to flatter, over-compliment, praise' ~ Fula *mana* 'vanter, louer, louanger'.

max 'build (vb)': Sereer *max* 'mouler la terre, façonner de la terre, bâtir [en terre, en banco], maçonner' ~ Fula *maha* 'modeler de la glaise; construire en pisé; maçonner; édifier'.

max/ƴ 'termite': Sereer *max n / max k* ~ Fula *mooƴu / mooƴi*.

may 'fill (vb); much; high tide': Sereer *may* 'être beaucoup, abonder, être en quantité, être nombreux, être plein, se remplir, … être monté', *may-in a...al / may-in a...ak* 'plénitude, maline [grande marée de nouvelle et plein lune], haute-mer, flot [la marée montante], marée haute'; *maag o...ol / maag a...ak ~ maah go...ol / maah a...ak* 'mer, océan' ~ Fula *maayo / maaje ~ maaƴe* 'fleuve, cours d'eau; lac (inclus dans le cours d'un fleuve)'.

maabo 'griot; weaver': Sereer *maabo o...ox / maabo w* 'griot qui chante en s'accompagnant du *tama*' ~ Fula *maabo / maabuuɓe* 'griot, tisserand de laine' (in Bambara, the word *máábɔ* means precisely 'griot peul, griot toucouleur' and not simply 'griot': cf. also Susu *mábɔɛ* 'tisserand', Mogofin *(mábɔ) sɔgɔlá* 'tisserand'; cf. Dogon Ben Tey *máábò-m* 'griot'; Zarma *màbé* 'griot'; Fula is the likely source for all of these languages).

maak 'declare (vb)': Sereer *maakadox* 'parler ambitieusement' (Merrill: *a-makadooxu* 'ambitiously') ~ Fula *maaka* '(terme de respect) parler, déclarer, dire'.

maam 'grandparent': Sereer *maam fan / maam k* ~ Fula *maamiraawo / maamiraaɓe*. A Proto-Niger-Congo root.

maaʈ 'present (svb)': Sereer *maad* 'être présent, asister, rester, demeurer, persister, durer, participer à, persévérer, stationner, trouver [rencontrer], subsister, surnager, poursuivre…' ~ Fula *maata* 'sentir, percevoir; ressentir, éprouver; se rendre compte de…, s'apercevoir que…; comprendre, apprendre, savoir' (the Proto-Atlantic root ****maaT*** 'être présent').

meɗ 'heavy, difficult (svb)': Sereer *meɗ* 'être lourd, être pesant, être grave, être massif, être surchargé, être sérieux [qui porte à conséquence], être accablant, être grosse [femme enceinte], être strict, être grave' ~ Fula *metta (< *meɗ-t-a)* 'être désagréable à...; déplaire, blesser, chagriner, irriter, fâcher, vexer, ulcérer; (pass.) être mécontent, amer, fâché; (+ infinitif) être difficile, malaisé de...'.

mel- 'shine (vb), sparkle (vb)': Sereer *meleƴ* 'briller, être luisant, être lumineux, être clair [luisant], étinceler [briller], être éclatant, flamboyer, rayonner…', *meleɲ*

'faire des éclairs sans chaleur [sans tonnerre]', *meɗdand o...ol / meɗdand a...ak* 'étincelle' ~ Fula *melsa* 'effleurer (en brûlant); (spéc.) brûler superficiellement (des poils ou des cheveux en les passant à la flamme)' (Laala *ka-mɯlɯc* 'briller', Saafi *meleɲ* 'éclair', Wolof *mellax* 'briller, étinceler', Konyagi *ì-ɓìl-ɓìl* 'faire des éclairs', Jaad *welej* 'faire des éclairs').

***mer/t** 'piece of cloth': Sereer *mer a...al / mer a...ak* 'bande de tissu que les lutteurs s'attachent par-dessus la ceinture' ~ Fula *meetalol / meetali* 'bande de tissu; turban'.

***met** 'lick (vb)' (Merrill: < **meXt* 'lick'): Sereer *met* 'lécher' ~ Fula *meɗoo* 'lécher à petits coups de langue, manger (un aliment farineux prélevé du bout de la langue)', *metaangal / metaale* 'faisceau de flammes, langue de feu, flamme', Fula FJ *mettugol* 'lécher' (Joola Kasa *mɛsen* 'lécher, toucher avec les lèvres ou la langue'; Sua *ŋmente* 'lécher').

***meeƴ/j** 'balance sp. (vb)': Sereer *meeƴ* 'balancer les hanches' ~ Fula *miijorgal / miijorɗe* 'balance'.

***mi** '1SG': Sereer *mi* ~ Fula *mi* (a Proto-Niger-Congo root).

***mir** 'tie (vb)': Sereer (Merrill) *mirig* 'to twine threads or any two long things together' ~ Fula *mira* 'attacher serré, ficeler solidement; ligoter'.

***mod/r** 'braid (vb)': Sereer *mod (maar, morol)* 'tresser, tordre une corde' ~ Fula *moora* 'tresser; coiffer de tresses, faire des nattes' (the Proto-Atlantic root ***mo(n)ʈ**).

***mol** 'small (svb); foal': Sereer *mol o...ong* 'poulain' ~ Fula *mol* 'petit, miniaturisé' (Laala mɔl 'poulain, pouliche', Wolof *mool* 'poulain').

***moy** 'avoid (vb)': Sereer *moyt-ox* 'éviter, éluder, décliner, esquiver, se garantir d'un danger' ~ Fula *mooya* 'marcher à pas de loup, avancer en tapinois, progresser prudemment et silencieusement', *mooy-t-oo* 's'approcher de... en tapinois; avancer vers… à pas de loup' (Ndut *mɔit-ɔx* 'éviter', Wolof *moyt-u* 'éviter; se méfier; faire attention à').

***moƴ** 'good (svb), best': Sereer *moƴ* 'valoir mieux, être mieux, être meilleur, être supérieur, l'emporter sur' ~ Fula *moyƴa* 'être bien, être beau, être excellent, être parfait' (Saafi *moɗ* 'être beau'; Balant *bɔɔnj* 'être/devenir beau').

***moorl** 'ball': Sereer *mool o...ol / mool a...ak* 'boule, globe, lingot, pâte, natte de cheveux' ~ Fula Adamawa *morlere / morle* 'boule, bille'.

***mooɲ** 'crush (vb); crumble (vb)' (Merrill: < **morɲ*): Sereer *mooɲ* 'émietter, pétrir, malaxer, façonner' ~ Fula *mooɲa* 'écraser en menus morceaux (matière sèche et friable); (spéc.) triturer entre ses doigts (des feuilles de tabac) pour les réduire en brins'.

moos ‘wipe (vb), massage (vb), caress (vb)’: Sereer *moos* ‘passer doucement la main, caresser, essuyer’, *moos a...al / moos a...ak* ‘massage, caresse, friction’ ~ Fula *moosta (mooyta)* ‘frotter légèrement, passer la main sur, caresser’ (the root is found in other Atlantic languages as well as in the Mande languages).

mɔƴ/j ‘lose (vb)’: Sereer *moy (moƴ ~ mo')* ‘être perdu; être égaré, se perdre, échapper’ ~ Fula *majja* ‘se perdre, s’égarer; disparaître à la vue; être perdu; (pass.) être ignoré, ne pas être reconnu’.

muɓ ‘close (vb), cork (vb)’: Sereer *muɓ* ‘fermer la bouche; pincer, serrer les lèvres’ ~ Fula *mumma* ‘fermer (les paupières)’, *muumna* ‘fermer, obstruer’, *maɓɓa* ‘fermer, enfermer; boucher, coincer, enserrer; cerner, traquer; (spéc.) surprendre en flagrant délit; (moy.) se mettre dans la bouche ce qu’on a dans la main (en se plaquant la main sur la bouche)’, *muɓɓa* ‘fermer, obstruer; cacher (bouche, yeux...)’ (cf. Bedik *ɔ-mɔm / mò mú* ‘se taire, fermer la bouche’; cf. Proto-Bantu **múm (mɔm, búm)* ‘fermer bouche, se taire’).

muɗ ‘eat something starchy (vb)’: Sereer *muɗ* ‘manger quelque chose de farineux [cf. *moɗ*], humecter pour avaler’ (> *muƴ n / muƴ k* ‘lèvre’?) ~ Fula *muuɗa* ‘lécher (une nourriture farineuse) dans le creux de sa main’, *muɗɗoo* ‘s’envoyer prestement dans la bouche (ce que l’on a dans le creux de la main: tabac, farine...)’ (cf. PFS ****moɗ*** ‘avaler’).

muk ‘never’: Sereer *muk* ~ Fula FJ *muk* (the Proto-Atlantic root ****muk***).

mum ‘shell (vb)’: Sereer *mum* ‘égrener le mil ou le maïs avec la main après l’avoir préalablement grillé...’, *muum n / muum k* ‘épi de mil ou de maïs grillé’ ~ Fula *mumoo* ‘égrainer; détacher avec ses doigts (les grains d’un épi, les baies d’un rameau)’, *mumri (mumru) / mumi* ‘mil frais dont les grains sont encore tendres et que l’on passe légèrement au feu pour les détacher plus facilement de l’épi’.

muŋ ‘wait (vb)’: Sereer *muŋ* ‘être patient, patienter...’ ~ Fula *muŋa* ‘être patient; supporter patiemment’ (in various West African languages *muŋ* < Arabic *munya*).

mup ‘handle; beat sp. (vb)’: Sereer *mup* ‘tenir une chose dans le creux de la main fermé’, *mup n* ‘poignée [quantité que la main fermée peut contenir]’ ~ Fula *muppa* ‘frapper de la main ou avec une batte; (spéc.) battre (une couverture de laine)’, *muppannde / muppanɗe* ‘claque, coup assené de la paume; coup de batte plate’.

mur ‘suck (vb)’: Sereer *mur* ‘faire du bruit en mangeant, manger, sucer des fruits de rôniers non mûrs, laper [du lait caillé], humer [avaler en aspirant, absorber en respirant]’ ~ Fula *mura* ‘sucer, suçoter’.

muƭ 'plunge (vb); press in (vb)': Sereer *mud* 'plonger dans l'eau, se coucher [astre]' ~ Fula *muta* 's'enfoncer, sombrer, plonger dans, être immergé; disparaître, (soleil) se coucher' (cf. Temne *moƭa* 'sink (ship or stone), dive, set (sun), be flooded').

muum 'mute (svb)': Sereer *muum* ~ Fula *muum* (the Proto-Atlantic and, more widely, the Proto-Niger-Congo root **muum*).

muur/nd 'veil (vb), cover (vb)': Sereer *muur* 'voiler, couvrir, couvrir d'un habit, cacher avec un voile, bander [mettre une bande]' ~ Fula *munndoo* 'se voiler le visage d'un litham; relever son turban sur sa bouche (comme un Touareg)' (Wolof *muur*; cf. Mandinka *múura*).

muus 'cat': Sereer *muus gi...n / muus k* ~ Fula *muusuuru / muusuuji* (the root is found in many languages of Western Africa, even Dendi *múúsù*).

mʊd/ɗ 'swallow (vb)': Sereer *mud* 'boire au milieu d'un liquide contenu dans un récipient très large [calebasse ou bassine]' ~ Fula *moɗa* 'avaler, déglutir; gober; engloutir; (moy.) se plonger' (Wolof *modd* 'avaler tout rond (une proie)') (cf. PFS ***muƭ*** 'plonger').

mʌɓɓ-it 'open sp. (vb)': Sereer *maɓit* 'ouvrir des coquillages' ~ Fula *muɓɓita* 'ouvrir; (moy.) s'ouvrir', Fula Adamawa *maɓɓititgo* 'ouvrir'.

kpreconstruction*mVm[1] 'touch (vb), feel (vb)': Sereer *mamin* 'palper; tâter' ~ Fula *meema* 'toucher, tâter; palper; caresser'.

6.1.2 *n-:

naɗ 'bend (vb); stretch (vb)' (Merrill: < **naXɗ* 'curve back inward'): Sereer *naɗ* 'courber, arquer, recourber, obliquer', *naɗtox* 'se redresser [en parlant de ce qui était courbé ou tordu], s'étirer [étendre les membres, au réveil ou en baillant]', Merrill *naf, naɗ* 'curve back inward' ~ Fula *naaɗoo* 's'étirer'.

nai 'four': Sereer *nahik (nahuk)* ~ Fula *nay(i)* (Proto-Niger-Congo root).

naj/nj 'squash': Sereer *naajo n / naajo k* 'plant de courge, citrouille, giraumont, potiron...' ~ Fula (17th century) *nanje* 'courge' (Wolof *naaje B ~ naajo B*).

nakw 'beat (vb); hurt (vb)': Sereer *naf* 'frapper, battre, taper' ~ Fula *naawa* 'faire mal, être douloureux; (pass.) avoir mal, souffrir; être rude, pénible; être éprouvant' (Konyagi *ì-ɗæfél̩* 'faire battre', Bedik *ɔ-lʌf / lù fú* 'battre, frapper, couper, casser', Jaad *naf* 'battre avec le fléau', Kasanga *nef* 'forge / forger').

nan 'hear (vb)': Sereer *nan* 'entendre, entendre dire, comprendre, écouter, apprendre, obéir' ~ Fula *nana* 'percevoir (par l'un des sens ou par l'esprit); entendre, sentir; comprendre'.

[1] ***mem*** or ***mam***.

nand ‘resemble (vb)’: Sereer *nand* ‘être semblable, être pareil, être comme, être conforme, ressembler, avoir l’air, sembler…’ ~ Fula *nannda* ‘ressembler à…, être semblable à…’.

naq ‘arm; handful’: Sereer *naq a...al / naq a...ak* ‘action de prendre par une poignée; la poignée’, *naax a...al / naax a...ak* ‘bras, manche [d’un habit]’, *naaq a...al / naaq a...ak* ‘branche (d’arbre]’ ~ Fula *nokka* ‘prendre par poignées’ (‘branche’: Mankanya *ka-nah*, Manjaku *ka-nʌ / i-nʌ*, Pepel *na*; it may be related to Proto-Atlantic **ɗɔk / lɔq* ‘bras; main’).

nawl ‘co-wife’ (Merrill < **nawl*): *naal n / naal k* ‘jalousie’ ~ Fula *nawli* ‘coépouse de...; concurrent, rival (dans une compétition)’ (Wolof *nawle B* ‘personne de même rang social’ > Sereer *nawle o...ox / nawle w* ‘compagnon d’âge, ceux qui sont du même rang social, égal, semblable, camarade, condisciple’).

naak ‘cow’: Sereer *naak (gi)...l ~ gi...n / naak k* ~ Fula *nagge / na’i* (a Proto-Atlantic root).

naap ‘armpit’: Sereer *naapand go...ol / naapand a...ak* ~ Fula *naawki / naawɗe.*

naar ‘Moorish’: Sereer *naar o...ox / naar w* ‘maure, arabe, libanais, syrien’ ~ Fula FJ *naare* ‘d’origine maure, propre aux Maures’ (Wolof *naar*; Manjaku *naar*, Mankanya *nanaar*).

naaw ‘kite’: Sereer *naawal fa...fan / naawal k* ‘cerf-volant’ ~ Fula *naawal / naawe ~ naawɗe* ‘cerf-volant’ (Wolof *naaw* ‘voler’, *naawal G* ‘cerf-volant’).

neɓ/b ‘fat’: Sereer *neeɓ* ‘être gras, être graisseux, être huileux’, *neeɓan k* ‘graisse’, *neew fo...ol* ‘beurre’ ~ Fula *neb(b)am / neb(b)ameele* ‘corps gras à l’état naturel: beurre, huile’.

niɓ ‘dark (svb)’: Sereer *niɓ* ‘être obscur, s’obscurcir, être dense [forêt], être ténébreux’ ~ Fula *niɓɓa* ‘être obscur, sombre; faire noir; avoir un teint sombre, foncé’.

nof ‘ear (n)’: Sereer *nof (gi)...n / nof k* ~ Fula *nofru ~nowru / noppi.* (The Proto-Atlantic root).

noon ‘color; type’: Sereer *noon* ‘absorber les couleurs; changer de couleur [caméléon]’ ~ Fula *noone / nooneeji* ‘couleur; sorte, espèce, catégorie’.

noox/r ‘crocodile’: Sereer *noox fa..n / noox k (pa noox k)* ~ Fula *noor(w)a / noodi.*

nɔgɔy ‘old (svb)’: Sereer *nogoy* ‘être vieux’ ~ Fula *nayee* ‘vieux, âgé’, Fula Salum (Koelle 1963) *nahejo* ‘vieux’.

6.1.3 *ɲ-:

ɲak 'miss (vb)': Sereer *ɲak* 'manquer, être dénué de, ne pas avoir, perdre' ~ Fula *ɲaka* 'être moins que..., être insuffisant, inférieur, incomplet, mutilé; manquer, faire défaut; ne pas faire le compte; ne pas être à la hauteur, échouer' (Palor–Ndut–Laala *ɲak*, Wolof *ñàkk*).

ɲall 'day': Sereer *ɲaal n / ɲaal k* 'jour [par opposition à la nuit], journée' ~ Fula *ɲalla* 'faire jour' (Bedik *gí-ɲál*diacritics 'soleil (jour)', Jaad *pi-jaadɛ* 'jour').

ɲap 'roof (vb)': Sereer *ɲap o...ol / ɲap a...aq* 'branche … que l'on fend pour faire les tois des greniers', *ɲap* 'frapper au moyen d'une branche d'épineux, houssiner [avec une branche d'épineux]' ~ Fula *ɲappugol* 'pose de (toit sur une paillote, harnachement sur une monture)'.

ɲaxaɲ 'scratch (vb)': Sereer *ɲaxaɲ* 'démanger, gratter, fourmiller, picoter' ~ Fula *ɲaaɲa* 'gratter; étriller'.

ɲaam 'eat (vb)': Sereer *ɲaam* ~ Fula *ɲaama* (a Proto-Atlantic root) > ***ɲaam*** 'droite': Sereer *ɲaamaak* ~ Fula *ɲaamo / ɲaame* 'main droite; la droite'.

ɲaas 'claw (vb); tattoo (vb)': Sereer *ɲaas* 'tatouer, balafrer, érafler, couper légèrement' ~ Fula Adamawa *ɲaastugo* 'griffer (branche épineuse, roue dentée, scie)'.

ɲaaw 'mourning; widow': Sereer *ɲaaw* 'être en deuil, porter le deuil; maladie que contracterait un homme qui cohabiterait avec une veuve durant les quatre premiers mois de son veuvage'. Merrill relates this root to Fula *ɲaawa* 'juger': "… perhaps related to Fula *ñaaw-* 'judge' (P, M), as a sort of judgement is handed down during this 40 day period as to whether the widow is pregnant" (Merrill 2018a).

ɲaaƴ 'walk (vb)': Sereer *ɲaaƴ* 'marcher, aller à pied, voyager' ~ Fula *ɲaaƴa* 'marcher fièrement d'un air avantageux; se pavaner'.

ɲell- 'tickle (vb)': Sereer *ɲelem n* 'agacement produit par un chatouillement ou un picotement' ~ Fula *ɲilla* 'chatouiller' (Wolof *ɲiiramtal* 'chatouiller', Jaad *ŋell* 'chatouiller').

ɲigw 'elephant': Sereer *ɲiig fa...fan / ɲiig ka ~ pa ɲiig k (ɲiik fa...fan / ɲiik k ~ pa ɲiik k)* ~ Fula *ɲiiwa / ɲiibi* (a Proto-Niger-Congo root).

ɲiŋ 'tooth': Sereer *ɲiiŋ l / ɲiiŋ a...ak* ~ Fula *ɲiinde / ɲiiƴe* (a Proto-Niger-Congo root, Proto-Atlantic **ɲiŋ*).

ɲit 'snuff (vb)': Sereer *ɲiit* ~ Fula *ɲiitta* (Bedik *ɔ-ɲɛtà* 'se moucher', Basari *a-ỹʌt* 'se moucher').

ɲɪng/ɲ 'engrave (vb), decorate (vb)' (= ****ɲiɲ*** 'dent'?): Sereer *ɲiing* 'buriner, graver, marquer avec un poinçon ou la pointe d'un couteau, pyrograver, ciseler, orner, sculpter, tatouer' ~ Fula *ɲeɲa* 'orner, décorer; dessiner; graver, ciseler'.

****ɲoʔ*** 'sew (vb)': Sereer *ɲo'* 'coudre', *ɲo' n / ɲo' k* 'couture' ~ Fula *ɲoʔa* 'coudre'.

****ɲud/ɗ*** 'wrinkle, crease': Sereer *ɲuudand o...ol / ɲuddand a...ak* 'ride, pli' ~ Fula *ɲuɗoo* 'avancer tout pelotonné sur soi-même (comme un chasseur qui se dissimule); marcher courbé (comme un vieillard)', *ɲuɗagol* 'marche, les reins courbés; progression de (qqn qui avance) plié en deux', Fula FJ *ɲuɗol* 'ride; pli'.

****ɲʊʔ*** 'slander (vb)': Sereer *ɲu* 'médire, diffamer, rire [se moquer], critiquer' ~ Fula *ɲoʔa* 'médire de, calomnier (cf. ****ɲoʔ*** 'coudre').

****ɲəf*** 'extinguish (vb)': Sereer *ɲuf* 'éteindre, étouffer, effacer, mourir' ~ Fula *ɲifa* 'éteindre; (fig.) effacer, étouffer; mettre un terme à...'.

****ɲVɲ*** 'ant': Sereer *ɲiiɲax n / ɲiiɲax k (ɲiiɲok n / ɲiiɲok k)* 'fourmi sp.' ~ Fula *ɲuuɲu / ɲuuɣi* 'fourmi' (Proto-North Atlantic **ɲʊŋ*).

****ɲVw/b*** 'bean': Sereer *ɲaaw o...ol / ɲaaw a...ak* 'haricot du pays, le niébé' ~ Fula *ɲebbe* 'haricots' (Wolof *ñebbe* 'Niébé, légumineuse voisine du haricot; Vigna unguiculata, Faba-cées'; Bijogo *ko-ɲagbu / ɛ-ɲagbu* 'haricot').

6.1.4 *ŋ-:

****ŋaɓ/p*** 'nibble (vb)': Sereer *ŋaɓ* 'mordiller [chercher à mordre, en parlant du chien]', Merrill: ŋaβ 'bite (for animals)' ~ Fula *ŋappa* 'entamer d'un coup de dents; enlever un morceau de... d'un coup violent, faire une brèche dans...' ((Merrill 2018b) relates Sereer *ŋaβ* with Fula *ŋasɓ-in* 'bite lips, grit teeth' and reconstructs the root **ŋasɓ*).

****ŋaf*** 'bark (vb)': Sereer *ŋaf (ŋaw)* ~ Fula *ŋofa.*

****ŋat*** 'bite (vb)': Sereer *ŋat* 'mordre, piquer [serpent]' ~ Fula *ŋata* 'mordre; prendre entre ses dents'.

****ŋaw/ŋ*** 'Ibis sp.': Sereer *ŋaw o...ol / ŋaw a...ak* 'ibis hagedash' ~ Fula *ŋaaŋawal / ŋaaŋaaje* 'Ibis hagedash, Bostrychia (Hagedashia) hagedash'.

****ŋaax*** 'shout sp. (vb)': Sereer *ŋaax (ŋaar)* 'braire [âne], croasser [corbeau], hurler, chanter à tue-tête' ~ Fula *ŋaaka* 'crier; croasser; brailler' (Wolof *ŋaax* 'braire; hurler (hyène)').

****ŋeew*** 'meow (vb)': Sereer *ŋeew-ŋeewin* ~ Fula *ŋeewa (ŋaawa).*

****ŋoɗ/dd*** 'stingy (svb)': Sereer *ŋoɗ* 'se cramponner, être avare', *ŋot* 'donner peu de choses, donner parcimonieusement [comme un avare], lésiner en donnant' ~

Fula FJ *wudda, wuddugol* ‘être avare’, *nguddo* ‘avare’ (Wolof *ŋott* ‘être avare; être chiche; être pingre’; Manjaku *ɲɛʈ* ‘être avare’).

ŋok/g ‘fold (vb)’: Sereer *ŋook* ‘courber, fléchir’ ~ Fula *ŋoga* ‘arquer, courber; mettre en forme de faucille ou d’hameçon’.

ŋooɲ ‘gnaw (vb)’: Sereer *ŋooŋooɲ o...ox / ŋooŋooɲ w* (*ŋeeŋeeɲ n / ŋeeŋeeɲ k*) ‘rongeur’ ~ Fula *ŋoŋoo* ‘rogner; ronger; enlever par petits morceaux; grignoter’.

ŋut/c ‘pinch (vb)’: Sereer *ŋut* ‘pincer; prendre une pincée, une prise; serrer trop [habits], étrangler’ ~ Fula *ŋucca* ‘pincer entre les ongles’.

ŋuy ‘sneer (hyena) (vb)’: Sereer *ŋuy* ~ Fula *ŋuuya.*

ŋuur ‘grunt (vb)’: Sereer *ŋuur* ‘grogner [animaux, le chien], rugir, feuler, bourdonner’ ~ Fula *ŋuura (ŋurr-)* ‘émettre un grondement de colère du fond de la gorge; pousser un grognement rauque et agressif; grognonner; grommeler’ (a Proto-Atlantic root).

ŋər ‘scratch (vb), claw (vb)’: Sereer *ŋir* ‘égratigner, griffer’ (*ŋoor, ŋol*) ~ Fula *ŋarjita* ‘griffer profondément, lacérer de coups de griffes’ (Proto-Atlantic root **ŋər*).

6.2 Glottalized consonants

6.2.1 *ɓ-:

ɓaɓɓ ‘fall (vb)’: Sereer *ɓaɓ* ‘faire tomber à l’aide d’un obstacle, heurter’ ~ Fula *boɓɓoo* ‘tomber par terre (pour un corps ou un objet souple), s’affaisser sur le sol; s’affaler’ (**ɓɔɓ* > Fula *boɓ*, a dissimilation of two glottalized consonants? A possible development between two labials: *-**a**-> Fula -o-).

ɓak ‘paste (vb); berth (vb)’: Sereer *ɓakand* ‘faire accoster une embarcation, orienter’, Merrill *ɓak* ‘push aside’ ~ Fula *ɓakka* ‘appliquer tout contre, accoler, joindre; raccommoder; coller à..., souder; (spéc.) enduire, crépir, plâtrer’.

ɓal ‘black (svb)’: Sereer *ɓaal* ~ Fula *ɓalee* (Proto-North Atlantic **ɓal*).

ɓas ‘birth (vb); family’: Sereer *ɓas-il* ‘enfanter’, *ɓas-il n / ɓas-il k* ‘famille’ ~ Fula *ɓesngu / ɓesnguuji (ɓeyngu / ɓeynguuji)* ‘naissance’, *ɓeyna* ‘engendrer, enfanter; accoucher; mettre bas’ (Palor *ɓəsil* ‘accoucher’, Basari *a-ɓaʃ* ‘enfants, enfance, famille’, Jaad *bas* ‘avoir un enfant, être nourrice’, Wolof *wasin* ‘accoucher’, Nyun Guñamolo *bʊ-bɔs* ‘naître, accoucher’, Bayot *kʊ-βsɛ* ‘naître’; cf. Mmani *bɔnsɔ* ‘lineage, clan, family’).

ɓasi (?) 'sorghum': Sereer *ɓasi n / ɓasi k* 'plante de sorgho' ~ Fula *mbayeeri* '(génér.) gros mil-blanc; sorgho' (Ndut *bəsɪ*, Wolof *basi;* the root is also widely present in Mande).

ɓay 'cool (svb), wet (svb)': Sereer *ɓay* 'être frais, être aéré' ~ Fula *ɓaya* 'suinter; (papier) baver; infiltrer, laisser filtrer; exsuder; être moite, humide'.[2]

ɓaaf/p 'fish sp. (vb)': Sereer *ɓaaf* 'prendre une jointée; pousser le poisson hors de l'eau, au moyen d'une poignée de paille tenue des deux mains' ~ Fula *ɓappoo* 'pêcher à la main en rabattant les poissons au centre d'un cercle' (Joola Foonyi *ka-baaf* 'nasse à pêcher').

ɓaak 'baobab': Sereer *ɓaak n / ɓaak k* ~ Fula *ɓokki / ɓowɗe* (Proto-Atlantic **ɓɔk*) > ****ɓaak*** 'corde' ~ Sereer *ɓaak o...ol / ɓaak a...ak* 'corde [généralement faite en fibres de baobab], ficelle, lien' ~ Fula *ɓoggol (< *ɓaak-gol) / ɓoggi* 'corde, lien'.

ɓaal 'body': Sereer *ɓaal fo...ol / ɓaal a...ak* ~ Fula *ɓanndu / ɓalli* (Proto-Tenda **ɓaḷ*).

ɓeɗ 'pinch (vb)': Sereer *ɓeɗ* 'tenir entre ses doigts, serrer entre ses jambes, pincer avec des tenailles, presser contre' ~ Fula *ɓiɣɣa* 'pincer, prendre avec une pince', Fula Adamawa *ɓiɗɗugo* 'presser (pour tasser, ou pour faire sortir un liquide)'.

ɓel/nd 'ripen (vb); cooked (svb)': Sereer *ɓel* 'être cuit' (Merrill : 'be ready') ~ Fula *ɓennda* 'mûrir; bien cuire, être cuit à point'.

ɓelt 'pass through (vb)': Sereer *ɓeer* 'passer à côté d'un lieu [sans y entrer ou s'arrêter], passer par, passer à côté de ou près de [quelqu'un ou quelque chose]' ~ Fula *ɓeltoo* 'passer, dépasser; être du passé...', *ɓettoo* 'passer; dépasser, passer outre; (temps) être passé' (a doublet form with a non-glottalized consonant: *welloo* 'passer, dépasser (un lieu); (temps) passer, être dépassé').

ɓi 'child; fruit': Sereer *ɓi o...onɢ / ɓi a...ak* 'enfant', *ɓi o...ol / ɓi a...ak* 'fruit [d'un arbre ou d'une plante] et tout ce qui procède d'une autre chose comme de son principe' ~ Fula *ɓiɗɗo / ɓiɓɓe* 'enfant, rejeton, petit; descendant; postérité; fruit', *ɓii* 'fils de, petit de...; personne appartenant à (telle ethnie, telle classe etc.)' (the Proto-Niger-Congo root).

ɓiŋ 'grimace': Sereer *ɓiiŋ* 'faire la moue, faire des grimaces de mépris, montrer du dédain par certains mouvements des lèvres, braver' ~ Fula (FJ) *ɓiŋŋugol* 'faire une grimace en s'efforçant de pleurer (comme font les enfants), esquisser les larmes' (Wolof *biiñ* 'faire la moue'; Manjaku *beŋ* 'bouder, faire la moue', Joola Banjal *e-bbiŋ* 'expression du visage avant de pleurer').

[2] Merrill's objections include: "The Sereer root is 'wind/blow' (cf. *a-ɸay* 'breeze/wind'). This is not similar to Fula 'ooze, be sweaty, humid, etc.'" (Merrill 2020: 52).

ɓir 'milk (vb)': Sereer *ɓir* 'traire [un animal], tirer [traire]' ~ Fula *ɓira* 'traire'.

ɓis 'lead (vb), send (vb)': Sereer *ɓis* 'porter, emporter, conduire, mener, enlever [emporter], guider. ..' ~ Fula *biisa* 'mettre dans la position adéquate, diriger, orienter'.

ɓiic 'squeal (vb)': Sereer *ɓiic* 'grincer [souliers], siffler [serpent], chicoter [souris]; brailler, miauler' ~ Fula *ɓiica* 'piailler, pousser un petit cri très aigu (oiseau, rat); piauler; couiner'.

ɓiir 'wipe (vb)': Sereer *ɓiir* 'ramasser avec l'index ce qui reste au fond d'un plat' ~ Fula *ɓiira* 'vider et nettoyer (des boyaux), *ɓiirta* 'racler (une matière adhérant à une surface ou une paroi) avec l'index replié en guise de raclette'.

ɓomb 'flatten (vb); wither (vb)': Sereer *ɓomb* 's'aplatir [par suite d'écrasement], être gondolé, être cabossé [en parlant du fruit calebassier que l'on a fait sécher, sans mettre de terre à l'intérieur]' ~ Fula *ɓooma* 'se ratatiner, rétrécir, se racornir; se déformer; changer d'aspect (négativement); flétrir'.

ɓox/s 'dog': Sereer *ɓox o...ol / ɓox a...ak* ~ Fula *ɓoosaaru / ɓoosaaji* (Atlantic root ****ɓʊʈ***, with cognates in Niger-Congo branches).

ɓood 'crawl (vb); snake': Sereer *ɓood* 'ramper [reptiles, plantes], marcher à quatre pattes [enfants], rampant [insectes, animaux]', *ɓooɓood n / ɓooɓood k* 'reptile [celui qui rampe]' ~ Fula *ɓoda* 'avancer en se traînant ou d'un pas pesant; (serpent) ramper; se déplacer en se traînant sur ses fesses; marcher lentement, avec difficulté', *mboddi / bolle* 'serpent'.

ɓoof 1 'brood (vb); egg': Sereer *ɓoof l / ɓoof a...ak* 'œuf' ~ Fula *woofoonde / boofooɗe* 'œuf', *woofoo* 'couver' (the initial glottalized consonant is identified due to Atlantic correspondences where the root is present with the meaning 'brood': Bedik *u-ɓāf / ɓɔfú* 'se coucher sur le ventre, couver', Laala *ɓɔɔf* 'se coucher (se dit des animaux)'; Mankanya *p-boof* 'couver, rassembler sous ses ailes' etc.)

ɓoof 2 'paralyze (vb)': Sereer *ɓoof* 'être accroupi par terre, être cul-de-jatte, être paralytique, être perclus' ~ Fula *boofo / woofɗinɓe* 'paralysé des jambes, paraplégique' (Joola Foonyi *ɛ-baf* 'aplatir; paralyser').

ɓook 'mosquito': Sereer *ɓook n / ɓook k* ~ Fula *ɓonngu / ɓowɗi* (the Proto-Atlantic root ****ɓʊk*** with cognates in other Niger-Congo branches).

ɓool 'peel (vb)': Sereer *ɓool* 'écorcer, écorcher, faire sortir le bois du ʿɓaakʾ [baobab] sans briser l'écorce' ~ Fula *ɓolta* 'dénuder, éplucher, écorcer, peler' (Joola Kasa *buul* 'écorcher, enlever la peau; être détendu', Joola Foonyi *ka-wʊlɔ* 'peler (peau, ampoule)'; Limba *ɓoli* 'peel bark from a tree').

ɓoor 'strip (vb); pluck (vb)': Sereer *ɓoor* 'effeuiller, cueillir, défleurer, décolorer, éclairer ou adoucir une teinte, après teinture [en trempant le tissu dans l'eau]',

ɓoorax n ‘mue [animaux - oiseaux]’ ~ Fula *ɓoora* ‘mettre à nu, dépouiller (qqn); (fig.). démettre, destituer; (moy.) démissionner, se désister’, Fula Adamawa *ɓortere / ɓorte* ‘mue (de reptile)’ (Balant gbur ‘plumer, enlever les arêtes’).

ɓoos ‘deflate (vb), massage (vb)’: Sereer *ɓoos* ‘être dégonflé, se dégonfler, (se) désenfler, être apaisé, se calmer; digérer’ ~ Fula *ɓoosa* ‘masser par pression; pétrir de la pâte en l’aplatissant’, *ɓoosta* ‘assouplir (une peau) en la pétrissant dans le tanin; tanner’.

ɓuɓ ‘fat (svb); abscess’: Sereer *ɓuɓel* ‘être gras, être dodu, avoir de l’embonpoint, s’engraisser’ ~ Fula *ɓuubere / ɓuube* ‘abcès, furoncle, bouton cutané’ (~ *ɓuɓ-*).

ɓʊf ‘pick up (vb)’: Sereer *buf* ‘ramasser, débarasser …’ ~ Fula *ɓopta* (< *ɓof-t-)* ‘rassembler en tas; ramasser en ramenant en tas (exemple: des grains que l’on ramasse avec ses deux mains)’.

ɓuj ‘castrate (vb)’: Sereer *ɓuj* ‘châtrer [par écrasement], chaponner’ ~ Fula *ɓuja* ‘castrer (un taureau) pour l’engraisser’.

ɓur ‘surpass (vb)’: Sereer *ɓur* ‘avoir raison contre quelqu’un, gagner un procès, une cause, battre quelqu’un dans une discussion, avoir gain de cause’ ~ Fula *ɓura* ‘surpasser, dépasser; l’emporter sur...; être supérieur à... en...; avoir plus de... que...’.

ɓurg ‘weed (vb)’: Sereer *ɓuur* ‘corroyer, épiler, enlever, ôter le poil, écorcher’ [cf. *wur*], *ɓuur o...ol / ɓuur a...ak* ‘sarclage du champ, lorsque la terre est sèche’ ~ Fula *burg-oo* ‘sarcler (un champ de mil) une deuxième fois; débarrasser (un champ) des mauvaises herbes’.

ɓuuɓ ‘cool (svb), cold (svb)’: Sereer *ɓuuɓ* ‘être frais, faire froid, être doux, paisible, tranquille’ ~ Fula *ɓuuɓa* ‘être froid, être frais; faire frais; être serein, apaisé; (fig.). être timide, calme (caractère)’ > **ɓuuɓ-t* ‘calme’: Sereer *ɓut* ‘être calmé, calmer, se refroidir, se taire …’ ~ Fula *ɓuuttina* ‘rafraîchir; apaiser, calmer’ (cf. Merrill 2018b: 88: *ɓuuɓ-t* ‘be cold’ + Applicative).

ɓuus/c ‘suck (vb), suckle (vb)’: Sereer *ɓuus* ‘sucer, absorber [en suçant], boire au chalumeau, siphonner’ ~ Fula *ɓuucoo* ‘faire un bruit de succion, de baiser’ (the Proto-Atlantic root **ɓuʈ:* Basari *a-ɓʊʃ* ‘sucer’, Konyagi *ì -ɓúc (ì -ɓús)* ‘sucer’, Saafi *ɓu(u)s*, Nalu *bɔɔnc* ‘sucer, baiser, embrasser’; Bijogo *bɔʈ(ɛ)* ‘sucer; embrasser; aspirer; téter’, Mankanya *boot* ‘téter’, Manjaku *buʌt (buʌʈ-)* ‘téter’).

6.2.2 *ɗ-:

We have seen from examples of *ɓ that in some cases the Sereer glottalized consonant corresponds to the Fula non-glottalized consonant and vice versa. In the

case of *ɗ there are even more of such examples (around ten). In such cases we will tentatively - with a question mark (?) - reconstruct a glottalized consonant.

***ɗagg** 'suspend (vb); granary': Sereer *ɗag* 'accrocher', *daaga fan / taaga k* 'réunion ou le groupe de greniers' ~ Fula *ɗaggal / ɗagge* 'plate-forme (pour isoler les gerbes du sol)' (Wolof *dàgga* 'enclos occupé par des greniers'; Konyagi *æ̀-ndæ̀nk / væ̀-ndǽnk* 'grenier de la femme (réserve pour la saison sèche)'; cf. Nyun Gubaher *bʊ-rak* 'hang'; Balant *laga* 'suspendre', Pepel *lak* 'suspendre, Mankanya *p-lank* 'suspendre sur une corde (pour sécher), étendre').

***ɗal** 'leave (vb), avoid (vb)': Sereer *ɗal* 'déroger, enfreindre, contrevenir, faillir, éviter (échapper à un danger), dévier, rater (ne pas atteindre), éviter (pour les coups), manquer son but' ~ Fula *ɗala* 'laisser; permettre; renoncer à...; cesser de...' (Konyagi *ì-ɗàr* 'éviter; faire le tour', Jaad *daar* 'éviter, faire un détour'; Manjaku *dand (rand)* 'éviter').

***ɗan** 'hunter, shooter': Sereer *ɗaana o...ox / ɗaana w* 'chasseur habile, habile tireur, bon tireur' ~ Fula FJ *dannaajo* 'chasseur (surtout utilisant une arme à feu)'.

***ɗanɠ/k** 'palate': Sereer *pa-ɗang a...al / pa-ɗang a...ak* (*ɗanɠalam n / tanɠalam k* (PL: f-?) ~ Fula *ɗakaaɲo / ɗakaaɲe* (Palor *ɗogʊlʊm*, Wolof *denqlɛŋ*; Balant *gɪ-dáàm / dáàm*).

***ɗaq** 'glue (vb)': Sereer *daq* 'cacheter, coller, calfater' ~ Fula *ɗakkoo* 'se placer tout contre...; se coller le long de...; longer, côtoyer; marcher en se serrant contre...; être limitrophe, être mitoyen' (Wolof *dàkk* 'appliquer de la colle faite à base de mie de pain trempée ou de farine de mil cuite').

***ɗat** 'road, path': Sereer *ɗat a...al / ɗat a...ak* 'chemin, route, sentier, voie ...' ~ Fula *ɗatol / ɗati* 'chemin, voie, route; trajet de...'.

***ɗaamb** 'spleen': Sereer *ɗaamb o...ol / ɗaamb a...ak* (*ɗaam o...ol / taam a...ak* PL: f-?) ~ Fula *daamol / daami* (Basari *a-nèw~* , Jaad *pə-deebo*).

***ɗaan** 'sleep (vb)': Sereer *ɗaan* 'dormir, s'endormir, reposer (dormir)' ~ Fula *ɗaanoo* 's'endormir; dormir'.

***ɗaay** 'wither (vb); wildfire': Sereer *ɗaay o...ol* 'incendie des herbes des champs (ou de la forêt)' (cf. *ɲaay o...ol / ɲaay a...ak* 'feu de brousse, incendie des herbes de forêt') ~ Fula *ɗayla* 'se flétrir, se faner, se dessécher'.

***ɗel** (?) 'shine (vb)': Sereer *deleɓ* 'briller (par suite d'un enduit, cirage, cire, huile de lin)' ~ Fula *ɗelka* 'briller, rayonner, resplendir'.

***ɗem** 'tongue': Sereer *ɗelem l / ɗelem a...ak* ~ Fula *ɗemngal / ɗemɗe* (one of the most stable Niger-Congo roots; widely present in both Atlantic branches. An initial glottalized consonant is attested in the Bedik form *í-ɗém*).

ɗep ‘flat (svb)’: Sereer *ɗep* ‘être mince, être camard, être aplati’ ~ Fula *ɗepp* ‘plat’.

ɗi ‘two’: Sereer *ɗik* ~ Fula *ɗiɗ* (< *ɗi-ɗi*).

ɗing ‘fence (vb), enclosure’: Sereer *ɗing* ‘entourer d’une barrière, d’une haie, d’une clôture, clôturer, clore, enclore’ ~ Fula FJ *dinngiraa* ‘parc, enclos à bestiaux’ (Laala–Palor *ɗɪŋ (ɗing)* ‘clôturer avec une haie, construire une clôture (d’épines)’).

ɗis ‘push (vb), extract (vb), pull (vb)’: Sereer *ɗis* ‘arracher, déplanter, enlever (une épine)’ ~ Fula *ɗiisa* ‘introduire délicatement, glisser, insérer, enfoncer soigneusement (un objet résistant, ayant de la tenue)’, *ɗiista* ‘tirer de, extraire, dégager, retirer (ce qui est inséré, enfoncé)’.

ɗok/ŋ (?) ‘soil sp.’: Sereer *ɗok k* ‘terre noire et très collante (donc argileuse), argile pour poterie, sorte de boue rouge’ ~ Fula Maasina (Osborn et al. 1993) *doŋol* ‘high riverbank; hillock, mound’, Fula FJ *doŋol* ‘talus, terrain de couleur rouge formé d’argile ou de sable, situé en pente’ (Nalu *donk(o)roŋ* ‘argile? latérite?’).

ɗom ‘difficult (svb); thirst’: Sereer *ɗom* ‘être difficile, être coûteux, être douloureux, faire mal, accablant, piquant, poignant, être mal aisé, être pénible, cher, aigu (vif), amer (dur), ardu, dangereux, lourd’ ~ Fula *ɗomka / ɗomɗe*‘soif’, *ɗomɗa* ‘avoir soif, être altéré; être assoiffé de...; (spéc.) avoir très envie de... (par ex. de revoir un être cher)’.

ɗoof ‘snatch (vb)’: Sereer *ɗoof* ‘arracher les mauvaises herbes à la main (dans une rizière), désherber à la main, sarcler à la main’ ~ Fula *ɗoofa* ‘tirer, arracher; extraire; déraciner; dégainer; s’extraire de...; jaillir de...; provenir de...’.

ɗool/r ‘skin; strip (vb)’: Sereer *ɗool n / ɗool k* ‘peau, cuir’, *ɗoolit* ‘enlever la peau, dépiauter, dépouiller (ôter la peau), écorcher’ ~ Fula *doorta* ‘arracher de la peau, excorier, écorcher’ (Wolof *der* ‘peau, cuir’; Joola Foonyi *ka-liil* ‘peau d’animal’; cf. Temne *ma-dɛrr* ‘body, skin’).

ɗɔf/ɓ ‘stupid (svb)’: Sereer *ɗof* ‘être fou, idiot, extravagant, hébété, insensé, monomane, niais, nigaud, oison, perdre la tête, être timbré, être toqué’ ~ Fula *ndaaɓu* ‘stupidité, idiotie’ (Fula FJ *njofo* ‘niais, stupide, idiot’) (Wolof *ndof* ‘folie’, Laala *dɔf* ‘idiot’).

ɗukw ‘fontanel’: Sereer *ɗuf n* ’sommet du crâne, fontanelle’ ~ Fula Bourkina (Rabier & Dicko 2005) *ɗuwirde / ɗuwirɗi (ɗuwoode / ɗuwooɗe, ɗuurude / ɗuuruɗe)* ‘fontanelle’ (< Fula *ɗuw-* ‘abriter, préserver’, Fula FJ *ɗuwirde* ‘abri’) (‘fontanel’: Nyun Gubaher *doofi*; Bayot *ka-ndeeɸi*).

ɗVd/ɗ ‘swallow (vb)’: Sereer *ɗuud* ‘avaler, engloutir, absorber (un liquide)’ ~ Fula *ɗeɗɗa* ‘étrangler, serrer à la gorge; (fig.) déglutir, avaler goulûment; (moy.) avoir la gorge serrée; s’engouer; s’étrangler’.

ɗVkw ‘shadow; shelter’: Sereer *ɗiif n / ɗiif k* ‘abri (contre le vent ou le soleil), tente, hangar’, *ɗiiɗiif n / tiiɗiif k* (PL: ɬ-?) ‘ombrage, ombre’ ~ Fula *ɗowdi / ɗowɗi* ‘ombre portée’.

6.2.3 *ƴ-:

As with glottalized dentals, the secondary articulation is unstable among palatals. In a considerable number of cases, there are variations, not only across, but also within, languages. Thus, according to Seydou’s data, Fula Maasina attests, along with *ƴubba (ƴummba)* ‘être mouillé’, such forms as *yuuba* ‘être très mouillé’ and, accordingly, *juubugol* ‘état mouillé, mouillure’.

In general, palatals are the least frequent in the glottalized series. We consider the data as follows:

ƴaf (?) ‘cover (vb)’: Sereer *yafin* ‘couvrir [mettre un couvercle]’ ~ Fula *ƴaafa* ‘se couvrir de gouttelettes (par condensation de la vapeur), de perles de sueur, de petites bulles de fermentation; (ciel) s’emplir de nuages de pluie’.

ƴar/dd (?) ‘educate (vb); whip (vb)’: Sereer *yar* ‘éduquer, élever, corriger, apprivoiser, cravacher, donner la verge’ ~ Fula *ƴadda* ‘cingler, fouetter’ (Wolof *yar* ‘éduquer, élever; punir; fouet, lanière, verge’, Jaad *jarin* ‘baguette, fouet’).

ƴax ‘chew (vb)’: Sereer *ƴax* ‘croquer, mâcher, gruger, mastiquer’, *ƴaxal o...ol / ƴaxal a...ak* ‘léopard ou panthère d’Afrique’ ~ Fula *ƴakka* croquer, mâcher, manger (une matière dure ou croquante); être un “croqueur” (un consommateur invétéré de noix de cola)’, *ƴakkirde / ƴakkirɗe* ‘molaire et dent de sagesse’.

ƴaʔ (?) ‘move (vb)’: Sereer *ƴakand* ‘déplacer, enjamber, transférer, reporter, renvoyer, remettre à une date ultérieure’ ~ Fula *yawta* ‘dépasser, franchir; passer par dessus, enjamber (un obstacle); transgresser; arriver après son temps, advenir trop tard’ (Konyagi *ì-ƒæ̀k* ‘déplacer les cases; prendre dans les bras’, Nyun Gubaher *bʊ-yaxʊn* ‘move’; Joola Foonyi *ka-ɲakɛn* ‘déplacer, entraîner quelque chose d’un endroit à l’autre’, Manjaku *ɲakəs* ‘déplacer’).

ƴel ‘blood’: Sereer *ƴal l / ƴal a...ak* ‘caillot de sang’, *ƴed* ‘saigner, suinter’ ~ Fula *ƴiiƴam (< *ƴel-ɗam) / ƴiiƴeele (ƴiiƴamji)* ‘sang’ (Bedik *ma-ƒɛl* ‘sang’, Baga Fore *yél / cì-yél* ‘sang’, Pukur Mboteni *yɛla* ~ ‘sang’).

ƴew/g ‘draw (water) (vb)’: Sereer *ƴeew* ‘tirer de l’eau d’un puits, puiser de l’eau’ ~ Fula *ƴooga* ‘puiser’ (***ee** > Fula oo potentially as the result of the loss of a labialized velar).

ƴ/Ɉong ‘bump’: Sereer *jonkil o...ol / jonkil a...ak (jongir fan / congir k)* ‘partie du dos entre les 2 épaules [animaux]; la bosse [bœuf ou dromadaire]’ ~ Fula *ƴonngiɗa* ‘être bossu, être affligé d’une gibbosité’.

ƴoƴ ‘clever, cunning (svb)’: Sereer *ƴiiƴ* ‘être rusé, être malin, être cauteleux, être astucieux...’ (*__o__ > ii entre 2 palatales?) ~ Fula *ƴoƴa* ‘1. être astucieux, malin, intelligent. 2. être en âge de comprendre; avoir atteint « l’âge de raison »; être mûr intellectuellement’.

ƴool ‘overflow (pot) (vb)’: Sereer *ƴool* ‘faire de la vapeur, sortir de la vapeur’, *ƴool n* ‘vapeur [qui sort de la marmite]’ ~ Fula *ƴoolta* ‘emplir (jusqu’à déborder); faire saillie, être gonflé, enflé; être comble, être empli à en déborder’.

ƴ/ƫuɗ/l ‘swell (vb)’: Sereer *juɗig* ‘enfler [à la suite d’un coup], dilater’, *juɗug o...ol / cuɗug a...ak* ‘enflure [causée par un coup violent à la tête]’ ~ Fula *ƴulna* ‘provoquer une enflure, un gonflement, une bosse’.

ƴuug ‘bend down (vb)’: Sereer *ƴuug* ‘se prosterner, s’abaisser, se courber, se baisser, se pencher, s’incliner, baisser la tete’ ~ Fula *ƴukkinoo* ‘se baisser recourbé sur soi-même; faire le gros dos; se blottir’ (~ *ƴuug-, ƴuuw-*).

ƴVg (?) ‘wave’: Sereer *yaga-yaga l / yaga-yaga k* ‘vague [de la mer], flot, onde’ ~ Fula Adamawa *ƴuuge* ‘vagues (dans l’eau)’.

6.3 Sonorants and the glottal stop: *w, *l, *y, *ʔ

Despite the seeming simplicity of identifying reflexes (these consonants have apparently not changed from the proto-language), there are some unclear points that allow for alternative diachronic interpretations.

The main problem is the following: according to the proposed reconstruction, Fula sonorants and the glottal stop entered the mutation system as Grade I alternants of the voiced series. This does not concern the dental sonorant ***l**, since in Fula the dental place uses r- as Grade I. Hence, the reflexes of the PFS sonorants in Fula are ***w**, ***l**, ***y**, ***ʔ** > Fula (mb/b/)w,y,ʔ I; (nj/j/)y I; (ng/g/)w,y,ʔ I; ɗ.

This means that, for example in Fula, w- as well as ʔ- can not only be reflexes of ***w-** and ***ʔ**, but also ***B**, ***G** (not to mention ***BW**, ***GW**).

Sereer labial sonorants have not entered the series mb/b/w as Grade I alternants, the series that, according to our reconstruction, goes back to ***BW** and ***GW**. Moreover, all our correspondences of the type Sereer (mb/b/) w ~ Fula w have been interpreted above as reflexes of labialized consonants. At the same time, it is clear that some of them could originate from ***w-** that was unmutable in the proto-language, and they could have subsequently fused with the reflexes of glottalized consonants. Thus, for the correspondence ‘to leave’ Sereer *waas/baas/mbaas* ~ Fula *was-/gas-* we have reconstructed ***(g)was**. Theoretically, this correspondence could have emerged due to the transformation of the velar in ***gwas**.

Yet, in other branches of the Atlantic group, the root is represented by a root-initial w-: Palor *wəc*, Wolof *wàcc*, Nalu *wos*; Joola Kasa *was*, Manjaku *wət*, Mankanya *p-wut-*, etc. Thus, an alternative scenario which is more plausible is suggested here: the unmutable ***w**- in ****was*** with its subsequent inclusion in Sereer *waas/baas/mbaas* and Fula *was-/gas-*.

Examples of ***w**- reflexes are absent in this section, and are included in the section on labialized consonants.

An additional problem arises with respect to the interpretation of correspondences that include a glottal stop. To begin, we note that dictionaries often do not note the glottal stop. Words with ʔ- in Fula and Sereer are represented in dictionaries as words beginning with a vowel. The question arises as to whether we have enough evidence to ascribe an initial glottal stop to every such word. Additionally, we must ask if we have enough arguments to state that the proto-language had no word starting with a vowel? Thus, the root considered above ***(g)was** 'to leave' is reflected in Fula not only by the forms *was-/gas-*, but also, apparently, by the form *acca* 'laisser, quitter, renoncer à…; cesser de…', which phonetically can be represented as *ʔacca*. The question remains: how should it be interpreted diachronically?

- ***w** > Fula ʔ before [a] entering into the set ng/g/w,y,ʔ (?)
- ***ʔ** > Fula ʔ (?)
- ***Ø** > Fula ʔ (?)

We will assume a working hypothesis according to which all Sereer and Fula words starting with a vowel originate from words with an initial ***ʔ**-.

The data are given as follows:

6.3.1 *l-:

labw 'shell, hull': Sereer *laɓ a...al / laɓ a...ak* 'cosse [des haricots ou autre semblable]' ~ Fula Adamawa *laalawal / laalaaje* (< **law-law-al*?) 'morceau d'écorce sèche; cosse (d'arachide); coquille (d'œuf); carapace (de tortue)'.

lak/gg 'sharpen (vb)' (Merrill: < **laXg-(oox)*): Sereer *lak* 'aiguiser, affiler, affûter, émoudre' ~ Fula FJ *laggagol* 'aiguiser le couteau' (cf. Fula Maasina *lagga* 'introduire le doigt dans un orifice en le faisant aller et venir (en se grattant l'oreille par ex.)').

las/c 'tail': Sereer *las a...al / las a...ak* 'la queue, la fin [d'une chose], la pointe, l'extrémité]' ~ Fula *laacol / laaci* 'queue'.

lamʏ 'lick (vb)': Sereer *laaʏ* 'sortir la langue, goûter [du bout de la langue], lécher', Merrill *laaᶜ* 'stick out tongue' ~ Fula *lamʏoo* 'se lécher les lèvres, les babines'.

laŋ 'spread, disperse (vb)': Sereer *laŋ* 'étaler, étaler un mets chaud [pour qu'il se refroidisse], étendre, tordre' ~ Fula *laanca (*laaŋ-)* 'éparpiller; étaler (un mets trop chaud pour qu'il refroidisse); tisonner (un feu pour le raviver), *laŋa* '(plante) ramper, étendre des ramifications; (fig.) avoir une descendance, étendre sa postérité; être productif, prospérer'.

law/y 'spread (vb)': Sereer *law* 's'étendre de tout côté, se propager en tout sens, pousser de longs jets [plantes rampantes], se répandre, s'accroître' ~ Fula *laya* '(plante) ramper, grimper; s'étendre, se propager; (eau, feu...) se répandre, gagner du terrain; (fig.). avoir une postérité, donner une descendance; prospérer'.

layʏ 'limp (vb)': Sereer *layʏ* 'boiter' ~ Fula *layʏa* 'boiter', *lannja (< *layʏ-n-)* 'boitiller'.

laaɓ 'rinse (vb)' (Merrill: < **layɓ*): Sereer *laaɓ* 'mouiller, être mouillé, laver un enfant', *laɓatin n* 'rinçage [du linge], passage à l'eau [rinçage], action d'enlever le pagne de la teinture pour le mettre dans l'eau' ~ Fula *laaɓa* 'être propre, pur', *laaɓal* 'propreté, hygiène', *lawʏa* 'nettoyer, laver (un récipient); rincer', *lawʏirde / lawʏirɗe* 'lieu où on lave la vaisselle'(the Proto-North Atlantic root **laaɓ*: Basari *u-làɓ / lòɓú* 'laver', Nyun *lab* 'laver le derrière', Wolof *laab* 'être propre; nettoyer à l'eau un enfant', Nalu *lɔw* 'laver').

laalo 'viscious sauce (svb)': Sereer *laalo fa ~ n / laalo k* 'feuilles de baobab séchées pilées et passées au tamis fin' ~ Fula *laalo* 'sauce végétale, mucilagineuse (à base de jeunes feuilles de baobab)'. This word is often defined as a borrowing from Wolof (Wolof *laalo* 'liant pour le couscous fait de feuilles de baobab séchées et pilées ou de sève de platane du Sénégal' (Fal et al. 1990), 'sève de *mbéb* ou feuilles de baobab servant à lier le couscous' (Diouf 2003), but this interpretation is not obvious: the structure CVCV is not typical for Wolof, besides, it remains unclear how this word got into Fula Maasina; this root may be etymologically related to Nalu *laal* 'salive'.

laam 'ask (vb), question (vb)': Sereer *laamit* 'interroger, interpeller, questionner, réclamer, consulter' ~ Fula *lamndoo* 'questionner, interroger, demander' (< **laaɓ-n*?).

leeɓ- 'hair (body hair)': Sereer *leeɓ o...ol / leeɓ a...ak* 'épiderme [membrane qui couvre le derme]' (> *leeɓ* 'se flétrir, se faner, se dessécher [membre], être fané [par le soleil]' ~ Fula *leeɓol / leeɓi* (*leembol / lemmɓi*) 'poil, crin; cheveu' (Nalu *lɛɛw* 'hair (of head)', Baga Fore *kí-lì / ɛ-lì* 'cheveu').

lees 'soil; sand': Sereer *lees n / lees k* 'tas de sable sorti d'une fosse' ~ Fula *leydi / leyɗe ~ leyɗeele* 'terre, sol'.

li(ɓ) 'fish': Sereer *liɓ (gi)...n / liɓ k* ~ Fula *linngu / liɗɗi* (Pukur *ɛ-lì / ɛ-lì gʌy*).

lig- 'cotton plant': Sereer *ligit fa...fan / ligit k* 'coton brut', *liit n ~ fa / liit k* 'arbrisseau de la famille des malvacées, le cotonnier', 17th century: *fo-lit* 'coton' ~ Fula *liigeri* 'coton (plante)', Fula Adamawa: *li'eere / li'eeje* 'cotonnier, Gossypium hirsutum L. (Malvaceae); champ de coton'.

lim 'count (vb)': Sereer *lim* 'compter, calculer', *lim a...al / lim a...ak* 'calcul, énumération, nombre' ~ Fula *lima* 'compter, calculer, dénombrer' (Wolof *lim* 'énumération; nombre; citation', Balant *dɛɛm* 'compter'; Sua *g-dɛm* 'compter').

liil 'spread (to dry) (vb)': Sereer *liil (liir)* 'étendre [pour faire sécher], faire sécher au soleil' ~ Fula *liila (lel-)* 'étendre au soleil pour faire sécher; (fig.) mettre à nu devant tout le monde, dévoiler'.

liit 'flute': Sereer *liit a...al / liit a...ak* 'sorte de clarinette traversière, à anche, faite en tige de mil' ~ Fula *liital / liite* 'hautbois; alghaïta; flûte' (Wolof *liit* 'instrument à vent constitué par une tige de paille ou de roseau, flûte', Jaad *ka-liit* 'flûte').

log 'morsel; put in mouth (vb): Sereer *log* 'mettre dans la bouche, cacher quelque chose dans la bouche', Merrill: *log* 'to have one's cheek full of food' ~ Fula *lonnga* (< **log-n-*?) 'préparer dans sa main une bouchée de nourriture', *lonngere / lonnge* 'bouchée de nourriture préparée à la main' (Jaad *lonk* 'prendre par poignée quelque chose (le repas), mettre dans la main').

loy/j 'stick in the eye (vb)': Sereer *loy* 'frapper dans l'œil, enfoncer une chose dans l'œil' ~ Fula l*oja* 'mettre quelque chose (doigt, poussière...) dans l'œil; entrer dans l'oeil'.

loof 'mud; sink into the mud (vb)': Sereer *lof* 'piloter [enfoncer un pieu] dans la boue ou la terre humide [sans creuser]', *lofir o...ol / lofir a...ak* 'pilot [pieu enfoncé dans la boue] le mouton [instrument pour enfoncer les pieux]', *loofin k* 'boue', *lop a...al / lop a...ak* 'boue', *lopin l / lopik k* 'boue', Merrill *loof* 'to get stuck in the mud', *loofin* 'mud' ~ Fula *loofa* 'monter (qqn) contre (qqn); brouiller entre eux; (moy.) se trouver déconsidéré, avili; être traîné dans la boue', *loopal / loope* 'boue, vase' (Wolof *roof* 'fourrer; enfoncer; glisser qqch dans, parmi', Jaad *lop* 'enfoncer, percer, donner un coup dans (avec un couteau, un sabre...)'; Joola Foonyi *ɛ-lʊʊf* 'enfoncer quelque chose dans le boue') (cf. ****lop***).

****lɔx*** 'cavity': Sereer *loxit* 'chercher, fureter dans un petit trou [ou une cavité]' ~ Fula *lahdu (laadu)* 'cavité adventice creusée sous la terre, en galerie, sur la longueur d'une fosse tombale, pour y glisser le cadavre'.

luɓ 'borrow (vb), lend (vb)': Sereer *luɓ* 'prendre à louage, louer [prendre à gage], emprunter un objet' ~ Fula *luɓoo* 'être en contrat de prêt ou d'emprunt avec (qqn)' (Bedik *lúɓàl / lúɓè* 'emprunter, prêter', Wolof *leb* 'prendre à crédit, emprunter (de l'argent ou un objet consommable dont on rendra l'équivalent)'; Balant *dib* 'emprunter').

luf (?) 'cavity': Sereer *luf n / luf k* 'cavité dans un arbre [qui conserve l'eau longtemps après les pluies]', creux d'un arbre' ~ Fula *luuro / luurooji* 'cavité cylindrique, trou (ouverture d'un tube); tuyau; vagin'.

lunk 'bend (vb); rump': Sereer *lung* 'courber', *lung a...al / lung a...ak* 'croupe, l'arrière-train, le croupion' ~ Fula *lunkoo* 'monter en croupe' (Basari *a-rɔngʷ* 'se courber', Bedik *ɔ-rɔng / dùngú* 'se baisser', Jaad *runk* 'se pencher, se courber', Nalu *duunk* 'be bent'; Joola Kwaatay *bʊ-rʊŋɔ* 'se courber', Bayot *ka-lʊŋɛn* 'courber').

luʔ 'horn': Sereer *lukuʏ o...ol / lukuʏ a...aq* 'extrémité de la corne d'un animal qui commence à pousser', *luuʏ a...al* 'action de pointer, de poindre [en parlant des plantes]' ~ Fula *luʔal / luʔe (luwal / luwe)* 'corne (de bovin, ovin, caprin et d'escargot)' ('corne': Nalu *luk*, Jaad *pə-dikɛ*, Biafada *bu-dəgga / maa-d-*; cf. Mel languages: Sherbro *lɪk*, Kisi *lèèyó* , Mmani *lék*, Kim *lègì* ; cf. Proto-Lower-Cross *ó -dòk /n-*, Day Bouna *dī ng* etc.).

ləkiʏ 'hiccough': Sereer *lukiʏ n (lukuʏ)* ~ Fula *likkiʏa (liyʏa)* 'avoir le hoquet; hoqueter' (Nyun Gubaher *gʊ-ləkic* 'hiccup', Nyun Guñamolo *ba-rɪkɪcɛŋ / ba-rɪkɪcɛŋ-ɛŋ*; Joola Foonyi *ka-lɪcɪj*, Joola Banjal *ɛ-ɪxɪj*, Bayot *e-loɣi*, Pepel *lɪgɪj*).

lʌnɢ 'background; deep': Sereer *lanɢ a...al / lanɢ a...ak* 'le dessous, le bas, le fond (> *langbar n / langbar k* 'hippopotame'?) ~ Fula *luggal* 'fond', *luggiɗa* 'devenir profond, être profond' (Nalu *luunk* 'be deep, have depth', Pukur *lòx* 'profond').

lVʏ/jj 'pour (vb); overthrow (vb)': Sereer *luʏ* 'mettre un peu d'eau, dans la marmite avant de la poser sur le feu', *luʏox* 'se renverser, être renversé, se culbuter, être culbuté', *liʏ n / liʏ k* 'quantité d'eau mise dans la chaudière [pour la cuisine]' ~ Fula *lejja* 'renverser, poser à l'envers; coucher sur le dos; (moy.) se coucher sur le dos de tout son long'.

6.3.2 *y-:

yakw 'despise (vb)': Sereer *yaf* 'mépriser, braver, dédaigner', *yafir n / yafir k* 'le mépris mutuel' ~ Fula *yawa* 'minimiser, sous-estimer; mépriser; dédaigner', *jawagol* 'mépris (à l'égard de...)'.

yal/n[3] 'ripe (svb)': Sereer *yal* 'être mûr et tomber [fruits, feuilles]' ~ Fula *yannda* 'être mûr à point', *yanndugol* 'parfaite maturité (d'un fruit)' (Basari *a-ỹʌn* 'être cuit, fermenté', Konyagi *-ɲə́l̰* 'être à point; être fermentée (pour la bière); être cuit; être mûr', Kobiana–Kasanga *ŋin* 'mûrir', Nalu *ɲel* 'be ripe', Wolof *ñor* 'être à point, arriver à maturité, être mûr; être cuit'; cf. Joola Foonyi *ɛ-ɲʊ́l* 'cuire', Joola Kwaatay *ka-ɲʊnʊ* 'cuisiner').

yaq 'damage (vb)': Sereer *yaq (yak)* 'gâter, abîmer, détruire, détériorer. ..' ~ cf. Fula *yakka* '(fœtus) mourir avant d'arriver à terme; être mort-né', Fula FJ *yakk-agol* 'pratiquer la débauche, être pervers' (Laala *yax* 'gâter, détruire, dévaster, avorter', Wolof *yàq* 'abîmer, gâter, détériorer, gâcher').

yax 'speak (vb), entrust (vb)': Sereer *yaxar* 'faire une confidence, dire en confidence, confier un secret', *yaxaroox* 'parler à voix basse, chuchoter' ~ Fula *yaakoo* 'parler, dire, déclarer' (Nalu *yek* 'dire'; Pepel–Mankanya *jak* 'dire').

yaaj 'large (svb)': Sereer *yaaj* 'être large, être spacieux', *yaajel o...ol / yaajel a...ak* 'largeur, ampleur, espace, dimension, superficie' ~ Fula *yaaja* 'être large, être évasé', *jaajugol* 'largeur de...', *njaajeefi* 'largeur'.

yaap/ɓ 'neglect (vb)': Sereer *yaap* 'se désintéresser, négliger, être négligent, être paresseux' ~ Fula *yeeboo* 'négliger, délaisser, ne pas s'occuper de...; être sans soin pour..., se désintéresser de...', *yeefe / yeefe'en* 'personne négligée'.

yaar 'tired (svb)': Sereer *yaar* 'être las (fatigué), ne plus pouvoir tenir debout (par suite de fatigue), tenir longtemps un objet' ~ Fula *yartoo* 's'étioler; dépérir, s'affaiblir (sous l'effet de soucis)'.

yaay 'mother': Sereer *yaay fan / yaay k* ~ Fula *yaaya* (Palor *yeey*, Wolof *yaay*, Pukur Mboteni *a-yá / aya~* ; Joola Banjal *Ø-jaay (sɪ-)*, Balant *yá à / bɪ-yá à* ; cf. Temne *ya*, Sherbro *yaa*, Kisi *yà à* ; 'Limba *ya*).

yebw 'lay something on (vb)': Sereer *yeeɓ* 'poser doucement un objet [pour qu'on ne s'en aperçoive pas]; placer, déposer doucement...' ~ Fula *yow* 'poser, déposer; mettre sur, placer (en hauteur); (moy.) être placé au-dessus de...'

yem/ɓ 'admire (vb)': Sereer *yemel* 'être admiré' ~ Fula *yeeɓa* 'envier; admirer'.

yeng 'night': Sereer *yeng o...ol / yeng a...ak* 'nuit' ~ Fula *jennga* 'être tard dans la nuit, être en pleine nuit; (nuit) être bien avancée' ('nuit': Jaad *pa-jeenɛ*, Biafada *bwa-jana / maa-j-*, Kasanga *jendeen / -a*, Kobiana *gendeŋ / -a*).

yenk 'shake (vb)': Sereer *yenglox* 'se remuer, être remué, être agité, s'agiter, se secouer, être secoué, trémousser' ~ Fula *yinka* 'secouer, branler, balancer', *jinke*

[3] ***yal*** or ***yan***.

'secousse, branle; balancement' (the root is widely represented in the Atlantic and Mel languages).

***yeew** 'solitary, alone (svb)': Sereer *yeew* 'garder un silence obstiné [par suite de tristesse]' ~ Fula *yeewee* 'être dans la solitude, être esseulé, être dépourvu de...; éprouver le sentiment de privation, avoir la nostalgie de...'.

***yɛgg** 'hear (vb), perceive (vb)': Sereer *yeg* 's'apercevoir, entendre dire, éprouver [sentir], percevoir, apprendre, connaître, ressentir, savoir, être averti' ~ Fula *yagga* 'observer une recommandation, respecter une mise en garde; obéir à un ordre; faire des recommandations; donner des ordres' (Saafi *yeg* 'être [au] courant; savoir', Wolof *yëg* 'sentir, ressentir; être au courant de; avoir de la considération pour', Nyun Gubaher *bʊ-yeeg* 'entendre', Kobiana–Kasanga *yeg* 'entendre, écouter').

***yɛlɛf** 'lightweight, easy (svb)': Sereer *yelef* 'être léger, être faible, être tendre' ~ Fula *yaafa* 'être très facile, aisé; être de bonne composition; être facile à obtenir, être bon marché', *jaafuɗo / yaafuɓe* 'personne de caractère facile, de bonne composition, indulgente', cf. Fula *weefa* 'être facile à se procurer', *weeɓina* 'rendre facile à se procurer, rendre aisé, accessible; (spéc.) baisser le prix de... (Wolof *woyaf* 'être léger; être de caractère facile, être accommodant', Laala *ka-araf* 'être léger', Ndut *hɛrɛf* 'léger', Saafi *ʔeɗef* 'être léger'; Balant *yeyeb* 'être/devenir léger'; Sua *jalfɛ* 'léger'; cf. Mandinka *yéf (yéléf)* 'adv. id. intensifie le sens de *féeyaa* 'être facile, léger', Jalonke Faleya *jɛlɛfú* 'être léger', Susu *yèlèfú (yelebu)* 'be weak', Kakabe *háyfɛ* 'être léger'). The Balant form *yeyeb* allows us to suppose an original reduplication: ***yɛɓ-yɛɓ** > PFS ***yɛlɛf**?).

***yɛn** 'fall (vb)': Sereer *yen* ~ Fula *yana*.

***yɛr** 'drink (vb)': Sereer *yer* ~ Fula *yara*.

***yɛr-n** 'trough' (< ***yɛr** 'boire'?): Sereer *yernand o...ol / yernand a...ak* 'abreuvoir', *yernel* 'être abreuvé, être trempé [fer, acier]' ~ Fula *yarnora* 'abreuver de...', *jarnirgal / jarnirɗe* 'abreuvoir; moyen d'irrigation'.

***yol/r** 'coward (svb)': Sereer *yoloɓ* 'être lâche, avoir du jeu, être détendu, débandé [détendu], être désserré, détendre, se relâcher' (Merrill: 'be loose (not taut), be thin (not viscous)', *yol* 'jouer' ~ Fula *yorwa* 'être lâche, pas assez tendu', *yorta* 'se relâcher, se détendre; (nœud) se défaire' (Baga Fore *yo* 'jouer').

***yoŋ** 'stir (vb)': Sereer *yooin* 'remuer, ébranler, agiter, secouer [un arbre], mouvoir [mettre en mouvement], émouvoir', *yo'in* 'to churn by shaking' (Merrill), *yooɗnox* 'remuer' ~ Fula *yonka* 'battre (du lait caillé dans une gourde pour l'homogénéiser)', *jonkugol* 'barattage (du lait caillé dans une gourde)'.

yoor 'descend (vb)': Sereer *yoor* 'abaisser, baisser, faire descendre quelque chose, incliner, s'incliner, être bas' ~ Fula *juura* 'descendre; (spéc.) quitter (un village)' (Merrill 2018b) may correctly relate Fula *juur-* to Sereer *juur-* 'pour (out)').

yool/r 'fall (vb; n)': Sereer *yool* 'glisser en bas' ~ Fula *yoorta* 'glisser (qqch) dans un espace (assez large pour la recevoir); introduire dans une excavation; (moy.) tomber dans (un trou)', *joortagol* 'chute dans un trou, introduction dans une cavité'.

yoom 'helpless, discouraged (svb)': Sereer *yoom* 'être impuissant à la génération (homme), être eunuque' ~ Fula *yooma* 'être abattu, chagrin, découragé, triste; être nostalgique; être angoissé', *joomtingol* 'action de remonter le moral de..., de réconforter' (Wolof *yoom* 'tourner à vide; être impuissant sexuellement').

yoox 'goiter': Sereer *yoox (yooq)* 'avoir un goitre, être goitreux', *yooq o...ol / yooq a...ak* 'fanon (bœuf), goitre' ~ Fula *yoʔkee* 'être goitreux', *yookee* 'avoir une pomme d'Adam volumineuse; (spéc.). être goitreux', *joʔkaaɗo / yoʔkaaɓe* 'goitreux'.

yooy 'skinny (svb)': Sereer *yooy* 'être maigre, être décharné (par manque de nourriture), être hâve (maigre), être sec (maigre)' ~ Fula *yoosa* 'être abattu, apathique, être sans ressort, mou, indolent', *yooygol* 'démarche indolente; mollesse; marche d'un pas las, traînant' (Ndut *yɔɔy* 'être maigre', Wolof *yooy* 'être maigre, être décharné').

yɔɓ 'light (up) (vb)': Sereer *yoɓid* 'éclairer [en allumant un feu], s'éclairer [au moyen d'un flambeau], pêcher au flambeau' (cf. Sereer *jaɓ* 'accepter [ce que l'on donne] prendre [accepter], ..., être allumé, être enflammé [feu]) ~ Fula *jaaɓa* 'prendre feu (par contact); (tison, allumette) s'allumer' (Palor *ɲab* 'allumer'; Joola Foonyi *ka-yabɛn* 'mettre le feu à, allumer une lampe').

yɔɔɓ/f 'easy (svb)': Sereer *yooɓ* 'être facile, accommodant, être docile, être aisé, être bon marché...' ~ Fula *yaafina* 'faciliter, rendre aisé' ('être facile': Laala *ka-yɔɔɓ*, Palor *yop*, Wolof *yomb*, Nyun *-yomb-*).

yɔɔr 'drool (vb); slobber': Sereer *yaraaw* 'baver, saliver', *yaraaw a...al / yaraaw a...ak* 'salive, bave' ~ Fula *joorda* 'baver', *joordol* 'bave, salive coulante' (Konyagi *ì-fùr* 'baver; bave', Bedik *ɔ-yɔdɔ / yóɗògú* 'baver', Wolof *yuut* 'baver; bave', Kobiana *ma-yoolu* 'salive'; Balant *jʊl* 'baver'; cf. Soninke *yàarô* 'bave').

yul 'drill (vb)': Sereer *yul* 'percer, être percé, forer, perforer, trouer, crever' ~ Fula *yula* 'percer, trouer; transpercer; pour fendre'.

yurɓ 'thread (vb)': Sereer *yuuɓ* 'enfiler une aiguille, des perles' ~ Fula *yurɓa* 'introduire, fourrer dans un trou; (spéc.) enfiler', Fula FJ *yuɓɓugol* 'enfiler; composer'.

yurn ‘inspect, survey (vb)’: Sereer *yun* ‘épier en montrant la tête par une ouverture’ ~ Fula *yuurnoo* ‘regarder au fond de...; scruter, lorgner dans...; épier par en dessous’, Fula FJ *yurnagol* ‘épier; examiner, scruter le fond, l’intérieur à travers un trou, une ouverture’.

yuum ‘honey’: Sereer *yuum k (suum ka)* ‘miel’ ~ Fula *yuma* ‘recueillir du miel, procéder à la récolte de miel’, *njuumri* ‘miel’, *juumgol* ‘récolte du miel’ (Nyun *yom* ‘abeille’, Kobiana *joom / -a* ‘abeille’; a parallel for Sereer *suum ka* ‘miel’: Baga Fore *sím / ci-sim-il* ~ *ci-sim* ‘miel’ etc.).

yʊr ‘flow (vb)’: Sereer *yuur* ‘couler [s’écouler par un trou]’ ~ Fula FJ *yorugol* ‘couler’.

yəp ‘pour (vb)’: Sereer *yip* ‘mettre dans un vase, verser, contenir, répandre [verser], vider’, *yip a...al / yip a...ak* ‘contenu [d’un récipient], ce qui est versé dans le récipient’ ~ Fula *yuppa* ‘verser, déverser, jeter (dans)’, *yuppannde / juppanɗe* ‘déversement; lieu de déversement’.

6.3.3 *ʔ:

ʔad-ox ‘precede (vb)’: Sereer *ad-ox* ‘précéder, devancer, dépasser, dominer, être le premier, prendre le devant …’ ~ Fula *ad-oo* ‘être en tête, devancer, précéder; être le premier à…’.

ʔand ‘know (vb)’: Sereer *and* ~ Fula *annda*.

ʔaq ‘learn (vb); teach (vb)’: Sereer *aq-at* ‘apprendre, instruire, enseigner’ ~ Fula *ekka* ‘essayer de…, tenter de…, se mettre en peine de…; faire tous ses efforts pour, se préparer à…’, ekkita ‘exercer, entraîner; apprendre (une technique, un métier) à…; enseigner’.

ʔat/d ‘bring (vb)’ (Merrill < **’aXd*): Sereer *at* ‘apporter (impératif)’, *ar* ‘apporter’ ~ Fula *ada* ‘prendre pour emporter, transporter; déménager’, *adda (wadda/ gadda)* ‘apporter’.

ʔax/w ‘sow (vb); seed’: Sereer *ax* ‘semer pour avoir des graines, élever un animal, construire’, *ax n / ax k* ‘grain, graine de semence, germe [semence]’ ~ Fula *aawa* ‘semer, ensemencer’, *aawdi / aawle* ‘semence, graine; (fig.) descendance’.

ʔees ‘split (vb), tear (vb)’: Sereer *ees* ‘déchirer, être déchiré, lacérer, se fendre, être fendu, crevasser, se lézarder, gercer’ (Merrill: *ʔees* ‘to tear’) ~ Fula *eesa* ‘fendre par le milieu, dissocier en deux moitiés, séparer, partager en deux; donner un coup au milieu de… pour fendre’.

ʔin/m-ox ‘get up (vb)’: Sereer *in-ox* ‘se lever, partir en voyage, partir de’ (cf. Sereer *kin* ‘soulever’) ~ Fula *imm-oo* ‘se lever, se soulever; se mettre en mouvement; (spéc.) (femelle) être en rut / en chaleur’.

ʔir ‘lay on the ground (vb)’: Sereer *ir* ‘poser à terre’ ~ Fula *ira* ‘enfouir, ensevelir; enterrer, inhumer’.

ʔiin ‘person’: Sereer *k-iin o...ox / w-iin w* ‘la personne [en général], l’homme [en général], quelqu’un, l’individu’ ~ Fula *yimɓe (< *y-iin-ɓe)* ‘des gens; l’ensemble des hommes; les humains’ (this may be the only example where the traces of the nominal class prefix have been preserved in Fula as well as in Sereer).

ʔuf (cf. ***ʔub***) ‘bury (vb)’: Sereer *uf* ‘mettre en terre [des choses], enterrer, mettre des fuits en terre [pour les faire murir]’ ~ Fula *ufa* ‘enfouir, ensevelir, enterrer, inhumer’.

ʔun ‘pestle; pound (vb)’: Sereer *un* ‘piler, broyer, concasser’, *un a...al / un a...ak* ‘pilon’ ~ Fula *una* ‘piler (des céréales dans un mortier); pilonner, assener une pluie de coups, frapper’, *unirgal / unirɗe* ‘pilon’, *unirdu / unirɗi* ‘mortier’.

ʔup/bb (cf. ***ʔuf***) ‘close (vb); bury (vb)’: Sereer *uup* ‘enfouir, couvrir de terre, enterrer, inhumer, combler, ensevelir, ensabler’ ~ Fula *ubba* ‘enfouir, ensevelir, enterrer, inhumer’.

ʔur ‘abscess’: Sereer *ur l / ur a...ak* ‘abcès, furoncle, tumeur’ ~ Fula *uure* ‘furoncle, abcès’ (*Proto-Atlantic **wud* ‘abcès’: Konyagi *ì -bù r / wæ̀-wùr* ‘abcès; furoncle’, Nyun Gubaher *bʊ-wudd* ‘expand’, Kobiana–Kasanga *wudd* ‘enfler’, Nalu *wor* ‘se gonfler’; Joola Foonyi *ka-bʊndɛn* ‘faire gonfler par putréfaction’, Manjaku *wur ~ uur / nguur* ‘abcès’, Pepel *wʊr* ‘abcès’, Mankanya *u-wuur* ‘abcès’; cf. Limba *ŋuru ~ wuru* ‘swell’).

6.4 Unclear or controversial correspondences

6.4.1 Unclear correspondences

We have seen above examples of PFS reconstructions for consonants that are absent from present-day Sereer and Fula, namely the three labialized consonants ***kw**, ***gw**, ***bw**. As has been noted, the reason for this reconstruction is a special mutation (for example, Sereer mb/b/w along with mb/p/b and mb/p/f) as well as a special set of regular correspondences between languages (in particular, Sereer f/p ~ Fula h/k along with f/p ~ f/p and h/k ~ h/k).

Considering that which was said above, it is interesting to discuss one regular correspondence involving Fula l-, where this unmutable consonant corresponds to the Sereer series D (nd/t/d). This correspondence can also be explained by the proposed reconstruction which follows a consideration of some examples and a discussion as how they can be interpreted:

- Sereer *deɗox* ‘sauter, se lever brusquement’, *deɗoxo...ol / deɗoxa...ak* ‘saut’, *tedeɗaxo...ox / dedeɗaxw* ‘sauteur’ (with a regular devoicing resulting from reduplication) ~ Fula *leeya* ‘sauter (en hauteur); léviter’, *leeygol* ‘action de sauter en l’air’ (Proto-Tenda ****daɗ*** ‘sauter’: Basari *a-raɗ / daɗ*, Konyagi *ì-dæ̀ɗ*).

- Sereer *duma* ‘châtier, battre, flageller, frapper, corriger, fouetter, donner une correction, donner la fessée’ ~ Fula FJ *lummingol* ‘culbuter, vaincre (un ennemi)’ (cf. Wolof *duma* ‘battre; frapper (une personne)’, Nyun *rʊm* ‘(se) battre’; Joola Kasa *lum* ‘être attaqué, être assailli’; cf. Palor *ɗum* ‘être fini, épuisé, ne plus y avoir’). (The word in Sereer may have been borrowed from Wolof, but this is not certain).

- Finally, the main possible cognate that deserves a separate discussion is the word for ‘tree’. Among the multiple forms with this meaning as the basic one, two roots are distinguished in Atlantic languages. In work with Guillaume Segerer (Pozdniakov & Segerer forthcoming), we consider them as different forms. The first root, ****tVk***, is related, according to our hypothesis, to the Proto-Niger-Congo root **tɪ* ‘tree’. It should be noted that the appearance of the final velar in the Proto-Atlantic language in Niger-Congo roots with the structure ***CV** can be confirmed by reliable examples. Among other numerous Atlantic reflexes, we consider Sereer *teexa...al / teexa...ak* ‘gros bâton, tige, poutre, poteau, barre [de bois]’ as belonging to this cognate. The second root is the Proto-Atlantic root ****dik*** ‘tree’, which is also widespread in both Atlantic subgroups (Palor–Ndut *kɪ-lɪk*, Saafi *ki-ɗìg*, Laala *kɛ-dɛk*, Nalu *dik* ‘trunk (of tree), stem (of tree, plant), stalk (of plant) / tronc (d’arbre), tige (de plante)’, Baga Fore *ɛ-lik / ɛ-lik-ìl*; Bijogo *u-nik-an*; as Guillaume Segerer has shown (Segerer 2016), the consonant nasalization is regular in this case). Balant *m-ndíŋá / ndíŋá* ‘tronc’ is another of many examples. We felt that Fula *lekki / leɗɗe* ‘arbre’ also belongs here. Yet, now we have more arguments for discussing the following question: could Sereer *teex a...al / teex a...ak* be related to Fula *lekki / leɗɗe*? To remind the reader, Sereer t- can originate from either the voiceless or the voiced Proto-Atlantic consonant and, accordingly, *teex* can originate from ***D-**. Yet, it should be repeated that Fula l- cannot originate from ***D-**.

It remains unclear what can be done with the examples given above. Apparently, there is not enough evidence for the reconstruction of an additional PFS

consonant. Besides, some counter-examples can be provided, whereby an unmutable l- in Sereer corresponds to the unmutable t- in Fula, as shown in the following specific examples:

- 'draw (water) (vb)': Sereer *lud* 'puiser au moyen d'un récipient, transvaser, vider une bouteille' ~ Fula *tuɗɗita* 'vider (un récipient) de ce qui s'y est aggloméré et tassé' (a root with two variants *tuɗɗ- ~ tiɗɗ*).
- 'calabash sp.': Sereer *lumb o...ol / lumb a...ak* 'fruit du calebassier, calebasse cultivée, fruit d'une cucurbitacée', *lumb n / lumb k* 'plante de la calebasse cultivée', *ndumb o...ong / ndumb fu...n* 'petite calebasse pour recueillir du vin de palme', *tumb a...al / tumb a...al* 'calebasse, gourde sp.' ~ Fula *tummbude / tummbuɗe* 'demi-calebasse hémisphérique, servant de récipient', *tummude / tummuɗe* (Admawa) 'calebasse (plante et fruit), Lagenaria siceraria (Molina) Standl. (Cucurbitaceae)'.

All these correspondences were not treated in this book as reflexes of PFS but perhaps they should be.

6.4.2 Correspondences between nasals and non-nasals

The correspondence system assumed above did not include any correspondences between nasals and non-nasals in Sereer and Fula, yet, such correspondences do occur in the data.

Here, we take a look at an example. A productive root in Fula *new-* 'facile, aisé' with numerous derived forms has good correspondences in Atlantic languages: Laala *ka-nɛɓ* 'être agréable', Nyun *bʊ-neb* 'be soft', Kobiana–Kasanga *nib* 'mou, doux', Nalu *neebah* 'être mou, être souple' etc. In Sereer it finds a parallel in a root without any nasal: Sereer *lewa...al / lewa...ak* 'douceur [de caractère], affabilité, la bénignité, suavité; l'alvéole', *lewande fan / lewande k* 'affabilité'. At the same time, Sereer forms are close to Wolof *lew-at* 'être doux, douceâtre', *lew-e-taay* 'fadeur; insipidité; douceur'. In principle, the possibility of a direct borrowing of the Wolof root into Sereer is not excluded. The only thing that can be done here is to try to reconstruct the Proto-North Atlantic root **l/neɓ* 'mou, doux'[4] and to maintain this reconstruction for PFS noting the irregularity of this correspondence. The roots below are interpreted analogously:

[4] One should take into account, though, that there is a possible parallel with the Sereer initial nasal (Sereer *neɓ* 'être humide, moite') and the Fula initial l- (Fula *leef-* 'être mouillé, trempé).

***w/muj/ƴ** 'agitate (vb)': Sereer *wuj-in* 'se troubler, s'agiter [en parlant du poisson qui manque d'eau]' ~ Fula *muƴitoo* 'se trémousser (pour trouver une bonne position); s'agiter, se contorsionner; ne pas tenir en place'.

***l/nul** 'send (vb)': Sereer *lul* 'envoyer, députer, dépêcher, adresser, déléguer' (with the non-standard variants *tulero...ox / dulerw* 'l'envoyé', *nduler n / tuler k* 'envoie en commission, ambassade, mission, commission, ordre') ~ Fula *nula* 'envoyer (qqn), dépêcher (qqn) comme messager; confier une commission à'.

***j/ɲaɓ/f** 'heavy rain': Sereer *jaɓ* 'pleuvoir [avec excès], inonder, être inondé', *jaɓ o...ol / caɓ a...ak* 'inondation, déluge' ~ Fula *ɲaafa* 'pleuvoir en averse violente et brève', *ɲaafo / ɲaafooji* 'averse brève et violente' (Biafada *jabw* 'rain', Jaad *jaf* 'pleuvoir', *kạ-jaf* 'pluie', Wolof (with the nasal and non-nasal variants) *ɲapp-ɲappal* 'pleuvoir finement, crachiner', *yebb-yebb* 'pluie fine ininterrompue, crachin'; Manjaku *jab* 'la pluie menace', Joola Kasa *ka-yaaba* 'averse, pluie forte mais de courte durée').

***j/ɲeɗ/dd** 'challenge (vb), argue (vb), insult (vb)': Sereer *ɲeɗ* 'invectiver, disputer, (se) quereller' ~ Fula *yedda* 'nier, contester' (Fula mutations in two series – y/j/nj, y/g/ng, which rather point to the original from with *y-: *jeddugol* 'négation de..., contestation, démenti de...', *geddi* 'contestation, contradiction; objection; démenti; négation') ('insulter; insulte': Joola Foonyi *ka-jɛl*, Joola Keeraak *ka-gɛl ak / ʊ-gɛl aw*, Bijogo *ɲɛn* – with a regular nasalization).

***j/ɲimb/ɓ** 'plant (vb)': Sereer *jimb* 'transplanter, planter, replanter, déplanter, marcotter', *njimb n / cimb k* 'le plant [de jeunes arbres ou de plantes]' ~ Fula *ɲiɓa* 'planter (un piquet), ficher en terre; édifier, bâtir, construire (la charpente d'une paillote)', *ɲiɓal / ɲiɓe* 'pieu, piquet, pied de lit; (spéc.) montant du bâti de métier à tisser', *ɲimgol* 'installation de supports (pieds de lits fichés en terre); édification, construction de (l'armature d'un métier à tisser, la charpente en arceaux d'une paillote)' (Biafada *jəbw-* 'to plant', Wolof *jëmbët* 'repiquer, planter').

***j/ɲoow/ɓ** 'live (vb), feed (vb)': Sereer *ɲoow* 'vivre, être vivant, vif', *ɲoowir* ka 'les vivres, nourriture, aliment, provision, subsistance' ~ Fula *yooɓoo* 'prendre des provisions de route, se munir d'un viatique', *njooɓaangu (njooɓaari)* 'provisions de route'.

***g/ŋaj/ƴ** 'scar (vb), incise (vb)': Sereer *ngaj n / kaj k* 'incision, saignée', *gaj* 'fendre, inciser les chairs, saigner en incisant, scarifier, tirer du sang en incisant' ~ Fula *heryƴ- / k-* 'entamer en coupant; inciser; fendre (sans détacher)', *ŋeeƴa* 'inciser, fendre (sans couper complètement)' (Wolof *gàjj* 'scarifier; faire une saignée à qqn').

***g/ŋas/j** 'enjoy (vb), gossip (vb), play (vb)': Sereer *ŋas* 's'amuser, se divertir, badiner, jouer, plaisanter', *ŋasand o...ol* 'part de vin de palme de la récolte que le

mari réserve à sa femme' ~ Fula *gaajoo* 'bavarder, converser, deviser; s'entretenir; tenir des propos futiles' (Laala *nɔs* 's'amuser, fêter' (from French?), Balant *gaja* 'causer' (from Fula?)).

***y/ŋaaɓ** 'yawn (vb)': Sereer *yaaɓ-at* 'ouvrir la bouche, bâiller' ~ Fula *ŋaaɓa* 'ouvrir largement; (moy.) béer, bâiller, être grand ouvert, être béant; (spéc.) écarter ses cuisses' (the Proto-Atlantic root ***yaɓ** 'bâiller', i.e. if the cognacy is accepted, an irregular nasalization in Fula has to be supposed).

To conclude this section, we note that one could distinguish dozens of other problematic cognates that point to deviations from expected correspondences, but they are irregular and concern rather the individual history of specific words (specifically, they concern insufficiently studied domains of phonotactics and morphological derivation).

6.5 Frequencies of initial consonants in *PFS and their diachronic interpretations

6.5.1 Summary of statistics

Here, we summarize the statistics for initial PFS consonants:

Table 6.1: Statistics for initial consonants in *PFS

*PFS (716 roots)											Sum
*f	25	*r	2	*s	52	*h	17	*hw	18	*x	32	146
*p	5	*t	15	*c	8	*k	7			*q		35
*P	13	*T	12	*C	11	*K	4	*KW	1	*Q	4	45
*b	40	*d	30	*j	37	*g	43	*(g)w, *gw	14			164
*B	12	*D	2			*G	7	*(G)W	3			24
		*D/T	14					*(B)W	2			16
*mb	6	*nd	4	*nj	3	*ng	4			*Nɢ	2	19
*ɓ	34	*ɗ	23	*ƴ	12							69
*m	41	*n	18	*ɲ	19	*ŋ	13					91
*w		*l	28	*y	34	*ʔ	13	*(b)w	17			92
*w/m	1	*l/n	2	*j/ɲ	4	*g~y/ŋ	3					5
								(G/B)W	5			10
	177		150		181		111		60		38	716

The frequencies are calculated from the *PFS lexical corpus presented in the appendix. In percentage terms, the frequencies of PFS are presented in Table 6.2.

Table 6.2: Statistics for initial consonants in *PFS (%)

*PFS (716 roots) Grade		%		%		%		%		%		%	Sum%
I	***f**	3.5	***r**	0.3	***s**	7.4	***h**	2.4	***hw**	2.5	***x**	4.5	**20.4**
II,III	***p**	0.7	***t**	2.1	***c**	1.1	***k**	1.0			***q**	0.0	**4.9**
I,II,III?	***P**	1.8	***T**	1.7	***C**	1.5	***K**	0.6	***KW**	0.1	***Q**	0.6	**6.3**
I,II	***b**	5.6	***d**	4.2	***j**	5.2	***g**	6.0	***(g)w, *gw**	2.0			**22.9**
I,II,III?	***B**	1.7	***D**	0.3			***G**	1.0	***(G)W**	0.4			**3.4**
I,II,III?			***D/T**	2.0					***(B)W**	0.3			**2.2**
III	***mb**	0.8	***nd**	0.6	***nj**	0.4	***ng**	0.6			***Nɢ**	0.3	**2.7**
0	***ɓ**	4.7	***ɗ**	3.2	***ƴ**	1.7							**9.6**
0	***m**	5.7	***n**	2.5	***ɲ**	2.7	***ŋ**	1.8					**12.7**
0	***w**	0.0	***l**	3.9	***y**	4.7	***ʔ**	1.8	***(b)w**	2.4			**12.8**
0	***w/m**	0.1	***l/n**	0.3	***j/ɲ**	0.6	***g~y/ŋ**	0.4					**1.4**
I,II,III?									**(G/B)W**	0.7			**0.7**
	Sum%	**24.7**		**20.9**		**25.3**		**15.5**		**8.4**		**5.3**	**100**

In the first column of Table 6.2, the expected mutation grades for each consonant series are marked.

The data presented in the table show the main problems of the initial consonant reconstruction for PFS: for many roots we are obliged to admit alternative reconstructions (signaled by capital letters). It should be emphasized that in a number of cases, the data from external comparisons allow us to determine exactly the right candidate for the reconstruction between the two alternatives. Yet, while reconstructing the PFS root, we aim to reduce to a minimum the use of external comparative evidence, even though this evidence was systematically provided in the text. As a result, we can suggest the following picture:

- 147 reconstructed roots contain an initial fricative. At the same time, the fact that there are few reconstructed roots with initial ***r-** does not indicate that this consonant was not frequent in PFS. As has been shown above, we only could unambiguously reconstruct ***r-** for the correspondence Sereer r- ~ Fula t-. As for the direct correspondence Sereer r- ~ Fula r- we do not know whether it originated from the voiceless series ***T** (***t/t/r**) or from the voiced series ***D** (***nd/d/d**) with the expected transition into the voiceless series T in Sereer. Therefore, we are obliged to present the correspondence Sereer r- ~ Fula r- as originating from ***D/T**.

- Reconstructed stops are much less numerous than reconstructed voiceless fricatives. There are two reasons for this. First, the database contains twice as many verbs as nouns, and, according to the reconstruction, PFS verbs

being associated with the weak Grade I, are represented by the voiceless fricative series. Second, we are obliged to provide a reconstruction with capital letters for many PFS verbs with initial voiceless stops because we cannot identify the mutation grade for these roots with certainty.

- One should also note the total absence of PFS roots with an initial ***q-**. We should have reconstructed such roots in the case of the correspondence Sereer q- ~ Fula k-, assuming a disappearance of the postvelar in Fula. Yet, curiously enough, there is not a single correspondence of this type in my database.

- The absence of reconstructions with ***w-** is expected and does not imply that ***w-** was absent in PFS. The case is that the correspondence can be ascribed either to ***w-** or to ***bw-** and ***gw-**. For this reason, all potential ***w-** roots have to be ascribed to ***(b)w-**, ***(g)w-**.

The given *PFS frequencies are interesting to compare with the frequencies of initial consonants in the roots of the two modern languages, Fula and Sereer, according to two major sources, Crétois' and Seydou's dictionaries (Tables 6.3 and 6.4 respectively)

Table 6.3: Statistics for initial consonants in Sereer (%)

Sereer (6781 roots)											
Grade		%		%		%		%		%	**Sum%**
I	**f**	6.3	**r**	3.3	**s**	8.9	**h**	1.7	**x**	4.3	**24.5**
II	**p**	3.6	**t**	4.7	**c**	3.1	**k**	5.2	**q**	0.7	**17.3**
I	**b**	4.0	**d**	3.9	**j**	6.4	**g**	4.1			**18.5**
III	**mb**	2.9	**nd**	2.8	**nj**	1.7	**ng**	1.7	**Nɢ**	0.2	**9.2**
0	**ɓ**	2.0	**ɗ**	1.9	**ƴ**	0.6					**4.5**
0	**m**	4.4	**n**	3.3	**ɲ**	2.9	**ŋ**	1.5			**12.2**
0	**w**	3.5	**l**	4.7	**y**	3.5	V	2.2			**13.9**
	Sum%	**26.7**		**24.5**		**27.1**		**16.5**		**5.1**	**100**

We will attempt to evaluate the frequencies given in the tables using several parameters. First of all, we are interested in comparing the frequencies of modern languages against the frequencies of the reconstructed PFS language. We will assume that, ideally, any significant differences in frequencies in each place

Table 6.4: Statistics for initial consonants in Fula (%)

Fula (2678 roots) Grade		%		%		%		%	Sum%
I	**f**	7.4	**r**	2.4	**s**	9.5	**h**	10.4	**29.7**
II,III	**p**	0.6	**t**	6.4	**c**	0.3	**k**	0.3	**7.7**
II	**b**	3.0	**d**	6.0	**j**	5.7	**g**	4.6	**19.4**
III	**mb**	0.1	**nd**	0.1	**nj**	0.0	**ng**	0.3	**0.5**
0	**ɓ**	3.1	**ɗ**	2.1	**ƴ**	2.2			**7.4**
0	**m**	4.6	**n**	3.0	**ny**	2.6	**ŋ**	2.9	**13.1**
I	**w**	7.7	**l**	4.8	**y**	4.3	**ʔ.Ø**	5.5	**22.2**
	Sum%	**26.5**		**24.9**		**24.6**		**24.0**	**100**

and manner of articulation (both between modern languages as well as between each of them and the language-source, i.e. *PFS) should be resolved through a diachronic interpretation.

First of all, note that most of the frequency differences in the three languages are systematic - they relate not to individual consonants, but rather to their specific groupings. For example, the frequency of mb- in Sereer (2.9%) is significantly higher than in Fula (0.1%), but such an excess is also noted for all the other prenasalized consonants.

It is useful, in this case, to consolidate the detailed data given in Tables 6.2–6.4 in order to substantively evaluate the reconstructions proposed in this book.

Table 6.5 groups the consonants that are similarly characterized in terms of their mutation grades for each language. In each language, as has been shown, such groupings are specific. In spite of this fact, the total frequencies in each row in Fula and Sereer are practically the same, with one single exception.

In Sereer, compared with Fula, the frequencies of roots with the initial consonant of Grade III are much higher (9.2% of roots). Furthermore, this excess is not compensated by any particular – "mirror-like" – excess of frequencies in Fula. The high frequency of Grade III in Sereer is compensated by a small decrease of frequencies in all other series. Thus, we can conclude that the summary of frequencies of consonants in Grades I, II, and 0 (that is, consonants that do not participate in the mutations) are almost identical. In terms of comparing the frequencies of modern languages with the frequencies of the source language (*PFS), let us first note that in *PFS we are forced to distinguish 12.6% of problematic reconstructions, which are marked with capital letters, indicating that we do not

Table 6.5: Frequencies of mutation series (%)

Grade	Sereer	%	Fula	%	*PFS	%
I	f,r,s,h,x; b,d,j,g; w	**46.5**	f,s,h; w,r,y,ʔ,Ø	**47.1**	f,r,s,h,hw,x	**20.5**
I,II					b,d,j,g	**22.9**
II	p,t,c,k,q	**17.3**	b,d,j,g	**19.4**		
II,III			p,c,k,q	**1.2**	p,t,c,k,q	**4.9**
III	mb,nd,nj,ng,Nɢ	**9.2**	mb,nd,nj,ng	**0.5**	mb,nd,nj,ng,Nɢ	**2.7**
I,II,III?					P,T,C,K,KW,Q; B,D,G,G(W); D/T; (B)W; (G/B)W	**12.6**
0	ɓ,ɗ,ƴ; m,n,ɲ,ŋ; l,y,V	**27.1**	ɓ,ɗ,ƴ; m,n,ɲ,ŋ; t; l	**31.7**	ɓ,ɗ,ƴ; m,n,ɲ,ŋ; w,l,y,(b)w; w/m, l/n, j/ɲ, g~y/ŋ	**36.5**

know which grade should be reconstructed. These consonants statistically represent a certain resource, which should be primarily considered when comparing the frequencies of Grades I and II. However, problematic reconstructions do not explain the excess of the total of the frequencies of non-alternating consonants in PFS (Grade 0, 36.5%) compared to the modern languages. The data from the detailed tables (Tables 6.2–6.4) above show that this excess is due to the systematically higher frequency of glottalized consonants in *PFS (***ɓ**, ***ɗ**). Recall that if a glottalized consonant is present in at least one of the two languages in the cognate, it has been suggested that it is the glottalized consonant that should be reconstructed. Frequencies provide an indirect argument against such a formal interpretation. For *PFS, it has been proposed to reconstruct the state in which the series of voiced consonants in Grades I and II were not distinguished and were represented by voiced stops (I, II). The frequency distribution shows that most of the voiced stops in PFS roots were in Grade II.

Table 6.6: Frequencies of the different places of articulation (%)

%	Sereer	Fula	*PFS
Labials	27	27	25
Dentals	24	25	21
Palatals	27	25	25
Velars	17	24	16
Labialized	0	0	8
Postvelars	5	0	5

The distribution of the sum of frequencies in places of articulation does not pose any problem. In Fula, there is an excess of the frequencies of velars against the background of complete absence of postvelars, which transparently points to the reconstructed transition of postvelars to velars in Fula. The labialized consonants of *PFS have passed into velars and labials.

Table 6.7: Frequencies of the different manners of articulation

series	consonants	Sereer	Fula	*PFS
F	f,r,s,h,hw,x	24.5	29.7	20.5
P	p,t,c,k,q	17.3	7.7	4.9
P?F?	P,T,C,K,KW,Q			6.3
B	b,d,j,g,gw; B,D,G	18.5	19.4	24.2
B?W?	(g)w,(b)w; G(W),(B)W,(G/B)W			5.5
B/P	D/T			2.0
MB	mb,nd,nj,ng,Nɢ	9.2	0.5	2.7
ɓ	ɓ,ɗ,ƴ	4.5	7.4	9.6
M	m,n,ɲ,ŋ	12.2	13.1	12.7
W	w,l,y,ʔ,Ø,V	13.9	22.2	10.3
W/M	w/m,l/n,j/ɲ,g~y/ŋ			1.4

6.5.2 The voiceless consonant series

At first glance, the distribution of frequencies in the voiceless consonant series is generally clear. The lower percentage of **P** and **F** series in *PFS is partially compensated by the frequencies of alternative reconstructions **P?F?**. However, these

alternative reconstructions are not sufficient to fully compensate for negative deviations in the PFS voiceless series. The overall frequencies for all the series of voiceless consonants are: Sereer 41.7%, Fula 37.3%, *PFS 31.7%, i.e., there are significantly fewer voiceless consonants in *PFS. In the voiced series, a "mirror" distribution is observed: **B+B?W?** adds up to 29.7% in PFS. In the most general form, this distribution can be represented by the following table:

Table 6.8: Frequency distribution in the voiceless and voiced series

	Sereer	Fula	*PFS
F+P	+	+	–
B+W	–	–	+
Sum	60,2	56,8	61,4

Such a distribution could occur if, for example, we had wrongly reconstructed voiced consonants in a number of roots while we should have reconstructed them as voiceless. Of course, statistical grounds are not enough to change reconstructions, but it is useful to keep this fact in mind.

The dominance of the **F** and **W** series in Fula is quite understandable. In this language (also in Seydou's dictionary) the lexical roots, most of which are verbal, are given in Grade I. In Sereer, in Crétois' dictionary, the unification of identical roots of various grades is less consistent (therefore, there are significantly more Sereer roots than Fula roots in the lexical database). Hence, there are significantly more roots of the **P** and **MB** series in Sereer than in Fula.

Again, PFS had a significantly higher percentage of glottalized consonants compared to Sereer and Fula. This is a statistical consequence of the approach adopted, in which glottalized consonants are usually reconstructed not only when both languages show glottalized consonants, but also when glottalized consonants are found in only one of the languages.

7 Root-final consonants

The main difficulty in identifying root-final consonants' correspondences is the phonotactic processes that occur at the boundary between the root and a suffix. This issue is less complex in the case of Sereer, where suffixes are usually vowel-initial, thus reducing to a minimum the number of phonetic realizations in the form of CVC-VC, where CVC- stands for the most typical root. In Fula, these processes are much more complex, because the suffixes often preserve the form -C(V) which results in consonantal combinations at the boundary between a root and a suffix that require transformations, sometimes radical ones, in order to comply with phonotactic restrictions.

7.1 Transformations of consonantal combinations in Fula

The following list (Table 7.1) and analysis of the main combinations between root-final and suffix-initial consonants is based on data from Seydou's dictionary (Seydou 2014). The task of internal reconstruction is simplified by the fact that Seydou indicates such consonant combinations. It should be noted that her dictionary represents an outstanding work resulting in the morphemic analysis of ~23,000 words.

The first column contains root-final consonants (and consonant clusters) in verbs that, according to Seydou, combine with the following initial consonant of the suffix. These suffix-initial consonants are given in the first row of the table. The cells of the table represent the resulting clusters of consonants or the consonants as they appear at the root-suffix boundary.

The data presented in Table 7.1 are valuable not only for reconstruction purposes, but also for phonological theory, since they reveal a number of nontrivial phonotactic processes. These are considered in more detail as follows (Table 7.1).

As can be noticed easily, some cells contain several different combinations; the same combinations are found in different cells. Thus, the combinations *ɓ + t can remain unaltered (ɓt), but can also result in the combinations mt, pt, tt, wt (Table 7.2).

On the other hand, the consonant cluster nt can originate from at least eleven different combinations (Table 7.3).

Table 7.1: Combinations of root-final and suffix-initial consonants in Fula verbs

	t	b	d	ɗ	r	w	l	n
-b	mt, pt, ft		md					mn
-ɓ	mt, pt, tt, wt, ɓt		md		mr			mn
-ɓɓ	mt, pt?							mn
-f	wt, ft, pt, Vt, ht?		wd	wɗ?	wr			wn
-w	t, ft?, pt[a]				r			nw
-m	mt, nt?				mr?			
-mb				mɗ				mn
-mmb	mt							
-t	tt		nd, dd, nnd	nɗ	rr, Vr	nw		nn, nd?
-d	tt, nt, rt, nc?		dd		rr, Vr			nn
-dd	tt							nn?
-ɗ	tt, nt, nc, ʔt, rt, Vt		nd, dd, Vd		rr			nn, (n)nd, Vnn, Vn, ʔn
-ɗɗ	tt							
-r	rt?			ɗ?	rr?			
-l			nd?			wl, Vl		nn
-lb	lmt?							
-ll	lt							
-n	nt, nc, tt?		nd?	mɗ, nɗ?	rr			nn
-nd	nt							
-nt			nnd					
-ry								rny
-c	cc							
-j	cc		jj	y				nny, yn?
-y	cc, yt, nc?, ʔt?, ʔc?			jj	yr			nny, ny, nj, yn, ny?
-s	yt, st, cc	yb	yd	yɗ	yr		yl	yn, ny, Vn
-y	Vt, cc?, nc?, yt?			y?	Vr?			nny, yn
-ny	nc, ŋj?, yt		ny		yr			nny
-nny	nt							
-ny			nyd					
-k	tt, nt		dd	ŋd		nw?, ŋw?		nn
-kk	tt, nt							
-g	tt, nt, ŋt		dd		ŋr, rr?			nn
-ʔ	Vt, tt		Vd		Vr			Vn
-h	Vt		Vd	Vɗ?	Vr			nw? Vn
-ŋ	nt				rr			
-nng	nt							

[a] Combinations shaded in gray are given in the table according to Arnott (1970: 339)

Table 7.2: The reflexes of the cluster *ɓ-t

seɓta	*seeɓ-t-	être épointé
fimta	*fiɓ-t-	défaire un nœud
yʼepta	*yʼeɓ-t-	soulever
ɓuuttina	*ɓuuɓ-t-	rafraîchir
hewtaare	*heɓ-t-	liberté

Table 7.3: The origin of the cluster nt

kantagol	*haan-t-	perfection
soonta	*sood-t-	être invendu
hontina	*hoɗ-t-	recevoir (un hôte)
ɲeentoo	*nyeeg-t-	marcher silencieusement
sonta	*sok-t-	ouvrir
tantakol	*takk-t-	tout fauve à pattes griffues
ganto	*gam-t-	pratique pastorale sp.
roonta	*roond-t-	décharger d'un fardeau
nantoo	*nanng-t-	se retenir
cincintugol	*sinny-t-	affairement fébrile
teenta	*teeŋ-t-	resserrer

These features are extremely important for reconstruction. Even without the Fula form *haaɗa* 'arriver à son terme; se terminer', we can identify the correspondence with Sereer *fad* 'atteindre, arriver jusqu'à, être achevé' ~ Fula *hanta* 'terminer, achever', and trace it back to PFS ***hwaɗ***, thus explaining the Fula proto-form as **haaɗ-t*.

In the same way, we can not only link Fula *sonta (*sok-t-a)* 'ouvrir' with PFS ****so(o)x*** 'boucher, bourrer' (Sereer *soox* 'charger une arme à feu, bourrer' ~ Fula *sok(k)a* 'fermer, bloquer'), but we can also reconstruct the phonetically regular reversive derived form ****sox-it*** 'déboucher': Sereer *soox-it* 'débourrer un fusil, décharger une arme à feu' ~ Fula **sok-t-* 'ouvrir'.

The data presented in Table 7.4 allow us to distinguish several processes that take place at the boundary between a root and its suffix(es). Each will be considered in turn.

Table 7.4: The nasalization of the root-final consonant

	t	d	ɗ	r	w	n
-b	mt	md				mn
-ɓ	mt	md		mr		mn
-ɓɓ	mt					mn
-t		nd, nnd	nɗ		nw	nn
-tt		nnd				
-d	nt, nc?					nn
-dd						nn?
-ɗ	nt	nd				nn
-l		nd?				nn
-lb	lmt?					
-j						nny
-ƴ	nc?					nny
-s						ny
-y	nc?					nny
-k	nt		ŋd		nw?, ŋw?	nn
-kk	nt					
-g	nt, ŋt			ŋr		nn

7.1.1 Nasalization of the root-final consonant

This is a systematic process involving most of root-final consonants. It should be noted that labial consonants become labial nasals, whereas velars become velar nasals in a number of cases. Thus, the root-final consonant becomes a homorganic nasal. The case of the palatals is more complicated since in combinations involving palatals it is the second element, i.e. the suffix-initial consonant that is palatalized.

7.1.2 The assimilation of consonants resulting in geminates

All consonants except palatals show regressive assimilation. It is interesting, in terms of phonetics, that palatal consonants stand apart with respect to this process: the geminates they produce are all palatal ones.

The identification of this process is important for the reconstruction. It turns out, for example, that Fula geminate tt can conceal a number of different root-final consonants which yield new possibilities of looking for Fula–Sereer cor-

Table 7.5: The assimilation of consonants resulting in geminates

	t	d	ɗ	r	n
-ɓ	tt				
-t	tt	dd		rr	nn
-d	tt	dd		rr	nn
-dd	tt				nn?
-ɗ	tt	dd		rr	nn
-ɗɗ	tt				
-r				rr?	
-l					nn
-n	tt?			rr	
-ŋ				rr	
-c	cc				
-j	cc	jj			nny
-ƴ	cc		jj		nny, ny
-s	cc				ny
-y	cc?				nny
-ny					nny
-k	tt	dd			nn
-kk	tt				
-g	tt	dd		rr?	nn
-ʔ	tt				

respondences. Direct correspondences between Fula–Sereer reversives are revealed, not only for Fula nt, but also for Fula tt. For example, we find PFS ****feɗ-it***: Sereer *feɗ-it* ‘déboutonner (habit)’ (*feɗ* ‘boutonner - plante, habit)’ ~ Fula *fetta* (**feɗ-t-a*) ‘déboutonner, dégrafer, décrocher’ (*feɗa* ‘ajuster soigneusement; mettre bien en place; boutonner’).

It is important to emphasize that the combinations represented in the tables of the present section (§7.1) only treat verbs presented in Ch. Seydou’s dictionary. Therefore, these tables cannot be considered as exhaustive even for the Maasina dialect since they do not completely cover the processes that occur at the boundary between the root and the noun class suffix. Besides, the data shown thus far do not encompass all Fula dialects. For this reason, we will indicate some phonetic processes at morphological boundaries that are indicated in other works. Thus, Antonina Koval (2000) postulates, apart from that which was mentioned

above, a full regressive assimilation, i.e. the gemination that takes place before -m (b, ɓ, t, ɗ + m > mm) and before -l (ɗ, t, l + l > ll). Koval also mentions a subtype of partial regressive assimilation that does not yield gemination. Yet, the root-final consonant is assimilated by the place of articulation: m-ɗ > nd, m-t > nt (Koval 2000).

7.1.3 The deletion of the root-final consonant and the lengthening of the vowel

Table 7.6: The deletion of the root-final consonant and the lengthening of the vowel

	t	**d**	**ɗ**	**r**	**w**	**n**
-f	Vt					
-t				Vr		
-d				Vr		
-ɗ	Vt	Vd				Vnn, Vn
-l					Vl, wl	
-s						Vn
-y	Vt			Vr?		
-h	Vt	Vd	Vɗ?	Vr		Vn
-ʔ	Vt	Vd		Vr		Vn

This process is typical for 'weak' root-final consonants, i.e. fricatives, sonorants and the glottal stop: *suutiiru* 'abandon du domicile conjugal' < **suf-t-*, *piite* 'rechute (de maladie)' < **fiy-t-* etc., giving the appearance of a metathesis process l-w > Vl ~ wl: **wol-w-*> *wooliide / booliiɗe* 'parole' (along with *wowliinde / boliiɗe*).

The process ɗ-t > Vt is represented in Table 7.6 since it is not attested in (Seydou 2014), but is given based on one convincing etymology by Koval (2000). Seydou distinguishes between two roots: *hoɗ-* 'habiter, demeurer; être domicilié; séjourner; stationner; (moy.) s'installer; élire domicile; se fixer' and *hoot-* 's'en retourner chez soi, rentrer chez soi; revenir chez soi; (euphém.) décéder'. Koval has shown that the second word is the reversive of the first one: *hoɗ-t-* > *hoot-* (Koval 2000). For nouns, Koval also describes the changes r-d > Vd and r-g > Vg.

The identification of this process, i.e. the elision of the root-final consonant and the compensatory lengthening of a vowel, explains the particular correspondences between long vowels in Fula and short vowels in Sereer (apart from the

numerous correspondences involving root-final consonants). Thus, the length of the vowel and the quality of the root-final consonant in Fula *kiinugol* ‘protection de..., sauvegarde de...; sauvetage de...’ is explained by the combination of the root-final -s with the suffix **-n** (< **kis-n-* < **his-n*), thus allowing us to relate this word to Sereer *qus-an n* ‘action de se sauver ou de se cacher’ (< PFS ****həs*** ‘se sauver’).

7.1.4 The devoicing of the final consonant before the voiceless consonant of a suffix

Table 7.7: The devoicing of the final consonant before the voiceless consonant of a suffix

	t
-b	pt, ft
-ɓ	pt
-ɓɓ	pt?
-w	ft?
-d	rt
-ɗ	ʔt, rt
-ƴ	ʔt?, ʔc?

Example: Fula *yeefta* ‘ne pas être seul’ < **yeew-t-* (*yeewee* ‘être dans la solitude’).

7.1.5 Metathesis

In combination with a nasal, many root-final consonants undergo a metathesis processes, i.e. the root-final consonant is realized as prenasalized, for example: Fula *handa* ‘empêcher, interdire’ < **haɗ-n-* (*haɗa* ‘interdire’).

7.1.6 The change of fricatives into sonorants

It should be noted that a number of roots in Seydou’s dictionary indicate additional phonetic variants, e.g. ‘déplier’ *ɲoofta, ɲoowta, ɲootta*.

For nouns, Koval also indicates the regular changes f-k > wk and s-k > yk (Koval 2000: 192).

Table 7.8: Metathesis

	w	**n**
-w		nw
-t		nd?
-ɗ		nd
-l	wl	
-ry		rny
-y		nj, ny?
-h		nw?

Table 7.9: The change of fricatives into sonorants

	t	**d**	**ɗ**	**r**	**n**
-f	wt	wd	wɗ?	wr	wn
-s	yt	yd	yɗ	yr	yn

Table 7.10: Lenition

	t	**d**	**r**	**n**
-ɓ	wt			
-f	ht?			
-w	t		r	
-mb				mn
-mmb	mt			
-ll	lt			
-nd	nt			
-nt		nnd		
-j				yn?
-y	yt		yr	yn
-ny		ny	yr	
-nny	nt			
-ny		nyd		
-ŋ	nt			
-nng	nt			

7.1.7 Lenition

For nouns, Koval also indicates the changes b-d > wd, ny-d > yd, t-ɓ > yɓ (Koval 2000: 191–193).

When followed by a consonant, a root-final consonant is assimilated in place (ŋ-t > nt) or is deleted (w-t > t). A special case is represented by the change ny-d > nyʼ, whereby the second, rather than the first, element undergoes a change.

The seven processes illustrated here cover almost all of the changes that occur at the junction of a root and a verbal suffix in Fula. However, further morphophonological processes are attested at the junction of a root and a noun class suffix; some of which will be considered below. Nevertheless, even excluding the processes involving noun class suffixes, the diversity of the processes considered thus far is remarkable. This raises theoretical questions that need to be considered in the perspective of the comparative-historical method. Indeed, what theoretical framework can account for the existence in Fula of five different, yet regular, combinations resulting from the combination of a root-final -yʼ with a suffixal -t (yʼ+t > yt, ʔt, ʔc, cc, nc), as well as five different regular combinations resulting from the combination of a root-final -yʼ with a suffixal -n (yʼ+n > yn, ɲ, nɲ, nj, nyʼ)? To respond to this question, we will look at some examples (Table 7.11).

Table 7.11: The reflexes of the cluster *yʼ-t

hooyta	*hooyʼ-t-	reprendre	lenition 1 (yʼ > y)
jaaʔtina	*jaayʼ-t-	ramener au bercail	lenition 2 (yʼ >ʔ)
jaaʔcina	*jaayʼ-t-	ramener au bercail	lenition 2 (yʼ >ʔ) + palatalization (t > c)
jaaccina	*jaayʼ-t-	ramener au bercail	assimilation (yʼt > cc) + palatalization (yʼ > c, t > c)
deenca	*deeyʼ-t-	s'immobiliser un instant	nasalisation (yʼ > n) + palatalization (t > c)
ɓoynoo	*ɓoyʼ-n-	palper les reins	lenition 1
yʼiiɲa	*yʼiiyʼ-n-	saigner	lenition 3 (yʼ >Ø) + palatalization (n > ɲ)
jaanɲa	*jaayʼ-n-	ramener au bercail	nasalisation (yʼ > n) + palatalization (n > ɲ)
waanja	*waayʼ-n-	verser	nasalization (yʼ > nj) + yʼ > j
waanyʼa	*waayʼ-n-	verser	metathesis (Cn > nC)

Table 7.11 is based on Seydou's dictionary with the reproduction of author's morpheme boundaries. Where possible, I have chosen to show the same roots with similar suffixes in order to illustrate variants of the same word. At the same time, one of the roots (***jaaƴ***-) is given in derived forms with two different suffixes.

An important remark is due here. Seydou reconstructs, for example, the root ***jaaƴ*** for the form *jaanɲa*, based first on other derived forms with verbal suffixes from this root. Second, this reconstruction is possible due to the fact that the language retains the derived forms without the suffixes **-t** or **-n**, for example: *jaaƴ-oo* '(troupeau) rentrer le soir du pâturage', *jaaƴ-a-gol (jaaƴ-nde)* 'retour des troupeaux le soir', etc. If the language did not have these derived forms, she would have been obliged to distinguish the root *jaanɲ-* with a final palatal 'geminate', as she does, distinguishing, in particular, the Fula roots *ɓanɲ, ɓinɲ, dunɲ, fanɲ, honɲ, inɲ, ŋanɲ, runɲ, sanɲ, sonɲ, tanɲ*. Thus, there are many reasons to suppose that many 'root-final' geminates historically originate from combinations of root-final consonants with suffixes.

Considering the conclusions proposed thus far, we will now make a comparison of the inventory of non-initial phonemes in Sereer and Fula and their frequencies in order to accumulate arguments that will allow us to choose between possible reconstructions.

7.2 Comparison of the Sereer and Fula non-initial consonants

7.2.1 Comparison of root structures

First of all, it should be noted that the root structures of Fula and Sereer differ significantly in many parameters, and before proceeding to specific structure correspondences, it makes sense to analyze these differences. First, we will make a preliminary statistical comparison of the root structures in these two languages. For this purpose, in Fula, according to Seydou's dictionary, we single out a corpus consisting of 2,680 lexical roots. In Sereer, according to the Crétois' dictionary, a corpus of 6,641 roots is selected. The significant difference in the volume of the two corpora is primarily due to the fact that in Crétois' dictionary the morphological analysis of words is less thorough, that is, hundreds of derivatives consisting of combinations of roots with suffixes are considered as independent roots. First of all, we omit rare structures, those with a frequency which is less than 0.3%. In total, rare structures account for 7% of our corpus in Sereer and

2.8% in Fula. Such structures are not revealing for a comparative analysis - often a special structure is identified for just one root: e.g., Sereer *fielfelan* 'escargot sp.' ($CV_1V_2C_1C_2VCVC$), Fula *ank* (> *ank-a-gol*) 'fait d'avoir une jolie forme' (VNC).

Let us specify that, when distinguishing structures, we will specifically differentiate prenasalized consonants (NC), consonants clusters (C_1C_2), geminates (CC), prenasalized geminates (NCC), vowel clusters (V_1V_2) and long vowels (VV). There are 29 structures in Sereer and 17 structures in Fula that have frequencies higher than 0.3%. These structures with their percentage frequencies in the dictionaries of each of the two languages, Sereer (S) and Fula (F), are grouped in Table 7.12 according to several features.

Table 7.12: Root structures in Sereer (S) and Fula (F)

	S	F		S	F		S	F		S	F
CVC	23.6	23.5	CVVC	15.1	23.3	CVC_1C_2		15.9	$CVVC_1C_2$		1.1
CVCVC	22.6	0.4	CVVCVC	5.1	0.4	$CVCC_1C_2$		5.2			
			CVCVVC	1.8		CVC_1C_2VC	3.4		$CVVC_1C_2VC$	0.3	
CVCVCVC	3.4		CVVCVVC	0.5					CVC_1C_2VVC	0.3	
			CVCVCVVC	0.3		CVC_1C_2VCVC	0.6				
						$CVCVC_1C_2VC$	0.3				
			CV_1V_2C	0.4							
	49.6	24.0		23.2	23.7		4.4	21.1		0.6	1.1

	S	F		S	F
CVCC		17.5	CVVCC		0.3
CVCCV		0.3			
CVCCVC		0.9			
	0.0	18.7		0.0	0.3

	S	F		S	F		S	F
CVNC	4.1	2.8	CVVNC	0.7	0.6			
CVNCVC	4.1		CVNCVVC	0.3				
CVCVNC	1.8		CVVCVNC	0.4				
CVNCVNC	0.3							
CVNCVCVC	0.7							
CVCVNCVC	0.9					CVC_1C_2VNC	0.3	
CVCVCVNC	0.3					CVC_1C_2VNCVC	0.3	
	12.1	2.8		1.4	0.6		0.5	0.0

	S	F		S	F		S	F
VC	0.7	1.1	VVC	0.3	1.3	VC_1C_2		1.5
VCVC	0.3							
	1.0	1.1		0.3	1.3		0.0	1.5

	S	F
VCC		1.0
	0.0	1.0

The right portion of the table captures structures that include combinations of divergent consonants (C_1C_2). They are found only in the non-primary position. The left part of the table captures structures that do not contain consonants

clusters. The upper portion of the table includes structures with short final consonants. Below are structures with geminates, and further down are structures with prenasalized consonants, and finally structures with an initial vowel. Furthermore, both the left and right table sections are divided into structures with short vowels and structures with long vowels. The summary frequencies for different types of structures are marked in red in the table. The gray shading in the table indicates the most frequent structures in both languages, with a frequency of 2% or higher: 5 such structures in Fula characterize 85% of the roots, 8 such structures in Sereer characterize 81% of the roots.

The table reveals significant divergences between a number of structure types in Sereer and Fula, which reflect diachronic changes in structures in either or both languages.

One of the most significant differences between the root structure of Sereer and that of Fula is the following: roots in Sereer are significantly longer than those of Fula. In Fula, the vast majority of roots are monosyllablic (more than 90%). Only 2% of the roots include two vowels. In Sereer, on the other hand, according to Crétois' dictionary, 48% (!) of roots have a CVCVC structure, where the vowel can be long and the consonant can be prenasalized.

For reconstruction purposes, this radical divergence in frequencies is of fundamental importance. Hundreds of Fula and Sereer cognates are presented in this book. Many of them are debatable. For example, Merrill, reviewing my proposed cognate Sereer *ngubay* ~ Fula *how-ru* 'knee', rightly notes that the Sereer root "does not contain a morpheme boundary" (Merrill 2020). Hence the reconstruction of the root ***Kʊɓ* (ng-/h-)** 'knee' is questionable. Of course, Merrill is right in his doubts. But I wish to put the question in another way. In the Sereer dictionary, more than 3,000 roots have CVCVC structures. Obviously, many of them reflect PFS vocabulary. Hence the question: what roots can they correspond to in Fula, if almost all Fula roots are monosyllabic?

According to my data, this significant statistical difference in structures is due to two factors which differ for Fula and Sereer.

7.2.1.1 Fula

In Fula, the PFS structure *$C_1VC_2VC_3$ with identical vowels is converted to C C_1VVC_3 (the root becomes monosyllabic due to the loss of the medial -g- or a sonorant), or to $C_1VC_2C_3$ (the medial fricative is retained, but the second vowel is dropped, Table 7.13).

Given these regular processes, perhaps we should reconstruct PFS ***ɗelem*** for the cognate Sereer *ɗelem* ~ Fula *ɗem-* 'tongue' rather than ***ɗem***, even though,

Table 7.13: Root reduction in Fula

*PFS	*Meaning	Sereer	Fula
***jɔgɔɲ**	cold	jogoɲ	jaang-
***nɔgɔy**	old	nogoy	nay-
***regeƴ**	meat	regeƴ	teew-
***ɲaxaɲ**	scratch	ɲaxaɲ	ɲaaɲ-
***Nɢereɲ**	clever	xereɲ	ŋeeɲ-
***yɛlɛɓ/f**	lightweight, easy	yelef	yaaf-
***Nɢafal**	neigh	xafal	ŋawl-
***basak**	Hibiscus esculentus, okra	fasak	wask-

after all, we are certainly dealing with one of the most stable Proto-Atlantic and Proto-Niger-Congo roots ****Dem***.

7.2.1.2 Sereer

In Sereer, the PFS *CVC structure is extended into CVC-VC by a suffix, which in the modern language's dictionary is treated as a segment of the root CVCVC. This seems to be the main factor responsible for the radical difference in root length in the modern Fula and Sereer languages.

The least 'dangerous', in terms of reconstruction purposes, are the numerous cases where Crétois singles out the root CVCVC in the absence of a separate root CVC in modern Sereer, while the suffix -VC in Sereer is recognizable. Thus, Crétois (as well as Merrill) singles out in Sereer the root *tafax* 'to smith' in the absence of the original verb *#raf / taf*, but it is quite obvious that this form in Sereer must be related to Fula *taf-* 'to forge' (a Proto-Atlantic root). The suffix **-ax** is reliably identified in Sereer and in the cognate Sereer *ɲiiɲax* ~ Fula *ɲuuɲu / ɲuuƴi* 'ant' (PFS ****ɲVɲ**).

There are many such examples in my database. I will give, as an example, some cognates in which original *CVC roots are reflected in Sereer only in derivatives with the suffix **-and** (Table 7.14)

There are also numerous cognates in which derivatives with other known suffixes are attested in Sereer.

A cardinally more complicated case is represented by cognates in which the Sereer forms of the CVCVC structure contain final -VC segments that do not belong to the suffixes we know today. Here are a few typical examples:

Table 7.14: Some derivatives with the suffix **-and** in Sereer

*PFS	*Meaning	Sereer	Fula
***naap**	*armpit	naap-and	naaw-
***ɓak**	*paste; berth	ɓak-and	ɓakk-
***duɗ**	*raise	duɗ-and	runnd- (<*ruɗ-n-)
***xemb**	*repair	xemb-and	hemmb-

Table 7.15: Some Sereer roots with irregular suffixes

*PFS	*Meaning	Sereer	Fula
***soɗ?**	*inspired with	soɗoq	sonnd-oo (<*soɗ-n-oo)
***hwaŋq?**	*crazy	fanxoy	haaŋ-ɗ-a
***jʌnɢ?**	*stake	sanɢul, sanɢil	jugg-
***nai?**	*four	nahik, nahuk	nay(i)
***taʈi?**	*three	tadik, tadak, daduk	tati
***bɔmb?**	*bump	fomboroj	wammb-
***to(n)k-?**	*hamper	tokoj	tonng-
***mel-?**	*shine, sparkle	meleƴ, meleɲ	mels-
***ɲel-?**	*tickle	ɲelem	ɲill-

Of course, such cognates cannot quite be considered reliable, but, on the other hand, frequency counts give us an additional argument to suspect that a number of modern Sereer 'roots' include archaic suffixes that, today, have lost their productivity. For instance, we return here to the cognate Sereer *nguɓ**ay** n* ~ Fula *how-ru* 'knee' discussed above. The hyphen I proposed separating the 'root' from the 'suffix' in the Sereer form *guɓ-ay* is so resented by Merrill that he qualifies it as "dishonest" (Merrill 2020). But, an analogous situation is found between the given cognate and another possible cognate in which the same 'suffix' *–ay* is found in the word for a body part: Sereer *janɢ**ay** fan / canɢ**ay** k* (*caŋ**ay** fan, cangay fan*) 'l'omoplate [le derrière des épaules]' ~ Fula *cagg-al / cagg-e* 'l'arrière, le dos (du milieu du dos au fessier)'.

I assume that the prevalence of the cognates given suggests that there was, in Sereer, an archaic suffix ***-ay**, which has lost its productivity today, and this hypothesis seems to me more promising than ignoring the disproportional length of roots in Sereer and Fula, to which statistics clearly point.

Table 7.12 also shows significant differences in the structures of monosyllabic roots in Fula and Sereer. They are presented in the most generalized form in Table 7.16, where the largest discrepancies are shaded in gray.

Table 7.16: Frequencies of final consonants in monosyllabic roots

	singletons			complex C	
	Sereer	Fula		Sereer	Fula
-C	85%	50.5%	**-NC**	7.6%	3.4%
			-CC	0%	18.8%
			-C_1C_2	0%	23.7%
	85%	**50.5%**		**7.6%**	**45.9%**

In Sereer, the percentage of structures with a simple final consonant, as well as with a final prenasalized consonant, is significantly higher than in Fula.

As for final prenasalized consonants, the frequency discrepancy may not seem so significant, but here an important detail should be taken into account: in Fula, root-final prenasalized consonants are, in the great majority of cases, voiceless, while in Sereer they are voiced. Note that in Sereer voiced prenasalized consonants are practically the only complex consonants found in root-final position. In Fula, in addition to voiceless prenasalized consonants, the percentage of structures with final geminates (absent in Sereer) and with final consonant clusters is significantly higher.

We assume that any final consonant reconstructions in PFS should explain the frequency discrepancies identified in the statistical tables.[1]

First of all, for each of the groups of final consonants under consideration, it should be determined whether there is sufficient evidence to reconstruct them in the proto-language and to represent their evolution in both modern languages. Thus, if we reconstruct consonant clusters -C_1C_2 in PFS, we would have to explain the disappearance of clusters in modern Sereer, for example, as a result of the PFS change *CVC_1C_2 > Sereer CVC or by some other systematic process.

In the following subsection, we consider each of the identified groups of complex consonant clusters, and then we present the system of non-initial consonants in PFS.

[1]The possibilities of using statistics for reconstruction are discussed in detail in (Pozdniakov 2016).

7.2.2 Consonant clusters

A quarter of Fula roots contain a -C_1C_2 cluster (23.7%) in final position. In Sereer, consonant clusters are also present in non-initial position, but they are almost never found in root-final position. There are only 10 such roots in Sereer, including roots that can be given without translation, e.g. they are non-integrated borrowings such as *seminarist*, *post*, and *kart.* Most of Sereer roots with clusters, however, are attested within the $CVC_1C_2VC(VC)$ structure. The analysis shows that, despite their large number, Sereer clusters in medial position also cannot be regarded as reflexes of *PFS clusters.

Here belong mainly: 1) borrowings: *doktoor, latkoloŋ* (< *eau de cologne*), *torotwar* (< *trottoir*), *lordar* (< *l'ordre*), *lalcol* (< *l'acool*), *sarbet* (< *serviette*), *wermisel* (< *vermicelle*), *diw'tiir* (Merrill *diwtiir* 'palm oil') < wolof *diw-tiir* (compound word) etc., 2) reduplicated forms where the CVCCVC structure goes back to *CVC-CVC, 3) contracted forms like *ciptax* 'marque de la petite vérole' < *cipit ~ copit*, *seestin ~ seesatin* 'limaille', *surtut* along with *surutut* 'poumon' (possibly an ancient borrowing from Soninke *hùrùtû*, 4) derivatives with irregular morphology, where the cluster occurs at the boundary of the root and suffix: *maafkand* 'invincible' < *maaf-*, *naapland* 'aisselle' < *naap-* etc. 5) intensives like *yaskaŋ ~ ɓaskaŋ ~ ɓasraŋ* 'complètement (pourri)', *qofdong* 'très (léger)', etc.

Unlike in Sereer, consonant clusters in Fula are affiliated with the basic root structure. Consonant clusters are represented by the following types (Table 7.17).

Table 7.17: Root-final consonant clusters in Fula

Clusters	Number
rC[a]	227
lC	73
yC	73
wC	38
mC	32
nC[b]	30
others	31
Sum	504

[a]The C symbol stands for any simple consonant.

[b]The nC type includes those few roots in which the nasal consonant is not homorganic, e.g., *danf-* 'action de mauvaise foi, escroquerie'. Prenasalized phonemes with a homorganic nasal (NC) are treated separately.

As we can see, the C_1 position is mostly occupied by liquids and sonorants. Almost half of the examples contain an rC cluster.

Clusters with a final labial consonant (as the second element) are found in 161 roots. Interestingly, the only voiceless stop that does not combine with any sonorant is the final -p (clusters of the type -rp, -lp, -yp, etc. are absent in Fula). The most frequent clusters among labials are the following: -rɓ (20 roots), -rf (18), -rb (18), -rw (16), -rm (15), -lɓ (10), -lm (10), -yf (10).

Clusters with a final dental are found in 132 roots. Ten or more clusters contain -yl (18), -wl (12), -rt (14), -yt (10). In general, final dentals yield 36 different clusters, which is more than any consonant of another place of articulation. One can imagine that many dental clusters contain a verbal suffix integrated in the root.

Clusters with a final palatal consonant are found in 147 roots. The most frequent clusters are -rs (21), -ms (12), -ry̆ (20), ny̆ (15), my̆ (10) (c.f. Merrill: ry̆ < *rd).

Clusters with a final velar are the least common. They are found in only 69 roots; the majority is represented by only two clusters: -rk (22), -rg (22).

All the cognates in my database with consonant clusters in Fula -C_1C_2 correspond to simple consonants -C in Sereer. Here, we are in a rare case where we have, in my opinion, a reliable argument for reconstructing *-C_1C_2, and not *-C in PFS. In fact, if we assume that the process happened the other way around, that is, if we suppose that Fula clusters evolve for some reason from simple consonants in the proto-language (for example, as a result of adding suffixes that are unknown to us), then we would expect that the final consonant in Sereer would correspond to the first consonant (C_1) of the Fula cluster. However, in the vast majority of examples found for the Sereer -C ~ Fula -C_1C_2 correspondence, the Sereer consonant corresponds to the second cluster element, not the first. This is shown in Table 7.18.

In my opinion, this allows us to admit with a sufficient degree of confidence PFS consonant clusters with r- and sonorants[2] as the first element, and to assume the simplification of these clusters in Sereer: PFS *-$\mathbf{C_1C_2}$: Sereer -C_2 ~ Fula -C_1C_2.

Note that there are 4 counter-examples in my database that seem to imply the preservation of the first element of the cluster in Sereer (Table 7.19).

[2]Curiously, despite the large number of clusters with a different liquid, -lC in Fula (73 roots), not a single cognate with this cluster in Sereer is detected.

Table 7.18: Sereer -C ~ Fula -C_1C_2

*PFS	*Meaning	Sereer	Fula
***xorb**	*put on a layer (vb), garnish (vb)	xoob	horw-
***yurɓ**	*thread (vb)	yuuɓ	yurɓ-
***girg**	*scrub (vb)	giig	yirg-
***Birq**	*manure	mbiq-	wirg-
***moorl**	*ball	mool	morl-
***yurn**	*inspect, survey (vb)	yun	yurn-
***(G)wors**	*noose	boos	worc-
***jox/r**	*point (with a finger) (vb)	joox	jur-
***sirɗ**	*saliva spray	siiɗ	siryᶊ-
***ngowl**	*python	ngol	ngowl-
***xɛwt**	*gather (vb)	xet	hawt-
***guyɓ**	*wet (svb)	xuɓ	uyb-
***tayl/ɗ**	*slow, lazy (svb)	tail	taaɗ-
***bayl**	*forge (vb); blacksmith	paal	bayl-
***hayq**	*throw down (vb); lose (vb)	foox	hayk-
***lamyᶊ**	*lick (vb)	laayᶊ	lamyᶊ

Table 7.19: Counterexamples

*PFS	*Meaning	Sereer	Fula
***ɓurg**	*weed (vb)	ɓuur	burg-
***gurb**	*weed (vb)	guur	gurb-
***goyl**ʔ	*rust	xoy	ʔool
***gayw**	*tired (svb)	hay	ʔoyw-

7.2.3 Prenasalized consonants

7.2.4 The problem of prenasalized voiceless consonants

Non-initial prenasalized voiceless consonants are absent in the phonological system of Sereer. Exceptions include their presence in a large number of borrowings, mostly from French and Wolof: *kampa fan* 'pain de campagne', *kanfara fan* 'camphre', *kompa fan* 'compas', *konfese fan* 'confession', *konfirme* 'confirmer', *konsakre* 'consacrer', *pantekoot fan* 'Pentecôte', *pentuur fan* 'peinturage', *pompe fan* 'pompe' etc; *kuntaaßel* 'coup de pied' (Wolof *kuntaaba*), *penku* 'l'Est, l'orient' (Wolof *penku*), *tonkor an* 'feuille du tabac bambara' (Wolof *tonkoro* 'tabac rustique'), *ndank ~ ndang* 'doucement' (Wolof *ndànk*), etc. [3]

In Fula, on the other hand, final voiceless prenasalized consonants seem to be attested in core vocabulary. Seydou's Dictionary gives more than 100 such roots, in which the voiceless prenasalized consonant is included in the Fula root in the following distribution: -nc – 10 roots, -nt – 20, -mp – 25, -nk – 40.

The large proportion of prenasalized voiceless consonants in Fula can be explained, in particular, by the fact that Fula roots often include derivative suffixes (mostly **-t**) that, as has been shown above, can form voiceless prenasalized consonants when combined with various root-final consonants (Table 7.20).

Table 7.20: Fula –nt < *-C-t

PFS	Sereer	Fula
*bad (svp)	bon	bontoo < *bon-t-oo
*reach (vb)	fad	hant < *haaɗ-t
*spread, disperse (vb)	laŋ	lanc < *laŋ-t
*untangle (vb), untwist (vb)	saŋ-it	sanc < *saŋ-t

However, we cannot apply this interpretation to roots with non-initial -nk and -mp. In addition, in a number of roots with final -nt and -nc, we have no reason to note the suffix *-t. In those rare cases where the final -mp Fula is found in cognates with Sereer, we find -m in Sereer:

Voiceless prenasalized velar correspondences in Fula are of a different nature: Fula -nk in the few cognates shared with Sereer corresponds to the voiced -ng. In addition, in Fula the -nk ~ -ng variants are attested (Table 7.22).

[3] The separate problem of final -nq in Merrill's data from the Saloum dialect will be dealt with in the next section, where Crétois' postvelar -nɢ is considered.

Table 7.21: Sereer -m ~ Fula -mp

PFS *-mp ?	Sereer	Fula
*pound (vb)	soom	samp-
*grope (vb)	pum-pumin	fomp-
*hit (vb)	gom	gemp-

Table 7.22: Reflexes of *-nk?

PFS*-nk?	Sereer	Fula
*build a dike (vb)	pang	bank- ~ banng-
*shake (vb)	yeng-l-ox	yink- ~ jinng-
*heel	dang	dank ~ lanng-
*refuse (vb)	jang ~ jeŋ	jank-ir-
*bend (vb)	lung ~ lunɢ	lunk-

The regular correspondences shown above, as will be shown in the next section, cannot be reconstructed back to final voiced prenasalized consonants in *PFS. We have to assume that *PFS had voiceless prenasalized stops - at least ***-mp** (> Sereer m) and ***-nk** (> Sereer ng). Their only possible diachronic interpretation seems to be the assumption of the existence of root-final voiceless prenasals in PFS - at least ***-mp** (> Sereer m) and ***-nk** (> Sereer ng). We have insufficient evidence to reconstruct ***-nt** and ***-nc** because of the obscurity of the morphemic composition with these final consonants in Fula lexical databases.

7.2.5 Prenasalized voiced consonants

The main intrigue consists of the following: Many roots in Sereer contain a final voiced prenasalized consonant, whereas such roots are almost absent in Fula. The most clear systematic correspondence for final -mb, -nd, -ng in Sereer is with Fula geminates which belong to the prenasalized series, namely -mmb, -nnd, -nng (Table 7.23).

It should be noted that this correspondence is found more often than the direct correspondence of voiced prenasalized consonants without gemination in Fula. Thus, our database has six correspondences -mb ~ -mmb and not a single correspondence of the type -mb ~ -mb; eight correspondences -ng ~ -nng and no

Table 7.23: The reflexes of voiced prenasalized consonants

***-mb**, ***-nd**, ***-ng**	Sereer	Fula	***-mb**, ***-nd**, ***-ng**	Sereer	Fula
*calabash sp.	tum(b)	tummb-	*today	xande	hannde
*accuse (vb)	jamb	jammb-	*lie down (vb)	wond-	wannd-
*float (vb)	humb	hummb-	*resemble (vb)	nand-	nannd-
*drum sp.	pomb-	bummb-	*dwell (vb)	gend	genn d-
*bump	fombor-	wammb-	*basket sp.	cong	cenng-
*ax sp.	sombe	sommbe-	*snap up (vb)	song	sonng-
*bathe (vb), wash (vb)	sumb	semmb-	*learn (vb)	jang	janng-
*prostitute	jambur-	jammbur-	*night	yeng	jenng-
*repair (vb)	qem(b)-	hemmb-	*build a dike (vb)	bang	banng-
*write (vb), trace (vb)	bind	winnd-	*hive	nduung	dunng-
*know (vb)	ʔand	ʔannd-			

correspondence -ng ~ -ng; six correspondences -nd ~ -nnd and only two correspondences of -nd ~ -nd. Among palatals, both Sereer -nj ~ Fula -nnj and Sereer -nj ~ Fula -nnj are completely absent from my database.

Apart from the indicated correspondences, final prenasalized consonants in Sereer show other regular correspondences in Fula.

7.2.6 Labials

In Table 7.24 we consider examples of the Sereer -mb ~ Fula -m regular correspondence.

These correspondences cannot be explained via the PFS change ***-m** > Sereer -mb because we have dozens of examples where PFS ***-m** is preserved in both languages. The only remaining possibility is to suppose a PFS change ***-mb** > Fula -mmb ~ -m(m) with an unclear distribution of its reflexes. Possibly, the change ***-mb** > Fula m(m) is related to derivational processes at the junction of the root and the suffix.

7.2.7 Dentals

As in the case of labials, the main correspondence for -nd in Sereer is the geminate -nnd in Fula.

Table 7.24: PFS *-mb > Fula -m

PFS *-mb	Sereer	Fula
*spleen	ɗaam(b)	ɗaam-
*cover (vb)	bomb	buum- (FJ)
*speak against (vb)	jamb-	jam-
*tortoise	xomb-	huum-, huuŋ-
*flatten (vb)	ɓomb	ɓoom-
*ball, grip	ramb	tam-
*tobacco	sumbu	simm-
*Strychnos spinosa	ndumb-	tumm-

It should be noted that, as has been shown above, in Fula a ʻprenasalized geminate' -nnd can be formed from the junction of a root-final -ɗ and the suffix **-n**. Some representative examples are provided in Table 7.25.

Table 7.25: PFS *ɗ-n > Fula nnd

PFS *-ɗ	Sereer	Fula
*dirty (svb)	roɗ	tunndi (< *toɗ-n-)
*hook someone's leg (vb)	saaɗ	sannda (< *saaɗ-n)
*neck, throat	faɗang	konndond-(< *kwand-n-)
*choke (vb)	soɗoq	sonndoo (< *soɗ-n-oo)
*raise (vb)	duɗ-and	runnda (< *ruɗ-n-)

Apart from the geminate -nnd it may seem that we also have reliable examples of the direct correspondence Sereer -nd ~ Fula -nd as shown in Table 7.26.

Table 7.26: Sereer -nd ~ Fula -nd?

PFS *-nd	Sereer	Fula (SG/PL)
*nipple	hand	endu / endi
*lycaon, wild dog	saafaandu	saafaandu / caafaali
*brain	ngand	ngaandi / gandiiji

Yet, it is not by chance that Table 7.26 contains plural Fula forms. Apparently, we are dealing with the following scenario: the Fula root was reanalyzed when it is followed by a noun class marker: the final *-**nd-u** in **ʔe**nd-u*** changes into *ʔe**n-du***, hence the plural form *ʔe**n-di***. The final *-**nd-u** in **saafaand-u* changes into *saafaa-ndu*, hence the form PL *caafaa-li*. Possibly, only *ngaand-i / gandii-ji* have maintained the root-final -nd, but even in these cases it remains unclear what is the grade of the class marker that we are dealing with: -**ndi**, -**di** or -**i**. Therefore, the correspondence Sereer -nd ~ Fula -nd is an illusion, and, in fact, the final *-**nd** does change in Fula.

If this is the case, there may be a systematic changing of voiced prenasalized consonants in two places in Fula: *-**mb** > Sereer -mb ~ Fula -m, *-**nd** > Sereer nd ~ Fula -n.

7.2.8 Palatals

The non-initial -nj in Sereer is attested in 37 roots, but they almost never find correspondences in Fula. There are only two relatively reliable cognates with final -nj in Sereer: *'weave (vb)': Sereer *saanj* ~ Fula *sanny-* and *'bump': Sereer *sunj* ~ Fula *suuɣ-*.

Given that the first example finds a parallel in the labial consonants, where, as has been shown, the prenasalized feature can pass to the nasal in Fula (*-**mb** > Fula -m(m)), let us assume as a hypothesis a similar process for the palatal place of articulation: *-**nj** > Fula -nny.

As for the limited number of voiced prenasalized consonants in Fula palatals, almost all of them emerge as a result of a combination between non-nasal root-final consonants with the suffix -**n**. Thus, -nj is found in only two roots in Fula, and one of them displays the variation -nj ~ -ny: Fula *baanj-agol ~ baany-agol* 'déversement violent; fait de se précipiter brusquement dans...'. All other occurrences of non-initial -nj (11 roots) are part of the -nnj cluster where the nasal element results from metathesis in the combination of the root final consonant and the suffix -**n** (Table 7.27).

7.2.9 Postvelars?

Crétois singles out the final -nɢ in Sereer. In the Saloum dialect, according to Merrill, it regularly corresponds with a voiceless postvelar -nq – Table 7.28

If it is a voiceless consonant (as Merrill proposes), it appears to be the only voiceless prenasalized consonant in Sereer. In any case, in Fula it seems to correspond to the voiced velar geminate -gg; postvelar consonants in Fula have

Table 7.27: Proto-Fula

**-C-n > Fula -nnj*

*Meaning	Sereer	Fula
*carry (vb), place (vb), charge (vb)	gaɗ	gannj- (< *gaɗ-n-)
*rub (vb), clean (vb)	saj	jonnja (< *joj-n-)
*limp (vb)	layˀ	layˀ-, lannj- (< *layˀ-n-)

Table 7.28: -nq ~ -ŋɢ

Merrill	Meaning	Crétois
onq ~ ong	diminutive noun class SG	onɢ
faanq	to be unable to find a spouse by the marriageable age	faanɢ
fanq / panq	stump	fanɢ o...ol /panɢ a...ak
o fonq / xa ponq	millet gruel made with millet flower, water, and sugar	fonɢ o...ol / onɢ xa...ax
lanq	sand, dirt; ground; land; floor; down	lanɢ (gi)...n / lanɢ k

Table 7.29: Reflexes of *-ŋɢ

PFS *-ŋɢ	Sereer	Fula
*background; deep	lanɢ ~ lang-	lugg-
*stake	sanɢul ~ sanɢil	jugg-
*shoulder blade	janɢay ~ jaŋay ~ jangax	cagg-

disappeared, particularly as a result of changes *q > k, *x > h. Some examples are provided (Table 7.29).

We note, however, Sereer variants nɢ ~ ng ~ ŋ.

In summary, voiced prenasalized consonants are preserved non-initially in Sereer, whereas in Fula they systematically changed into prenasalized geminates: ***mb**, ***nd**, ***ng** > Fula mmb, nnd, nng; ***-nɢ** > Fula -gg.

At the root-suffix boundary, most noticeable are the following changes in prenasalized consonants: ***-mb** > Fula –m(m), ***-nj** > Fula nny?. The other types of transformations are confirmed in our database only by isolated examples.

In the analyzed cases, without exception, the Sereer data are decisive for the reconstruction of original prenasalized voiced consonants in non-initial position.

7.2.10 Geminates

The interpretation of geminates is the central problem for final consonant reconstruction: as already mentioned, Sereer has no geminates whereas in Fula they represent 20% of non-initial consonants. We note that 25% of roots in my etymological database include correspondences between Fula geminates and simple Sereer consonants in non-initial position. How did this crucial difference appear? In order to arrive at a clear conclusion, I will repeat some facts that can be considered as having been firmly established.

7.2.11 Formation of dental and palatal geminates CC from clusters C_1C_2 at the junction of the root and a suffix.

First, we know that geminates evolved in Fula at the boundary between a root and a following morpheme, such as in the case of derivational suffixes as well as noun class markers.

Here, we again consider the example that was given earlier: ****feɗ-it*** 'déboutonner': Sereer *feɗ-it* 'déboutonner (habit)' (*feɗ* 'boutonner; plante, habit') ~ Fula *fetta* (**feɗ-t-a*) 'déboutonner, dégrafer, décrocher' (*feɗa* 'ajuster soigneusement; mettre bien en place; boutonner)'. In this case we can reliably reconstruct for PFS the reversive suffix ***-it** and trace the forms in question back to the root ****feɗ*** 'fix', which is attested in both languages: Sereer *feɗ* 'boutonner (plante, habit)' ~ Fula *feɗa* 'ajuster soigneusement; mettre bien en place; fixer avec soin (une chose à une autre); (spéc.) boutonner; (moy.) être inséparable de..., se joindre toujours à...; être toujours avec (qqn)'.

It is crucial to note that the list of Fula roots does not include the geminate form in this case, since it is rightfully interpreted in the dictionary as **feɗ-t-*. Yet, there are numerous examples in which the original root cannot be traced in Fula

today, and it is logical that Seydou postulates roots with a final geminate. Thus, she distinguished the root *mett-*, represented, for example, by the verb *metta* 'être difficile; être désagréable'. Phonetically, this root can be traced back to **meɗ-t-* and linked to Sereer *meɗ* 'être lourd, pésant, accablant…'.

This way of forming geminates is not possible for all consonants. First of all, it can occur in combinations with the suffixes **-t**, **-d**, **-r**, **-n** and, accordingly, it can concern the geminates -tt, -dd, -rr, -nn, i.e. the dental geminates, since the overwhelming majority of the known Fula suffixes is represented by dental consonants. Nevertheless, first, we do not know what suffixes could leave traces in combinations with Proto Fula roots, second, geminates could have formed at the junction between a root and a noun class marker.

Here, we consider the examples: Sereer, as well as other Atlantic languages, attests reflexes of the Proto-Atlantic root ***ɓak** / ***ɓok** 'baobab; corde': Sereer *ɓaak n / ɓaak k* 'baobab', *ɓaak o...ol / ɓaak a...ak* 'corde [généralement faite en fibres de baobab]'. In Fula the forms differ for these two meanings, even though both of them attest geminates: *ɓokki / ɓowɗe ~ ɓooɗe* 'baobab', *ɓoggol / ɓoggi* 'corde'. For the first form, Seydou postulates, with a question mark, the root *ɓoh-* (?). Apparently, she relies on the forms *ɓohre / ɓohe* 'fruit de baobab', but as for the second (*ɓoggol*) she does not give any root at all. At the same time, phonetically, we could postulate the common root ***ɓok-*** here, and therefore we could consider the forms in question as **ɓok-ki* > *ɓokki* and **ɓok-gol* > *ɓog-gol* (with the subsequent reanalysis of the root in *ɓogg-ol / ɓogg-i*).

Similarly, Fula *mbaggu* 'tambour' can be traced back to **bak-gu* and related to Sereer *fak* 'battre le tam-tam', and Fula *ɓonngu* 'moustique' (for which Seydou proposes the geminate *ɓokk-)* can be traced back to **ɓook-ngu* and related to Sereer *ɓook n / ɓook k*.

There remains one curious detail that we should consider. All these three roots involve irregular plural forms with -w- in the roots that complexify the formal distinction of the root and testify to its restructuring, i.e. for the inclusion of the geminates in the root:

- *ɓokki / ɓowɗe* 'baobab'
- *mbaggu / ɓawɗi* 'tambour'
- *ɓonngu / ɓowɗi* 'moustique'.

7.2.12 Formation of geminates before the causative suffix -in-

Here, we consider another case at the junction of the root and a suffix, in which the geminate is also a derivative, but not by the influence of a consonant in the

suffix. As Arnott notes, the final consonant of the root is often geminated before the causative suffix **-in** for no apparent phonetic reason: ***waal-*** + **in** > *wallin-*, ***joodʃ*** + **in** > *jo''in-*, ***heew*** + **in** > *hebbin-*, ***juut*** + **in** > *juttin-*, ***yaaj*** + **in** > *yajjin-*, ***ɗuuɗʃ*** + **in** > *ɗuɗɗin-* (Arnott 1970: 339, 348). To these examples from Arnott we can add some from Seydou's dictionary (Table 7.30).[4]

Table 7.30: Final root geminates with -in

Root + -in-	Root	Root + -in-	Root
tabbina	tab-	takkina	[takk- KP]
nebbina	new- (2), nebb-	jallina	jal- / nj-
hobbina	hob- (1) / k-	dallina	dal- / nd-
gebbina	gew- / ng-	hallina	hal- / k-
hebbina	heew- / k-	lammina	laam-
laɓɓina	laaɓ-	ɲammina	nyaam-
ɓuɓɓina	ɓuuɓ-	sammina	saam-
jaɓtina	jaɓ- / nj-	himmina	himm- / k-
addina	ad- (1)	fammina	faam- / p-
jaɗɗina	jaaɗ- / nj-	dommina	doom- (1) / nd-
faɗɗina	faaɗ- / p-	gommina	gom- (1) / ng-
tuggina	tuug-	dummina	duum- / nd-

In some such cases Seydou does not single out the monosyllabic root, for example, for the word *lellina* 'attraper des tiques' – probably because in the absence of other forms (it is an isolated word) we cannot say with certainty whether the root ***lell-*** or ***le(e)l-*** should be distinguished here. Note that Seydou proposes a root with a final geminate in a number of cases, but the grounds for such a decision are not quite clear. This specifically applies to the following roots from Seydou:

- ***jibb-****: jibbina* 'enfanter, engendrer', *jibbinana* 'mettre au monde pour...', *jibbinannde / jibbinanɗe* 'mise au monde; maternité', *jibbingol* 'enfantement, accouchement', *jibbinirdu* 'maternité (lieu)', *jibbindina* 'avoir un enfant avec...'.
- ***joƴƴ-***: *joƴƴina* 'poser, placer, déposer', *joƴƴinira* 'siéger pour (qch.)', *joƴƴineere / joƴƴineeje* 'séance, session; (spéc.) réunion de discussion'.

[4]The forms are given here without glosses, since we are only interested in the phonetic aspect.

- ***jitt***-: *jittina* ‘terminer, achever, exécuter’, *jittingol* ‘achèvement, exécution’.
- ***sakk***- (3): *sakkina* ‘recueillir (du liquide) dans un récipient’.
- ***sull***-: *sullina* ‘faire tout son possible pour...’.
- ***bill***-*:* *billina* ‘jurer en invoquant le nom de Dieu’.

For all such words, it is quite possible to assume roots without a final geminate, or possibly a long vowel in the root: ****ji(i)b***-, ****jo(o)y***- etc. It is important to note that in this case we have traced the possibility of forming not only dentals and palatal final geminates, but also any geminates at the junction of root and suffix.

7.2.13 Variant forms -CC ~ -C and their interpretations

Seydou’s dictionary reveals dozens (if not hundreds) of CVCC roots with final geminates, in parallel with phonetically similar roots of CVCC structures with similar meanings. Here, we give typical examples of this kind, limiting ourselves to such parallel roots in Fula that find etymological parallels in Sereer (Table 7.31).

It is important to note that we cannot explain the majority of these variations by the presence of a derivational suffix in roots with geminates. Nevertheless, we seem to have no grounds for reconstructing geminates in PFS in such examples. Rather, we are dealing with a PFS change *CVVC > Fula CVCC without any particular morphological context.

We have a long vowel in all the examples of Sereer roots given in Table 7.31. However, there are a large number of cognates in which the variants of Fula (with or without geminates) correspond to roots with short vowels in Sereer (Table 7.32).

These examples show that the formation of geminates in Fula apparently took place regardless of the length of the root vowel, i.e., PFS *CV(V)C > Fula CVCC. In addition, I have quite a few examples in my database in which the length of the vowels in Fula and Sereer reflexes is different (Table 7.33).

As the table shows, the problem is complicated by the fact that Fula roots not only have numerous variants -CC ~ -C, but also simultaneously -VV- ~-V-.

A major question remains. Even if we assume a singleton consonant in PFS and consider the gemination in Fula as being derivative, there are still hundreds of Fula roots with final geminates for which there is no apparent reason to consider gemination in final position. For such examples, we have to assume the existence of geminates already in PFS and their simplification in Sereer. However, this issue deserves further consideration, for each series of consonants and sometimes for individual consonants within a series. We consider the available examples in turn.

Table 7.31: Variations -CC ~ -C in Fula

PFS	Fula -VC	Fula -VVC	Fula -VCC	Sereer -VC	Sereer -VVC
*father		baab-	babb-		baaba
*afraid (svb); funk		diir-	dill-		diid
*jaw; cheek		[waaɓ-/g-][a]	[waɓɓ-]		kaaɓ
*return (vb), come back (vb)		huuc-, huuƴ-	hucc-, huucc-	xuƴ	kuuc
*grandparent		[maam-]	mamm-		maam
*mute (svb)		muum-	[mumm-]		muum
*walk (vb)		nyaaƴ-	nyaɓɓ-		ŋaaƴ
*dark (svb)		niib	niɓɓ-	niɓ	niif
*shout sp. (vb)		ŋaak-	ŋakk-		ŋaax, ŋaar
*push (vb)	duny-, unƴ-	doony-	dunny-		rooŋ, tuuŋ, cuuŋ
*boil (vb)		waaƴ-	waƴƴ-	waƴ	wiij, wooj-in
*liver		[heeɲ-]	[heƴƴ-]		xeeɲ
*scrape (vb)		hoos-	hocc-		xoos
*pass (vb); meet (vb)		faap-	fapp-		paaf

[a] Square brackets indicate roots that are not isolated in Seydou's dictionary. Thus, for *gaaɓal ~ gaaɓogal / gaaɓole* 'maxillaire, mâchoire; joue' Seydou does not propose a special root, as well as for *waɓɓugo ~ waaɓugo / gaɓɓule* 'joue'.

Table 7.32: Sereer -VC~-VCC ~ Fula -VC

PFS	Fula -VC	Fula -VCC	Sereer -VC	Sereer -VVC
*shake (fingers) (vb); sprinkle (vb)	wis-	wicc-, ficc-	bas, wis	
*bad (svb)	bon-	[bonn-]	bon	
*rain (vb; n)	dew-	deɓɓ	deɓ	
*rain (vb; n)	toɓ-	toɓɓ-	doɓ-	
*run (vb); trample on (vb)	dog-	dogg-	dogor	
*lie (vb)	fen-	[fenn-]	fen	
*shake (vb), stir (vb)	weɗ-, fit-	fiɗɗ-	fid, fit, piɗ	
*carry (vb), charge (vb)	waɗ-	gannj-	gad, ʔat	
*suspend (vb)	yonŋ-	jonng-	joŋ, jug	yʻoong
*small (svb); foal	mol	moll-, morl-	mol	
*ficus sp	[ndubare-]	[nduballe-]	ndobale, ndubale	
*hard, difficult (svb)	saɗ-	saɗɗ-, saɗ-t- > satt-	saɗik	
*grind (vb), pound (vb)	soh-	sokk-	sox, sok	
*stuff (vb), cram (vb)	sok-	sokk-, sukk-	sox, soq, sux, suq	soox
*gather fruits (vb)	teɓ-	taɓɓ-	toɓ-	
*wormy (svb)	wuɗ-	wuɗɗ-	wuɗ	
*new (svb)	hes-	hecc-	xas	
*wind; odor	hen-	[henn-]	xeŋ	xeeŋ
*move (vb)	yaw-	jagg-, yʻagg-	yʻak-and	
*chew (vb)	yak-	yʻakk-	yʻax	
*night	jeŋg-	jenng-, [jemm-]	yeng	

Table 7.33: Sereer -VC~-VCC ~ Fula -VVC

PFS	Fula -VC	Fula -VVC	Fula -VCC	Sereer -VC	Sereer -VVC
*shoulder blade, back (n)	sah-, sak-	saag-, saaŋ-	cagg-	caŋay, janɠay	
*reach (vb)		haaɗ-	faɗɗ-	fad	
*open (vb), begin (vb)	fur-, fuy-	feer-	fuɗɗ-	fer	
*accept (vb)	jaɓ-	jaaɓ-	jaɓɓ-	jaɓ	
*walk (vb); foot plant		njaaɓirdi	njaɓɓirdi	jaf-	
*tail		[laas-, laac-], looc-	lacc-	lac, las	
*close (vb), cork (vb)		mooɓ-	maɓɓ-, muɓɓ-	muɓ	
*eat something starchy (vb)		muuɗ-	muɗɗ-	muɗ	
*bend (vb); stretch (vb)	nad-	naaɗ-	nad-ɗ > naɗɗ-	naɗ (Merrill naf)	
*fall (vb)		saam-	samm-	sam	
*fog (n)		suur-, suuɗ-	sudd-	sut	
*twirl (vb), go around (vb)		yiil-	yirr-, yirl-	wid, wir	
*grimace	unyˀ-		enny-, inny-, uyˀyˀ-		ɓiiŋ
*day	nyal-		nyall-		ŋaal
*assemble (vb)	sig-, siŋ-		sigg-		suung

7.2.13.1 Voiceless stops

Table 7.34 lists the frequencies of final voiceless stops in Fula roots.

Table 7.34: Final voiceless stops in Fula

p	t	c	k	**Sum**	pp	tt	cc	kk	**Sum**
9	79	14	53	**155**	52	30	39	62	**183**

Geminated voiceless consonants are more frequent in final position, with the exception of the dental place. Roots with final -p are practically absent (if they do occur, they have variants with a geminated consonant **(faap- ~ fapp-)** or with a fricative (**puup- ~ fuuf-**). This distribution allows us not to complicate the reconstruction by introducing the opposition ***-p** ~ ***-pp** in PFS. We assume that all ***-p** have become geminates in Fula.

There are 14 roots with a singleton -c and 39 which are geminated. Among the 14 Fula roots with a singleton -c there are 5 ideophones. One of them finds a parallel in Sereer: Sereer *ɓiic* 'grincer [souliers], siffler [serpent], chicoter [souris]; brailler, miauler' ~ Fula *ɓiica* 'piailler, pousser un petit cri très aigu (oiseau, rat); piauler; couiner'. Thus, basic roots are also practically absent, i.e. we can assume that the singleton palatal voiceless stop -c became the geminate -cc.

It is more difficult to make a decision about the dental and velar voiceless stops. First of all, Fula has 79 roots with a final singleton -t in our list and significantly fewer roots with -tt (30). That said, we know that the suffix **-t** combined with many root-final consonants gives the geminate -tt, and given that this is the most frequent derivational suffix in Fula, we have reason to suspect that it is present in many roots in which the geminate has to be postulated today. It can be assumed that the association of the voiceless dental geminate with combinations of the high-frequency suffix **-t** and different root-final consonants prevented the automatic gemination of the root-final -t. Only in this way could the distinction between forms with and without the suffix be preserved. If so, we have no grounds for the reconstruction of the voiceless dental geminate, as we did not have any grounds for the reconstruction of the voiceless labial and palatal geminates.

Apparently, the issue with the postvelars is answered – in my database there are 7 examples of Sereer -q ~ Fula -kk and no examples of Sereer -q ~ Fula -k. This allows us to reconstruct ***-q** in PFS with the presumed transition of the postvelar to the velar geminate -kk in Fula.

The most complicated case seems to be that of the velars. There are 7 correspondences Sereer k ~ Fula k and 5 correspondences Sereer k ~ Fula kk in my database. However, here too – the reconstruction of the velar geminates, along with the simple velars, is not obligatory. We may well assume that the transition of the original postvelar to velar geminates (***q** > Fula kk), may have, in some cases, inhibited the transition of singleton velars to velar geminates (***k** > Fula kk), with the result that in some roots the original singleton velar was preserved (***k** > Fula k). Thus, in general, there is not enough reason to reconstruct voiceless stop geminates in PFS.

There are no fricative geminates in Fula, but note the correspondence of the voiceless singleton fricative in Sereer and voiceless stop geminates in Fula, which is found among palatals (Sereer -s ~ Fula -cc, 7 cognates) and (post)velars (Sereer -x ~ Fula -kk, 5 cognates).[5] We will treat these cognates with the correspondences of singleton consonants (next section).

7.2.13.2 Voiced stops

If in the series of voiceless stops in the final position, as we have seen, Fula geminates occur more frequently than singleton consonants, in the series of voiced ones, geminates systematically occur less frequently than singletons. Below is the number of phonetically different Fula roots with final voiced stops (Table 7.35).

Table 7.35: Final voiced stops in Fula

b	d	j	g	
49	46	30	49	174
bb	dd	jj	gg	
31	29	17	38	115

To note that in my database, only eight Fula roots that include final voiced geminates find correspondences in Sereer (only two examples for each of the four consonants). They are given in the table below (Table 7.36).

There are considerably more examples of direct correspondences of roots with singleton final voiced stops (22 roots).

[5]There is also 1 example of Sereer -f ~ Fula -pp.

Table 7.36: Cognates with the voiced geminates in Fula

PFS	Sereer	Fula
*pound (vb)	dib	dubb-
*forage (vb); fodder (n)	gub	wubb-
*road, path 2	mbed	mbedd-
*weighty, important (svb)	ted	tedd
*blanket	mbaj	bajj-
*unique (svb); only child	bajo	wajj
*suspend (vb); granary	ɗag	ɗagg-
*hear (vb), perceive (vb)	yeg	yagg-

Overall, the number of roots with voiced geminates in Fula is quite significant (115 roots with geminates represent 4.2% of the total number of phonetically different roots in Seydou's dictionary), although not as significant as the number of root-final voiced singletons (6.5%). In view of this state of affairs, it is proposed here to reconstruct voiced geminates in PFS. This makes sense, if only to keep Fula geminates in mind when reviewing cognates with other Atlantic languages.

7.2.13.3 Prenazalized stops

There is no doubt that prenasalized Fula geminates go back to singleton prenasalized stops: PFS ***mb**, ***nd**, ***nj**, ***ng** > Fula -mmb, -nnd, -nny, -nng (there are a total of 21 cognates in my database). Correspondences of the type Sereer MB ~ Fula MMB are observed in contrast to the complete absence of correspondences like Sereer MB ~ Fula MB. Non-geminate prenasalized stops are practically absent in Fula (in the dictionary they are included in only 17 roots: -mb 4, -nd 8, -nj 2, -ng -3), while geminate prenasalized stops are included in 133 roots: (-mmb 44, -nnd 33, -nnj 11, -nng 45).

Some intrigue remains here in regards to the palatal geminate: in my database there are 6 examples of Sereer -mb ~ Fula -mmb, 6 examples of Sereer -nd ~ Fula -nnd, 8 examples of Sereer -ng ~ Fula -nng, but no examples of Sereer -nj ~ Fula -nnj. As will be shown below, there is some evidence to suggest that ***-nj** PFS became the palatal nasal geminate -nny in Fula.

Note also that all of the few cognates involving the postvelar prenasalized -nɢ in Sereer correspond to the non-prenasalized geminate -gg in Fula.

7.2.13.4 Other series

We have no reason to reconstruct a series of geminates including sonorants or glottalized consonants in PFS. However, there may be two interesting exceptions, related to the diachronic interpretation of geminates -ɓɓ and -ll in Fula.

Along with the correspondence Sereer -ɓ ~ Fula -ɓ (10 cognates), we have an even more frequent correspondence Sereer -ɓ ~ Fula -ɓɓ (13 cognates). Perhaps in the latter case geminate *-ɓɓ should be reconstructed in PFS.

Neither can we reject the correspondence Sereer -l ~ Fula -ll (5 cognates), along with dozens of correspondences Sereer -l ~ Fula -l. For these cognates we conventionally reconstruct ***-ll** in PFS, given that, as with the ***-ɓɓ** reflex in Fula, we cannot explain the formation of these geminates by the derivational suffixes that are known to us.

7.3 The general system of non-initial consonant correspondences

This section will show the general contours of the system of root-final consonants in PFS and their reflexes. We will then comment on some portions of the table, and finally we will discuss the correspondences that do not find a place in the system presented (Table 7.37).

The table does not include consonants clusters. The problems of their reconstruction are discussed above. Again, the main argument for reconstructing *-$\mathbf{C_1C_2}$ clusters in PFS is the fact that C_1C_2 in Fula regularly corresponds to -C_2 in Sereer.

In numerous similar cases, Fula consonant clusters cannot be interpreted as combinations of a root-final consonant and a suffix.

The proposed reconstruction of final prenasalized consonants and geminates is argued for above.

7.3.1 Labialized consonants

As it was shown above, we have important reasons to reconstruct, in root-initial position, three labialized consonants that are absent from the modern languages. The following, non-trivial, and nevertheless frequent correspondences, make us assume that these consonants were also found in PFS in root-final position (Table 7.38).

Table 7.37: Correspondences of non-initial consonants

PFS	S	F	**PFS**	S	F	**PFS**	S	F	**PFS**	S	F	**PFS**	S	F
***p**	p	pp	***t**	t	t, tt?	***c**	c	cc	***k**	k	k, kk?	***q**	q	kk
			***ʈ**	d	t									
***f**	f	f	***r**	r	r	**s**	s	s				***x**	x	h, kk
									***kw**	f	w			
***mp**	m	mp							***nk**	ng	nk			
***b**	b	b	***d**	d	d	***j**	j	j	***g**	g	g			
***bb**	b	bb	***dd**	d	dd	***jj**	j	jj	***gg**	g	gg			
***bw**	ɓ,b	w							***gw**	g	w			
***mb**	mb	mmb, m(m)	***nd**	nd	nnd, nɲ	***nj**	nj	nɲ	***ng**	ng	nng	***nɢ**	nɢ ~nq	gg, ɣɣ
***ɓ**	ɓ	ɓ	***ɗ**	ɗ	ɗ	***ɣ**	ɣ	ɣ						
***ɓɓ**	ɓ	ɓɓ												
***w**	w	w	***l**	l	l	***y**	y	y	***ʔ**	ʔ	ʔ			
			***ll**	l	ll,Vl									
***m**	m	m	***n**	n	n	***ny**	ny	ny						

Table 7.38: Reflexes of the labialized series

	Sereer	Fula
*kw	f	w
*bw	ɓ,b?	w
*gw	g	w

In line with the proposed reconstruction, all three labialized consonants have transformed into -w in Fula. As for Sereer, the labialized voiceless stop changed into a labial stop, whereas labialized voiced consonants have been simplified.

Merrill considers the correspondences of final Sereer -f ~ Fula -w together with the analogous initial consonant correspondence, without providing, however, any historical explanation for this correspondence: "There are three seemingly regular correspondence sets involving the labial continuants /f/ and /w/. <…> It is unclear what is to be made of the Sereer /f/: Fula /w/ correspondence set …" (Merrill 2018b: 73–74). My point is that this correspondence is of a different origin in its various positions. In initial position it can originate from PFS ***b-** (see §5.2). The final position cannot be traced back to ***b-**, yet it could originate from ***-kw**. Merrill provides three examples of these correspondences in final position. Our database contains a much larger number of such examples which we consider here.

Table 7.39: Reflexes of *-kw

***-kw**	Sereer	Fula
*shadow; shelter	ɗiif	ɗow
*millet	gaaf	gaw-
*despise (vb)	yaf	jaw-
*antelope sp. (Guib)	njaf	jaw-
*follow (vb)	reef	rew-
*snap (vb); pounce on food (vb)	haf	hawl
*crack (vb), break (vb)	gef	gew-
*neigh (vb)	xaf-	ŋaw(l)-
*beat (vb); hurt (vb)	naf	naaw-

It should be highlighted that the existence of labialized final consonants is indirectly confirmed by the necessity to reconstruct them in initial position. Fur-

thermore, as in the initial position, the reconstruction of *-**kw** is not alone. It is indirectly confirmed by the necessity to reconstruct two labialized consonants, namely *-**gw** and *-**bw**.

The reconstruction of *-**gw** is confirmed, in particular, by the following examples (Table 7.40).

Table 7.40: The reflexes of *-gw

*-**gw**	Sereer	Fula
*elephant	ɲiig fa...fan	ɲiiwa / ɲiibi
*big; old (svb)	maag	maw
*can (vb)	waag	waaw-a

The reconstruction of *-**bw** is confirmed, in particular, by the following examples (Table 7.41).

Table 7.41: The reflexes of *-bw

*-**bw**	Sereer	Fula
*canter (vb)	jaab	jaaw-
*scan (vb), brush (vb)	buub	wuuw-
*Acacia sp.	ngoɓoɓ	ngawdi
*surround (vb), fence (vb)	heɓ	how-
*lay on (vb)	yeeɓ	yow-
*mortar	faɓ	wow-ru

In Sereer, this correspondence more often involves a glottalized -ɓ rather than -b.

The last three examples are noteworthy because the final vowel labialization is additionally confirmed by the non-standard vowel correspondences: ***-ebw*** > Fula -ow (two examples), ***-abw*** > Fula -ow.

7.3.2 Fricative velar

In Sereer the final -h and -x are attested, but in Fula only -h is found. Apparently, there is no reason to reconstruct both consonants in PFS.

First, the final -h in Sereer is not phonemic. In Crétois' dictionary, it is exemplified in 26 roots, but for all of these roots without exception the dictionary

records other allophones, mostly -g (20 roots) and/or -x (7 roots) and/or -k. (3 roots). For the Saloum dialect, Merrill does not note a final -h. Thus, there is no basis for reconstructing *-**h** in PFS.

7.3.3 Retroflex *-ʈ

Let us look at another non-trivial correspondence from the group of final dentals: Sereer -d ~ Fula -t. The evidence from external comparison unambiguously testifies in favor of reconstructing a voiceless, rather than a voiced, consonant for this series. A revealing example is the correspondence Sereer *tad-ik* ~ Fula *tat-i* 'three': here we can easily guess the Proto-Niger-Congo root ***tat* ~ tath** 'three' (Pozdniakov 2018). Besides, already in Proto-Atlantic and even in Proto-North Atlantic we are obliged to reconstruct a special voiceless dental consonant in final position, namely ***taʈ*** (arguments can be found in Pozdniakov 2018).[6] Nevertheless, it should be noted that the reconstruction of the correspondence in question, *-ʈ, leads to certain problems. We shall provisionally accept this reconstruction in order not to lose these correspondences when doing the reconstruction of Proto-Atlantic forms; a correspondence is confirmed by the following examples (Table 7.42).

Table 7.42: The reflexes of *-ʈ

*-ʈ	Sereer	Fula
*three	tad-	tat-
*year	hiid	hit-
*spit (vb)	tud	tuut
*plunge (vb); press in (vb)	mud	mut-
*dawn (vb; n)	feed	weet-
*equal (svb)	fod	fot-
*vulture	tud	dut-
*present (svb)	maad	maat-
*eye	ngid	yiit- (yi'-t?)

Merrill traces this correspondence to *-**d**, assuming final-consonant devoicing in Fula. As an argument in favor of such a reconstruction, he states the following: "That the original final consonant in these forms was ***d** and not ***t** can be

[6] Objecting to my proposed reconstruction of the special phoneme, Merrill (2020: 19) writes, "it is not clear why the proposed voiceless retroflex stop would be expected to voice in Sereer, when no other voiceless stops are subject to voicing".

confirmed by the multiple *t-final reconstructions showing /t/ in both languages: Ser. *a-fat* = Fu. *ɗatal* 'road,' Ser. *ŋat*= Fu.*ŋat* 'bite,' Ser.*sut* = Fu. *suut* 'take out,' Ser. *'uut* = Fula (Nigerian dialects) *'uut* 'swell' etc." (Merrill 2018b: 73). This is certainly true, yet, how should we treat, in this case, the regular correspondences where both languages retain a final voiced consonant? Table 7.43 illustrates examples (Table 7.43).

Table 7.43: The correspondence Sereer -d ~ Fula -d

***-d**	Sereer	Fula
*loincloth sp.	mbuud / mbuut	wud-
*crawl (vb); snake	ɓood	ɓod-
*precede (vb)	ad-	ad-
*scold (vb), thunder (vb), threaten (vb)	gid	gid-
*fatten (vb)	hud	ʔid-
*Cissus sp.	bad-	gaad-

Thus, we are obliged to reconstruct for PFS an additional dental that I provisionally define as ***-ʈ**.

7.3.4 Correspondences not included in the table

The reconstructions proposed in Table 7.37 do not explain all the correspondences that are established between Sereer and Fula consonants in final position. Here, we consider a specific example:

Along with the correspondences Sereer -l ~ Fula -l and Sereer -r ~ Fula -r, we find another frequent correspondence: Sereer -l ~ Fula -r. It is noteworthy that almost no inverse examples (Sereer -r ~ Fula -l) can be found. Here are some examples (Table 7.44).

How should this correspondence be interpreted? All of the final consonants noted in modern Fula and Sereer have already received a diachronic interpretation under the system proposed in Table 7.37. Moreover, for PFS, it is proposed to reconstruct 4 consonants missing in modern languages, namely ***kw**, ***gw**, ***bw**, ***ʈ**. No special phonetic conditions for this correspondence can be traced. Of course, it is possible to continue to expand the inventory of the proto-language phonemes and to make baseless hypotheses about their phonetic characteristics. Thus, for example, one could suggest that the above correspondence goes back to the phonetic retroflex ***-ɖ** or to propose other exotic reconstructions, but these

Table 7.44: Sereer -l ~ Fula -r

	Sereer	Fula		Sereer	Fula
*rice	maalo	maaro[a]	*snore (vb)	xil	har-
*rubber	foole	poore[b]	*snake sp.	kuulul	ngoroo-ndi
*skin; strip (vb)	ɗool	door-t	*smell (vb)	suul	suur-
*flute	seel ~ seer	ser-	*coward (svb)	yol-	yor-
*fall (vb; n)	yol	yoor-			

[a] A possible borrowing from Soninke
[b] A possible borrowing from Soninke

would remain groundless. On the other hand, it would be wrong to ignore correspondences that stand out in several roots.

Recall that this is exactly the kind of case for which the slash sign is offered in this book. Thus, the reconstruction of PFS ***sel/r*** 'flute' suggests that Sereer *sel* and Fula *ser* are proposed as related words, but the regular correspondence of the final Sereer -l ~ Fula -r is left without a diachronic interpretation.

Practically all such regular, but historically obscure, correspondences are identified within the dental place of articulation. These are considered as follows.

7.3.5 Sereer -ɗ ~ Fula -r (*d/r)

Table 7.45: *-ɗ/-r

	Sereer	Fula
*bend (vb)	tuuɗ	tur-
*indigo; dye (vb)	nɠaaɗ	gar-
*sapling	piiɗ	fer-
*roast (vb), grill (vb)	fuuɗ	hur-m-?

7.3.6 Sereer -d ~ Fula -r (*d/r)

Table 7.46: *-d/-r

	Sereer	Fula
*greedy (svb)	diid	deer-
*skillful, agile (svb)	sed	sar-
*bowels	fud	poro
*graze (vb)	ruud	dur-
*hide (vb), cover (vb), bury (vb)	ɓeed	wir-

7.3.7 Sereer -d ~ Fula -ɗ (*d/ɗ) and Sereer -d ~ Fula -ɗɗ (*d/ɗɗ)

Table 7.47: *-d/-ɗ

	Sereer	Fula		Sereer	Fula
*carry (vb), place (vb)	gad	waɗ	*swallow (vb)	ɗuud	ɗeɗɗ-
*wrinkle, crease	ɲuud-	ɲuɗ	*old (svb)	hiid	hiɗɗ-
*swallow sp. (vb)	mud-	moɗ-	*reach (vb)	fad	faɗɗ-, haaɗ-

7.3.8 Sereer -t ~ Fula -d (*t/d) and Sereer -t ~ Fula -ɗ (*t/ɗ)

Table 7.48: *-t/-d, *-t/-ɗ

	Sereer	Fula		Sereer	Fula
*sterile (svb)	xat	ngaada	*lick (vb)	met	meɗ-
*clitoris	jat, jac, joɗ	jad-	*tight, narrow (svb)	xit	hiiɗ-
*bring (vb)	(ʔ)at	ad-, wadd-	*antilope sp.	mbat	mbaɗɗa/ baɗɗi
*throw (vb), launch (vb)	bet	wed-			

8 Vowels

Before delving into the reconstruction of PFS vowels, two problems must be discussed:

- the multiplicity of vocal correspondences (often "mirror-type correspondences"), many of which are not easy to interpret;
- unclear points related to vowel length.

8.1 Correspondences between differing vowels

Contemporary Fula and Sereer vocalic systems are rather simple. Both languages have an inventory of five vowels: i, e, u, o, a. My database has 416 correspondences where Sereer and Fula have the same vowels. However, vowels differ for a large number of cognates.

The main problem is that many of such correspondences are of a "mirror-image" type and therefore cannot be explained by the mechanical introduction of additional vowels in the inventory of the proto-language. Thus, for example, along with the correspondences u ~ u, o ~ o, there are ten examples of the correspondence Sereer u ~ Fula o. Theoretically, we could try to explain this correspondence by introducing a new proto-phoneme, e.g. *ʊ. Yet, there are also ten examples of the opposite correspondence, i.e. Sereer o ~ Fula u. Here, we examine some of such "mirror-like" correspondences (Table 8.1).

The justification of initial consonants' correspondences will be considered in the following chapters. Even if we exclude the least reliable cognates, the remaining number of cognates is still large enough so that it remains unclear how this kind of mirror-image correspondences could be explained in the reconstruction.

It should be noted that this is by far not the only "mirror-like" correspondence between vowels. Here, we look at the main mirror-like correspondences indicating the number of their occurrences in the database (Table 8.2).

The question can be formulated in the following way: is there a theoretical possibility of combining these two sets of correspondences in the reconstruction? In principle, this is possible if we assume that there is a specific phonetic context for the correspondences in the left as well as in the right sections of Table 8.2.

Table 8.1: Opposite correspondences of **u** and **o**

	Sereer	Fula		Sereer	Fula
*pick up (vb)	buf	ɓof-	*palm sp.	ndof	duɓɓ-
*knee	nguɓay	how-ru	*drum sp.	pomboli	bummbu-
*bowels	fud	por-	*exit (vb)	wor-	wurt
*snake sp.	kulul	ngoroo-ri	*dirty (svb)	roɗ	tunn-
*dwell (vb)	kuɗ	hoɗ-	*stingy (svb)	ŋoɗ	ngudd- (FJ)
*swallow (vb)	mud	moɗ	*kernel, grain, nut	hok	huɣɣ-
*slander (vb)	ɲuʔ	ɲoʔ-			

Table 8.2: Opposite correspondences involving other vowels

Sereer ~ Fula		Sereer ~ Fula	
i ~ e	8	e ~ i	11
u ~ o	10	o ~ u	10
i ~ a	10	a ~ i	3
e ~ a	11	a ~ e	9
u ~ a	1	a ~ u	6
o ~ a	18	a ~ o	13
oo ~ a	7	a ~ oo	2
Total:	65	Total:	53

We begin by examining the correspondences in the right section, where more open Sereer vowels correspond to less open Fula vowels. Thus, we can consider the phonetic context of the correspondence Sereer o ~ Fula u. If we go back to Table 8.1, we see that the correspondence Sereer o ~ Fula u is attested before a "complex" Fula consonant, namely a geminate or a prenasalized consonant. For the correspondences Sereer e ~ Fula i, eight out of ten occurrences involve a complex consonant in Fula (Table 8.3).

All five examples of the correspondence Sereer a ~ Fula u involve a following labial or velar geminate in Fula (Table 8.4).

As we have already seen, root-final geminates in Fula are somewhat frequent. In my database, 77% of cognates with the correspondences Sereer o, a ~ Fula u have a complex consonant in Fula after u. This allows us to reconstruct a process of vowel raising from a low to a high vowel in Fula in this context.

Table 8.3: The correspondence Sereer e ~ Fula i

	Sereer	Fula	*PFS
*wild watermelon	mberef-	birkindaare	***berekw**
*bounce (vb)	fet-ox	pittugol	***Pet**
*pinch (vb)	ɓeɗ	ɓiƴƴa	***ɓeɗ**
*take the bait (vb)	peƴ	ficca	***Peƴ**
*tickle (vb)	ɲelem	ɲilla	***ɲel-**
*tremble (vb), shiver (vb)	send	sinɲa	***send**
*throw (vb)	teɓ	tippoo	***Teɓ**
*shake (vb)	yenglox[a]	yinka	***yenk**

[a] Merrill (2020) states, "Sereer *yengloox* is borrowed from Wolof *yëngal* with the same meaning. It should be noted that the vast majority of Sereer verbs containing the unproductive suffixes *-il* or *-loox* are borrowed from Wolof, and the suffixes themselves are borrowed".

Table 8.4: The correspondence Sereer a ~ Fula u

	Sereer	Fula	PFS
*fish sp. (vb)	baɓ	wubba	***bʌɓ/bb**
*open sp. (vb)	maɓit	muɓɓita	***maɓɓ-it**
*light up (vb)	kaɓ	huɓɓa	***Kʌɓɓ**
*background; deep (svb)	lanɢ	luggal	***lanɢ**
*picket	sanɢul	juggal	***janɢ**

Now, we will examine the left part of Table 8.2 where Fula attests lower vowels than those in Sereer. In this case, the presence of complex consonants in Fula is considerably rarer. This allows us to suggest that, in comparison with the proto-language, in Fula, vowels became lower in general, but were raised before geminates, which reinforces the contrast between the phonotactic structures: CVC ~ CVCC, where low vowels are concentrated in the first structure, and high vowels are more frequent for the second type of structure in Fula.

This hypothesis can be accepted if we are able to provide answers to the following two questions:

1. If the hypothesis is right, how is it possible to account for the direct correspondences i ~ i, o ~ o, a ~ a, etc., whereas no problems arise with the

vowel a as it cannot be lowered further, and why is *o > o in Fula as frequent as *o > a?

2. When do Fula vowels sometimes become one level lower (the correspondence i ~ e), yet at other times they become two levels higher (the correspondence i ~ a)?

The only possible answer is the assumption that PFS had a considerably larger vowel inventory as compared to Sereer and Fula. Such an assumption is easy to make if we consider that in Proto-North Atlantic, from which PFS descends, eleven vowels need to be reconstructed, namely, ***i**, ***ɪ**, ***e**, ***ɛ**, ***u**, ***ʊ**, ***o**, ***ɔ**, ***ə**, ***ɑ** (?), ***a** (my personal estimation). The system is even more complex, since it involves a back, non-labialized, vowel set which is also reconstructed for Proto-Tenda-Jaad-Biafada (one of 5 subgroups of North Atlantic) (Pozdniakov, ms).

In general, we are forced to make a choice. On the one hand, only those five vowels which are present in the currently spoken languages – Fula and Sereer – could be reconstructed. On the other hand, taking into account the correspondences between the languages as well as the external comparison evidence mentioned above, we could reconstruct a more complex vocalic system. We are forced to accept the latter solution, and therefore the vocalic correspondences between Sereer and Fula are one of arguments in favor of the reconstruction of a rich vocalic system for the proto-language of the North Atlantic group.

The reconstruction implies the following vocalic system for PFS (without considering length) (Table 8.5).

Table 8.5: Short vowels in *PFS

***i**		***u**
***ɪ**	***ə**	***ʊ**
***e**	***ʌ**	***o**
***ɛ**	***a**	***ɔ**

In Table 8.6, I present the interpretation of PFS short vowels' evolution that seems, to me, the most reasonable.

The first column in Table 8.6 represents the inventory of reconstructed PFS short vowels. Considering the sum of regular correspondences, as mentioned earlier, we need to reconstruct a complex PFS system that includes eleven short vowels. This solution is proposed despite the fact that both languages have an identical five-vowel system.

Table 8.6: Reflexes of short vowels

PFS	Sereer	Fula VC	Fula VCC	N Fula VC	N Fula VCC
*i	i	i	i	52	
*ɪ	i	e	i	8	
*e	e	e	i	59	11
*ɛ	e	a	e	11	
*u	u	u	u	67	
*ʊ	u	o	u	10	
*o	o	o	u	59	10
*ɔ	o	a	o	18	
*ə	i	a	u	10	8
*ʌ	a	a	u / i		9
*a	a	a	o / e	184	20

The second column of Table 8.6 represents the assumed reflexes of the protolanguage vowels in Sereer. Today, the system is reduced to five vowels, whereby the lost vowels fused with the high vowels: *ɪ, *ɛ, *ʊ, *ɔ, *ə yield i, e, u, o, i. *ʌ > a.

The third column of Table 8.6 represents the alleged reflexes of the protolanguage vowels in Fula in the position before root-final singleton consonants. We assume a systematic process of vowel lowering which overlaps some of the reflexes. Thus, *ɪ, *ɛ, *ʊ, *ɔ, *ə,*ʌ become, correspondingly, e, a, o, a, a, a.

The fourth column of Table 8.6 represents the proposed reflexes of the protolanguage vowels in Fula before geminates, prenasalised consonants and consonant clusters. Supposedly, in this case, Fula vowels were raised, and this applies not only to the vowels which have now disappeared, but also to *e, *o, *a which have been preserved in Fula. Table 8.1 represents the examples of the change *ʌ > u before labial and velar geminates. At least two words allow us to suppose that the change *ʌ > i takes place specifically before dental geminates: ***hʌll*** '(se) tromper': Sereer *hal* ~ Fula *hiila*, ***gʌll*** 'vertige': Sereer *gal* ~ Fula *giila*. In this case we see a compensatory vowel lengthening process in Fula caused by the simplification of the geminate.

The fifth and the sixth columns of Table 8.6 represent the statistics of occurrences that I have at my disposal for each correspondence. Cells are empty in the case when a reconstruction represents an unresolved dilemma. Thus, the correspondence Sereer o ~ Fula a before a singleton consonant can reflect *ɔ. The

correspondence Sereer i ~ Fula i is regular both for VC and VCC structures in Fula. It can originate either from *i (VC, VCC), or from *ɪ (VCC). When alternatives as such are present, we choose the simpler variant for the reconstruction. Thus, for the correspondence Sereer *cip-* ~ Fula *jipp-* 'descendre' we reconstruct *i rather than *ɪ.

Supposedly, the proposed hypothetical system has less counterarguments as compared to other hypotheses. Additionally, it allows us to note the maximum number of regular vocalic correspondences, which doubtlessly makes sense for the further reconstruction of the Proto-North Atlantic vowel system.

Here, I feel that it is necessary to respond to Merrill's severe criticism concerning the reconstruction of the 11 vowels for the group, in which both modern languages have 5 vowels each. He states, "This is another case where the Fula–Sereer data is being forced into a preconceived notion of what it ought to look like based on the author's own notion of a reconstructed Proto-North Atlantic family, which is needless to say not at all established in the literature. <…> the vowel system which is reconstructed bears resemblance to vowel systems with an ATR distinction, and yet there is no evidence of vowel harmony at all in either the modern languages or in their histories. This would be entirely unprecedented for a vowel system of this size in the area" (Merrill 2020: 25).

I shall address these states with the following facts: First, we have significantly more vocalic regular correspondences than vowel phonemes themselves. In addition, we know that many branches of Atlantic languages show significantly richer vocalic systems and show vowel harmony and ATR oppositions. From this follows an obvious conclusion: Either in Fula and Sereer the vowel inventory has greatly simplified compared to the proto-language state, or, on the contrary, other groups of Atlantic languages have developed complex vocalic systems independently of Fula–Sereer and independently of each other. The first option seems preferable to me. At least, it is no less likely than the second. And yet, the assertion of this fact does not mean that we are making a reconstruction of PFS vocalism based on external comparative data. The conclusion about the greater number of vowels in PFS is based on a comparison of cognates which are regular in Fula and Sereer. In principle, we could only count the 11 series mentioned and not to try to specify the phonetic characteristics of each of the proto-language vowels. These characteristics can be clarified *only* on the basis of external comparison, and there is no need to be under any illusions.

8.2 Vowel length

This topic contains two main problems:

- the correspondence between long and short vowels;
- the inventory of long vowel phonemes in PFS.

The question of vowel length has been partly considered earlier. The complexity of this question can be illustrated by the statistics of the correspondences between long and short vowels in my etymological database. It includes 216 cognates where Fula and Sereer vowels differ only by length. Additionally, about half of the examples include correspondences of the type Sereer VV ~ Fula V while another half are of the type Sereer V ~ Fula VV. About one hundred of the alleged cognates include an identical long vowel in both languages (Table 8.7).

Table 8.7: The statistics of correspondences between long vowels

	Sereer VV ~ Fula V	Sereer V ~ Fula VV	Sereer VV ~ Fula VV
i	7	14	12
e	14	13	14
u	26	13	18
o	29	21	34
a	43	37	61
TOTAL	**119**	**98**	**138**

We distinguish the following different cases in our reconstruction:

For the simplest case, we reconstruct a long vowel if both languages attest VV: ***faaɓ*** 'crapaud' > Sereer *faaɓ* ~ Fula *faaɓ-ru*.

Let us remind the reader that there are reasons to reconstruct the change of the type ***VV** > Fula V before geminates that takes place at the boundary of a root and a suffix. In these cases, we will reconstruct a long vowel: ***ɓaaf*** 'pêcher à la main' > Sereer *ɓaaf* ~ Fula *ɓapp-oo*;

Finally, an analysis of borrowings shows us that contemporary Fula has the tendency to lengthen vowels before non-complex consonants: ***V** > VV. We address several obvious examples (Table 8.8).

This means that for the reconstructions of the type Sereer V ~ Fula VV it is preferable to reconstruct a short vowel: ***(b)wayƴ*** 'bouillir' > Sereer *wayƴ* ~ Fula *waayƴ-a*; ***jag*** 'aller' > Sereer *jag* ~ Fula *yaag-* (*yaah-*).

And, yet, we are remained with the two following questions: (1) Which long vowels can be reconstructed for the proto-language? and (2) Did PFS have a system in which the eleven short vowels mentioned above corresponded to eleven long vowels? We will see that these scenarios are certainly not the case.

Table 8.8: Fula V > VV

	Sereer	Fula		Sereer	Fula
menthe	nani	naanaa	timbre	tembar	teembur
poche	jiba	jiiba	européen	tuɓaaɓ	tuubaa-ko
témoin	sede	seede-	prier	juli	juula

We have good reason to reconstruct five long vowels *__ii__, *__ee__, *__uu__, *__oo__, *__aa__, which correspond to short vowels in the contemporary languages. We have fewer arguments for the reconstruction of other long vowels. I have 6 cognates where it is possible to reconstruct *__ɔɔ__.

Table 8.9: PFS *ɔɔ?

*PFS form	English	Sereer	Fula
*__jɔɔɓ__	Tamarisk	*sooɓ*	*jaɓɓ-*
*__ngɔɔx__	bull	*nɢoox*	*ngaari / gaʔi*
*__sɔɔɓ/f__	tasteless (svb)	*soof*	*saɓɓ-*
*__sɔɔy__	melt (svb)	*sooy*	*saay-*
*__xɔɔt__	lack (vb)	*xoot*	*hatt-*
*__yɔɔɓ/f__	easy (svb)	*yooɓ*	*yaaf-*

Perhaps, we could reconstruct *__ʊʊ__ by analogy of the short vowels in those rare cases when we have examples of vowel lowering in Fula combined with an attested long vowel, such as in the following examples:

yʊʊr 'couler' > Sereer *yuur* ~ Fula (FJ) *yor-*

gʊʊl/rʊ 'couleuvre' > Sereer *xuulul* ~ Fula *ngoroo-ndi* (Wolof *xulool*, Laala *kəəlu*).

Similar examples that suggest the existence of *__ɛɛ__ (?), are even rarer: ***xɛɛf*** 'mépriser' > Sereer *xeef* ~ Fula *haf-oo* (Nyun *hɛɛb*, Wolof *xeeb*, Joola Kwaatay *hɛɛb*), etc. There are no examples that would allow us to reconstruct central long vowels (with the exception of *__aa__).

Table 8.10 represents the proposed integral vowel system of PFS and indicates the number of roots for each vowel that are included in the present book.

Table 8.10: *PFS vowel system

i	74			**u**	87	**ii**	10			**uu**	17
ɪ	7			**ʊ**	14					**ʊʊ?**	2
e	94	**ə**	18	**o**	109	**ee**	16			**oo**	43
ɛ	12	**ʌ**	6	**ɔ**	20	**ɛɛ?**	1			**ɔɔ**	7
		a	218					**aa**	58		
SUM	**187**		**242**		**230**	**SUM**	**27**		**58**		**69**

9 PFS noun classes

The problem of noun class reconstruction in Fula–Sereer has a long history, and there are a number of publications specifically dedicated to it, yet, the noun class proto-system is still far from being clear. The main obstacle is that two Atlantic languages which clearly represent a common branch of North Atlantic and have been separated about 3000 years ago (see the conclusion for a discussion about the timing) show drastically divergent noun class systems. Moreover, these systems differ at all levels: structural, syntactic, morphological, etc. The main differences can be resumed as follows:

- As in most Niger-Congo languages, noun class markers are prefixed to nouns in Sereer. At the same time, it should be noted that the inventory of prefixes is rather limited, and that the noun class inventory has been established based on the differences in agreement patterns, in particular, by the shape of determiners that follow nouns. In contrast to Sereer, Fula noun class markers are suffixed to nouns, which is less typical for Atlantic languages.
- Fula has considerably more noun classes than Sereer: some Fula dialects can have up to 25 classes, whereas there are only 14–16 classes in Sereer.
- Class markers that are included on the noun stem (as well as in determiners) have considerable structural differences in the two languages. In particular, Fula has markers (as well as determiners) of a CVC structure that are absent in Sereer, with the exception of the determiner in one of the classes.
- In Fula (and it may be the only language in the world that has this property) the mutations affect not only the root-initial consonant but also the initial consonant of the noun class suffix, however, these two mutation sub-systems differ considerably.

The present chapter is structured as follows: first, we present the diachronic aspects of the interpretation of noun classes for both languages. Next, we present

an updated version of the reconstruction that will take into account the results accumulated during the past years and our lexical cognates as compared to earlier attempts at PFS reconstructions that have been published.

9.1 Fula

Despite the fact that Fula noun classes have been described in dozens of publications, there is no common opinion concerning the inventory of common Fula classes. The maximum number of classes is established, apparently, by Galina Zubko (1980) and Hans Mukarovsky (1983) who distinguish 28 classes. This is an extreme point of view. I suppose that, considering the totality of dialectal variants, the majority of specialists agree that Fula has about 25 classes (this is the number of classes given in (Arnott 1970). At the same time, some of the classes are attested only in particular dialects and thus are possibly innovations. Dialectal divergences are manifested not only in the class inventory but also in important aspects of the grammar such as consonant mutations that characterize classes, SG/PL correlations of the classes, and the semantics of the classes and the specificities of loanword integration into the class system.

Considering that we are first of all interested in the diachronic interpretation of noun classes, here we will attempt to define Proto-Fula classes based, first of all, on the data (including statistical data) from three dialectal dictionaries representing the three main dialectal zones: Fula FJ (Bah 2009); Fula Maasina (Seydou 2014) and Fula Adamawa (Tourneux & Yaya 1998, Tables 9.1–9.2).

While comparing the frequencies of the classes, we take into account the fact that the considerable differences are due not only to semantic shifts that operate in the class system of each dialect but are also explained by the authors variability in how fully they take infinitives into account.

It is my intention here to provide a clear numeric visualization of how noun class frequencies differ across sources that represent different dialects in order that these two tables will represent a particular interest for Fula language specialists. We leave these data without comment, because in order to make a diachronic interpretation of the noun class systems across Fula dialects, we would need at least two parameters that we lack now, namely, the statistics of singular/plural pairs in the class system and the statistics of how noun classes correlate with root-initial consonant mutation grades.

We now consider these parameters by separating the noun classes into several groups of classes: humans, size (diminutives and augmentatives), and those not correlated by number, “neutral” (by size and by animacy) plural classes, and

Table 9.1: SG Class frequencies in Fula according to three different sources

Seydou CL	N	%	Tourneux CL	N	%	Bah CL	N	%
ba	40	0.3				**mba**	23	0.5
ɗam	142	1.1	**ɗam**	31	1.4	**ɗan**	33	0.7
ɗum	17	0.1	**ɗum**	34	1.5	**ɗun**	19	0.4
ka	194	1.5	**ka**	20	0.9	**ka**	45	0.9
kal	4	0.0				**kal**	6	0.1
ki	309	2.3	**ki**	301	13.2	**ki**	8	0.2
ko	118	0.9	**ko**	175	7.7	**ko**	28	0.6
kol	9	0.1				**kol**	2	0.0
ku[a]	36	0.3						
						kun	3	0.1
nde	2779	20.9	**nde**	439	19.2	**nde**	588	11.6
ndi	386	2.9	**ndi**	123	5.4	**ndi**	185	3.7
ndu	590	4.4	**ndu**	117	5.1	**ndu**	201	4.0
nga	36	0.3	**nga**	307	13.4			0.0
ngal	1359	10.2	**ngal**	220	9.6	**ngal**	416	8.2
nge	44	0.3	**nge**	8	0.4	**nge**	21	0.4
ngel	83	0.6	**ngel**	103	4.5	**ngel**	22	0.4
						ngii (~ngil)	33	0.7
ngo	630	4.7	**ngo**	44	1.9	**ngo**	86	1.7
ngol	4020	30.2	**ngol**	110	4.8	**ngol**	2367	46.9
ngu	113	0.8	**ngu**	151	6.6	**ngu**	109	2.2
o	2388	18.0	**o**	101	4.4	**o**	856	16.9
Sum	13297	100%		2284	100%		5051	100%

[a]Class **ku**, as will be shown later, is a variant of class **ngu**.

"neutral" singular classes. As we will see, this manner of grouping classes allows us to attain the most generalized model possible for the common Fula.

9.1.1 Human classes

It is generally accepted that every Fula class is correlated with one of the three mutation grades in the root-initial consonant. This is true in general, yet it is important to consider a number of nuances in order to construct a class model that applies across Fula varieties. We consider the statistics of the correlation between classes and mutation grades, using data from the most complete Fula dictionary (Seydou 2014) (Table 9.3). We take into account only such nouns whose initial

Table 9.2: PL class frequencies according to three different sources

Seydou CL	N	%	Tourneux CL	N	%	Bah CL	N	%
ɓe	684	10.0	**ɓe**	69	3.9	**ɓe**	312	21.6
ɗe	3737	54.6	**ɗe**	998	56.0	**ɗe**	522	36.1
ɗi	2371	34.7	**ɗi**	593	33.3	**ɗi**	579	40.1
koy	51	0.7	**kon**	90	5.1	**koy**	16	1.1
			ko	31	1.7			
						ʔen	16	1.1
Sum	6843	100%		1781	100%		1445	100%

consonants unambiguously reveal one of the three mutation grades. This means that we will not consider nouns with non-alternating initial consonants (for example, those with glottalized consonants or an initial t-BOXED!) or with consonants whose grade is ambiguous (voiceless stops). The statistics will be given for every SG/PL correlation separately. The results are presented in Table 9.3.

Table 9.3: Classes **o ɓe**

SG	PL	Grade I	Grade II	Grade III	Sum
o	**ɓe**	83	201	17	301
o	**ɗe**	13	12	3	28
o	**ɗi**	145	103	87	335
o	–	200	185	132	517
–	**ɓe**	4	1		5
Sum		445	502	239	1186

Thus, 17 nouns of class **o** in the **o / ɗe** pairing show the initial consonant of Grade III. The statistics show that the traditional approach is justified: the human singular Class **o**, by being paired with the PL class **ɓe**, is most often associated with mutation Grade II. Yet, we should not omit mentioning that one third of nouns in the correlation **o / ɓe** are associated with a different grade, namely I or even III. It is even less justified to ascribe Grade II to **o** in the case when the latter is correlated by number with plural classes **ɗi** and **ɗe**, as well as when the Class

o is outside of SG/PL correlations. The main reason is, certainly, that along with humans, Class **o** contains a considerable number of borrowings including suffixless borrowings, which is in general typical of Class 1 in Niger-Congo. Therefore, we can reconstruct the correlation **o** II / **ɓe** I for humans for Proto-Fula, and as for the borrowings, we can suppose that they preserved the initial consonant of the donor language.

Borrowings systematically correlate by number with non-human plural classes, and more frequently with the Class **ɗi** than with **ɗe**. This important domination of the correlation **o / ɗi** is due to the specific mode of plural number formation, whereby Class **ɗi** as its alternant **-ji** is joined as a suffix (with the lengthening of the preceding vowel) to a suffixless singular form, e.g. *ɓataaki / ɓataakiiji* 'letter'. Thus, we observe the emergence of an agglutinative model of number formation, where PL is marked by attaching **-ji** to a SG form. The same model is possible for the class **ɗe** (*sikkor(o) / sikkorooje* 'sucre'), but we also find forms like *wuɓɓa / guɓɓe* 'mesure d'une coudée' with this pairing. The non-human Class **o** is less typical for the eastern dialects where borrowings are more often distributed among other noun classes.

It is important to note that a well-known fact is that, along with the grade alternants **ɗo/jo/o** of class **o**, there is another regular form as exemplified by the singular/plural pairing *gor-ko/wor-ɓe* 'homme'. This is important for us because the form ***ko** could be reconstructed, in my opinion, for the human singular class in Proto-Atlantic.

The class **ɓe** is a common human plural class which has been generally preserved.

The plural subclass with the suffix **-ʔen** of the type *alfaajo / alfaa-ʔen* 'lettré, homme cultivé', *algaadi / algaadi-ʔen* 'juge' deserves a special discussion. This suffix is attached to proper nouns and is often interpreted as innovation. Breedveld (1995: 433–434) states: "The atypical suffix **-ʔen** attached to proper names has the meaning "and those who are with him / her": *-ʔaamadu-ʔen* 'Amadu and those who are with him' <…> It is a kind of group plural. <…> **-ʔen** is found to denote group names (lineages) <…> We of X, we belonging to X <…> The introduction of **-ʔen** seems to be a late innovation < … > It has evolved from the personal pronoun 1PL: **-ʔen** 'we (inclusive)'". The etymological relationship of the suffix in question with the inclusive personal pronoun is highly plausible, yet, it is rather doubtful that this subclass within Class **ɓe** is a late innovation (Pozdniakov 2015: 79–84). This suffix with the collective-plural meaning is reconstructed not only for Proto-Atlantic but possibly also for Proto-Niger-Congo. It should be noted that Koval also distinguishes the collective-plural meaning for the suffix **-ʔen** in Fula (Koval 1997: 174–175). Additionally, this suffix finds a direct

parallel in Sereer. According to Crétois, **-een** is a « suffixe que l'on ajoute au nom de famille (*simangol*) pour former le nom générique de la racine paternelle: *juuf ~ juufeen* 'les Diouf' » (Crétois 1973: Vol.2: 223).[1] It is also interesting to consider its affinity with the associative suffix **-iin** that Merrill describes in the following way: "Suffix attaching to nouns, pronouns, or names referring to another person or people; has the meaning 'people associate with ...': *'Aliw Saariin* 'Aliw Saar's people'. Allomorph **-yiin** after a vowel. Example: *woyiin* 'your people'; der.*'aniin* 'who (pl.)'" (Merrill 2018b).

9.1.2 Size classes

One of the unique properties of the class system of Fula is the development of a complex system of size classes (diminutive and, to a lesser extent, augmentative classes). Such specialized classes are present in the majority of Atlantic languages, but only in Fula do they form a special sub-system, moreover, this subsystem has specific morphophonological properties. The hypothesis that this sub-system has developed in Fula, rather than being inherited in its totality from PFS, is confirmed by the fact that in each Fula dialect (and sometimes in different sub-dialects) this sub-system is realized differently. This is a less stable fragment of the noun class system, and it is difficult to decide upon a definitive reconstruction of this size class.

Both eastern and western dialects attest gradual levels of diminutives[2] (Table 9.4).

Table 9.4: Gradual opposition of diminutive classes

Adamawa, Gombe	***rawaa-ndu* ndu** 'dog'	***dawa-ngel* ngel** 'little dog'	***dawa-ngum* ngum** 'very little dog'
FJ	***jiw-o*** 'girl'	***jiw-un* kun** 'little girl'	***jiw-el* ngel** 'very little girl'

According to Koval (2008: 453), Fula Fuuta-Jalon developed a third diminutive class suffix **-kel** with the meaning of extreme diminutiveness: *lekk-el kel* 'extremely little tree'.

[1] Crétois also notes, « par le fait même, ce suffixe **-een** servira à former des noms de villages: *njaayeen* 'village habité par les Ndiaye'. Merrill (2018a) defines the meaning of **eena** as "the suffix attached to family names, either in the **oxe** class to mean 'person with that last name' or the **ake** class to mean 'stuff related to people with that last name'".

[2] Examples are from (Koval 2008: 451–455).

The complete list of diminutive classes (including the class **kal**), which is never found within one single dialect, includes five singular classes and one plural (Figure 9.5).

Table 9.5: Fula diminutive classes

SG	PL
II … ngum (East)	III … kon, koŋ, koy, kol
II … kal	
II … ngel (FJ, Centre)	
II … kel (FJ)	
II … kun(<kum) (FJ)	

Unfortunately, words with such diminutive classes as **ngum**, **kal**, **kun** rarely appear in dictionaries.

It should be noted that all class suffixes discussed here have an identical structure (CVC), the same mutation grade in the limits of the same class, and all of them include a velar consonant in the full grade. In other words, this noun class group is structured by formal properties which point to the possibility of diachronically analogical changes in diminutive classes.

Diminutive classes include a small, but apparently common, Fula class **kol**, the so-called "calf class" that includes distinct names for cattle offspring. It is characterized by the same formal properties as the other diminutive classes (CVC structure, mutation Grade II, marker-initial velar consonant). It differs, though, from the other classes by the fact that is correlates with the neutral plural class **ɗi**, rather than **kon ~ koy**.

Augmentative classes are also unstable across dialects. In total, there are four singular classes specialized as augmentatives, and one plural class of this type.

In all dialects except the eastern ones, augmentative SG classes have CVC structure. The plural is formed with one of the non-size classes **ɗi** or **ɗe** but the pairing is the opposite as compared to nouns not marked by size. Thus, a neutral (non-dimensional) SG form with plural **ɗi** will have **ɗe** for the augmentative plural and vice versa. In eastern dialects, the SG augmentative is realized in Class III **nga**. There is a specific augmentative PL Class III **ko** (Figure 9.6).

As the schema shows, formal structural properties are also important for augmentatives. As in the case of diminutives, all specific augmentative classes include velar consonants. The same way as in the case of diminutives, augmentatives in western and central Fula dialects have the CVC structure of the marker

Table 9.6: Augmentative in Fula classes

SG	PL
II … ngal (West, Central)	II … ɗe / ɗi (West, Center) (often with irregular allomorphs le / li)
II … ngil / ngii (FJ) (animals; pejorative)	
III … nga (East)	III … ko (East)

in the full grade. At the same time, different from diminutives, the oppositions between mutation grades in SG/PL pairings are neutralized in the case of augmentatives in the eastern dialects: SG II / PL II (West, Central); SG III / PL III (East).

Nevertheless, it should be noted that the SG/PL opposition in mutation grades that we have distinguished above for diminutives is also neutralized for some dialects. Thus, Seydou's Maasina dictionary contains only one word with a clear opposition SG II / PL III: *gudd-el* II / *ngudd-oy* III 'herbe annuelle poussant sur les sols sableux'.

In general, the history of formal affinities and oppositions in the subsystems of size classes in Fula is very complex and deserves a separate investigation, especially because isoglosses in size classes are one of the most powerful criteria for the classification of Fula dialects. This question is considered in more detail in (Pozdniakov 2015: 87–91). Here I will only mention once more that the development of the size marker system takes place against the background of multiple analogical changes within the size paradigms that complexify the task of finding the etymology for each particular form.

The most plausible inventory of size classes for Proto-Fula is the one presented in Figure 9.1.

9.1.3 Classes outside of SG/PL correlations

The semantics of these classes is rather transparent.

Class III **ɗam** assembles liquids and masses and corresponds to the Proto-Niger-Congo Class 6N ***ma**, from which it probably originates. In those rare cases

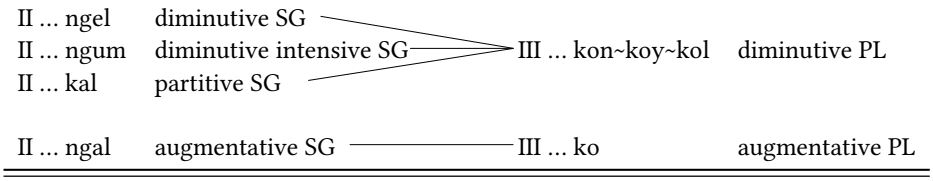

Figure 9.1: Proto-Fula size classes

where it does have a plural from, the correlation is **ɗam** III / **ɗe** II: *ndiyam* / *diyeele ~ diʔeele* 'eau'. Nevertheless, Seydou's dictionary notes the correlation with **ɗi** for particular cases: *enɗam / enɗamaaji* 'lait humain; lait maternel; sève, latex; parenté utérine', *ndakam / ndakamji* 'saveur, goût', *nguurndam / ngurndammeeji* 'vie' (in the last two examples we see the preservation of Grade III in the PL). In any case, the majority of examples do not have any SG/PL correlation.

Class II **ɗum** has the prototypical meaning of 'something with the property X', for example: *kes-um* 'quelque chose de neuf; une nouveauté' < *hes-* 'new'. The SG/PL correlation is absent. In the eastern zone (Gombe) this class includes borrowings without any morphological marker (Arnott 1970: 128).

9.1.4 Neutral classes

9.1.4.1 Plural neutral classes

Shown in Table 9.7, the plural Class **ɗe** is more frequent than **ɗi**.

Table 9.7: Classes **ɗe** and **ɗi**

	Seydou		Tourneux		Bah	
	ɗe	**ɗi**	**ɗe**	**ɗi**	**ɗe**	**ɗi**
ɗe, ɗi	3435	1731	942	556	395	277
% **ɗe, ɗi**	66.5%	33.5%	62.9%	37.1%	58.8%	41.2%

Here we consider these two competing classes as well as their PL/SG correlations. We indicate the irregular allomorphs **-li** and **-le** separately from this discussion, since, as will be shown below, the analysis of these irregular forms can be interesting for the diachronic interpretation of Fula classes and PFS in general. The important point is that these irregular forms are often interpreted as phonetic deviations from standard forms. Indeed, some of the allomorphs can be

explained by phonotactics. This is, for example, the case for roots with a final -l, **ɓul-ndu / *ɓul-ɗe* ‘puits’ > *ɓun-ndu / ɓul-li*, **ɗaal-ndi / *ɗaal-ɗi* ‘bœuf porteur’ > *ɗaandi / ɗaal-li ~ ɗal-li*. Yet, in most cases such specific conditions are absent.

Moreover, if the irregular forms were more evenly distributed across number correlations, we would indeed have reason to state that we are dealing with phonetically irregular allomorphs. Yet, the distribution of these allomorphs is far from being proportional. We consider the distribution across number correlations following Seydou’s dictionary in Table 9.8.

Table 9.8: Number correlations of singular classes

SG	PL ɗe / je / e	PL le	PL ɗi / ji / i	PL li
nde	2180	52		
ɗam	12	7		
ngal	806	1	21	
ki	199	1	12	
ndi	23	10	99	2
ngol	25	3	527	16
ngo	106	9	81	236
o	41		502	5
nge		1	30	1
ndu			362	66
ka		1	114	
mba~nga			48	1
ko			28	
ngu			77	
kol			3	
absent	236	11	123	5
Sum	3628	96	2027	332

First, we consider the number correlations involving suffixes of regular forms (**ɗe / je / e** and **ɗi / ji / i**), without taking into account the irregular forms with the consonant -l.

Only four singular classes in our source (**nde**, **ɗam**, **ngal**, **ki**) correlate predominantly with the class **ɗe**; additionally, **nde** and **ɗam** are the only singular classes that never correlate with **ɗi**. There are four classes (**ndi**, **ngol**, **ngo**, **o**) that recurrently correlate with both plural classes (there are some important details that

can be observed in the table). For the majority of the table data (the lower part of the table) only the correlation with **ɗi** is attested. For the *pluralia tantum* nouns in **ɗe** and **ɗi**, **ɗe** is more frequent.

The column with **li** contains over three hundred non-standard plural forms. Among them, 236 are related to one particular singular class: **ngo**. With regard to this correlation, it is strange to refer to plural forms with -li as 'non-standard' simply because they are much more frequent than the so-called 'standard' forms with **-ɗi / -ji / -i**. The -li forms are actively concentrated in the correlation with the singular class **ndu** as well, where they represent more than 15%. At the same time, with the exception of the two cases mentioned above, the plural -li forms are almost absent in SG/PL correlations. Such an uneven form distribution makes one doubt that we are dealing with a simple phonetic fluctuation. In light of this, it is interesting to look at the plural forms of the word *yiit-e* 'fire' in Class **nge**. Noun classes with the meaning 'fire' are especially important for class reconstruction in Atlantic languages because not only in Fula, but also in a number of other languages, they show interesting particularities. Also, as I have shown earlier (Pozdniakov 1993), a special noun class has to be reconstructed for Proto-Atlantic for 'fire' words. Seydou notes the following correlation for the word 'fire' in Fula: *yiite / giiteeli ~ giiteele* 'fire'. Simultaneously, this is the only example of a plural -li form for the correlation **nge / ɗi** (the 30 other forms show plurals with **-ɗi / -ji / -i**). As for the variant *giiteele*, it is the only example of the correlation **nge / ɗe**, and this unique example has a 'non-standard' form.

Thus, we consider the distribution across correlations of other forms with the -le allomorph. We hereby state that a considerable number of singular classes do not correlate at all with the plural suffix **-le**. These are first of all Classes **ndu** and **ngu**, which do not correlate with Class **ɗe** in general. For the Classes **o**, **mba ~ nga**, **ko**, **kol**, the correlation with Class **ɗe** is also not possible. One could add to this group isolated irregular correlations with -le, yet surprises begin to appear here. Apart from the non-standard plural form *giiteele* 'fire (PL)' mentioned above, we also find, with a similar meaning, the only example of a correlation with the non-standard -le allomorph of the singular class **ngal**: *metaangal / metaale* 'faisceau de flammes, langue de feu, flamme'. Isolated non-standard allomorphs are also found in number correlations for Classes **ki** and **ka**. Finally, it is the singular Class **nde** that attests the most frequent use of the plural allomorph -le, which is, however, not unexpected considering the generally high frequency of the correlation **nde / ɗe**. A much more mysterious statistic is found for the correlation **ndi / ɗe** realized as **ndi / -eele**: *leydi / leyɗ-eele* (along with *leyɗ-e*) 'terre, sol', *conndi / connd-eele* 'poudre, farine; (spéc.) poudre à fusil', etc.

In the consonantal element -l- as part of Classes **ɗe** and **ɗi**, Breedveld perceives a prototypical augmentative meaning (Breedveld 1995: 451–454), yet, putting aside the semantics, her interpretation raises a number of questions. For example, it remains unclear what status she attributes to this consonantal element. Should it be interpreted as a marker of a plural augmentative class that has disappeared and to which standard plural markers of the weak grade are added (-l-i, -l-e)? Even so, while considering the semantic differences between the **ɗi** and **ɗe** classes, Breedveld distinguishes an augmentative component within the **ɗe** class, but not within the class **ɗi**. Thus, Breedveld assumes that "the **ɗi** class contains animates, general plurals (Breedveld 1995: 435), while the **ɗe** class expresses inanimate plural, the plural of nasty animals and augmentative plurals" (Breedveld 1995: 446–447). Futhermore, in general, I do not find Breedveld's semantic hypotheses that have been mentioned above convincing and that concerns the difference in the semantics of **ɗe** and **ɗi**.

Apparently, the main (and maybe the only) semantic difference between these two plural classes is that the **ɗi** class is semantically neutral, whereas the **ɗe** class clearly has a paradigmatic collective-plural meaning. This prototypical meaning is based on the fact that Fula singulative forms are built from the plural **ɗe** forms. In the next section this is demonstrated with example of the singulative **nde** class.

9.1.4.2 Singular neutral classes

Class **nde** is correlated by number with plural class **ɗe**. There are only isolated correlations with the **ɗi** class (nevertheless, Bah's dictionary (2009) contains 30 words with such a correlation). The majority of words from class **nde** are characterized by a mutation with the weak Grade I (for example, *yaaƀere I / jaaƀe* II 'fruit de jujube' *woofoonde* I / *boofooɗe* II 'egg', and yet, there are hundreds of examples that attest Grade II (*baande* II / *baaɗe* II 'termitière', *dagamere II / dagame* II 'civette'), and additional 17 examples with the Grade III consonant (*ngaykaare* III / *(n)gaykaaje* III ~ II 'trou, excavation; creux; fosse', *mbiirtoore* III / *biirtooje* II 'endroit ensoleillé'). In Seydou's dictionary the distribution of **nde**-class words across different SG/PL correlations is given in the following (Table 9.9).

Since **nde** is one of the most frequent singulative classes (and in some sources, e.g. in Tourneux's dictionary for Adamawa, it is the most frequent class), it naturally comprises a vast diversity of lexico-semantic groups. Yet, whereas the classificatory meanings of class **nde I** are hard to synthesize, its paradigmatic (singulative) meaning is quite transparent.

The distinguishing of singulatives can be easily justified on formal grounds via the SG/PL correlations. Plural forms are systematically shorter as compared

Table 9.9: Class ***nde***

SG	PL	I	II	III	Sum
nde	**ɗe**	933	425	17	1375
nde	**ɗi**	6	1		7
nde	–	252	63		315

to singular forms. In other words, along with the forms of the type *gaŋaa-re / gaŋaa-je* 'fruit d'hibiscus, gombo', where singular class **-nde** alternates with the plural class **-ɗe** (which is the main SG/PL correlation mechanism in Niger-Congo languages) there are more than 300 words (i.e. 14% of the **nde / ɗe** correlation) that correlate by number in the following way: *ibbe-re / ibbe* 'fruit du ficus, figue'. Recall that the **nde** class in Fula has four mutation grades of the marker: **-nde/-de/-re/-e**. This is an important point since all words of the type *ibbere / ibbe* without exception attest the grade -re marker. The traditional morphological division found in this model, namely *ibbe-re / ibb-e*, is wrong because all singular forms of such words contain an -e- preceding the suffix **-re**, and, more importantly, this vowel does not belong to the root. Therefore, the form should be segmented as *ibb-e-re / ibb-e*, where the singular form preserves the plural marker **-e** and the singular class marker **-re** is *added* on the top of it. Thus, we see that the singular form is derived from the plural form, rather than the opposite, which is an evident sign of a singulative.

All the rest (of the classificatory) meanings are derived from this paradigmatic meaning of SG/PL pairing. Here we consider the semantics of these 300 Fula nouns following the model presented above which implies the formal marking of a singulative. The main conclusion that can be made is that the meanings that are distinguished from this group of words manifest a striking resemblance with Bantu words of noun classes 5/6.

In the following, we show a sample of prototypical meanings of the pairing 5/6 in Proto-Bantu and the pairing SG **-e-re** / PL **-e** in Fula. In total, Bantu Lexical Reconstructions 3 (BLR3) distinguishes about 340 such pairings, including numerous phonetic variants in Proto-Bantu which are comparable to a number of Fula forms. If these phonetic variants are provided, there remain about 50 basic meanings with the pairing 5/6 in Proto-Bantu. At least 30 of them are also found in the Fula word group in question. These are confirmed with examples in Table 9.10.

Table 9.10: The correlations Fula nde / ɗe and Proto-Bantu *5 / *6

Meaning	Proto-Bantu 5/6	Fula nde / ɗe
eye	jícò	yitere / gite
tooth	jínò, còngà	ɲiindere / ɲiiyʸe
molar tooth	gègò	waggitere / gaggite
joint	dʊngò	jokkere / jokke
stone	tádè, bʊ̀è, máɲà	haayre / kaayʸe
shell /coquillage, bead/	cadʊ, kamba	ɲaayʸere / ɲaayʸe, loocere / looce, seedere / ceede ('cauri')
nut of oil-palm; oil-palm	bídà	ruɓɓere / duɓɓe, huyʸyʸere / kuyʸyʸe
ember/embers; charcoal	kádà	yʸulɓere / yʸulɓe
claw	jádà	takkere / takke
lung	pʊʊpʊ, pàpʊ	wuucere / buuce
heel	tíndí	teppere / teppe
testicle	kèndè, kàtà, bià, pèké	fontondere, fontoonde / ponte
dew	mè	saawawere, saawndere / caawe
drop	tóná, tónì	toɓɓere / toɓɓe
abscess	pʊtè, dòndà	ɓuubere / ɓuube
baldness	bádá	fellere / pelle
ankle	gécè (C)	holɓundere / kolɓule
civet-cat	jòbó	dagamere / dagame[a]
buttock	tákò	rotere / dote, rubbere / dubbe
anus; vulva	go	hottere / kotte
liver	tɪmà	heeŋere / keeŋe
fat	póngò	ɓellere / ɓelle
midnight	tʊmbɪ (J)	hejjere / kejje
clod; stump; stubbly grass	tíndé	ɗogere / ɗoge
nose, nostril	jʊdʊ, pʊdà	hinere / kine
cloud	bɪngʊ, dùndè	duulere / duule
dust	gùmbɪ, tʊdɪ	hobere / kobe
root	tínà	ɗuggere / ɗugge
spot, speckle	bádà	toskere / toske
heap	bɪbɪ, kúkú	ɲukkere / ɲukke, dijjere / dijje, gunnjeere / gunnje

[a] Seydou provides an interesting comment regarding this word: « on dit que cet animal ne se déplace que par couple, la femelle marchant toujours devant le mâle » (Seydou 2014). This is in line with one of the main meanings of the **nde** class: "one of a pair of objects".

It should be emphasized that for the parallels to the Proto-Bantu correlations 5/6 we only took such Fula correlations where the singulative is formed by adding a class **nde** marker to the plural **ɗe** class. But, if we add a similar model of class marker alternation in SG/PL pairings, we find even more parallels to the prototypical meaning of Bantu 5/6 correlation in Fula; see, for example, the forms in Table 9.11.

Table 9.11: The correlations Fula **nde / ɗe** and Proto-Bantu *5 / *6 (continuation)

Meaning	**Proto-Bantu 5/6**	**Fula nde / ɗe**
egg / oeuf	gɪ, túmbɪ	woofoonde / boofooɗe
feather / plume	cádá, jòjá, kùmbò	rusoore / dusooje ‘plumage’
day / jour	túkʊ, tíkʊ, cíkʊ	ɲannde / ɲanɗe
voice / voix	dáká, jʊ̀ì	daande / daaɗe

It should be noted that the majority of lexical roots involved in the Bantu and Fula lexical parallels considered here are etymologically different: only semantic fields of the class correlations in question coincide.

For the specialists of the Niger-Congo noun classes, such a voluminous overlap of semantic fields in the compared correlations should seem almost mysterious. The fact is that, even within the Atlantic family, there is not a single language for which the semantic parallels of the Fula **nde / ɗe** correlation could be expressed as clearly. This gives us serious cause to relate the Fula class **nde** etymologically to the Bantu class 5 (***di / li**) and to ascribe them to the Proto-Niger-Congo class that has the singulative as its main paradigmatic meaning, including, for example, names of fruits and grains, some body parts (paired), and small objects (of a spherical shape).

In the following, we briefly consider the other neutral singular classes.

9.1.4.2.1 Class ka

In general, class **ka** is correlated by number with plural class **ɗi**. As for mutation grades, no dominating tendency is found here: most of the examples attest Grade I but almost as many of the examples are characterized by Grade III. At the same time, we also find words of Grade II. This variation is due to the fact that class **ka** often includes borrowings with a final -a that retain their original consonant. In this sense, class **ka** competes with class **o**, in its non-human meaning, as the

Table 9.12: Class **ka**

SG	PL	I	II	III	Sum
ka	**ɗe**		1	3	4
ka	**ɗi**	29	11	25	65
ka		15	10	14	39

main class for borrowings. Seydou's dictionary contains 76 nouns that can belong either to class **ka** or to class **o** within one dialect.

We must pose the question, Is it possible to reconstruct the basic mutation grade of class **ka**, if there was one? One can use indirect evidence here, in particular, SG/PL correlations. Out of 69 words of class **ka** that participate in number correlations, the large majority (56 words) have the same consonant in singular and plural (for example, *suna* I / *sunaaji* I 'sac de voyage fait d'une peau d'animal entière', *kaasa* II / *kaasaaji* II 'tissu de laine', *ngafakka* III / *ngafakkaaji* III 'sacoche; musette'. At the same time, the majority of them, as with the given examples, form the plural by adding the allomorph -ji (class **ɗi**) to the singular forms and have the minimal mutation grade of the singular class suffix, namely the allomorph -a (class **ka**).

On the other hand, 13 words attest different consonants for singular and plural forms. Among these, 12 words have the alternation of the type SG III / PL II and only one word shows the alternation SG I / PL II (*waaka / baakaaji* 'type de tissu'). At the same time, this small group shows, first, a considerable diversity of plural allomorphs (cf. along with **-ji**, the forms *mbadda / badd-i* 'but marqué', *mburwaaka / burwaa-ɗi* 'boubou décoré', *njuwaaka / juwaa-ɗi* 'boubou brodé'); second, singular forms can be characterized by the maximal consonant grade of the suffix (**-ka**, as in the last two examples). Besides, another number correlation is found here, namely that with class **ɗe**: *ngaska(are) / gaskaaje* 'trou, excavation; creux; fosse' with the variant *ngayka / gayɗe* 'trou, excavation; creux; fosse; terrier', *ngaasa / gaasaale ~ gaaseele* 'tignasse'. Finally, we note that the nouns of this small group characterized by the correlation SG III / PL II almost never attest any alternative forms of class **o**.

Can the sum of these facts be considered as an argument to distinguish Grade *III for class **ka**? At any rate, it should be noted that, in a number of cases, only this kind of detailed analysis of the totality of the features can allow us to make an internal reconstruction of the properties of Fula noun classes.

As for semantics, it should be noted that among 65 words with the correlation **ka / ɗi**, 27 (almost a half!) are fabric, leather or straw products.

9.1.4.2.2 Class ki

Table 9.13: Class **ki**

SG	PL	I	II	III	Sum
ki	**ɗe**	12	26	67	105
ki	**ɗi**	2		3	5
ki		2	7	22	31

The data presented in Table 9.13 clearly point to the correlation with class **ɗe** and mutation Grade III.

This class is often referred to as the 'tree' class. Apart from botanical vocabulary, one distinguishes deverbal nouns with abstract meanings, such as in the eastern dialectal zone. It may be interesting for the diachronic interpretation of Fula classes to consider the regular deverbal nouns of class **ki** that show the irregular combination -eefi. Seydou's dictionary contains 11 nouns of this type; they are presented in Table 9.14.

Table 9.14: The segment ***-eefi*** in the class **ki** in Seydou's dictionary

ɗeppeefi	surface plane
kaaɗeefi	amertume, saveur amère ou aigre
kenseefi	préméditation; intentionnalité
luggeefi	profondeur
naaweefi	douleur, souffrance
njaajeefi	largeur
nguleefi	chaleur atmosphérique; chaleur ressentie, suée; sueur
ɲiddeefi	mauvais goût; caractère répulsif
paaɗeefi	étroitesse, exiguïté; mesquinerie de caractère, étroitesse d'esprit; susceptibilité
teddeefi	poids
tekkeefi	épaisseur, densité

Koval (1997: 204) mentions a number of other words formed in line with this model: *mbeleefi* 'a sweet, a tasty thing' < *wela* 'become / be tasty'; *lammeefi* 'a salty, sour thing' < *lamma* 'become / be salty, sour'.

First, we note that the majority of the roots given here find parallels in Sereer, i.e. we are dealing with an ancient layer of Fula vocabulary. Second, one has to admit that the morphological segmentation of this type is not clear. If it historically goes back to *-**eef-i**, i.e. to the archaic suffix *-**eef** and the class marker **ki** characterized by the weak grade, this is interesting for the reconstruction of verbal derivation in Atlantic languages, since this suffix can be related to the archaic suffix -**eef** found in Wolof with a similar meaning, i.e. abstract nouns. But, if we are dealing with another possible segmentation, namely *-**ee-fi** (proposed in (Koval 1997: 204), then the allomorph *-**fi** of class **ki** originally points to *-**kwi**.

9.1.4.2.3 Class ko

Table 9.15: Class **ko**

SG	PL	I	II	III	Sum
ko	**ɗe**	3			3
ko	**ɗi**	10	4		14
ko		32	15	5	52

Class **ko** nouns alternate with class **ɗi** and show the weak mutation Grade I in SG/PL correlations.

The semantics clearly comprise grasses, leaves (hence the names of sauces) and hair (bodily 'vegetation'). This class also includes the word with the meaning 'mouth' *hunnduko / kunndudɗe ~ kunndule*, which does not appear to have any parallels in Sereer.

9.1.4.2.4 Class ndi

Table 9.16: Class **ndi**

SG	PL	I	II	III	Sum
ndi	**ɗe**	1	4	14	19
ndi	**ɗi**	6	7	39	52
ndi		10	18	66	94

This class alternates with the plural class **ɗi** and is undoubtedly associated with the strong Grade III.

The most noticeable lexico-semantic groups in this class are the following: 1) organic substances and mass nouns ('earth', 'iron', 'cinder', 'honey', 'millet', etc.; 2) male animals ('rooster', 'ox', 'goat', etc.); 3) reptiles.

9.1.4.2.5 Class ndu

Table 9.17: Class **ndu**

SG	PL	I	II	III	Sum
ndu	**ɗi**	168	75	26	269
ndu		60	27	3	90

Correlations with **ɗe** are totally absent. The class is doubtlessly associated with the weak Grade I, yet one should note a large number of words that are characterized by other grades. Note again that the "deviations" related to the mutation grade characterizing individual noun classes are due not only to the integration of borrowings that sometimes preserve their original consonants, but also to the specificities of nominal derivation. In derivation, mutations represent an additional formal means to group nouns with a common semantic feature. Thus, out of 29 words with Grade III belonging to class **ndu**, 18 are zoological nouns: *mbaalu / baali* 'ovin; mouton, brebis', *mbaylu / bayli* 'léopard tacheté', *ndoɓu / doɓi* 'léopard, panthère', *ndonndu / dondi* 'chacal', *ndooraaru / doori* 'mouton sp.', *ngolontooru / golontooji* 'sorte de chat sauvage', *nguɗu / nguɗuuji* 'charançon des arbres', *njabbatu / jabbati* 'frelon', etc.

Since this book is dedicated to diachronic processes, we cannot investigate this important question in sufficient detail here. Yet, the statistics of the mutation grades' distribution across SG/PL correlations provided here allows us to discern the most interesting points for a more in-depth description of class semantics, SG/PL correlations, and consonant mutations.

The most generally common semantic features of class **ndu** are the following:

1. Long (cylindrical) objects and hair, both of which find a direct correlation with the semantics of Proto-Bantu noun class ***du** / **lu** (class 11). Cf., a number of prototypical words of the Fula class **ndu** and Class 11 in Proto-Bantu (Table 9.18).

2. In the zoological lexicon, according to Koval (1997: 181–182), we find "nouns of canines and felines, names of birds (predominantly of small size)".

Table 9.18: Class **ndu** in Fula and class 11 in Proto-Bantu

Fula	Fula	*PB	*PB
yeeldu / jeeli ~ jeelli	barbelure	*jèdù, *dèdù,	beard
sukundu / cukuli[a]	chevelure, cheveux	*cɔkɪ, *júɪdɪ	hair
wuddu / guddi ~ gulli	ombilic, nombril	*gógì, *dɪdà	umbilical cord
wallaadu / gallaaɗi, garnaaru / garnaaji	corne	*jɪgá, *pémbé, *céngò, *bɪngà	horn

[a]This root that may be related to a Bantu root but it does not find any parallels in Sereer; it seems to be present in Konyagi, cf. *cɔkk* 'poils pubiens'.

9.1.4.2.6 Class mba ~ nga

Table 9.19: Class(es) *mba ~ nga*

SG	PL	I	II	III	Sum
mba	**ɗi**			11	11
nga	**ɗe**			2	2
nga	**ɗi**		2	12	14
nga				2	2

It is beyond the scope of the current book to discuss the long-standing debate concerning these classes. I limit myself to the following two hypotheses which seem to be the most plausible due to a number of reasons: 1) diachronically, we are dealing with one class, rather than two; 2) the most archaic allomorph of Proto-Fula which belongs to the stage preceding the formation of consonant mutation of class markers in this language is the allomorph ***-wa**. Along with the formation of class marker mutations, in some Fula dialects, ***wa** became a labial consonant class (***wa** > a / wa / ba / mba – mostly in western dialects), whereas in other Fula dialects it became a velar consonant class (***wa** > a / wa / ga / nga – mostly, in

eastern dialects). At the same time, both lines of class development can coexist in one dialect (mostly, in central dialects, in particular in Maasina).

The class clearly correlates by number with the class **ɗi** and is characterized by Grade III.

This class is traditionally called “the class of large animals”, as this is a common property of this class in Fula. Besides, especially in eastern dialects, lexemes with abstract meanings (usually, deverbal ones) are concentrated in this class. Finally, it contains an important number of borrowings ending with -a as well as augmentatives (in the eastern dialects).

9.1.4.2.7 Class nge

Table 9.20: Class **nge**

SG	PL	I	II	III	Sum
nge	**ɗe**	1			1
nge	**ɗi**	11	7	1	18
nge		3			3

The statistics of this small class indicate a correlation with **ɗi**. Grade I is predominant in this class, but some deverbal nouns (i.e. clearly derived words) related to cows show Grade II.

The class **nge** includes three key words and the forms that are associated with them: ‘cow’, ‘sun’ and ‘fire’.

9.1.4.2.8 Class ngo

Table 9.21: Class **ngo**

SG	PL	I	II	III	Sum
ngo	**ɗe**	56	19		75
ngo	**ɗi**	129	51	2	182
ngo		85	31	3	119

The statistics are not clear. At the first glance, they indicate the domination of the correlation with **ɗi** and that of Grade I, but other cells are filled as well. A

more detailed analysis shows that two main lexico-semantic groups of the class **ngo** show differing correlations by number:

The class **ngo** words with the semantic meanings 'surface, flat object' show a systematic correlation with the **ɗe** and the mutation Grade I: *hello / kelle* 'partie plate (d'un objet); surface de...', *heraawo / keraaje* 'large place dégagée; terrain vague; espace nu', *huuramaawo / kuuramaaje* 'natte', *ferro / perre* 'terrain bosselé', *seeno / ceene* 'zone de terre sablonneuse', *waɓɓugo / gaɓɓule* 'joue', *wifoongo / bifoole* 'aile', etc.

Numerous words for noises, sounds, and cries are assembled in the class **ngo** (mostly with the combination -aa-ngo) and show systematic correlations with class **ɗi** and apparently are not associated with any particular mutation grade: *dillaango / dillaali* 'bruit, tintamarre', *feekaango / peekaali* 'clameur, cri; bruit très sonore', *foofaango / poofaali* 'bruit de respiration', *gindaango / gindaali* 'grondement de tonnerre', *hanngaango / kanngaali* 'cri suraigu, glapissement; hurlement', *jogginaango / jogginaali* 'chant du coq', *rutaango / dutaali* 'grondement de colère', *sawto / sawtooji* 'son, bruit; voix', *siikaango / ciikaali* 'sifflement bronchique', *wiifaango / biifaali* 'bruit de souffle, halètement', etc.

Recall that class **ngo** shows an exceptionally frequent correlation by number with the non-standard plural alternant **-li**: 236 words show the correlation **-ngo/-li** whereas only 81 words show the correlation **-ngo/-ɗi**.[3] This fact is one more important argument in favor of the existence of two different singular classes in Common Fula that are now united under class **ngo**, as well as the existence of two different plural classes that correlated with them by number, whereby one of these plural classes is the present-day class **ɗe**, and the other class is represented by the 'non-standard allomorph' **-li** of class **ɗi** or by the reflex of a plural class that has disappeared.

9.1.4.2.9 Class ngu

We can note the clear correlation with class **ɗi** and the correlation with the weak Grade III.

First, we briefly outline the well-known, dramatic history of class **ngu**, that, among other factors, explains the last row of the table. There are reasons to suppose that the Common Fula class **ngu** was a robust class into which hundreds of nouns were assembled. The fact that many Fula words of this class have disap-

[3] Readers who may be confused by the fact that the numbers in the table are considerably lower, should recall that, in line with our objectives, we consider only those nouns whose initial consonant clearly points to one of the three mutation grades.

Table 9.22: Class **ngu**

SG	PL	I	II	III	Sum
ngu	**ɗi**	2	4	41	47
ngu				7	7
ku		2	5	19	26

peared, and its original lexicon was redistributed among other noun classes, is a shining illustration of a morphological taboo.

This class, among others, includes the word *(n)guugu / guuji* 'sexe féminin; vulve et vagin', as well as, by analogy, some of its synonyms: *ɲammu / ɲammuuji, lapporgu / lapporɗi*. As a result, the class in general was associated for the speakers with an undesirable connotation. The massive redistribution of lexemes belonging to this class that became a taboo class has led to the situation where, in a number of varieties, this class contains exclusively several taboo words. Finally, this results in the formation of a special class of words that are grouped around the meaning 'vulva'.

Note that, in some cases, it is the taboo words that change the class. Thus, in Fula Maasina *teew-u / teewuu-ji* '1. viande, chair; 2. corps, cadavre; 3. (euphém.). vulve' (class ***ngu**) preserves the suffix but still has agreement with class **o**. The same process happens with yet another synonym of this notion, namely, *kuut-u / kuut-i* 'organes sexuels féminins (vulve et vagin)' (classes **o / ɗi**).

In a number of idioms, the taboo process leads to the emergence of the special allomorph -ku within nouns of the class **ngu**, which results from the transition of the consonant from the voiced series to the voiceless one: *u / gu / ngu > u / hu / ku allowing speakers to avoid an undesirable connotation. This results in the appearance of innovative forms of the type *(m)bajj-aa-ku* 'situation ou état d'enfant unique', *mbar-aa-ku* 'métier de maçon', *nayew-aa-ku* 'vieillesse avancée, très grand âge'.[4] indicates as well the form without the extension suffix **-aa-**: *ɓinngel-ku* 'childhood, childishness' along with *ɓinngel* 'child'.

Curiously, Seydou's dictionary distinguishes a separate class **ku**, to which, apart from the forms with the suffix **-ku** that are given above, the author of the dictionary ascribes such forms as *pucc-u / pucc-i* 'cheval' (Seydou's classes **ngu**, **ku**, **o**). The only reason for this decision can be the optional agreement following the model of voiceless velars that characterizes this word. Unfortunately, there is

[4]For eastern dialectal idioms, see Koval (2000: 230)

almost no systematic information about the agreement of forms with -ku in the literature. If this innovation did affect the agreement, we have reason to speak about the formation of the new Fula class **ku**.

The word *(n)guugu / guuji* 'sexe féminin' itself may also be interesting etymologically as it has triggered such radical changes not only in the lexicon but also in the grammar of Fula. There is a well-known hypothesis which relates it to the verb *wuur-a* 'vivre, être vivant'. I think it is not the only possible etymology. As can easily be noticed, in the morphological division *nguu-ngu*, the class marker is almost identical to the root. Without risking such an extravagant grammaticalization hypothesis, I will limit myself to pointing to some interesting parallels with Proto-Bantu (dial.) **go* 'anus, vulva', **jò* 'female genitals', **jongoe* 'vagina, vulva'.

We now return to the semantics of the class **ngu**. It mainly contains zoological vocabulary (keywords *puccu* 'horse', *mbaalu* 'sheep', *ngabbu* 'hippopotame', *liingu* 'fish'). Sometimes, this group is associated with a pejorative connotation which is particularly clear for some words for insects. This is stimulated by Grade III being associated with the class which includes the nasal element in the voiced mutation series (in Atlantic languages and, at least, in Mande languages as well, nasality can be used as a derivational means of marking pejorative nouns irrespective of the noun class).

The class **ngu** is relatively frequently used to derive deverbal nouns.

9.1.4.2.10 Class ngal

Table 9.23: Class **ngal**

SG	PL	I	II	III	Sum
ngal	**ɗe**	31	252	5	288
ngal	**ɗi**	8	6		14
ngal		11	157	6	174

The vast majority of nouns of this class are correlated with class **ɗe** and are characterized by Grade II.

As has been mentioned above, in western and partly also in central dialects, this class is used to derive augmentatives which may also be true for Proto-Fula. Recall that Grade II is, in general, typical for numerous singular size classes in Fula.

Koval (2008) assumes that “wooden object” is one of the main features of this class, possibly supported by the key word *legg-al / ledɗe* ‘tree, wood’. Similarly, numerous nouns of things made of bone are grouped around the keyword *gi?-al / gi?e* ‘bone; thorn’. As for the zoological lexicon, one sometimes distinguishes groups of large birds for this class. The class also contains numerous deverbal nouns.

9.1.4.2.11 Class ngol

Table 9.24: Class **ngol**

SG	PL	I	II	III	Sum
ngol	**ɗe**	2	13		15
ngol	**ɗi**	28	184	1	213
ngol		72	1040	3	1115

Similarly to class **ngal**, class **ngol** is characterized by Grade II, but it differs from **ngal** in that it correlates with class **ɗi**.

As will be shown below, it is important for the diachronic interpretation of Fula classes that the main classificatory semantic feature of class **ngol** is close to the main feature of class **ndu** as well as to the main feature of the Bantu class 11: ‘long thin objects’ (cords, threads, hair, herbs, etc.).

Class **ngol** is the main class of infinitives, which is mainly responsible for its exceptionally high frequency of use (outside of correlations by number).

9.1.5 SG/PL correlations and consonant mutations

We begin by considering the following question from the perspective of the data that has been provided above: Do consonant mutations mark separate noun classes or do they also mark SG/PL correlations of noun classes? Leaving aside the integration of borrowings, i.e. such correlations as **o / ɗi**, **ka / ɗi** and others, as well as classes and subclasses not correlated by number (**ɗam**, **ɗum**, infinitives in the class **ngol**, etc.) we are left with the following generalizations:

- Plural classes attest all the three mutation grades in noun stems with the following complementary distribution: the “weak” Grade I is used for the plural animate class, the “strong” Grade III for plural size classes (diminutive and augmentative), and the “neutral” Grade II – for “neutral” classes that are not marked by these two features.

- At the same time, human and size classes attest the alternation between mutation grades in SG/PL correlations: for animate classes – SG II / PL I, for size classes – SG II / PL III. Recall that, along with other structural properties, all singular size class markers have the structure CVC (**ngel**, **ngil**, **ngol**, **kel**, **kal**, **kol**, **kun**, **ngum**).
- There are only two singular classes that have CVC structure among those classes that are neutral for animacy and size, and which participate in SG/PL correlations: **ngal** and **ngol**. Both these classes, as with singular size classes, have Grade II and a velar consonant in the class marker. The class marker **ngal** can also indicate an augmentative meaning.
- All other neutral singular classes have CV structure; these are not characterized by Grade II. They either have Grade I and, accordingly, in number correlations, they show the grade alternation SG I / PL II (**nde I / ɗe II**, **ngo I / ɗe II**, **ko I / ɗi II**, **ndu I / ɗi II**, **nge I / ɗi II**), or they have Grade III and in number correlations they show the grade alternation SG III / PL II (**mba ~ nga III / ɗe II**, **ndu III / ɗi II**, **ndi III / ɗi II**, **ngu III / ɗi II**, **ka** *III[5]).
- Thus, all the numerous number correlations in Fula (with the exception of correlations involving classes **ngal** and **ngol**) show mutation grade switches following the scheme presented in Table 9.25.

Table 9.25: The change of mutation grade in SG/PL correlations

	SG	PL
Humans +	II	I
Size +	II	III
Neutral	I, III	II

In summary, switches of consonant mutation grades in SG/PL correlations is a fundamental property of Fula class system. The exception concerning **ngal** (**ngal** II / **ɗe** II) can be explained by the change of the mutation grade of **ngal** by analogy with other marked size classes. The exception concerning class **ngol** (**ngol** II / **ɗi** II) can be explained by the change of the mutation grade of **ngol** by analogy with other classes whose markers have CVC structure and include a velar consonant.

[5]The arguments for the reconstruction of Grade III for class **ka** have been considered above. / ɗi

In this case we are obliged to conclude that initial consonant mutations mark not only noun classes but also singular/plural pairings.

In Table 9.26, we summarize the above proposed analyses in a table representing Fula classes with the indication of the main semantic properties of the classes as well as non-standard allomorphs.

9.2 Sereer

The most complete and the most recent publication on Sereer noun classes is the paper by Marie Renaudier (2015). It should be noted that a number of questions concerning Sereer noun classes require some precisions and additions.

Table 9.27 shows the class inventory according to (Renaudier 2015), who distinguishes 16 classes in Sereer , including three defective classes.

Renaudier (2012) presents this inventory based on her study of the dialect Mar Lodj,[6] but she takes into consideration the data of other dialects as well.[7]

Class numbers given in (Renaudier 2015) are arbitrary. We give them in the table in order to emphasize that in one of the SG classes (namely **FAN**), as well as in one of the PL classes (namely **K**) Renaudier distinguishes two subclasses. At the same time, the subclasses 11a and 11b are distinguished only by the presence/absence of a prefix on the noun, whereas the subclasses 6a and 6b are distinguished both by the prefix and by the initial consonant mutation grade.

It should also be noted that the author uses arbitrary names of classes presented by capital letters as labels. The necessity of the label is due to the fact that none of the columns can be used to refer to a class. Thus, in the case of agreement (in particular, the determiner column of Table 9.27) we see identical forms for different classes (for example, the determiner **ol-** in classes **OL** and

[6] It should be noted that (Renaudier 2015) included important changes as compared to (Renaudier 2012).

[7] From (Merrill 2020) I am accused of the following, "the author is unaware that *onq-* is an entirely regular form of a class prefix in Siin and other dialects, and the important class prefix form *r-* found in Njagañaaw as well as D'Avezac's 17th century Sereer wordlist is unmentioned". Note that not only Crétois, but also in the Sereer lexicon compiled by Merrill himself (Merrill 2018a), there is not a single noun assigned to the **onq** class. Nouns assigned to class **r** are also completely absent from Merrill's lexicon! In Crétois' dictionary, there are 33 such nouns. They unambiguously show the mutation grade I. In this book, this class is interpreted as a dialectal variant of class **l** I c.f. Crétois *goɓ r ~ l / koɓ a...ag ~ a...ak* 'fruit non mûr', *siiɓor l ~ r / siiɓor a...ag* 'oeuf non éclos, oeuf clair', *yoom l ~ r / yoom a...ak ~ a...ag* 'pilage du mil après l'avoir lavé' etc. The dialectal character of this class is evidenced, in particular, by its correlations in number, where in Crétois' dictionary we systematically find the plural class **a...ag II**, which is also dialectal, varying with the standard class **a...ak II**.

Table 9.26: Fula noun classes

SG Meanings	SG CL	SG Distinct allomorph	SG grade	PL CL	PL Distinct allomorph	PL grade	PL Meanings
humans	**o**		II	**ɓe**		I	humans
humans	**o**	**Ø**	0	**ɓe**	**-ʔen**	0	humans collective
borrowings	**o**	**Ø**	0	**ɗi**		0	neutral
singulative (+ round)	**nde**	PL+SG	I	**ɗe**	**le**	II	collective
flat, surface	**ngo 1**		I	**ɗe**		II	collective
sounds	**ngo 2**		?	**ɗi**	***li**	II	neutral
long (grasses, leaves, hair)	**ko**		I	**ɗi**		II	neutral
long (of cylinder shape)	**ndu 1**		I	**ɗi**	**li**	II	neutral
animals	**ndu 2**		III	**ɗi**		II	neutral
cow; fire; sun	**nge**		I	**ɗi**	**le**	II	neutral; collective
trees	***k(w)i**	**fi**	*III	**ɗe**		II	collectif
(big) animals; augmentative	**mba~nga**		III	**ɗi**		II	neutral
substances (metals); males; reptiles	**ndi**		III	***ɗi**	**le**	II	neutral; collective
animals (+pejorative); creux?	**ngu**	**ku**	III	**ɗi**		II	neutral
made of cloth, skin, straw	**ka**	**Ø**	*III	**ɗi**		II	neutral
made of wood, bone; birds; big objects	**ngal**		II	**ɗe**		II	collective
long (thin); infinitive	**ngol**		II	**ɗi**		II	neutral
calf	**kol**		II	**ɗi**		II	neutral
animals (+pejorative) (< **ngu**?), smal objects?	**ngil**		II	**ɗi**		II	neutral
small	**ngel**		II	**koy ~ kon**		III	diminutive
very small	**ngum**		II	**koy ~ kon**		III	diminutive
extremely small	**kel**		II	**koy ~ kon**		III	diminutive
partitif	**kal**		II	**koy ~ kon**		III	diminutive
having the property X	**ɗum**		II				
masses	**ɗam**		III				
				ko		III	augmentative

Table 9.27: Sereer noun classes according to Renaudier

N	Label	Noun	ADJ	DET	grade	Number
1	**OX**	o-	o-	ox-	II	SG
2	**ONG**	o-	o-	ong-/onq-	III	SG
3	**OL**	(g)o-	o-	ol-	I / II	SG
4	**FO**	fo-	fo-	ol-	I	SG
5	**AL**	(g)a-	a-	al-	III / II	SG
6a	**FAN**	Ø-	fa-	f(an)-	II / I	SG
6b	**FAN**	fa-	fa-	f(an)-	III	SG
7	**L**	Ø-/gi-	Ø-	l-	I	SG
8	**N**	Ø-/gi-	Ø-	n-	III / II	SG
	M			m-		SG
	Y			y-		SG
	T			t-		SG
9	**W**	Ø-	Ø-	w-		PL
10	**AK**	a-	a-	ak-	II	PL
11a	**K**	Ø-	Ø-	k-	II	PL
11b	**K**	pa-	Ø-	k-	II	PL
12	**FI**	fo-/fi-	fo-/Ø-	n-	III	PL
13	**AX**	xa-	xa-	ax-	II	PL

FO), and as for nouns, we see identical markers of different classes, e.g. **ø-** or **o-**. Considering this consequence, in most works on noun classes in Sereer, a double indication is used, namely a prefix with a determiner, e.g. **o- … ox**, which can lead to a false assumption about the confix structure of Sereer noun classes. According to (Merrill 2020), the presence or absence of a determiner in Sereer is functional and is determined by definiteness: the structure PREFIX-ROOT is indefinite (*o-koor* 'a man'), whereas the structure PREFIX-ROOT DET is definite (*o-koor ox-e* 'the man').[8]

The three defective classes for which Renaudier provides no number are the following: localization in space (**m-**), localization in time (**y-**), and locative or partitive marks (**t-**). Renaudier also presents a schema of noun class correlations by number, given below (Figure 9.2, Renaudier 2015: 482).

[8] In this chapter, considering that the main results presented in it are based on Crétois' dictionary of Sereer, we use double labels for the classes: the prefix plus the determiner. The root is indicated by the ellipsis (…).

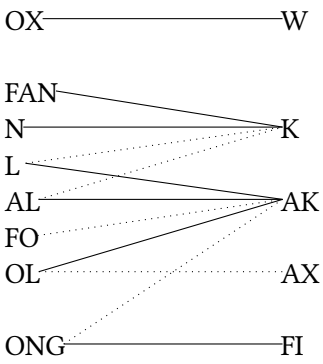

Figure 9.2: Noun class correlations by number according to Renaudier

It should be noted that researchers provide class inventories and SG/PL correlations in Sereer that are different as compared to Renaudier. In particular Crétois distinguishes 16 classes. Renaudier analyzes in detail the various interpretations of the Sereer noun class system and shows that part of the existing difference is due to dialectal forms, and the other part is due to divergences in the approaches to noun class descriptions. Here, we will not consider all the existing interpretations. Rather, our task is to consider, first, statistical data for each class and for each number correlation that can be extracted from the most complete cross-dialectal dictionary (Crétois 1973), and we pay special attention to the mutation grade of initial consonants that are provided for each class in each correlation. Based on these data, we will try to provide precisions for the interpretations of the noun class system in Sereer.

Before turning to the statistics, it is necessary to describe the specificity of the notation of classes in Crétois' dictionary. First, the author often provides dialectal forms without always indicating the dialect. Second, we should take into account that the author has been working on this monumental dictionary for many years, and his opinions about the noun class system in Sereer necessarily evolved in the course of the work. This may be the reason why the classes are not consistently indicated in the dictionary. We will take the liberty to somewhat simplify the dictionary data, indicating when this is done.

As in Fula, the analysis of the Sereer class system requires us to take into account four structural features at once: prefixes as part of nouns, agreement class markers, number correlations, and the initial grade consonant.

To this already well-established list of properties, we should add noun properties related to derivation. Earlier (see section 2.3) we addressed the little-studied question of correlation between various derivational suffixes and the mutation

grade of initial consonants among verbs in Sereer and Fula. This correlation turns out to be important for the analysis of nouns as well, and therefore also for the analysis of noun classes.

In a separate publication (Pozdniakov & Segerer 2006) we demonstrated the complexity and, at the same time the importance, of the study of the relationship between derivational and noun classes in Sereer. In the work in question we investigated only those cases where the mutation grade can be regarded a non-segmental morpheme used in derivation. For example, consider the following Sereer forms: *seŋaar n* I 'le soleil vers huit heures du matin', *ceŋaar n* II / *ceŋaar k* II 'le rayon [de soleil]; le matin, avant la grande chaleur, vers les 8 heures', *njeŋaar n* III 'les premiers rayons de soleil; le soleil [vers 8 h du matin]'. All three nouns belong to class **Ø-… n**, for which Renaudier (2015), following other researchers, indicates the SG/PL grade alternation as III / II. Yet, in our examples we see all three grades are possible, including Grade I. It should be highlighted here that we find the root-initial s-, which in contemporary Sereer does not participate in mutations in most grammatical functions. None of the three forms has any derivational suffixes, i.e. only the mutation grade appears to be a derivational morpheme.

An even more complex case is represented by a derivation which involves different noun classes and derivational suffixes. Thus, for example, suffix **-eem** denotes «le lieu d'habitation d'une catégorie sociale» (Faye 1978: 94). All nouns with such suffixes belong to the class **(g)a-… -al**. For this class, as well as for the class **Ø-… n**, the researchers indicate variation of grades in SG: III ~ II. Both these grades appear in derivations with the suffix **-eem**:

- Grade III: *ngauleem a…al* III 'lieu où habitent les griots, chez les griots' (*ka(w)ul o…ox* II / *ga(w)ul w* I 'griot'), *mbulaaneem a…al* III 'chez les peul, lieu où habitent les peul' (*pulaane o…ox* II / *Fulaane w* I 'Fula person', *mbaaleem a…al / faaleem w* 'le village où habitent des wolof, la demeure des wolof' (*paal o…ox / faal w* 'le wolof');

- Grade II: *ceemreem a…al* II / *ceemreem a…ak* II 'celui qui veut chercher une fiançée, les gens de la maison des beaux-parents, la maison de la fiançée [ceux qui habitent], les fiançailles' (*seemir o…ox* II / *seemir w* I 'parent par alliance', *ceemreel a…al* II / *ceemreel a…ak* II 'les fiançailles'), *cirneem a…al* II / *cirneem a…ak* II 'habitation des marabouts, chez les marabouts, chez les musulmans' (*seriŋ o…ox* I / *seriŋ w* I 'le musulman, le marabout).

The question is, how can we describe all these numerous cases of rules concerning class correlations and mutation grades variations? Is it sufficient just

to state that the class **(g)a-… -al** allows for two alternative mutation grades? I propose a more precise, though more complex, solution: nouns with the suffix **-eem** belong to class **(g)a-… al**, and such a derivation requires the strengthening of the mutation grade, i.e. nouns of Grade II are derived from nouns of Grade I and nouns of Grade III are derived of nouns of Grade II (I > II; II > III). Thus, the segmental morpheme (suffix **-eem**) is simultaneously realized with the morphonological *operation* of the strengthening of mutation grade, rather than by the mutation *grade* itself.

We are obliged to separately treat each of the numerous cases of this sort. In these cases, along with the already complex rules of mutation realization in the system of noun classes, we also find various complex morphophonological rules related to derivation.

In order to try to delve somewhat deeper into these questions, first we take a sub-corpus of nouns which include an initial consonant that allow us to unambiguously define the mutation grade (the number of such nouns in Crétois' dictionary is 6,625). Table 9.28 provides the statistical characteristics of such nouns.

Table 9.28: Root-initial consonants allowing us to define the mutation grade

C-	grade	N	C-	grade	N	C-	grade	N
f	I	413	**p**	II	627	**mb**	III	527
r	I	210	**t**	II	645	**nd**	III	483
h	I	84	**c**	II	510	**nj**	III	356
x	I	223	**k**	II	732	**ng**	III	307
w	I	190	**q**	II	212	**nɢ**	III	183
d	I	231						
j	I	421						
g	I	271						
Sum		2043			2726			1856
Sum %		30,8%			41,2%			28,0%

The last row of the table shows that, in general, our sub-corpus contains somewhat more nouns with Grade II consonants than those with Grade I and Grade III consonant nouns. This will be a useful indicator when we are analyzing the mutation distribution across classes. Based on this sub-corpus, we will consider the statistics of initial consonant mutations for each noun class separately.

The sub-corpus does not include nouns with initial vowels, glottalized consonants,[9] sonorants (except for w-), initial s- (which does not participate in the mutation system in many functions), nor ɓ- (the mutation grade is ambiguous). Later on, for the nouns with such consonants, we will indicate the mutation grade as "?". The frequencies are given in Table 9.29.

Table 9.29: Root-initial consonants not included in the sub-corpus

ɓ	263	**m**	517	**b**	447	**V**	181	**Sum**
ɗ	218	**n**	294			**l**	542	
ƴ	67	**ɲ**	310	**s**	1078	**y**	353	
		ŋ	164					
Sum	548		1285		1525		1076	4434

Thus, out of 11,059 nouns, we can unambiguously indicate the mutation grade for 60% of nouns. As will be seen, it will be connected to some unexpected phenomena that reveal to be unexplainable in the perspective of mechanisms of consonant mutation described in the literature. In the following, we consider each noun class individually.

9.2.1 Singular classes

9.2.1.1 Class o-... ox

Table 9.30: Class **o-... ox**

SG	PL	I	II	III	?	Sum
o-... ox	**Ø-... w**	27	411	4	357	799
o-... ox		8	61	4	53	126
Sum		35	472	8	410	925

The statistics confirm the well-known fact that class **o-... ox** is associated with mutation Grade II. The few exceptions to this rule are attributed to borrowings (Grade I: *halaku o...ox / ngalaku w* 'le maudit' < Arabic), or by the specificities of

[9] We will not discuss mutations involving glottalized consonants because they are not indicated in Crétois' dictionary.

derivation not related to the class (Grade III – SG and PL: *ngaalax o...ox / ngaalax w* 'fou, idiot' – pejorative < PFS ****gʌll*** 'vertige').

The SG/PL correlation is unambiguous here. Nouns in the human singular class are only paired with nouns in the human plural class.

Class o-... ong

Table 9.31: Class **o-... ong**

SG	PL	I	II	III	?	Sum
o-... ong	**a-... ak**			16	1	17
o-... ong	**fu-... n**			142	5	147
o-... ong	**fu-... w**			4		4
o-... ong	**Ø-... k**			19	3	22
o-... ong	**xa-... ax**			5		5
o-... ong	**Ø-... w**			1		1
o-... ong		4		139	11	154
Sum		4		326	20	350

The diminutive class attests, almost without exception, Grade III. The correlation by number is, in most cases, with the specialized diminutive plural class **fu-... n** (in Renaudier 2015 it is **fi-... n**, **or**, with some words **fu-... n**). Yet, several words are correlated with the neutral plural class **a-... -ak**. Renaudier gives *o-ɓi onge* 'l'enfant' as the key word. Nevertheless, it is this word in particular for which Crétois unexpectedly indicates a postvelar consonant: *o-ɓi onɢa*. The fact that this is not a misprint is confirmed by the form *o-ɓee-nɢa* 'le fils', that the author interprets as the reduction of **o-ɓi onɢa*. It is difficult to tell whether we are dealing with an interesting anomaly in the class marker or not. For the correlation **o-... ong / a-... ak** we indicate an interesting word *nɢool o...ong / qool a...ak* 'mois lunaire, lune, lunaison' (with a postvelar root-initial consonant!) which apparently goes back to PFS ****xool*** 'nu, proper; clair'. Crétois' dictionary also contains other correlations that are not noted by Renaudier, in particular, 22 words that correlate with **Ø-... k**, for example, *mbiŋ o...ong / piŋ k* 'lieu, endroit, place'. A very interesting case is the unique word correlating with the human plural class *ngunu-gaana o...ong / ngunu-gaana w* 'individu né sans organes génitaux précis; hermaphrodite (se dit des deux sexes)'. Not less interesting are words with the plural-diminutive prefix **fu-**, but that show agreement by the pattern of class **Ø-... w**: *ndaan o...ong / daan fu...w* 'petit-fils, petite-fille, petit-neveu, petite-nièce'

and its derivatives, such as *ndaan-at o...ong / fu ndaan-at w* 'arrière petit-fils', *ndaanaat-at-or o...ong / fu ndaan-aat-at-or w* 'le descendant'.

In general, the statistics are important, in particular for the reason that they allow us to distinguish, not only the most stable correlations, but also isolated ones that, as we know, are sometimes decisive for the diachronic investigation of noun classes. For the class **o-... ong**, the statistics show an unexpected result that is rather difficult to interpret. Recall that for 60% of Sereer nouns we can determine with certainty the mutation grade of the initial consonant, whereas 40% of nouns contain consonants that do not participate in mutations (for example sonorants) or consonants that can belong to different grades, such as b-. Apparently, this general proportion has to be observed, in the same way, for each particular noun class. Yet, as can easily be noticed, this proportion is not respected for the diminutive class **o-... ong**. Only 20 words of this class, i.e. less than 6%, begin with a consonant of an unclear grade, forcing us to pose the following questions: Why does this class not have any word, for example, with an initial y-, ɲ- or s-? Why do we find only one word with an initial m- (*mol o...ong* 'poulain'), and only one word with an initial n- (*nibandaŋ o...ong / nibandaŋ fu...n* 'carapace de tortue')? In light of what we know about mutation mechanisms it is very difficult to explain these deviations. We can only find an explanation for the absence of initial s- and b-. We have excluded s- from the sub-corpus of alternating consonants because, in contemporary Sereer, this consonant belongs to Grade I and usually does not follow mutation rules. Yet, as can be shown, in the diminutive class **o-... ong**, s- I systematically changes into nj- III: *sangeƴ o...ol* 'garçon' > *njangeƴ o...ong* 'petit garçon, bambin', *saate fan* 'village' > *njaate o...ong* 'hameau, petit village'. We have excluded the initial b- from our sub-corpus because its grade is unclear (I, II), but we expect to find an absence of b- in the diminutive class since it becomes mb- III: *bet* 'surprendre' > *mbet o...ong* 'surprise' (Wolof *bett* 'surprendre' ~ *mbett M* 'surprise'). Yet, processes of this kind cannot explain the practical absence of initial nasal consonants (save for ŋ-), or the absence of initial y- and ƴ-.

Relative to the absence of nasals, one can propose the following hypothesis: Possibly, nasals episodically change into prenasalized consonants (Grade III) in class **o-... ong**. Thus, in Sereer one finds the following two forms that are apparently etymologically related: *ŋamba o...ol* 'creux de l'épaule, clavicule' ~ *ngamba o...ong* 'cavité près de la clavicule, le creux de la gorge'. One can propose the diachronic change ***ŋ-** 0 > ng- III. Similarly, we could explain the evolution of forms to which Crétois refers as synonymous: *ŋuŋej n ~ o...ong / ŋuŋej k* 'groupe des dauphins; groupe des marsouins; s'aplique parfois aux rorquals et baleinoptères' = *nguŋed o...ong*. The original ***ɲ-** can be also suggested for variants *ɲeek*

o...ol ‘poussin’ > *njek o...ong ~ njiiok o...ong* ‘petit poussin’. Additionally, one cannot exclude the irregular diachronic change for ***y-** in this class, as well as for other consonants outside of the mutation system.

9.2.1.2 Class (g)o-... ol

Table 9.32: Class **(g)o-... ol**

SG	PL	I	II	III	?	Sum
(g)o-... ol	**a-... ak**	735	245	48	796	1824
(g)o-... ol	**a-... ax**	11	4	3	10	28
(g)o-... ol	**fu-... n**		3	2	1	6
(g)o-... ol	**Ø-... k**	11	2	4	11	28
(g)o-... ol	**(x)a-... ax**	42	17	4	46	109
(g)o-... ol		164	55	28	164	411
Sum		963	326	89	1028	2406

It is the second most frequent class in Sereer. The prefix allomorph **go-** most often occurs in the dialect Mar Lodj, whereas the allomorph **o-** is most often found in the Sine dialect. In Crétois’ dictionary, only 30 out of 2406 words of class **(g)o-... ol** contain the allomorph **go**; an alternative variant with a vocal prefix is given for many of them.

The class is certainly associated with Grade I (963 tokens in our sample), even though hundreds of words start with voiceless stops (Grade II in Sereer).

We can see that the most frequent correlation is **(g)o-... ol / a-... ak**, whereas the correlation **(g)o-... ol / (x)a-... ax/aq** is considerably less frequent, and that this fact is noted by Renaudier in her schema. One also finds a specific ‘hybrid’ plural form **a-... ax/aq** which involves a vowel prefix and a postvelar consonant in the determiner. It should be noted that such combination of plural markers, to my knowledge, is not noted as a special plural class in Sereer by any specialist, as it only occurs in correlations with the singular class **(g)o-... ol**. As for the “competing” class **(g)a-... al**, the correlation with **a-... ax/aq** is almost absent (only three words in Crétois’ dictionary). We leave the following question to Sereer specialists: Is this a sufficient argument for postulating a special plural class **a-... ax/aq** in the pairing with **(g)o-... ol**? As for the reconstruction of PFS classes, it does not have to be of great importance.

We now return to the central question concerning the correlation of noun class and mutation grade. As has just been noted, we are obliged to distinguish two alternative grades, namely I and II for class **(g)o-... ol**, even though Grade I is certainly prevalent. Provided that every noun class is associated with only one grade, we must ask how these alternative mutations could have evolved.

First, theoretically, one could admit that the mutation grade can be a property of number correlation of the class, rather than the property of the class itself. Yet, let us repeat that this hypothesis is not applicable to number correlations of class **(g)o-... ol**. Grade II, along with Grade I, is systematically found with almost all correlations (the only exception is the correlation with the diminutive plural class **fu-... n**).

Second, we could suppose that the presence of Grade II in this class is related to the specificities of nominal derivation. I can only state that, after having seriously investigated this possibility, I arrived at the conclusion that the correlation between particular derivational suffixes of Sereer nouns and mutation grades of root consonants is absent, with rare though interesting exceptions that we consider separately. I do not provide detailed statistics that I have processed exactly for the reason that I could not argue for this correlation, not only for derivational suffixes of class **(g)o-... ol**, but for all other noun classes as well. Nevertheless, here we will examine some examples.

Comparing noun forms in Crétois' dictionary with the roots that he postulates, one can distinguish a sub-corpus of nouns in which the forms of stems are longer than roots. In Sereer, this almost always implies the presence of a suffix on the noun. Crétois' dictionary contains about 2400 nouns with suffixes of this type. We find highly frequent suffixes but also suffixes that occur with only one noun. Among the frequent suffixes are **-ir** (*taapir o...ol / taapir a...ak* 'jouet' < *raap* 's'amuser', plaisanter'), **-el** (*qaaɗel o...ol / qaaɗel a...ak* 'amertume' < *xaaɗ* 'to be bitter', PFS ***xaaɗ***), and **-and** (*gasand o...ol / kasand a...ak* 'cimetière' < *gas* 'creuser', PFS ***gas*** 'to dig'). If these suffixes implied a correlation with a particular mutation grade, we would find either Grade I or Grade II in the derived forms of class **(g)o-... ol**. Yet, derived nouns with all these suffixes massively show both grades. Thus, along with the word of Grade I given above, we regularly find derived nouns with the suffix **-and** of the type *qucand o...ol* II / *qucand a...ak* II 'abattoire' < *xuc* I 'couper, circoncire'.

A possible third solution is the following: synchronically we can distinguish two subclasses: **(g)o-... ol** I and **(g)o-... ol** II. Nevertheless, this does not change the diachronic analysis; it does not explain how two alternatives grades could have evolved into one class. Therefore, only two diachronic solutions remain: we are either historically dealing with two different noun classes, or the alternative

mutation grades have been formed as a mechanism of the formal diversification of a particular lexico-semantic group included in this class.

A semantic description of noun classes is, naturally, absolutely necessary for the reconstruction of PFS classes. In this book, we cannot go into detail concerning the extremely complex theoretical question of noun class semantics. There is a wealth of literature dedicated to this issue. My approach to this question is presented in a number of publications: (Pozdniakov 1993; 2003; 2007; 2010; 2015). I simply express here, that, when speaking about noun class semantics, one should take into account that synchronic and diachronic descriptions of noun class semantics follow two radically different aims and should therefore, probably be done with different methodologies. In the case of the synchronic descriptions, the least acceptable choice is the enumeration of the multiple lexico-semantic groups that are included in a noun class. Thus, it seems obvious that it would be absurd to include, for example, the meaning 'names of months' in the synchronic description of masculine gender semantics in French, even though all names of months are masculine in the language. Nevertheless, from the perspective of the diachronic interpretation of classes and their proto-language reconstruction (the main objective of the present book), such a "primitive" approach to the description of classes seems to be the most efficient for the discovery of etymological links between noun classes in related languages. Returning to class **(g)o-… ol**, the formulation by Renaudier (2015: 486), according to which the class includes noms des végétaux, d'animaux ou encore de parties du corps" cannot be considered as definitive. Below we present an attempt to distinguish the main lexico-semantic groups in class **(g)o-… ol** in order to then compare them to the corresponding groups of other classes:

- The traditional semantics of Bantu class 5 which includes singulatives: star, heel, ankle, arm, elbow, leg, cheek, nose. Fruit names are also included here (95 words).
- Long thin objects: cords (50 words), belts (20), amulets (30), hair, branches, grass, etc. (85). Possibly, also the following words: pieces of wood, bones, ribs (35). Sharp prickly objects, tips (65).
- Birds (mostly small with a long tail, 170). Possibly, the prototype meaning '(long) tail' is relevant also for the name of canine and feline animals present in this class (20). We cite the formulation of the semantics of class **ndu** proposed in (Koval 2008): 1) long (cylindrical) objects, hair; 2) in zoological (animal) lexicon, names of canine and feline animals; names of birds

(predominantly of big size). Names for fish (60) and reptiles (15) possibly also belong here.

- Diminutives, animal offspring, small animals (40), insects (80). To these groups possibly also belong a rather important group of nouns with partitive meanings such as 'part', 'piece', 'share' 'section', 'remainder', and 'small change' which sometimes also include a pejorative component (45).
- Hollow objects (mortars, pots, tubes, throat, etc., 70 words), calabashes (25), shells (45). Apertures and holes also probably belong here (30).
- Names of places, locatives (100 words), the majority of them include the suffix **-and** (*tifleand o...ol / tifleand a...ak* 'la boucherie [lieu]' < *tifle* 'exercer le métier de boucher').

Thus, words of class **(g)o-... ol** are grouped around several semantic properties. It is probable that the distinction of such properties is inevitably subjective. It should be noted that the proposed interpretation of class semantics does not correspond to the analogous description in Crétois' dictionary in many respects. Crétois (1973: Vol.1: 95–98) distinguishes the following semantic components for this class: 1) body parts, 2) clothes, 3) fruits, 4) instruments (with the suffixes **-ir** and **-or**),[10] 5) deverbal names of locations with the suffix **-and**, 6) nouns with suffix **-el** (derived from passive verbs),[11] 7) some collectives with PL in class **fi-... n**, 8) six nouns that correlate with the diminutive PL class.

We return to the discussion of the class semantics after distinguishing the main lexico-semantic groups in other noun classes, beginning with class **(g)a-... al**.

9.2.1.3 Class (g)a-... al

The frequencies of classes **(g)a-... al** and **(g)o-... ol** are approximately the same. Note a considerably smaller diversity of number correlations for class **(g)a-... al**. Almost all nouns in this class form their plural in class **a-... ak**. There is also an episodical correlation with class **Ø-... k**, but many nouns in this correlation have alternatives pairs with **a-... ak**.

A number of questions arise relative to the mutation grade. Renaudier distinguishes (see Table 9.27) Grade II and Grade III, but not Grade I, as alternatives.

[10] Crétois notes that in certain dialects names for instruments belong to class **(g)a-... al**.

[11] Fal (1980) states, « **-eel** sert à former des noms abstraits à partir de verbes d'état ou exprimant une qualité ».

Table 9.33: Class **(g)a-… al**

SG	PL	I	II	III	?	Sum
(g)a-… al	**a-… ak**	56	928	20	774	1778
(g)a-… al	**Ø-… k**		9	5	13	27
(g)a-… al	**Ø-… w**			2		2
(g)a-… al	**xa-… ax**		2		1	3
(g)a-… al		23	208	13	196	440
Sum		79	1147	40	984	2250

Grades II and III are also postulated by Merrill (2018b: 98). The same intepretation is proposed by Faye (1978: 114): « le degré II, mais aussi dans certains cas le degré III ». The case of Grade II is clear: this is indeed the dominant grade for the class. But, from the statistical data, it remains unclear why all leading Sereer specialists mention Grade III and ignore Grade I.

In fact, this intricate story apparently reflects crucial problems related to the function of root-initial consonants in Atlantic languages. In general terms, these problems can be formulated in the following way: Consonant mutation systems simultaneously carry various functions and are regulated by various rules. When a conflict arises among these rules, they become subject to a hierarchy that the language is obliged to introduce. This is completely true for mutations in the case of class **(g)a-… al**. Yet, before describing the conflict that arises here, we enumerate the main three rules:

- Every class is associated with a particular consonant mutation grade.
- Correlation SG/PL implies the switching of consonant grade (with the resulting Grade II in PL for classes neutral for animacy and size).
- The switching of mutation grades also takes place for the correlation Verb / Noun when deverbal nouns are formed (with the original Grade I for verbs).

Now recall that it is class **(g)a-… al** that most actively receives deverbal nouns in Sereer. It turns out that the language cannot allow all the three rules presented above to combine in this case.

Let us now try to integrate rule 3 into our hierarchy. This strategy is observed for the derivation of the type *fool* I ‘tourner le fuseau’ > *pool a…al* II / *pool a…ak*

II ‘action de tourner le fuseau’. Rules 3 and 1 are respected, whereas rule 2 is violated.

Thus, here we try to find cases where rule 2 is observed. This strategy can be seen in the derivation *geek* I ‘conserver, mettre en réserve’ > *geek a...al* I / *keek a...ak* II ‘la réserve [action de réserver]’, *deng I* ‘être épais’ > *deng a-... al* I / *teng a-... ak* II ‘épaisseur’. Rule 2 is respected, whereas rules 1 and 3 are violated. The dictionary contains 56 nouns of class **(g)a-... al** showing Grade I that correlates by number. Almost all of them (53) show different consonants in SG/PL correlations (rule 2), sacrificing rules 1 and 3.

Even though it may seem paradoxical at first glance, the question is not why deverbal nouns in class **(g)a-... al** show Grade I (the answer is to respect rule 2), but rather why the majority of nouns in this class attest Grade II (the answer is, to respect rule 3 which turns out to be higher in the hierarchy). Accordingly, it is in the case of class **(g)a-... al** II that includes deverbal nouns, that we systematically find the violation of the structural rule of the change of mutation grade when plural is formed.

We can propose the following generalization: class **(g)a-... al** is characterized by Grade II with the exception of deverbal nouns that preserve the root-initial verb grade (I), thus respecting the principle of the consonant change in number correlations.

It remains for us to consider the words of type **(g)a-... al** III that, as has been noted above, are distinguished by almost all specialists. We will do this by considering lexico-semantic groups of **(g)a-... al**.

Apart from deverbal nouns, class **(g)a-... al** includes numerous other lexico-semantic groups. Some of them are reminiscent of groups that we have distinguished for class **(g)o-... ol**, whereas others are not.

Some of the meanings are apparently related to the issue of class in certain dialects. Thus, Faye notes the augmentative meaning for class **(g)a-... al**, which, at the same time, also shows Grade III (*a mbis al-* ‘le grand et gros cheval’) (Faye 1978: 114) – cf. Crétois *mbis o...ong / mbis fu...n* ‘petit cheval; terme générique de cheval [sans **o-... ong**]’, *pis (gi)...n / pis k* ‘cheval’. Crétois’ dictionary does not indicate the augmentative meaning for this class.

Without any doubt, Grade III (combined with the suffix **-eem**) is the marker of a small group of nouns that Faye describes as «le lieu d’habitation d’une catégorie sociale donnée: *a ngawleem al-* ‘le lieu d’habitation des griots’» (Faye 1978: 114). Some examples from these groups given by Crétois have been considered above; see also (Crétois 1973, Vol.1: 99–100).

As for other words of this class with Grade III, we observe a dozen deverbal nouns, e.g. *ngulum a...al* ‘égarement’ < *gulum* ‘être désorienté, être égaré dans la

route', as well as the keyword for the Proto-Niger-Congo (in particular, Bantu) class 5: *ngid a...al / kid a...ak* 'œil' (PFS ****Giɮ***).

It is interesting to compare the semantics of classes **(g)a-... al** and **(g)o-... ol** by different lexico-semantic groups that have been formed in these classes as well as by the noun class keywords (Table 9.34).

Table 9.34: Semantics of classes **(g)a-... al** and **(g)o-... ol**

(g)a-... al II	**(g)o-... ol I**
Eye (Niger-Congo cl. 5)	Stars, fruits (Niger-Congo cl. 5)
Long objects, branches, feathers (Niger-Congo cl. 11)	Long objects: Cords, hair, grass (Niger-Congo cl. 11)
Sticks, instruments	Sticks, bones, ribs. Sharp pointed objects
Birds (more often of large size). Feather.	Birds (mostly of small size and with long tails)
Animals (big? pejoratives?). Tail. Reptiles	Animals with a big tail: cats, dogs Insects. Fish
Augmentatives (?) – Grade III	Diminutives. Partitives. Pejoratives
Hollow objects. Calabashes. Shells.	Hollow objects. Calabashes. Shells. Apertures
Body parts (of people and animals): Back, shoulder, armpit, stomach, neck, hip, leg	Body parts: heel, ankle, arm, leg
Locatives (with suffix **-eem**) – Grade III	Locatives (with suffix **-and**)
Deverbal nouns (often with suffix **-ox**)	
Deverbal nouns of action manner (with suffix **-od**)	

I will dwell once more on one point. The subjectivity of many of the formulations cumulated in the table is evident, not only to the reader, but to the author as well. At the same time, I do not see a better way to show the similarities and differences in the semantics of these two classes that have similar markers (velar g- in the prefix, sonorant l- in determiner, determiner structure VC-) and in many respects similar semantic fields. Semantically, these two Sereer classes are apparently the most eclectic. Both classes combine prototypical properties

of Niger-Congo classes 5 and 11, but they also include a considerable number of semantic properties (sometimes, similar) that are not typical of these two Niger-Congo classes.

In a number of cases the synonymy of classes seems to be complete, to the extent that this produces the impression that the semantic differences of these two classes disappear in modern Sereer. In relation to this, I would like to go back to the hypothesis formulated in (Pozdniakov 1993: 38–39) concerning the appearance of a phonetic factor in the distribution of Sereer nouns by these two classes, whereby nouns with a roots containing -a- gravitate towards class **(g)a-... al**, and classes with a roots containing -o- gravitate towards class **(g)o-... ol**. I have tried to confirm this hypothesis by individual examples which is, of course, not very convincing considering that one can easily find counter-examples. Today, the existence of computer databases allows us to argue this hypothesis with statistical data and to make it more specific.

Now, we compare the frequencies of root vowels in these two classes. The results are presented in Table 9.35.

Table 9.35: Root vowels in noun classes **(g)a-... al** and **(g)o-... ol**

	(g)a-... al N	**(g)o-... ol** N	**(g)a-... al** %	**(g)o-... ol** %
a	864	738	39%	32%
o	422	527	19%	23%
e	321	376	14%	16%
u	364	417	16%	18%
i	249	270	11%	12%
Sum	2220	2328	100%	100%

The results given in the table are possibly of certain interest for the diachronic interpretation of a number of nouns. We can see that a-root frequencies diverge considerably from each other. The vowel -a- is included in 39% of the nouns of the class containing a as a segment of the class marker and 32% of the nouns of the class with the vowel o. It should be noted that no such divergence is observed for o-roots. We can therefore assume that a number of nouns of class **(g)a-... al** with a-roots came from class **(g)o-... ol** due to a phonotatic process, hence the difference in frequencies.

This hypothesis is confirmed, in particular, by the following examples (Table 9.36).

Table 9.36: Sereer *o-... ol > a-... al

	*PFS	Sereer (g)a-... al	Fula ngol
*tail	***lac**	las a-... al	laac-ol
*road	***ɗat**	ɗat a...al	ɗat-ol
*build a dike (vb)	***bang**	pang a...al	banngu-wol
*drool (vb)	***yɔɔr**	yaraaw a...al	joord-ol

This process can explain the individual intersection in the semantics of these two classes in question, as has been mentioned above. Thus, if we suggest the change *las a-... al* 'queue' < **las o-... ol*, the semantic change 'tail' → 'animals (birds, fish) with a long tail' precisely in class **(g)o-... ol** becomes substantiated.

At the same time, we have no statistical arguments to assume the opposite process (the change of the Proto-Sereer class ***(g)a-... al** > Sereer **(g)o-... ol** in o-roots). Nor do we find any examples of this process in our database. Yet, there is one example that can probably be of interest to us. We find in Fula a noun belonging to class **ngal**: *koy-ngal* < **kos-ngal* as a reflex of the PFS root ****Qoos*** 'jambe; tibia'. As for Sereer, along with the form *qoos a...al*, we find the alternative form *xoos o...ol*, which could have evolved under the influence of the root vowel. If this is the case, we can not only eliminate one more intersection in the semantics of the two classes, but also clarify the PFS reconstruction through the reconstructing of Grade II, i.e. ****qoos*** II.

9.2.1.4 Class fo-... ol

Another class with the determiner **ol-** is semantically transparent as it includes names for liquids and masses (oil, salt, dust etc.). Also included here are 'fire' and 'smoke', nouns that often belong to a common class in Atlantic languages, as well as a word for 'body'. The semantics of the class restrict the appearance of number pairings, yet there are few pairings of this type. The statistics are presented in Table 9.37.

We can clearly observe Grade I for the consonant mutation.

In terms of number correlation there are four words of particular interest. Crétois gives for them plural forms with the prefix **po-**: *raaɗ fo...ol / po raaɗ k* 'lavure [de lessive]', *roɗ fo...ol / po roɗ k* 'eau sale, lavure (de lessive)', *rof fo...ol / po rof ka* 'vin de ronier', *ɲeex fo...ol / po ɲeex k* 'bouillon, sauce, potage'. There is, of course, no reason to distinguish a special plural class **po-... k**. Instead, we are

Table 9.37: Class **fo-... ol**

SG	PL	I	II	III	?	Sum
fo-... ol	**a-... ak**	4			4	8
fo-... ol	**Ø-... k**	2	1		3	5
fo-... ol	**po-... k**	3			1	4
fo-... ol		14		1	15	30
Sum		23	0	1	23	47

dealing with a tendency that is observed in a number of Atlantic languages, e.g. in Konyagi, which consists of the inclusion of noun class prefixes with voiceless labials into the root which results in the formation of a zero prefix: **fo-rof ol* > *Ø-forof ol* I / *Ø-porof k* II. In this respect, it is interesting to consider two Sereer keywords whose meanings are exceptionally important for the investigation of the noun class system: *foofi l / poofi k ~ fi fo...ol / poof ka* 'water' and *fo'ooy o...ol ~ l / po'ooy k* 'blood'. Crétois distinguishes the root **-of** (?) for the first word, and for the second word, he mechanically notes the root **fo'ooy**. Even though Crétois does not distinguish **fo-... ol** for these words class, the historical link between these words with the preceding ones is evident: the plural forms show us that we are dealing with a transformation of the prefix **fo-** into a zero prefix. We emphasize that both these words are etymologically unclear and do not show any transparent parallels in Fula nor in any other Atlantic language.

9.2.1.5 Class (gi-)... n

Table 9.38: Class **(gi-)... n**

SG	PL	I	II	III	?	Sum
(gi-)... n	**a-... ak**	20	12	20	37	89
(gi-)... n	**Ø-... k**	147	259	1046	814	2266
(gi-)... n		93	71	252	318	734
(gi-)... n	**fu-... n**			1	1	2
Sum		260	342	1319	1170	3091

The majority of correlations are with class **Ø-… k**. Renaudier notes mutation grades III ~ II for this class. The statistics point to Grade III as the basic one, even though a considerable number of nouns show Grade II and Grade I.

In terms of semantics, the class shows a number of stable lexico-semantic groups:

- Flora: primarily trees and plants, but also grains (around 500 nouns).
- Fauna: animals, fish, insects (around 200 nouns). It is interesting to note that birds are almost absent in this class, excluding the generic word *ndiiď (gi)...n / tiiď k* 'bird' which does not show parallels in other Atlantic languages and is probably a deverbal derivative name of *riid* 'résonner, retentir, être sonore' (also 'ostrich').
- Words for the body and body parts (50 nouns), including those for body, skin, face, lip, skull, breast, arm, finger, nail, back, spine, knee, and tooth.
- Deverbal action nouns (70 nouns).

The majority of these nouns show mutation Grade III.

9.2.1.6 Class (gi-)… l

Table 9.39: Class **(gi-)… l**

SG	PL	I	II	III	?	Sum
(gi-)… l	**a-… ak**	232	14	13	148	407
(gi-)… l	**Ø-… k**	51	8	4	58	121
(gi-)… l	**(x)a-… ax**	4	2	0	4	10
(gi-)… l		119	23	24	113	279
Sum		406	47	41	323	817

As for number correlations, the main number correlation is the one with class **a-… ak**. Correlations with class **Ø-… k** are considerably less numerous. In (Renaudier 2015) only two nouns belonging to the correlation **gi-… l / Ø-… k** are mentioned: 'chèvre', 'vache'. In Crétois' data there are 121 such nouns. The main mutation grade is Grade I. The class includes the following lexico-semantic groups:

- Plants: mostly grasses and grains (250).

- Ball-shaped objects, compact objects: ball, egg, cow dung, knot, hump, drops, bubbles, boots, lumps, callus, etc. (60).
- Ball-shaped, compact body parts: head, buttock, tongue, tooth, liver, heart, lung, muscle, gizzard, glands, nipple, udder, heel, testicle, hip, hock, calf, forehead, blood clot, etc. (35).
- Diminutives: baby, weaned child, newborn, dwarf, heifer, young dog, unripe fruit, etc. (20)
- Collectives: troops, multitude, heap, flock of birds, herd of goats, quantity of millet placed in the mortar, measurements, thicket of mangroves, etc. (20)
- Fauna: amphibious animals (turtles, frogs, toads), goat, ram, cow, civet (15).
- Masses and liquids: water, blood, sweat, mud, limestone, powder, flour sp., slag, volcanic lava, fire, embers, flame (20).

9.2.1.7 Classes Ø-… fan, fa-… fan

The situation with classes in which the determiner **fan** is used is not totally clear. First, according to Merrill's data, this determiner is found in the Ñominka dialect of Sereer, whereas in the Siin / Saalum, it corresponds to the determiner **f** (Merrill 2018b: 98). At the same time, Merrill distinguishes the class **fa-… fan** III (**fa-… f** III) but not the classes **Ø-… fan** I,II (**Ø-… f** I,II). Faye (1978: 125–126) also mentions the determiner **f**, but he ascribes it to class **Ø-… f** I,II, instead of class **fa-… f** III. Crétois distinguishes between classes **Ø-… fan** I,II and **fa-… fan** III. As for the determiner **f-**, it is episodically distinguished for **Ø-… f** I,II, but not for **fa-… f** III.

In Tables 9.40–9.41 we consider separately the statistics for classes **Ø-… fan** (**Ø-… f**) and **fa-… fan**.

The data presented in these tables show that the main number correlations for both classes (or subclasses?) is the correlation with the plural class **Ø-… k**. There is indeed a considerable difference in the mutation grade: Grades I and II for **Ø-… fan** and Grade III for **fa-… fan**.

Apart from the difference in mutations, there are certain differences in the semantics of these classes, hence the noteworthy differences in the infrequent number correlations **Ø-… fan / Ø-… w** and **fa-… fan / pa-… k** which we consider as follows.

Class **Ø-… fan** with a zero prefix regularly includes borrowings as well as certain kinship terms and other names for humans that include the meaning of a

Table 9.40: Class **Ø-... fan**

SG	PL	I	II	III	?	Sum
Ø-... fan/f	**a-... ak**	7	4		10	21
Ø-... fan/f	**Ø-... k**	184	149	19	270	622
Ø-... fan/f	**Ø-... w**	2	4		7	13
Ø-... fan/f		87	51	9	107	254
Sum		280	208	28	394	910

Table 9.41: 39. Class **fa-... fan**

SG	PL	I	II	III	?	Sum
fa-... fan	**a-... ak**			1	4	5
fa-... fan	**Ø-... k**			11	22	33
fa-... fan	**pa-... k**				2	2
fa-... fan			1	3	9	13
Sum		0	1	15	37	53

collective plural, e.g. belonging to a particular social caste. As is well-known, this is a traditional inventory of classes with a zero prefix in Niger-Congo languages (class 1A) including classes with a zero prefix in many Atlantic languages. The most plausible explanation for such a combination of properties (borrowings + collective meaning for humans including kinship terms) is the following scenario: Not only Proto-Bantu but also, more generally, Proto-Niger-Congo had a special human singular class with the marked meaning (+) of belonging to a particular group (a group of relatives or a social group). This class is distinguished from the neutral human singular class not by the agreement pattern, but rather by the absence of prefix (following my hypothesis, only nouns of this subclass had a special suffix beginning with a nasal consonant Pozdniakov 2013). The absence of a class prefix simplifies the integration of borrowings into the language. Therefore, it is precisely this class that became the one that systematically receives borrowings in many languages. This is a totally natural mechanism and it is highly possible that many Niger-Congo languages, even those that have lost the reflexes of the Proto-Niger-Congo class 1A, come back to the use of this mechanism, possibly independently from one another.

Apparently, we observe something similar in class **Ø-… fan** in Sereer. The very fact of belonging to this class allows us to suggest that the word is a borrowing (unless it is a kinship term). Borrowings explain the variations of mutation grades in this class. The principle is that, in most cases, borrowings preserve the consonant of the donor language, consequently the number of consonants of Grade I and II are approximately equal. The number of words with Grade III is already considerably smaller because prenasalized consonants are less frequent in general.

If we suggest that borrowings enter this class for a formal reason (the zero prefix), then when we exclude borrowings, and thus it makes sense to look more deeply into "prototypical" nouns of this class, the nouns that are motivated semantically. This can be important not only for PFS class reconstruction but also for the more accurate consideration of one more Niger-Congo language in the reconstruction of semantic specificities of class 1A in Niger-Congo, which is not yet done. Let us distinguish the main realizations of the feature "belonging to a group" in the human singular Sereer class **Ø-… fan**:

- Blood relatives and relatives by marriage: *caqat fan / caqat k* (*caqat fan / caqat k*) 'le bisaïeul [des deux cotés]', *caat fan / caat k* 'cadet(te)', *caaci fan / caaci w* 'grands parents patri- et matrilatéraux, c'est -à-dire: le grand père, la grand-mère [du côté du père ou de la mère', *maam fan / maam k* 'grand-père, grand-mère [des deux côtés], aieul', *yaay fan / yaay k* 'mère', *baay fan* 'père', *faap fan / paap k* 'père, frère du père, époux de la soeur de la mère et (par respect) les hommes de la génération du père', *linger fan / linger k* 'mère ou la tante maternelle du roi - la reine-mère', *seen fan / seen k* 'femme moins aimée d'un polygame', *xej fan / qej k* 'femme préférée d'un polygame', *xaw fan* 'première femme d'un polygame', *wuj fan / wuj k ~ w* 'se dit de deux femmes qui ont un même mari', *yumpaaɲ fan / yumpaaɲ k* 'belle tante [femme de l'oncle maternel]' etc.

- Belonging to a caste or a social group: *baadoola fan / baadola w* 'classe laborieuse, composée de 'l'homme du peuple'', *bisat fan / bisat k* 'espèce de griot bouffon faisant partie de la classe des 'ñole'', *bije fan / bije k* 'griot d'une extrême impudence et méprisé', *toole fan / toole, doole k* 'griot, bouffon de la dernière espèce', *sakobe fan / sakobe k* 'en poular: les sakebe comprennent la caste artisanale des cordonniers...' etc.

- Role/title in a caste or a social group (also frequent in borrowings): *saasaax fan / saasaax w* 'dignitaire du Sine', *alfa fane / alfa k* 'titre donné aux lettrés',

alkaati fan / alkaati k 'titre d'origine mandingue', *almaani fan / almaani k* 'titre que portent les chefs du Fouta, du Bondou et de quelques autres provinces musulmanes', *paar fan / paar k* 'chef de griot, batteur de tam-tam...', *ŋaamaan fan / ŋaamaan k* 'circonciseur' etc.

These groups explain the relatively regular number correlation between **Ø-... fan ~ f** and the human plural class **Ø-... w** instead of the expected plural class **Ø-... k**.

As opposed to class **Ø-... fan** I,II, class **fa-... fan** III does not include the feature of belonging to a particular social group. The presence of a pejorative component is evident in the class with prefix **fa-** and Grade III, without any reference to diminutive. This class includes names for illnesses and death, as well as inappropriate behavior (15 out of 53 nouns). The dictionary only provides two nouns for humans in this class: *muumen fa... fan / muumen k* 'un tout petit enfant ne sachant pas encore parler', *miskin fa... fan / miskin k* 'un pauvre, un nécessiteux, un malheureux'. For the word *musidajar fa... fan* 'antéchrist', it is irrelevant whether the word is a borrowing or whether the antichrist is considered to be a human.

Note that the pejorative component is found in the majority of nouns belonging to class **Ø-... fan**, without the prefix **fa-**. As for the non-human meaning, here we find nouns for illnesses and physical shortages (30 nouns), whereas nouns for humans are names of despised persons or persons who have committed inappropriate behavior (25 nouns).

In class **fa-... fan** III one should also discover nouns that include the class marker as part of its lexical stem in modern Sereer: *fangol fan / pangol k* (*faŋol fan / paŋol k*) 'serpent; Par *pa-ngol*, il faut entendre 'les esprits ancestraux dont la mémoire est restée vivante, parmi les Sereer'". This word originates from PFS ****ngowl*** 'python' (Fula *ngowl-a / gowl-i*). The history of its evolution can be presented as follows: **fa-ngol fan* III / *ngol k* III > *Ø-fangol* I / *Ø-pangol* II. A similar development is reconstructed for the word 'crocodile', which is the only word for which we find the prefix **fa-** and the determiner **n**: *noox fa... n / noox k ~ pa noox k*. (Fula *nor-wa / noo-di*, PFS ****noox***). The appearance of the prefixal allomorph **pa-** in the plural form shows that it is included in the stem with the mutation SG f- I / PL p- II.[12] Interestingly, we can find a completely identical process for the word 'crocodile' in a language of a different North Atlantic group, namely Konyagi (the subgroup Tenda): *fɛ̀-rún / wɛ̀-fɛ̀-rún* 'crocodile'[13] (for the partic-

[12] See the processes mentioned above, whereby the prefix **fV-** is included into the roots of nouns of class **fo-... ol**.

[13] In Konyagi, this word should be interpreted as *Ø-fɛ̀rún / wɛ̀-fɛ̀rún*.

ular reasons of the inclusion of the prefix **fæ-** into the lexical stem in Konyagi, see a detailed discussion in (Pozdniakov 2015: 84–85). Note that the Konyagi lexical root is different from that of Sereer but the noun class is the same in the two languages (in Konyagi it is the class for animals).[14] The Sereer dictionary contains one more word following the same model: *ɲiig fa...fan / ɲiig ka ~ pa ɲiig k* 'elephant' (Fula *ɲiiw-a / ɲiibi*, PFS ****ɲigw***). As we can see, for names of animals, Sereer class **(fa-)... fan** corresponds to class **mba ~ nga** that includes names for large animals. Note that class **(fa-)... fan** also contains other names for animals, for example, *gong fan / kong k* 'gros singe mâle', *rang fan / tang k* 'gros singe cynocéphale', *rood fan / tood k* 'serpent très venimeux', *waɲor fan / waɲor k* 'tortue marine', *njaq fa...fan / caq k* 'antilope cheval', *mbe fa...fan* 'chèvre' etc.

To sum up, the data provided give us serious reasons to postulate (diachronically) two classes with the determiner **fan** in Sereer:

- **Ø-... fan** I, II. The class of humans for particular kinship/social groups as well as borrowings.
- **(fa-)... fan** III. Class for nouns with pejorative meanings, as well as, maybe, historically, the class of animals.

We return to this question while comparing Fula and Sereer classes.

9.2.2 Plural classes

9.2.2.1 Class Ø-... w

Table 9.42: Class **Ø-... w**

PL	SG	I	II	III	?	Sum
Ø-... w	**a-... al**	2				2
Ø-... w	**Ø-... fan**	1	6		7	14
Ø-... w	**o-... ong**			1		1
Ø-... w	**o-... ox**	292	147	2	360	801
Ø-... w		7	1		2	10
Sum		302	154	3	369	828

[14] The class marker with an initial f- in the word for 'crocodile' is also found in yet another North Atlantic branch: Nalu *fu-ktum*.

The human plural class **Ø-… w** is associated with Grade I, even though, as we can see from the data presented in the table, many nouns of Grade II in the singular preserve this grade in the plural form.

9.2.2.2 Class fu-… n

Plural diminutive class. It does not make sense to provide statistics for this class. Practically all examples correlate by number with the singular class **o-… ong** and are characterized by Grade III. Also note here the four examples considered above for **fu-… w** (Grade III).

9.2.2.3 Classes a-… ak, (x)a-… -ax, Ø-… k

The three plural classes with velar (or postvelar) voiceless consonants as part of the markers are neutral for animacy and size. We first present the statistics for each class, and then we comment on the results obtained (Tables 9.43–9.45).

All three classes are doubtlessly characterized by Grade II.

It is not clear whether the forms with the marker **(x)a-… ax** are dialectal variants of **a-… ak**. The distribution of frequencies in correlations give an indirect argument in favor of stating that **(x)a-… ax** is historically an independent class: the same way as class **a-… ak**; it actively correlates with the singular class **o-… ol**, but, in contrast to class **a-… ak**, it almost never shows correlation with the singular class **a-… al**.

Table 9.43: Class **a-… ak**

PL	SG	I	II	III	?	Sum
a-… ak	**a-… al**	4	1001	1	777	1783
a-… ak	**fa-… fan**		1		4	5
a-… ak	**Ø-… fan**		12		8	20
a-… ak	**fo-… ol**		5		3	8
a-… ak	**Ø-… l**	7	263		158	428
a-… ak	**Ø-… n**		49	1	37	87
a-… ak	**o-… ol**	32	928		866	1826
a-… ak	**o-… ong**	1	30	1	2	34
a-… ak	**o-… ox**				1	1
a-… ak			61		20	81
Sum		44	2350	3	1876	4273

Table 9.44: Class **(x)a-… -ax**

PL	SG	I	II	III	?	Sum
(x)a-… ax	**a-… al**		2		4	6
(x)a-… ax	**Ø-… fan**				1	1
(x)a-… ax	**Ø-… l**		5		3	8
(x)a-… ax	**Ø-… n**				1	1
(x)a-… ax	**o-… ol**	1	66		64	131
(x)a-… ax	**o-… ong**		4	1		5
(x)a-… ax			2			2
Sum		1	79	1	73	154

Table 9.45: Class **Ø-… k**

PL	SG	I	II	III	?	Sum
Ø-… k	**a-… al**		14	1	14	29
Ø-… k	**fa-… fan**		13		23	36
Ø-… k	**Ø-… fan**	26	324	2	289	641
Ø-… k	**fo-… ol**		1		4	5
Ø-… k	**Ø-… l**	3	59	1	58	121
Ø-… k	**Ø-… n**	1	1393	15	783	2192
Ø-… k	**o-… ol**	1	14	1	12	28
Ø-… k	**o-… ong**		18	1	4	23
Ø-… k		10	154	11	112	287
Sum		41	1990	32	1299	3362

Number correlations for classes **a-… ak** (**(x)a-… ax**), on the one hand, and class **Ø-… k**, on the other, show a complementary distribution; class **a-… ak** and class **Ø-… k** correlate with different singular classes. The only important intersection for the correlations is **a-… ak / Ø-… l** (428 examples) and **Ø-… k / Ø-… l** (121 examples). Therefore, the most considerable correlations in neutral plural classes can be presented by the schema in Figure 9.3.

In the conclusion of this section, we return to the statistical anomaly that we discovered for the diminutive class **o-… ong**. Recall that this class has almost no initial consonants outside of the mutation system. This anomaly incites us to

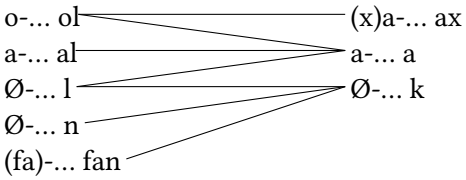

Figure 9.3: Number correlations in neutral Sereer classes

Table 9.46: The distribution by classes of consonants not participating in mutations

Class	Class grade	Non-mutated words	Word's number	Non-mutated words (%)
fu-... n	III	7	160	4%
o-... ong	III	20	350	6%
(gi-)... n	III	1171	3092	38%
Ø-... k	II	1299	3362	39%
gi-... l	I	323	817	40%
(g)o-... ol	I (II)	1028	2406	43%
Ø-... fan	I, II	394	910	43%
(g)a-... al	II	984	2250	44%
a-... ak	II	1876	4273	44%
o-... ox	II	410	925	44%
Ø-... w	I	369	828	45%
(x)a-... ax	II	73	154	47%
fo-... ol	I	23	47	49%
fa-... fan	III	37	53	70%
Sum		8014	19627	**41%**

consider the percentage of consonants outside of the mutation system in each particular noun class. These percentages are presented in Table 9.46.

The last row shows the sums for the parameter in question. As can be seen, on average, around 41% of consonants in Sereer nouns are outside of mutations or are not representative in terms of mutation grade. It would be logical to suggest that this percentage has to be maintained for each particular noun class. Yet, this is not the case. Consonants in noun classes of Grade III show important deviations from the average, moreover, these deviations are in both directions. I have explained the exceptionally small percentage of consonants outside of mutations

found for the diminutive class **o-… ong** (6%) through the conflict between two different functions of mutations: 1) mutation as a noun class marker, 2) mutation as a derivation marker (with a diminutive meaning). According to our hypothesis, in the case of the diminutive class, the derivational function is higher in the hierarchy, i.e. the presence of the voiced prenasalized consonant is more important than that of Grade III, hence the irregular diachronic change for the diminutives *N > NC (see examples above). Moreover, the specialized plural diminutive class has an even smaller percent of non-mutating consonants (only 4%).

The opposite deviation is found for class **fa-… fan** III. The 70% of nouns belonging to this class include consonants that are outside of the mutation system or with a consonant for which the grade is unclear. What processes could have led to such a singular and pronounced anomaly? The only theoretically possible explanation[15] is the following hypothetical scenario. The nasal segment that we find in the determiner of this class was present in the class prefix, i.e. **fa-… fan** < ***fa-n-… fan**. The nasal consonant at the junction of the prefix and the root probably lead to the diachronic change ***NC** > N, i.e. to the formation of root-initial nasal consonants that do not belong to the mutation system in Sereer. Thus, according to Crétois, PFS **ngowl* 'python' has the following variants in Sereer: *fa-ngol fan ~ fa-ŋol fan*[16] 'serpent'. The suggested transition **fan-ngol* > *fa-ŋol* increases the percentage of consonants outside the mutation system.

Considering the given observations, the system of Sereer classes can be presented in the form of Table 9.47.

A considerable number of segments in our table are given in brackets. They point to one of the most complex questions In Proto-Sereer reconstruction.

In some dialects, classes **a-… al** and **o-… ol** are represented as **ga-… al** and **go-… ol**. At the same time, prefix **o-** in classes **o-… ox** and **o-… ong**, apparently does not have a CV- form in any of the dialects. Likewise, there are well-known dialectal forms **ga-… al** for the class **a-… al**, but as for the plural class **a-… ak** the prefix CV- (***ga-**) is not mentioned in any of the sources. Do we have any additional arguments to decide between the reconstruction ***V-** and ***CV-** for classes that show dialectal divergences?

An additional case is also not clear. In most dialects, classes **Ø-… l** and **Ø-…n** show a zero prefix, but in some dialects these classes have the prefix **gi-**. Note that this prefix is not found in the plural classes **Ø-… w** and **Ø-… k**. Which of these variants should be reconstructed for Proto-Sereer?

[15] I am grateful to Guillaume Segerer for this idea.

[16] Note that according to Merrill's data, the word includes a voiceless prenasalized consonant: *fa-nqool* 'snake'.

Table 9.47: Sereer classes

SG Meaning	SG CL	SG grade	PL CL	PL grade	PL Meaning
Humans.	o-... ox	II	Ø-... w	I	Humans
Fruits; star. Long, sticks, tips. Tailed beings (small birds, dogs, fish, and reptiles). Diminutives/partitives. Hollow. Locatives.	(g)o-... ol	I (II)	a-... ak;(x)a-... ax?	II	neutral
Eye. Long. Sticks, instruments. Birds of big size, feather. (Big) animals. Reptiles, Hollow. Body parts. Locatives.	(g)a-... al	II	a-... ak	II	neutral
Augmentatives. Deverbals.	(g)a-... al	III	a-... ak	II	neutral
Grasses, grains. Globular, dense. Diminutives. Collective. Mass nouns. Animals.	(gi-)... l	I	a-... ak	II	neutral
Grasses, grains. Globular, dense. Diminutives. Collective. Mass nouns. Animals.	(gi-)... l	I	Ø-... k	II	neutral
Plants, grains. Animals, fish, insects. Body parts. Deverbals.	(gi-)... n	III	Ø-... k	II	neutral
Kinship. Borrowings. Pejoratives.	Ø-... fan	I, II	Ø-... k	II	neutral
Pejoratives. Animals.	*fa(n)-... fan	III	Ø-... k	II	neutral
Mass nouns.	fo-... ol	I			
Diminutives.	o-... ong	III	fu-... n	III	Diminutive

In order to find additional arguments to decide between alternative hypotheses one can try to look closer at determiner forms in the noun class system of Sereer. It is of note that the multiple determiner series in Sereer remain non-described.

9.2.3 Determiners

Atlantic languages, at least, languages of the Northern group, show developed systems of determiners that combine with noun class markers as well as with distal markers. Sereer is not an exception to this principle distinguishing between several series of determiners. It is known that the description of paradigmatic semantic determination properties is a difficult task in the case of such systems. The meanings of complex determiners which show various intersections of determiner and distance categories are always reluctantly explained by language consultants as well as by scholars. Hence such formulations are often found in descriptions as, "not totally close but still a visible object", "a very close, but nevertheless a non-visible object", etc. I think that I will not be mistaken if I state that, among the ten different descriptions of distal determiners in Atlantic languages, one would not find two similar ones, provided, of course, that the descriptions are independent. The description that is proposed below is not an exception to this. Without going into a detailed analysis of previous interpretations, I will present a short description of determiners based on various sources for Sereer as well as for other languages of the North Atlantic group (Table 9.48).

Apparently, in contemporary Sereer, anaphoric markers with the meaning 'the object in question' are asymmetrical: the anaphoric proximal marker is **-een(e)**, whereas the anaphoric distal marker is **-aaga**.[17]

We will not look at the combinations of noun class markers and determiners. Unfortunately, neither of our Sereer sources contains a full inventory of these markers, including (Renaudier 2015) who represents the class paradigms in the most complete way. This may be due to two reasons. First, in order to represent the whole system, one needs to indicate more than two hundred determiners, which is not always possible within the article format. Second, a number of authors limit themselves to pointing out the fact that determiners combine with a class marker, supposedly assuming that this indication is sufficient for the description. Nevertheless, the determiner structure in general is heterogeneous and

[17]It should be noted that one of the most valuable sources, Merrill's lexicon (2018a) does not clarify the asymmetry between meanings in question, neither does it clarify the meanings of determiners in general. According to Merrill, ***-een*** is an invisible proximal determiner 'this/that/these/those', ***-aana*** is the visible distal determiner 'that/yonder', ***-eek*** is the visible proximal determiner 'this/these', and ***-aaga*** is the invisible distal determiner 'that/yonder'.

Table 9.48: Determiner system

	Determiner Speaker	Determiner Speaker + Emphasis	Demonstrative Speaker + Emphasis + Locative	Demonstrative Interlocutor + Emphasis	Demonstrative Interrogative
Definite Proximal	***CL-e***	***CL-ey***	***CL-eek(e)(en)***	***CL-een(e)***	
	the, it, this + near me	this one + near me	this one here + near me	this one + near you; this one in question	
Definite Distal	***CL-aa***	***CL-ay***	***CL-aaga***	***CL-aana***	
	the, it, that + far	that one + far	that one there + far; that one in question	that one + far from you	
Indefinite	***CL-uu*** whichever				***CL-um?*** which?

not always predictable. We provide the complete list of determiners for the principal Sereer classes,[18] a list which is extracted from Crétois' data (Table 9.49).

Many of the cells are empty, indicating that Crétois' dictionary lacks the corresponding forms, either because they are not attested in the language, or simply because Crétois does not provide them. The second column of the table indicates the dialect, as per Crétois. Crétois uses the indication "P.C." to refer to the location Petite-Côte, and "Dia." for the village Diaganiao (whose official name is Ndiaganiao).

As we can see from the table, the majority of the standard morphemes are formed following the pattern [post-nominal marker of a noun class + determination marker + distance marker]. This is typical of all three structures of postpositional complex markers:

- C: *xoox **l**-ek-e* 'cette tête-ci'[19] – class **(gi-)... l**; *fu-muus **n**-ag-a* 'ces chatons-là' – class **fu-... n**.

[18] We will not include determiners of dialectal classes **a-... ag**, **Ø-... g**, **Ø-... f**, **Ø-... an**, **fa-... -an**, **fa-... n**, **xa-... -ax** in our list.

[19] All examples and their translations in this section are extracted from Crétois' dictionary.

- VC: *o-loq* ***ol****-ek-e* ‘ce bâton-ci’ – class **(g)o-… ol**; *fo-sis* **ol***-ag-a* ‘ce lait-là’ – class **fo-… ol**.
- CVC: *saate* ***fan****-ek-e* ‘ce village-ci’ – class **Ø-… fan**.

Yet, a number of dialectal paradigms comprise not only postpositional markers but also class prefixes in determiner forms:

- C-determiner (l-, n-): ***gi****-xoox* ***gi****-****l****-ek-en* ‘cette tête-ci’ – class **(gi-)… l**; ***gi****-naak* ***gi****-****n****-an-a* ‘ce bœuf-là’ – class **(gi-)… n**, ***fu****-muus* ***fu****-****n****-ek-e* ‘ces chatons-ci’ – class **fu-… n**.
- VC-determiner (ol-?): *fo-soow* ***fo****-****l****-u (****f****-****ol****-u?)* ‘quelque lait caillé’ – class **fo-… ol**; *go-ɓay* ***go****-****l****-en-e (****g****-****ol****-en-e?)* ‘cette main-ci’ – class **(g)o-… ol**. In the latter case it remains unclear how the forms should be parsed morphologically. What exactly undergoes reduction, the prefix form or the postpositional marker? Nevertheless, one should recognize that both segments are included in the stem. The forms that are most complex in terms of morphological segmentation are indicated in dialectal variants of the type ***a****-****g****-****al****-um a kaal?* ‘quel bateau?’ – ***a****-****g****-****al****-e n’giuma* ‘celui que je vois ici’ – class **(g)a-… al**; ***o****-****g****-****ol****-um o-qol?* ‘quel champ?’ – ***o****-****g****-****ol****-e xooxuma* ‘celui que je cultive’ – class **(g)o-… ol**.

It is important to note that those classes in which neither of the known dialects allows for a consonant in the prefix, e.g. **a-… ak**, **o-… ox**, **o-… ong**, nor do the dialects show consonants in the determiners. This provides us with an additional argument for the reconstruction of the plural class in Proto-Sereer as ***a-… ax**, rather than ***xa-… ax**, since neither dialect evidences determiners of the type ***xax-e**. One can also suppose that we find the combination of a prefix and a postfix with the epenthetic [g] in the dialectal series of the type **a-[g-] al-e**, **o-[g-]o-le**. We still do not have enough evidence to choose between the alternative reconstructions ***gi-… l** or ***Ø-… l**, ***gi-… n** or ***Ø-… n**. These are practically the only diachronic conclusions that we can derive from the analysis of the various determiner structures. We still do not know whether we should reconstruct ***ga-… al** (with the original determiner of the type ***g-al-e**) and ***go-… ol** (with the original determiner of the type ***g-ol-e**) or ***a-… al** and ***o-… ol** with the further development into **ga-… al** and **go-… ol** for Proto-Sereer classes.[20]

[20]The class prefixes in the most ancient lexical source from the 17th century (d’Avezac 1845) do not clarify these questions as they show alternative forms of prefixes: **(g)o-**, **(g)a-**, **(gi)-** etc. like Sereer of today (see in detail Merrill 2019: 97).

Table 9.49: Noun class determiners in Sereer based on Crétois' data

CL	Dial.	-e	-aa	-uu	-ey	-ay	-eeke	-eeken	-aaga	-een	-eene	-aana	-aanu	-um
a-... ak		ake	aka	aku	akey	akay	akeke	akeken	akaga	aken	akene	akana	akanu	akum
(g)a-... al		ale	ala	alu	aley	alay	aleke		alaga		alene	alana	alanu	alum
(g)a-... al	P.C.		gala					galeken			galene			
(g)a-... al	P.C.	agale			agaley									agalum
(x)a-... ax		axe	axa		axey	axay	axeke				axene	axana		
fa-... fan	DIA.	ane	ana											
fa-... fan		fane	fana	fanu	faney		faneke	faneken	fanaga	fanen	fanene	fanana		fanum
Ø-... fan	DIA.		ana									anana		
Ø-... fan			fana		faney		faneke		fanaga	fanen	fanene	fanana		fanum
fo-... ol		ole	ola						olaga		olene	olana		
fo-... ol			fola	folu (fonu)	foley						folene	folana	folanu	folum
fu-... n		ne	na				neke	neken	naga	nen	nene	nana		
fu-... n		fune	funa		funey		funeke	funeken	funaga		funene			funum
Ø-... k		ke	ka	ku	key	kay	keke (keege)	keken	kaaga		kene	kana	kanu	kum
(gi)-... l		le	la	lu	ley	lay	leke	leken	laga		lene	lana	lanu	lum
(gi)-... l	P.C.		gila	gilu	giley			gileken			gilene	gilana		gilum
(gi)-... n		ne	na	nu	ney	nay	neke	neken	naga	nen	nene	nana	nanu	num
(gi)-... n	P.C.			ginu	giney			gineken			ginene	ginana		ginum
(g)o-... ol		ole	ola	olu	oley	olay	oleke	oleken	olaga	olen	olene	olana	olanu	olum
(g)o-... ol	P.C.		gola		goley				golaga		golene	golana		
(g)o-... ol	P.C.	ogole	ogola		ogoley									ogolum
o-... ong		onGe	onGa	onGu	onGey		onGeke	onGeken	onGaga		onGene	onGana		onGum
o-... ox		oxe	oxa	oxu (xu)	oxey	oxay	oxeke	oxeken	oxaga	oxen	oxene	oxana	oxanu	oxum
Ø-... w		we	wa	wu	wey		weke	weken	waga	wen	wene	wana	wanu	wum

9.2.4 The correlation between nouns classes and derivational suffixes

As a starting point of this section we analyze one more statistical anomaly concerning the strange correlation between noun class markers and derivative suffixes. It looks so intriguing that when I first found it I have had the feeling that this discovery could drastically change our ideas about noun class markers in Proto-Sereer. In any case, this deserves special attention. We consider this anomaly using a concrete example.

Crétois' dictionary contains 144 nouns which end in -ox. Thus, for example, the dictionary provides the word *tomol**ox** a...al* 'cure-oreille', which doubtlessly originates from *tomol-**ox*** (with the neutral-passive and reflexive suffix **-ox**) 'se tortiller, se curer les oreilles', which in turn, originates from *tomol* 'tortiller, tordre, curer les oreilles'. In our example, the derived noun preserves the verbal suffix and is also included in class **a-... al**, which is not in any way a mystery. What is mysterious however, is the distribution of nouns including the **-ox** suffix across noun classes. It seems to be evident that, since the feature "passiveness" is not related to noun class meanings, and the passive suffix is inherited from the reflexive verb form, the number of such nouns in each noun class would be proportional to the frequency of each noun class in Sereer. Thus, provided that the percentage of class **a-... al** is 20% (every fifth noun in Sereer is included in class **a-... al**) one would expect to find 144*0.2 = 29 (expected frequency, *E*) nouns with the final segment -ox. Yet, in practice, there are two times fewer forms than expected; exactly 15 (observed frequency, *O*). The E/O discrepancy is -49%.[21] The number of words in question turns out to be considerably smaller than expected for *all* noun classes except for one single class, **o-... ox**. As the frequency of this class is 8%, we would expect to find it in 12 words with the final segment -ox (144*0.08). Yet, the dictionary provides 63 (!) such words, i.e. the discrepancy is +432% ((144–63)/63). It is due to the exceptionally high correlation between the segments -ox and class **o-... ox** that negative E/O discrepancies are revealed in other classes.

How can we explain the exceptionally high correlation between two phonetically identical elements, i.e. the final combination -ox in lexical stems and the noun class marker **ox-** in the postposed noun class determiner?

On the one hand, the data leave no doubt that the final segment -ox, etymologically, is indeed the reflexive verbal suffix. Here we present a few typical examples that clearly show this outcome (Table 9.50).

[21]For our purposes we can use a simplified and a more transparent formula for which the discrepancy is equal to (O-E)/E.

Table 9.50: Typical -ox-words in **o-** … **-ox** class

PFS	Form (o-… ox)	Meaning	Reflexive V	Meaning V	Root	Meaning
***jamb**	ca-jamb-ox o…ox	déserteur	jamb-ox	déserter		
***Pʊd/r**	pu-fud-ox o…ox	glouton	fud-ox	gourmand		
***gad/ɗ**	ka-gaad-ox o…ox	porteur	gad-ox	se charger		
***ʔad-ox**	a-’ad-ox o…ox	prédécesseur	ad-ox	précéder	ad	déjà
***(b)wɔnd**	bo-wond-ox o…ox	compagnon de lit	wond-ox	se coucher		
***yəp**	yi-yip-aɗ-ox o…ox	verseur	yipaɗ-ox	déverser	yip	verser
	ɓo-ɓog-ox o…ox	baigneur	ɓog-ox	se baigner	ɓog	laver
	ta-dag-ox o…ox	adulateur	dag-ox	courtiser	ndag	courtisan
	ci-jik-ox o…ox	marchand	jik-ox	vendre	jik	acheter
	su-supt-and-ox o…ox	échangeur	suptand-ox	commercer	supit	changer
***mɔj**	mo-mo’-and-ox o…ox	contrefaiseur	mo’and-ox	se contrefaire	mo’	échapper
	bee-wet-and-ox o…ox	raconteur	wetand-ox	raconter	wetand	rappeler
	to-rox-ond-ox o…ox	porteur	roxond-ox	porter	roq	charger
borrowing	sa-sadox o…ox	celui qui fait l’aumône			sadax	mendier

In nearly all examples of this type the nouns of class **o-… ox** are formed from the reflexive verbs by partial reduplication.[22] At the same time, verbs including suffix **-ox** do not show any root reduplication. This derivation mechanism is thus very transparent. Yet, the statistical puzzle remains unresolved. It is not clear why derivatives of verbs with a reflexive suffix are characterized by a drastically elevated frequency exactly in the class whose determiner is identical to the stem-final segments. Besides, the last example clearly shows that the correlation in question can also arise as a result of a simple phonetic process whereby the root vowel becomes similar to the determinative vowel (*sadax* > *sadox*).

This curious anomaly incites us to carry out a systematic analysis of the correlation between suffixes and noun classes in Sereer. We will be particularly interested in cases where the stem-final segment (in particular, the final vowel) systematically coincides with that of the postpositional determiner. We will also be interested in correlations between derivational suffixes with various noun classes, a question which, as far as I know, has never been systematically explored. Moreover, the derivation itself has not been investigated in Sereer, irrespective of its correlation with noun classes.

An important result relative to this issue has been obtained by Merrill, who made the first attempt to compare derivational verb suffixes in Sereer and Fula. Since this question is directly related to the topic of our book, we quote Merrill's etymological comparisons here (Table 9.51).

Table 9.51: Verbal extension correspondences from (Merrill 2018b: 88)

Fula	Fula	Sereer	Sereer
-(i)t	reversive/repetitive/etc.	**-(i)t/d**	reversive
-(i)r	applicative	**-(i)t**	applicative
-(i)n	causative	**-(i)n**	causative
-(i)d	associative/comprehensive	**-(i)r**	reciprocal
-(i)ɗ	denominative	**-(i)ɗ**	subject-affecting

It is clear that this list includes only a small part of Sereer verbal suffixes. The fullest description of derivation verbal suffixes in Sereer is provided in Renaudier's dissertation (2012). Table 9.52 reproduces her summarizing table (Table 9.52).

Nevertheless, it should be noted that even this inventory is far from being exhaustive, and that many noun derivation suffixes are not represented in it.

[22]Recall that the initial consonant in class **o-… ox** has to be that of Grade II.

Table 9.52: . Derivation verbal suffixes in Sereer according to Renaudier

Sans changement de valence[a]		Avec changement de valence	
-aful	expectatif	**-an**	applicatif
ahin	répétition + reproche	**-and**	causatif
-at	répétition	**-dand**	factitif
-afar	inversif, oppositif	**-el**	passif, anticausatif
-afoox	feindre l'action	**-il**	causatif, transitiviseur
-atin	répétition	**-in**	causatif, factitif
-it	quantitatif réduit	**-ir**	réciproque
-it	inversif et oppositif	**-it**	applicatif
-laan	activité externe	**-noor**	causatif, factitif
-iid	rapprochement	**-oor**	réciproque
-ik	éloignement	**-oor**	origine, inst. et acc.
-lu	sans conviction, sans but	**-oox**	réfléchi ou moyen
-lu + reduplication	prétention	**-u**	réfléchi ou moyen

[a] I provide Renaudier's table without English glosses.

Arame Fal's monograph provides six noun derivational suffixes, **-and** 'locatif', **-ir** 'instrumental', **-eel** 'noms abstraits à partir de verbes d'état ou exprimant une qualité', **-oo^{h}d** 'manière, façon', **-tin** 'reste, résidu', and **-ar** / **-adar** 'inversif' (Fal 1980: 115–117).

The problem is the following: As has been mentioned before, Crétois' dictionary contains ~2400 nouns with suffixes. In general, we find more than one hundred suffixes or suffix combinations of this type in the dictionary (not taking into account the homonymy of suffixes). If we take only suffixes that combine with three or more lexical roots, the number is 79. A detailed description requires a separate monograph research, which is absent so far. Here, we limit ourselves to considering suffixes that have a frequency of 10 or higher in at least one class. There are 28 such suffixes. Let us also add in the table data related to *Pluralia tanta*, i.e. suffixes that are included only in plural classes. According to our data, there is no suffix with a frequency 10 or higher in classes **fa-… fan**, **(gi)-…l**, **fo-… ol**, **o-… ong**, **a-… ak** and **fu-… n**. The statistics for the other classes are provided in Table 9.53.

The data presented in the table allow us to formulate the derivational basis for each class in a precise manner. Along with the common suffixes **-and**, **-ir**, **-ax**,

Table 9.53: Most frequent derivatives in noun classes (frequency ≥ 10).

SUFFIX	a-... al	(gi)-... N	o-... ol	o-... ox	Ø-... fan	Ø-... k
-and	28	73	84	19		
-ir	32	69	77	15		15
-ax	60	142		34		
-el			122			
-in	30	55		12		
-an	21	32	17			
-it	17	34	13			
-or		16	23			
-atin		15				16
-oɗ	35		11			
-aɗar		26				
-er	16			10		
-nax	25					
-ox				17		
-ar		15				
-ak		20				
-anak/q/x		20				
-t (<it)	20					
-andor					14	
-ang/ɠol			21			
-il		11				
-tin						13
-lax	15					
-e				10		
-u				10		
-id		10				
-atir		12				
-tax	11					
-eem	10					
Sum of types	13	15	8	8	1	3

-in, **-an**, **-it** that have high frequencies in three or more classes, Sereer has highly frequent suffixes that are found in one noun class only:

- Only class **a-… al** systematically includes nouns with suffixes **-nax**, **-lax**, **-tax -t (<it)**, **-eem**. Examples: *xool* 'être propre' > *qool-**nax** a…al* 'purification'; *xaƴ* 'lancer, envoyer un projectile, pêcher au harpon' > *qaƴ-**lax** a…al* 'chasse, pêche au harpon'; *xeeŋ* 'sentir bon' > *qeeŋ-**tax*** 'odorat'; *fof* 'emballer' > *pof-**t** a…al* 'déballage'; *paal o…ox* 'forgeron; wolof' > *mbaal-**eem*** 'demeure des forgerons; village où habitent des wolof'.

- Only class **(gi)-… N** shows a high frequency of suffixes **-atin**, **-atir**, **-aɗar**, **-ar**, **-ak**, **-anak**, **-il**, **-id**. Examples: *maak* 'être vieux' > *maak-**atin** n* 'vieillesse'; *ɲum* 'contester' > *ɲum-**atir*** 'discuter, contester' > *ɲum-**atir** n* 'discussion'; *muŋ* 'être patient' > *muŋ-**aɗar** n* 'impatience'; *moof* 's'asseoir, se reposer, …, être stable' > *moof-**ar** n* ' instabilité'; *dal* 'gîter, camper, loger, …' > *dal-**ak** n* 'abri, cabane'; *ram* 'être sourd' > *ndam-**anak** n* 'surdité'; *xij* 'être fatigué' > *ncij-**il** n* 'fatique', *and* 'savoir, connaître' > *and-**id** n* 'reconnaissance'.

- Only class **o-… ol** shows high frequency for suffixes **-el** (122 nouns) and **-ang/ɠol**. Examples: *xen* 'être beau' > *ken-**el** o…ol* 'beauté'; *hiŋ* 'éclairer (faire des éclairs)' > *hiŋ-**angol** o…ol* 'éclair'.

- Only class **o-… ox** shows high frequency for suffixes **-ox**, **-u**, **-e**. Examples: *guut* 'manquer, remplacer' > *kuu-guut-**ox** o…ox* 'remplaçant'; *falak* 'être dernier' > *palak-**u** o…ox* 'le dernier'; *juul* 'penis' > *cuujuul-e o…ox* 'circoncis'.

- Only the class for borrowings **Ø-… fan** regularly attests nouns with suffix **-andor**: *ne* 'donner un nom' > *ne-**andor** fan* 'homonyme'.

- Finally, let us consider the plural class **Ø-… k**. It is noteworthy that, in Sereer, nouns that are found only in the plural form show strong preference for particular derivative suffixes. Thus, *Pluralia tanta* in class **Ø-… k**, apart from suffix **-ir**, regularly include nouns with suffixes **-tin**, **-atin**. At the same time, neither of the singular classes shows the presence of these suffixes. Examples include *daax* 'coller, calfater' > *taax-**ir** k* 'gomme élastique'; *ŋoos* 'racler (to scratch)' > *ŋoos-**tin** k* 'les raclures'; *sis-e* 'scier' > *sis-**atin** k* 'la sciure'. This distribution is additional evidence that we are dealing with one suffix **-(a)tin** with the meaning 'the remainders of something'.

Recall that the problem of correlation between noun class and derivational suffixes interests us because it has been noted that class **o-… ox** clearly shows correlations between the determiner consonant x- and the final consonant of the lexical stem -x in the systematic form of the type *sa-sado**x** o…o**x*** 'celui qui fait l'aumône'. At the same time, without investigating the particularities of the derivation in various noun classes, we cannot determine whether this correlation emerges due to morphology (the correlation between suffix and the class) or due to phonetics (the correlation between phonetic segments of the class and of the lexical root). The obtained data provide us with an instrument which will help us to determine the nature of the established correlation for each particular class. The analysis is presented in the following section.

9.2.5 The correlation between noun classes and phonetic segments of lexical stems

We remind the reader of the statistical methodology used to establish the relevant correlation with a concrete example. Crétois' dictionary of Sereer contains 606 nouns with a final -t. How many of them must be found in class **(gi)-… N**, provided that the frequency of this class is 28%? The answer must be 606*0.28 = 170 nouns if one does not assume that there is a positive or negative correlation between the final -t and class **(gi)-… N**. In practice, Crétois' dictionary attests 168 words of this type, i.e. nearly as many as expected. The deviation is minimal and represents (168–170)/170 = − 0.01, i.e. 1%.

A totally different result is obtained when we try to estimate the correlation between the final -l and class **o-… ol**. The frequency of final -l for nouns is 944. The frequency of class o-… ol is 22%. Accordingly, we expect to find 208 of nouns in question in the dictionary, yet we find 303 such nouns. The deviation is (303–208)/208 = +0.46 i.e. +46%! The extent of the deviation is such that it unambiguously shows that there is a correlation between the final -l of noun roots and class **o-… ol**. What can be found behind this correlation? Are these processes phonetic or morphological? The investigation of the derivation that we have carried out allows us to explain the correlation that we have found: as we already know, class **o-… ol** contains 122 derivatives with suffix **-el** ((Fal 1980: 116): «noms abstraits à partir de verbes d'état ou exprimant une qualité»). It is these nouns that define this correlation. Indeed, the dictionary contains 295 nouns with the final -el. In class **o-… ol**, one expects to find not 122, but only 65 of such nouns. The deviation is (122–65)/65 = +88%.

First we consider the distribution across classes in nouns with final vowels (Table 9.54).

Table 9.54: The distribution across classes in nouns with final vowels

-V	(g)a-… al	fo-… ol	(gi)-… l	(gi)-… N	(g)o-… ol	o-… ong	o-… ox	Ø-… fan
-a	−	−	+		−	−	−	+
-i	−	−	+		−	+	−	+
-e	−	−			−	+	+	+
-o	−	−					−	+
-u	−	−	+				+	+
Sum	−	−	+		−			+
O/E	95/284	4/43	141/99	373/397	217/312	47/43	93/113	418/113
(O-E)/E	−67%	−91%	+42%	−6%	−30%	+10%	−18%	+268%

The cells in the table note only the most important deviations (more than 30%). Positive deviations are indicated with a plus, and negative deviations are indicated with a minus. Empty cells indicate that the deviations observed are below the relevant threshold accepted here. The summary of deviations is given in the last row. The first figures in the O/E row stand for the observed sums (O) of examples of nouns with a final vowel in each noun class. The figures after the slash / stand for the expected sums (E). Class **fa-… fan** is excluded from consideration since it does not contain enough words for statistical analysis.

This distribution is ideal for the illustration of the statistical approach used here as well as allowing us to make important observations. We see that with the exception of classes **o-… ong** and **o-… ox**, these distributions are systematic, i.e. they characterize almost all vowels in the same way:

- Two classes (**Ø-… fan** and **(gi)-… l**) show an extremely elevated frequency of combinations with final vowels of lexical stems. In class **Ø-… fan** we would expect to find 113 nouns with a final vowel, whereas the dictionary contains 418 of such nouns. Additionally, every vowel shows the positive deviation of more than 30%. A doubtlessly positive correlation with vowels is shown by class **(gi)-… l**. As for the class **Ø-… fan**, these correlations are clear. We know that this class systematically includes borrowings, and the majority of nouns with the structure CVCV are borrowings, whereas original Atlantic roots mainly have a structure with a final consonant: CVC. This is exactly what the statistics show us. Apparently, borrowings define the correlation in class **(gi)-… l**. In the section dedicated to this class (9.2.1), I did not distinguish borrowings, while I should do so taking statistics into account. Indeed, it is easy to see that this class has dozens of borrowings, including those with a final vowel: *daaba l* ‘sarcloir’, *caga l* ‘prostituée’,

kalera l ‘marmite sp.’, *safe l* ‘livre’, *silaame l* ‘grand coureau’, *lambure l* ‘l’ambre’, *sebri l* ‘éperon’, *oto l* ‘auto’, *saafu l* ‘savon’ etc.

- Three classes **(g)a-… al**, **fo-… ol**, **(g)o-… ol**, i.e. classes with determiners **-ol**/**-al** systematically show negative deviations. We therefore now have a formal argument for stating that these classes do not accept borrowings. Yet, before we have studied the correlations of classes with final consonants, we cannot exclude the variant with the phonetic transformation of the root-final segment before the determiner **-ol**/**-al**.

- The most frequent class **(gi)-… N** is systematically neutral by the criterion in question. This class has as many vowels as we would expect according to their frequencies.

- Two classes (diminutive class **o-… ong** and the human class **o-… ox**) show differently oriented deviations for different vowels. Yet, one should take into account that the frequency of the diminutive class in the dictionary is few and its statistics are less reliable. Class **o-… ox** shows positive correlations with the vowels -e and -u. As we see below (Table 9.55) this class (and this class only) shows an elevated frequency for suffixes **-e** and **-u**, which is responsible for the observed correlation.

Thus, we have explained almost all considerable deviations from the expected frequencies. We now provide the diagnostics of correlations for classes with final consonants (Table 9.55).

At first glance, Table 9.55 is visually complicated, but, in my opinion, this form of presentation is the most informative one. Again, pluses + stand for the most considerable positive deviations and minuses – for the negative ones. Empty cells denote an approximate correspondence to expected values. Zeroes denote low frequencies for which statistics are not reliable. The positive/negative values of the deviations are marked respectively by “+/-”. In cells with fractions, the absolute numbers of words are provided: the first figure denotes the number of observed words, whereas the figure after the slash stands for the expected number of words. Table 9.55 provides all suffixes with high frequencies from Table 9.53 with all final vowels. Gray cells indicate positive deviations that are due to the high frequency of the combination of the class with particular suffixes. Thus, the information in the cell with -x in class **(g)a-… al** should be read in the following way: there is a high positive correlation between final -x and **(g)a-… al**: the dictionary contains 398 words of this type, even though we would expect to find only 180 such words. This correlation is explained by the fact that this class actively

Table 9.55: Correlations for classes with final root-consonants

		(g)a-… al	(gi)-… l	(gi)-… N	(g)o-… ol	o-… ong	o-… ox	Ø-… fan
-p	141		0		− 21/31	0	0	0
-t	606	it, t	− 32/46	it	it			
-c	160					0	0	
-k	426		+ 56/32	ak, anak		0		− 20/36
-q	134					0		0
-b	77	0	0			0	0	0
-d	250			id		0	0	− 9/21
-j	106		0			0	0	0
-g	188					0	+ 31/16	− 4/16
-f	184					0	0	0
-r	1322	ir, er	− 69/100	ir, or, atir	ir, or, aɗar, ar	− 22/43	ir, er	andor
-s	425					0		+ 53/36
-h	18	0	0	0	0	0	0	0
-x	865	+ 398/180 ax, nax, lax, tax	− 33/65	ax	− 73/191	− 15/28	+ 105/73 ax, ox	− 20/73
-ɓ	212		+ 26/16			0		− 0/18
-ɗ	241	+ 83/50 oɗ			oɗ	0		− 1/20
-ƴ	163		0			0	0	− 1/14
-mb	150		0			0	0	− 2/13
-nd	493	and	− 15/37	and	+ 206/109 and	0	and	− 5/41
-nj	48	0	0	0		0	0	0
-ng	229		+ 26/17			0	− 10/19	
-nɠ	38	0	0	0	0	0	0	0
-m	429	+ 117/89 eem						− 22/36
-n	991	in, an		in, an, atin	an		in	− 34/83
-ɲ	300							
-ŋ	81		0	+ 30/23	0	0	0	0
-w	136		0			0		
-l	944			il	+ 303/209 el, angol	0		− 49/79
-y	268					0		+ 32/23
-ʔ	17	0	0	0	0	0	0	0

combines with suffixes that have final -x, such as **-ax**, **-nax**, **-lax**, **-tax**. The cell -x in class **(gi)-… l** indicates that this class contains considerably fewer words with final -x than expected. At the same time, suffixes with final -x in the class are not frequent. The cell -x in class **(gi)-… N** indicates that this class actively combines with the suffix **-ax**, yet no considerable deviations are observed. As follows, we summarize the information obtained for each class.

In the case of class **(g)a-… al**, all deviations are clear and can be explained by the correlation with the indicated highly frequent classes.

The opposite situation is observed for class **(gi)-… l**. This class does not actively correlate with any of the suffixes, nevertheless, it shows a considerable number of deviations, positive as well as negative ones. If positive deviations for -ɓ and -ng are not totally convincing when presented in absolute numbers, the correlation of the class with the final -k does not raise any doubts, even though it remains unclear. It is compensated by the negative deviation for -x, yet we have no reason to reconstruct the transition ***-x** > -k before the l-. Highly interesting are the extreme negative correlations in class **(gi)-… l** with final dentals -r and -nd. In this case, a hypothesis of the limitation of the combination between two different liquid consonants r-l seems very plausible, as well as a hypothesis of the restriction on the complex dental cluster nd-l.

Class **(gi)-… N** shows almost no considerable deviations. Even the multiple suffixes with which this most numerous class actively combines, it retains the deviation within the threshold limit of significance accepted here.

The extremely high correlation between class **(g)o-… ol** and final consonants -nd and -l is explained by the abundant presence of derivatives with suffixes (respectively) **-and**, **-el** and **–angol** in this class. The clear restriction of combinations of this noun class with final -x is a mystery: only 73 nouns of such a type are found as opposed to the expected 191. Yet, the restrictions on the combination with -x are also found in classes **o-… ong** and **Ø-… fan**. This allows us to imagine that the indicated negative deviations in the three classes compensate for the positive correlations and evolved due to a high positive correlation between -x and classes **(g)a-… al** and **o-… ox**.

Apart from the positive correlation with -x, we observe the presence of a high correlation with -g in class **o-… ox** which cannot be explained by its combination with suffixes.

Finally, we shall consider correlations in class **Ø-… fan**. The majority of final vowels of this class show negative correlations. This is understandable; negative correlations with consonants appear as compensation against the background of high positive correlations with vowels. Yet, this does not prevent certain con-

sonants to show positive correlations (consonants -s, -y). Possibly, these final consonants are particularly frequent in borrowings that actively fill this class.[23]

To sum up we can state the following: Such a detailed analysis of the correlations observed above had as its main goal to confirm or disprove the hypothesis that has appeared as a result of the discovering of the positive correlation between the final segment -ox and the class for humans **o-… ox**. It could be tempting to see a trace of a determiner in this final segment, incorporated in the root stem, and therefore to postulate a suffixation mechanism of the noun class marker in Sereer analogous to the possible emergence of suffixes in Fula. We are obliged to admit that this hypothesis is not confirmed. Nevertheless, I decided to present the results of the analysis that was carried out, since these results may be of certain interest for the research on noun derivation in Sereer.

9.3 Problems of PFS class reconstruction

Attempts to reconstruct PFS classes have been undertaken, in particular, by Doneux 1975; 1991; Pozdniakov 1988; 1993 and Merrill (2018b). Doneux's reconstruction (1975) tries to explain structural divergences among Sereer class markers (determiner structure C- and VC-) as well as among Fula class markers in nouns (-CV and -CVC). In order to explain these proportional structural differences, Doneux formulates a hypothesis of augments that are reminiscent, according to him, of those in Bantu (this hypothesis will be considered later). In (Pozdniakov 1988; 1993) Doneux's hypothesis was developed and applied to the majority of noun classes. A rather complex system of phonetic transformations in the two indicated subsystems (with augments and without augments) was postulated. In the most recent of the published reconstructions (Merrill 2018b), the author rejects the idea of augments and, more generally, he rejects the common viewpoint that PFS had consonant mutations. Therefore, the author declares an attempt of a total reconsideration of the preceding reconstructions. As I will show, this attempt can hardly be acknowledged as successful, and not only because of the reconstructions themselves. Finally, it is not very important that Merrill reconstructs, for example, class ***ɣun** (with a final nasal) while the preceding publications reconstruct ***gu** III (Doneux 1975). Much more important are the correspondences between Fula and Sereer classes, and the analysis shows that Merrill either repeats the already established noun class cognates proposed in preceding works (usually without making the effort of citing the sources), proposes rather doubtful etymologies of class markers, or simply does not consider the cognates pro-

[23] Indeed, among 53 nouns with a final -s in this class, at least 38 are evidently borrowings.

posed earlier, interpreting theses classes as innovations. We will come back to this question at the end of the present chapter.

I suppose that all specialists will agree that any reconstruction claiming to be convincing has to be able to explain systematic differences in the structure of class markers in Fula and Sereer. Here we formulate such structural differences which seem to be the most important:

- It is a commonly known difference that, in Fula, one should take into account obligatory class suffixes in nouns and mutation grades of these suffixes, whereas in Sereer we should take into account class prefixes in nouns as well as determiners (specifically consonants in determiners because their final vowels are replaced by distal vowels).

- We have to take mutation grades associated with classes into account. Contrary to Merrill and following other specialists, I assume that in PFS, as in the two contemporary languages, every class was associated with one of the three mutation grades. Since we assume that the mutation grade system evolved at the stage of Proto-North Atlantic, all discussion concerning phonotactic contexts that have conditioned the appearance of morphophonological mutations are irrelevant for PFS and they will not be discussed in the present book.

- We should take into account the evident parallelism between class marker structures, irrespective of whether, following Doneux, we introduce into the reconstruction the vocalic augment system or not: 1) Sereer (PREFIX-)… C- ~ Fula …-CV; 2) Sereer (PREFIX-)… VC- ~ Fula …-(C)VC.

- We have to consider that Fula has formed a specific system of size classes, and these classes are structured into a special subsystem by formal markers: 1) voiceless velars, 2) CVC structure, 3) final **-l**, 4) mutation Grade II.

- In Sereer, the number of consonants found in determiners is very limited, precisely it is limited to seven consonants: f, n, l, ng, x (SG) ~ w, n, k, x (PL). The number of consonants found in class markers is considerably larger in Fula: SG: mb/b/w (**mba**), m (**ɗam**, **ɗum**, **ngum**), nd/d/r (**nde**, **ndu**, **ndi**), l (**ngal**, **ngol**, **kol**, **ngil**, **ngel**, **kel**, **kal**), n (**kun**), ɗ/j (**ɗo**, **ɗam**, **ɗum**), ng/g/w~y (**nga**, **ngo**, **nge**, **ngu**, **ngal**, **ngol**, **ngil**, **ngel**, **ngum**), k/h (**ko**, **ki**, **ka**, **kol**, **kel**, **kal**, **kun**) ~ PL: ɓ (**ɓe**), ɗ/j~l (**ɗi**, **ɗe**), k/h (**koy~kon**, **ko**), n~y (**koy~kon**). Even though the number of consonants found in class markers

is considerably fewer in Sereer, there is one consonant which is absent in Fula, namely f.[24]

- Sereer prefixes on nouns contain an even more limited number of consonants. There are only two of them, moreover, one of them is possibly an instance of epenthesis: f- (fo-… ol, fa-… fan) and g- in some dialects but absent in others.
- With the exception of class **fa-… fan**, the determiner consonant is always distinguished from the prefix consonant (if it is present) in Sereer, which is not typical for languages with noun classes.
- In Sereer, the determiner vowel (if there is a vowel) and the prefix vowel are always identical.
- Finally, apparently, the main systematic factor for the reconstruction proposed here concerning Sereer classes is the following: Unlike Fula, Sereer shows a correlation between consonant quality in the determiner and mutation grade (this factor has been formulated in Pozdniakov 2015 yet was not taken into account by Merrill 2018b):
- For nasal n – Grade III (**(gi-)… n** III, ***fa-N… fan** III, **o-… ong** III, **fu-… n** III),
- For the velars k ~ x – Grade II (**o-… ox** II, **Ø-… k** II, **a-… ak** II, **a-… ax** II),
- For sonorants l and w – Grade I (**(gi-)… l** I, **(g)o-… ol** I, **fo-… ol** I, **Ø-… w** I). [25]

The only exception from this rigid system, **(g)a-… al** II, is explained, as has been shown above by the "conflict of interest" in the grades of the class that contains most deverbal nouns. Yet, one more exception is found in class **Ø-… fan** I, II, but, as is well-known, this class includes a large number of borrowings that preserve the consonants of their donor language. This correlation between consonant quality in class marker and mutation grade is absent in Fula (cf. **ɗum** II ~ **ɗam** III, **nde** I ~ **ndi** III, **nge** I ~ **ngu** III, **ko** I ~ **ko** III). Additionally, this correlation cannot be found in Fula because class marker consonants in the language are involved themselves in mutations.

[24] The absence of x in Fula is expected considering the loss of postvelar consonants (***x** > Fula h) in this language.

[25] Interestingly, Merrill who does not take into account this rule, uses iconic indications of mutation grades traditionally indicated by Roman figures; in his dissertation, "N" stands for Grade III, the symbol "x" for Grade II, and "Ø" stands for Grade I.

The comparison of the enumerated structural properties yields a number of consequences that are important for the reconstruction. The main consequence is that in both Sereer and Fula, classes have undergone radical systematic analogical changes[26] which have led to the formation of two innovated systems that are difficult to interpret etymologically.

We begin our analysis with the last point of our long list above. The submorphemic grammaticalization of phonological distinctive features in Sereer determiners changed the consonants of these class markers in a radical way. Thus, if we consider that PFS had the same classes as that of Grade III in Fula today, namely, ***ngu** III, ***ndi** III, ***ndu** III, ***ki** III, ***mba ~ nga** III, ***ka** III (SG), ***ko** III and ***koy ~ kon** III (PL), then the determiners of all of these classes - without exception - should have been transformed to **n**- in Sereer. Some etymological parallels between these Fula classes and the class **(gi-)… n** III in Sereer have been proposed in (Pozdniakov 1993) and (Doneux 1975) based on an analysis of lexical correspondences. They are also accepted for the first four mentioned classes in (Merrill 2018b).[27]

If we accept the change of ***C III** > n̲ III in Sereer determiners, there are no formal reasons that would prevent the correspondence between Sereer **(gi-)… n** III and Fula **ka** III. Here we examine possible parallels:

guɗ/jj 'steal (vb); thief': Sereer *nguuɗ n / kuuɗ k* 'vol [le larcin], brigandage' ~ Fula *nguyka* 'vol; larcin';

cɛq 'necklace': Sereer *ceq n / ceq k* ~ Fula *cakka / cakkaaji*;

hoor 'fast (svb); abstinence': Sereer *koor (gi)...n / koor k* ~ Fula *koorka / koorkaaji*;

jamb 'speak against (vb)': Sereer *njamb n / camb k* 'accusation; imputation' ~ Fula *jamba* 'traîtrise, duperie, perfidie, tromperie' etc.

Yet, as will be shown below, another Sereer correspondence for Fula class **ka** could also be proposed.

Theoretically, there are no obstacles to the correspondence Sereer **(gi-)… n** III ~ Fula **mba ~ nga** III 'Guib' as shown by examples such as Sereer *njaf n* ~ Fula *njaw-a ciiw-a*, etc. Note that, again, this is not the only possible correspondence.

Note that the principle concerning the organization of the determiner system in Sereer allows us to relate the Sereer plural diminutive class **fu-… n** III and the Fula plural diminutive class **koy ~ kon** III.

[26] In Sereer – consonants in determiners, in Fula – a special system of size classes markers.

[27] The correspondences Fula **ngu**, **ndi** ~ Sereer **n** Merrill defines as "clear cases", whereas, for some unclear reason, he puts the correspondences Fula **ndu**, **ki** ~ Sereer **n** in the category of "Class reassignment", even though all these correspondences were formed, apparently, in the course of one particular process of nasal marking in Grade III in Sereer.

Nevertheless, recall that Sereer class **(gi-)… n** III is the most frequent in the class system. Perhaps it can be explained by the fusion of all proto-language classes of Grade III in this Sereer class.

Now, we turn to another consequence of the same structural principle. This principle allows us to suggest that in the proto-language, consonants of Grade I classes became sonorants in the Sereer determiner system. This makes the irregular change ***ɓ** I > Sereer w I in the human plural class clear, and therefore, the correspondence Sereer **Ø-… w** I ~ Fula **ɓe** I is quite logical. Also, other consonant correspondences in classes with Grade I are expected; Sereer **(gi-)… l** I ~ Fula **nde** I, Sereer **(g)o-… ol** I ~ Fula **ndu** I. Recall that, with respect to Fula class **ndu**, the fauna lexicon is included in class **ndu** III, and this class, as we have shown, can be related to Sereer class **Ø-… n** III. Yet, the majority of nouns belonging to Fula class **ndu** with the prototypical meaning '(cylindrical) long objects' show grade **ndu** I, and there are multiple lexical correspondences with Sereer class **(g)o-… ol** I. It is possible that PFS has two distinct classes that differ only by mutation grade:***du** I and ***du** III. Possibly, they slightly differed phonetically, but considering the transformation we have reconstructed, we cannot make any definite conclusions at this stage. We should note that Fula class **ndu** I is not the only candidate for the correspondence with Sereer class **(g)o-… ol** I. In the light of the described process, the correspondence Sereer **(g)o-… ol** I ~ Fula **ngo** I looks quite justifiable. The correspondence Sereer **(g)o-… ol** I ~ Fula **ngol** II is very nicely confirmed semantically (the prototypical meaning 'long thin object' in both languages), but in this case we have to assume the change of the grade: ***I** > II for Fula.

Finally, we note an even more interesting correspondence for Grade I. PFS root ***naak*** 'cow' is reflected in the modern language by the forms Sereer *naak (gi)... l ~ (gi)... n / naak k* ~ Fula *nagge / na'i.* Based on this evidence, Merrill relates the "cow class" in Fula **nge** I with the Sereer class **(gi-)… l** I.[28] This correspondence is indeed possible in the light of the principle of the transformation of determiners in Sereer. This correspondence can be confirmed by an additional example: PFS ***bi*** 'génisse': Sereer *fi' (gi) l / pi' a…ak* ' ~ Fula *wii-ge.*

We now look at the classes of Grade II. Following the main logic of analogical changes in Sereer determiners, markers of Grade II should include a voiceless

[28]He tries to explain this irregular correspondence as follows, "The lack of mutation in Fula suggests a vowel-final class marker ***ɣe-**. Once this marker eroded in Sereer, the few nouns in the ***ɣe** class would have been indistinguishable in the singular from nouns in the far more common **le** class, from which the determiner was extended (presumably replacing earlier ***ge**)" (Merrill 2018b: 112)

stop, which is found in the plural classes **Ø-… k** II and **a-… ak** II. Yet, the indicated principle is violated by an alternative plural class **(x)a-…ax** II, where we see a fricative consonant. Is this not the reason of the unclear status of class **(x)a-…ax** II in contemporary Sereer? As we indicated earlier, it remains unclear whether **(x)a-… ax** is a dialectal variant of **a-… ak** or if it is a different plural class that rarely occurs. Considering the model of transformation of determiners in Sereer it is logical to suggest that it is the violation of the structural principle that has motivated class **(x)a-… ax** (possibly found more frequently in the past) to the periphery of the system. One can also suggest that it is following the main principle that the determiners of this class have changed the fricative into a stop and therefore have transformed into class **a-… ak** II.

The problem with the determiner in Sereer arrives when we analyze the reliable correspondence **(g)a-… al** II ~ Fula **ngal** II. This correspondence, confirmed by numerous examples, shows the determiner of Grade I (**al** instead of the expected **ak**) in Sereer. Therefore we put a question mark next of this correspondence.

Here, we summarize that which has been stated above. The main regularity with respect to Sereer determiners allows us to affirm at least twelve class correspondences, most of which are confirmed by reliable examples. We provide them by adding to the table two correspondences for which the formulated rule is not observed (Table 9.56).

For all these correspondences, we are limited by considering only Fula data. We will come back to some of the correspondences provided in the table. For the time being, simply note the following: we have explained property 8 from our list above, but the proposed hypothesis also explains properties 5 and 6. It becomes clear, first, why Sereer has such a limited number of consonants in class markers, whereas Fula has many. Second, it becomes clear why, in Sereer, the prefix consonant (if there is one) and the determiner consonant are always distinct, which is completely atypical for languages with noun classes.

9.3.1 Size classes

I have discussed the processes of analogical assimilation of size class markers in Fula in a number of publications (most recently Pozdniakov 2015). The main conclusion that issues from property 5 formulated above is that, if we accept the development of the innovated subsystem of size classes in Fula to be a result of numerous analogical changes, this liberates us from the necessity to search for direct correspondences between size classes in Sereer and Fula. Thus, we will

Table 9.56: Class correspondences (a portion)

	Sereer	Fula
SG	(gi-)... l I	nde I
SG	(gi-)... l I	nge I
SG	(go-)... ol I	ndu I
SG	(go-)... ol I	ngo I
SG	(go-)... ol I	ngol II (?)
PL	Ø-... w I	ɓe I
SG	(g)a-... al II (?)	ngal II
SG	(gi-)... n III	ka III
SG	(gi-)... n III	ki IIII
SG	(gi-)... n III	ngu III
SG	(gi-)... n III	ndi III
SG	(gi-)... n III	ndu III
SG	(gi-)... n III	mba ~ nga III
PL	fu-... n III	koy ~ kon III

formulate some possible mechanisms of analogical changes in size classes for Fula.

Starting from the minimal grade -VC, the class suffix can be augmented by a consonant of the voiceless series (-Vl / -hVl / -kVl), as well as by a consonant of the voiced series (-Vl / -wVl / -gVl / -ngVl). From the grade -CVC the class suffix can be automatically transformed to arrive at grade -VC (-ngVl / -gVl / -wVl / -Vl; -kVl / -hVl / -Vl). These processes are inscribed in the mutation system of class markers and facilitate analogical changes in the subsystem of size classes. For example, class **ngel** with the meaning 'small object' can easily develop, through the minimal grade, into the new class **kel** with the meaning 'very small object' (*-**gel** / -**el** > -el / -hel / -kel). The process of analogical formation of a new class can occur in the opposite direction as well (*-**kel** / -**hel** / -**el** > -el / -wel / -gel / -ngel).

In turn, class **ngel** II can theoretically transform, for example, into class **ndi** III. Whereas in the preceding paragraph we distinguished cases in which the final -l in the determiner of class **(g)o-... ol** I appears by analogy with other classes of Grade I, here we are interested in cases where the final -l in determiners appears by analogy with other size classes. Hence the acceptability of transformations of the type *-**ndi** III > li III > e-li III > el III > wel III > gel II. In the same way, one can

suggest the emergence of class **kel** II: ***ndi** III > li III > e-li III > el III > hel III > kel II. In both scenarios, the last stage of transformation represents the adjustment of size classes by mutation grade (II).

In terms of reconstruction of size classes in PFS, such vast and vague (but theoretically acceptable) possibilities of the interpretation of the innovative subsystem of size classes in Fula incites us to formulate the question differently: what size classes in Fula are the best candidates for the direct correspondence with the few size classes in Sereer?

The most plausible scenario of the evolution of PFS reflexes and Fula innovations is presented in Table 9.57.

Table 9.57: Correspondences of size classes

		Fula			Sereer		
< PFS	SG	very small	**ngum / ngun**	II	diminutive	**o-… ong**	III
< PFS	PL	diminutive	**koy ~ kon**	III	diminutive	**fu-… n**	III
innovation	SG				augmentative	**(g)a-… al**	III
innovation	SG	small	**ngel**	II			
innovation	SG	small	**ngil ~ ngii**	II			
innovation	SG	partitive	**kal**	II			
innovation	SG	‘calf’	**kol**	II			
innovation	SG	extremely small	**kel**	II			
innovation	SG	small	**kun**	II			
innovation	PL	augmentative	**ko**	III			

Here we comment on the proposed correspondences. For Sereer **o-… ong** III the following scenario of development is proposed: ***ngu** III > o-… o-ngu III > o-… ong III. In Fula ***ngu** III > u-ngu III > un / um III > gun / gum III > gun / gum II (Grade II by the analogy with other diminutive classes). Yet, one can propose a simpler development for Fula: ***ngu** III > ngu-N III, where N is the diminutive derivational marker. The proposed correspondence of diminutive plural class markers will be considered in the following section.

9.3.2 Correspondences of Sereer classes with f- in Fula

In our list of specific structural properties of noun classes (property 5), we noted that some Sereer markers contain the consonant f- which is absent in the vast list of consonants in Fula markers. Thus we pose the question, what could the correspondence for f- be in Fula? In Chapter 6 we considered in detail the possibility of reconstructing the labialized consonant series in PFS. Recall the reflexes of labialized FPS in Sereer and Fula (Table 9.58).

Table 9.58: Reflexes of labialized consonants

*PFS	PFS alternants	Sereer	Fula
***KW**	*hw / kw	f / p / mb	h / k
***GW**	*(g)w / gw /ngw	w / b / mb	w,y,ʔ~g / g / ng
***BW**	*(b)w	w	w,y,ʔ~b / b / mb

In two out of three of such series, velar Fula consonants regularly correspond to labial ones in Sereer. We remind the reader that we have found this correspondence in 40 lexical stems. In the section concerning the PFS labialized consonants, we repeated the hypothesis (Pozdniakov 1993), of the correspondence in the noun class systems: Sereer **fo-… ol** I ~ Fula **ko** I with the reconstruction of class ***kwo I** in PFS (PL collective class). In Sereer this class has transformed into a class for liquids and mass nouns, and in Fula it transformed into a class for words for foliage, grasses, and hair. It is important to note that in Sereer the class determiner systematically includes the consonant l-, as with determiners of other classes with Grade I.

This may not be the only *PFS class with a velar labialized consonant as part of the marker. At least, the correspondences of plural diminutive classes Sereer **fu-… n** III ~ Fula **kon ~ koy** III should be recognized as phonetically irreproachable as these can be traced back to ***kwu-N III**. Note that the class determiner in Sereer regularly includes the consonant n-, as with determiners of other classes of Grade III.

We can also possibly reconstruct a third *PFS class with a labialized velar segment: PFS ***kwa**. Earlier, I argued for the correspondence Sereer **(gi-)… n** III ~ Fula **ka** III (PFS ***ka**). Yet, Fula **ka** can also go back to ***kwa**, and in this case we have a promising new correspondence: PFS ***kwa**: Sereer **Ø-… fa-N** I,II ~ Fula **ka** III (II,I). It is preferable because, in both languages, these classes systematically include borrowings and are therefore similar. An important semantic difference is that Fula class **ka** does not include kinship terms. Problems also arise with the reconstruction of mutation grades. Yet, if we define class ***kwa** as the class for borrowings, we can assume that borrowings preserve the consonant of the donor language without modifying them and therefore the class is found beyond the mutation system.

Another etymology should be possibly proposed for Sereer **fa-… fan** III. According to the correspondence system advanced above, Sereer f- can also originate from the voiced series *mb / b / w with a further transition into the voiceless

series. In §9.2 I present 20 lexical correspondences of this type, for example: ***bel*** ‘être bon’: Sereer *ɟel* ~ Fula *wel-*; ***bay?*** ‘soumettre’: Sereer *ɟaɗ-ox* ~ Fula *bay?-*; ***Baam*** ‘âne’: Sereer *ɟaam o…ol* ~ Fula *mbab-ba / bam-ɗi(iji)*. This correspondence allows us to relate classes Sereer **fa-… fan** III ~ Fula **mba** III and to define its origin as PFS ***ba III** ~ ***wa III** – the class for names of (large) animals.[29]

9.3.3 Fula classes with ɗ- and their possible correspondences in Sereer

It remains for us to consider the human singular class (Fula **ɗo ~ ko**), plural classes that are neutral by animacy and size (Fula **ɗe**, **ɗi**) and classes outside of SG/PL correlations (Fula **ɗam**, **ɗum**). All these class markers include glottalized ɗ in Fula which does not appear in the most reliable correspondences in Sereer, even though the correspondence Sereer ɗ ~ Fula ɗ is confirmed in the lexicon in multiple examples.

Apparently, the fact is that Sereer has no direct correspondences for Fula classes **ɗam**, **ɗum**. No detailed discussion regarding class **ɗam** III (liquids and masses) has been raised in the existing literature. It is considered, for good reason, that it originates from NC class ***ma** that has been lost in Sereer, where the meaning of ‘liquids and masses’ has developed within the collective class **fo-… ol** I, originating, according to our hypothesis, from PFS ***kwo**. As for ***ma** > **ɗam**, the scenario driving this change is not clear. It may be useful to take into account that in the most of Niger-Congo (including Atlantic) languages, liquid and mass noun classes that are outside of the SG/PL correlation have properties of plural classes (for example, cl. 6N Proto-Bantu). In this case, **ɗam** can ascend from ***ɗ-a-ma**, where ɗ- is the marker of neutral plural class and -a- is the augment. Yet, it seems more probable that the full marker series **-ɗam / -jam / -am** has been built from the minimal grade ***-am** via a non-standard way,[30] by analogy with other plural markers including ɗ (**ɗe**, **ɗi**).

One can propose analogous scenarios for the hypothetical transformation ***mu** > Fula **ɗum**, that are outside of the SG/PL correlation and that do not find any transparent correspondences in Sereer either.[31] Yet, another hypothesis seems to be more plausible. One can assume that Fula class **ɗum**, denoting “something with the property X” can be etymologically related to **-um**, an interrogative determiner with the meaning ‘which’ that we find in combination with class markers:

[29] This correspondence has already been proposed in (Doneux 1975: 82–92) and is supported by Merrill.

[30] Provided that a standard way of paradigm completion takes place, we would expect to find the regular series -ngam / -gam / -wam / -am or -kam / -ham / -am.

[31] See (Pozdniakov 2013) for a discussion of the presumed existence of two nasal plural classes in Proto-Atlantic and, more broadly, in Proto-Niger-Congo.

o-ɓox ol-um ‘quel chien?’, *xa-ɓox ax-um* ‘quels chiens?’, *o-kiin ox-um* ‘quelle personne?’ etc.

The allomorphs **ɗo** / **jo** that are non-standard from the perspective of the mutation system are also found in the human singular class in Fula. How probable is its correspondence to the Sereer class **o-… -ox** II? First, note that the fricative appears rather than the expected stop in the Sereer determiner. Second, we should note that there are several forms of the Fula class in question that show the allomorph **ko** instead of **ɗo**: *gor-ko* II / *wor-ɓe* I ‘man’. Considering the data from external comparisons (within the Atlantic context), we can try to reconstruct the human singular class ***ko** II for PFS. In this case, the Fula allomorph **ko** is regular. The formation of the main class allomorphs remains unclear.

Finally, we turn to the neutral plural classes: Sereer **Ø-… k** II, **a-… ak** II ~ Fula **ɗi** II, **ɗe** II. The correspondence Sereer k ~ Fula ɗ is not found in the lexicon. Yet, in the light of the determiner formation rule in modern Sereer for which we have argued, it is not necessary to look for this correspondence: according to our hypothesis, the determiner consonant has to change into k in classes of Grade II. As for the original consonant, it could also be, for example, *ɗ. In this perspective, the change ***ɗ** II > Sereer k II is totally legitimate. At the same time, we have no valid reasons to propose concrete correspondences, for example, Fula **ɗi** ~ Sereer **Ø-… k**, Fula **ɗe** ~ Sereer **a-… ak** II. In each language we have two neutral plural classes, and the difference between their consonants does not prevent an etymological relationship.

Here, I will dwell for a moment on Merrill’s hypothesis concerning the possible etymology for the **ɗi** marker in Fula. Merrill reconstructs a grammaticalization of **ɗi** (***ɗik** in Merrill’s reconstruction) from the numeral **ɗik* ‘two’ (Merrill 2018b: 109–110). I cannot accept this hypothesis, specifically for the following reasons:

- Fula–Sereer ****ɗi(k)*** ‘two’ originates from Proto-Atlantic **ɗi(k)* and further back from Proto-Niger-Congo ****ba-di*** (Pozdniakov 2018). The root is reflected in hundreds of Niger-Congo languages and none of them, as far as I know, shows the same forms for the numeral ‘two’ and the plural marker. Neither is there such a correspondence for other roots for the numeral ‘two’.

- Class ***ɗi** is highly frequent. As has been shown, about one third of Fula nouns are paired with class **ɗi**. It seems unlikely that 30% of the vocabulary would precipitate towards an “innovative” plural class leaving behind the inherited class **ɗe**.

- The difference in the semantics of classes **ɗe** and **ɗi**, even though it does not always show consistently, does exist: class **ɗe** is more often used as a collective plural (in particular, it is the basis for the formation of singulatives and correlates with the assumed reflex of class 5: PFS SG ***de** 'fruits, paired body parts etc.), whereas class **ɗi** is a neutral plural class. Even if we accept Merrill's hypothesis which has no typological backing, we would expect an opposite distribution whereby the "pair feature" (the numeral 'two') would denote the collective plural.

- Plural classes in Fula, Sereer, and other Atlantic languages show a tendency towards formal analogical alignment of plural class markers. Thus, labial consonants in plural markers are a formal mark of plural classes in Tenda languages. Glottalized consonants, in particular ɗ, play this role in Fula. It is much easier to imagine that such changes occurred by analogy rather than to assume an arbitrary appearance of an identical consonant in an innovative class marker that has evolved as a result of grammaticalization.

- Finally, Merrill reconstructs ***ɗik** not only for Proto-Fula but for PFS defining the correspondences with Sereer **Ø-… k** as "cognates" (Merrill 2018b: 122). Considering other words, it remains unclear as to the implications: did the plural Sereer class evolve from Proto-Fula 'two'?

We reconstruct two neutral plural classes: ***ɗe** (collective plural) and ***ɗi** (neutral plural) for PFS.

9.3.4 PFS class reconstruction

It makes sense to discuss the proposed reconstructions separately for three types of structure correspondences. We begin with the clearest structural correspondence.

9.3.4.1 Sereer C- (determiner) ~ Fula -CV (suffix)

Apparently, all specialists agree that class markers as part of Fula nouns have to be compared to Sereer class determiners, rather than to its prefixes. At the same time, there seems to exist a consensus in that PFS had prepositional class markers. If we consider that prepositional markers were prefixes we have to ascertain their total disappearance in Fula and a partial destruction of the prefixal paradigm in Sereer. If we consider that they were clitics, in this case we have the

possibility to find reflexes in certain paradigms of prepositional Fula determiners (for example, Fula *nden hoo-re* 'that head', class **nde**) and to explain variations of the type *gi-xoox l-e* ~ *Ø-xoox l-e* 'the head' attested in Sereer. Table 9.59 presents the correspondences (with references to their sources) and the assumed reconstructions.

In column 9 the symbol "+" denotes correspondences that are assumed in (Pozdniakov 1993). We now add Sereer **(gi-)… n** III ~ Fula **ka** III to these correspondences (based on arguments which have been presented above). Column 10 shows Merrill's reconstructions (Merrill 2018b) for these correspondences. As we can see, he accepts almost all provided reconstructions with the exception of four of them. The correspondences Sereer **(gi-)… n** III ~ Fula **ki** III, for which arguments have been given above, are present in (Merrill 2018b), but absent in (Pozdniakov 1993).

Columns 6 and 7 represent the proposed reconstructions of PFS class markers. It is assumed that, already at the stage of PFS, this structure did not have prefixes, with the exception of the plural diminutive class with the nasal diminutive marker. This reconstruction assumes that all PFS determiners that were suffixed to nouns preserved PFS consonants and vowels in Fula. In Sereer, on the other hand, determiner consonants have been radically changed following the scenario described above. Therefore, Sereer determiners have not preserved a single element that would be a PFS phonetic reflex, and which could serve as basis for reconstruction. The unified variant **gi-** found in Sereer is optional and can almost always be replaced by a zero prefix, whereas the prefix is obligatory in other class structures. From this we draw the conclusion that this prefix is a dialectal innovation.

9.3.4.2 Sereer VC- (determiner) ~ Fula -(C)VC (suffix)

In at least two classes we can find direct correspondences of a different structure. Contrary to the first structure, here, a Sereer prefix is obligatory even though it has the following (dialectal?) variants: go- ~ o-, ga- ~ a-. Another difference present in Sereer is that the determiner has an initial vowel. And in Fula, again, contrary to the first structure, these classes have a final consonant.

Here, it is appropriate to return to Doneux's (1975) hypothesis concerning the existence of vocalic augments in a number of PFS classes. Doneux's idea can be illustrated by his interpretation of class ***lu**. According to Doneux, two class marker forms have to be reconstructed for PFS (at least in determiners):

Table 9.59: Sereer *C- ~ Fula -CV: reconstruction*

1 SG/PL	2 Sereer	3 Fula	4 Sereer DET.	5 Fula	6 PFS PREFIX	7 PFS DET.	8 *grade	9 Pozdniakov (1993)	10 Merrill (2018b)
SG	**(gi-)... l I**	**nde I**	C	CV	***Ø-**	***de**	I	+	***re**
SG	**(gi-)... l I**	**ndu I**	C	CV	***Ø-**	***du**	I	+	*absent*
SG	**(gi-)... l I**	**nge I**	C	CV	***Ø-**	***ge**	I	+	***ɣe?**
SG	**(gi-)... n III**	**ki III**	C	CV	***Ø-**	***kwi**	III	–	***hiX**
SG	**(gi-)... n III**	**ndi III**	C	CV	***Ø-**	***di**	III	+	***rin**
SG	**(gi-)... n III**	**ndu III**	C	CV	***Ø-**	***du**	III	+	***(ru)**
SG	**(gi-)... n III**	**ngu III**	C	CV	***Ø-**	***gu**	III	+	***ɣun**
SG	**(gi-)... n III**	**ka III**	C	CV	***Ø-**	***ka**	III	–	*absent*
SG	**(gi-)... n III**	**mba~nga III**	C	CV	***Ø-**	***wa**	III	+	*absent*
PL	**Ø-... w I**	**ɓe I**	C	CV	***Ø-**	***ɓe**	I	+	***ɓe**
PL	**Ø-... k II**	**ɗi II**	C	CV	***Ø-**	***ɗi**	II	+	***ɗik**
PL	**fu-... n III**	**koy ~ kon III**	C	CV-C	***kwo-**	***kwo-N**[a]	*III	+	*absent*

[a] **N** in ***kwo-N** is an additional derivational marker with a diminutive meaning.

Table 9.60: Sereer VC- ~ Fula -(C)VC: reconstruction

SG/ PL	Sereer	Fula	Sereer DET	Fula	PFS PREF	PFS DET	grade	Pozdniakov 1993	Merrill 2018b
SG	**(g)o-... ol I**	**ngol II** (?)	CVC	CVC	***o-**	***o-lu**	*I?	+	ɣol
SG	**(g)a-... al II**	**ngal II**	CVC	CVC	***a-**	***a-la**	*II	+	ɣal

1. non-derived markers of CV structure (according to Doneux it is class ***lu** that we have considered in structure 1 as part of the correspondence Sereer **(gi-)... n** III ~ Fula **ndu** III),

2. derived markers (with an augment) with the structure V-CV (***o-lu**). It is assumed that the augment vowel is more open as compared to the original vowel).

Doneux supposes that these two structures are reflected differently both in Fula and in Sereer.

The first, non-derived, structure ***lu** is generally preserved in both languages: PFS ***lu** > Sereer l- (class Ø-... l) ~ Fula -ndu / -du / -ru / -u.

The second, derived, structure ***o-lu** is transformed into structure (C)VC: PFS ***o-lu** > Sereer ol (class **o-... ol**) ~ Fula -ol with the subsequent completion of grades to -ngol / -gol / -ol (Table 9.61).

Table 9.61: Doneux: class 11

Doneux	PFS	Sereer	Fula
class 11	*Doneux *lu	l-	-du > ndu / du / ru / u
class 11	*Doneux *o-lu	o-l-	-ol > ngol / gol / wol / ol

In particular, this leads to the postulation of a common origin for classes **ngol** and **ndu** that seem phonetically incomparable at first glance. This correspondence also finds its confirmation in the semantics of these classes that group together long objects (rope, hair, etc.), which fully matches the prototypical semantics of the Proto-Niger-Congo class 11 *du.

We prefer not to go into the long-standing discussion concerning the possible functions of these augments again. Therefore, we will formulate the consequences that follow from the assumed reconstruction.

In PFS, we already have to distinguish a small number of derived classes with a more complex marker structure: *__V__-… __V__-CV. Both Fula and Sereer vowels preserve the same place of articulation as in PFS and can be used for reconstruction. Determiner-initial consonants in Fula (ng- / g- /w-) cannot be used for reconstruction since they result from the completion of the marker structure from *__-VC__ to -CVC. The Sereer vowel in this case is obligatory not only in the determiner but also in the prefix. At the same time, we repeat that the determiner vowel and the prefix vowel are identical. We consider the optional consonant g- as epenthetic and thus it cannot be considered for reconstruction in the correspondences mentioned above. However, as it will be shown in the next section, Sereer **(g)o**… **ol** I could be a regular reflex, not only of PFS *__du__, but also of PFS *__go__.

9.3.4.3 Correspondences with differing structures in Fula and Sereer

Along with correspondences between adjacent structures, eight correspondences are distinguished for differing structures. In all these correspondences the Sereer determiner (C)VC corresponds to a Fula marker with the syllable structure CV. For these types of correspondences, we assume the preservation of the original syllable structure CV in Fula and the extension of the determiners in Sereer, e.g. PFS *__Ø-… du__: Fula **-ndu** ~ Sereer o-… o-lu > **o-… -ol**; PFS *__Ø-… go__: Fula **-ngo** ~ Sereer o-… o-gu > o-… o-lu I > **o-… -ol** I.

9.3.4.4 The absence of correspondences

This group unites Fula as well as Sereer classes that apparently do not attest any correspondences. In some cases, it is evident that PFS preserves its reflex in one of the two languages but is replaced by a different class in the other one. Thus, it seems likely that Fula has the reflex of the Proto-Atlantic (and Proto-Niger-Congo) class of liquids and mass nouns *__ma__, even though its transformation into **ɗam** that is found in Fula is not totally clear. In Sereer, according to our reconstruction, it has been replaced by class **fo-… ol** that includes words for liquids and mass nouns. In the majority of the rest of the cases, we have reason to assume that a systematic creation of innovative classes took place in Fula (size classes).

As we can see, almost all isolated classes (excluding the plural augmentative class **ko** II in Fula) have a determiner structure with a final consonant, which is an additional confirmation for the derived, secondary nature of this structure. At the same time, summarizing the data for the four groups, we can make the following conclusion concerning the development of the derived classes. They

Table 9.62: Sereer (C)VC ~ Fula -CV: reconstruction

SG/PL	Sereer	Fula	Sereer DET	Fula	PFS PREF	PFS DET	grade	Pozdniakov (1993)	Merrill (2018b)
SG	o-… ong III	ngum / ngun II	CVC	CVC	*Ø-	***ngu-N**[a]	*III	+	*absent*
SG	fo-... ol I	ko I	VC	CV	***kwo-**	***kwo**	*I	+	*absent*
SG	fa-… fan III	mba~nga III	CVC	CV	***wa-**	***wa**	*III	+	***fan/wan**
SG	Ø-… fan I,II	ka III (II,I).	CVC	CV	*Ø-	***kwa**	*II?	+	*absent*
SG	(g)o-... ol I	ndu I	VC	CV	*Ø-	***du**	*I	+	*absent*
SG	(g)o-... ol I	ngo I	VC	CV	*Ø-	***go**	*I	+	***ɣo?**
SG	o-… -ox II	ɗo~ko II	VC	CV	*Ø-	***ko**	*II	+	***ox**
PL	a-… ak II	ɗe II	VC	CV	*Ø-	***ɗe**	*II	+	***ɗak**

[a] As in the case of the plural diminutive class ***kwo-N**, we reconstruct the additional diminutive mark **-N** in the singular diminutive class ***ngu-N**.

Table 9.63: The absence of correspondences

SG/PL	Sereer	Fula	Sereer DET	Fula	PFS PREF	PFS DET	grade	Pozdniakov (1993)	Merrill (2018b)
SG	(g)a-… al III	absent	VC		*Ø-	*la?	III	–	*absent*
PL	(x)a-…ax II	absent	VC		*Ø-	*xa?	II	+	**xax**
	absent	ɗam III		CVC	* Ø-	*a-ma	III	+	*different*
	(-um ‘interrogatif’?)	ɗum II		CVC	* Ø-	*u-mu	II	–	*absent*
SG	absent	ngel		CVC				–	*absent*
SG	absent	kal II		CVC				–	*absent*
SG	absent	kol II		CVC				–	*absent*
SG	absent	ngil~ngii II		CVC				–	*absent*
SG	absent	kel II		CVC				–	*absent*
SG	absent	kun II		CVC				–	*absent*
PL	absent	ko II		CV				–	*absent*

already appeared, in small numbers in PFS (group 2), and then actively developed independently from each other in the two languages. Derived classes in Fula provide the impetus for the formation of the innovative system of size classes and have changed the structure of classes outside of number correlations (group 4), whereas in Sereer they started to be used actively with various classificatory meanings (group 3).

9.3.5 PFS noun class system

First, we summarize our conclusions concerning the reconstructed PFS system. Where possible, we indicate their Niger-Congo correspondences.

It is important to note the following. Without a doubt, noun class markers were realized as obligatory prefixes in Proto-Atlantic. Here are the most probable Proto-Atlantic structures: CL-root (indefinite form) ~ CL-root CL-Dist. (definite form). Apparently, PFS saw the disappearance of the obligatory class prefixes in most classes. Note that an analogous process of prefix deletion took place in two centuries in Wolof, for which XVII-XVIII century dictionaries still provide forms with prefixes. A radical change that occurred in Fula is the adding of the PFS postpositional determiners to nouns in the form of obligatory suffixes. Sereer, on the other hand, in general preserves PFS class structures, even though the phonetic shape of postpositional determiners has radically changed. Yet, we will indicate for PFS the zero prefixes where they are reconstructed.

9.3.5.1 Singular classes

9.3.5.1.1 Class ***KO II** (***Ø-… ko**) – Proto-Niger-Congo class 1

A singular class for humans. We will not discuss the problems of Niger-Congo reconstruction in this book. We only wish to note that they differ considerably in certain cases from Proto-Bantu reconstructions. In particular, one should reconstruct a velar consonant and a mid back vowel for the human class 1 in Niger-Congo. Example: PFS ****goor* ko** ‘the man’: Sereer *o-koor ox-* ~ Fula *gor-ko*.

9.3.5.1.2 Class ***DE I** (***Ø-… de**) –Proto-Niger-Congo class 5

A singular class with the paradigmatic meaning of singulative. It contains vocabulary typical of Proto-Bantu class 5. For example: PFS ****ɲiŋ* de** ‘the tooth’ > Sereer *ɲiiŋ l* ~ *Fula ɲiin-de*.

9.3.5.1.3 Class *GO I (*Ø-… go) (with the development in Sereer of the derived class (g)o-… o-l I)

In the determiner, *g > ∅ in any class of Grade I (the weak grade). The prototypical class semantics are first characterized through the meaning of verbal nouns. We have already noted this meaning for the correspondence Sereer **o-… ol** ~ Fula **ngol** (class **o-lu**, interpreted as derived from class ***du**). On the other hand, in this case we have the correspondence Sereer **o-… ol** ~ Fula **ngo**, whereby the Fula class also accepts infinitives in a number of dialects. For example: PFS ***(b)waagw** 'be able': Sereer *o-waag ol* 'capacité, habilité, le pouvoir' ~ Fula (Maasina) *baaw-gol* '(act.) capacité de…, aptitude à…, pouvoir de...' ~ Fula Adamawa *waaw-go*. Otherwise, this class is characterized by a number of important semantic features in both languages. Possibly, a relevant meaning for this class is that of locatives. The main sense in Fula is that of 'something flat, having a flat surface'. In Sereer it is 'names for hollow objects', names of places as well diminutives, singulatives and partitives. For example: PFS ***(b)wi(n)d go** 'côté, flanc': Sereer *o-wind ol* 'le bordage d'une pirogue' ~ Fula *wir-ngo* 'flanc, côté'. We can also provide some additional examples of lexical correspondences, but it is important to note that they are extremely rare, with the exception of infinitives.

9.3.5.1.4 Class *KWI III (*Ø-… kwi)

Possibly originates from the Proto-Niger-Congo class 7. In PFS – the class for trees. Example: PFS ***ɓaak** **kwi** 'baobab': Sereer *ɓaak n* ~ Fula *ɓok-ki*.

9.3.5.1.5 Class *A-DA II (*(a-)… a-la)

Possibly derived from class ***DA II** that left no traces of its non-derived form. We can note the prototypical meaning of the augmentative in both languages (Sereer **(g)a-… al** III). The class contains many deverbal nouns (Grade II). Another relevant feature is "object of wood; bone" as in the example PFS ***ʔun** **a-la** 'pilon (< ***ʔun** 'piler'): Sereer *a-un al* ~ *Fula un-ir-gal*.

9.3.5.1.6 Class *GE I (*Ø-… ge)

A singulative class, not frequent. An example is PFS ***naak** **ge** 'the cow': Sereer *naak l* ~ Fula *nag-ge*.

9.3.5.1.7 Class *KWO-… KWO I (*kwo-… kwo)

In Fula it is a singular class with the collective meaning (herbs, foliage, and hair). In Sereer, according to our hypothesis, class **fo-… ol** I has replaced the reflex of liquids and mass nouns ***ma** after having integrated its meaning. Due to the change in class semantics, direct lexical correspondences for Sereer **fo-… ol** I ~ Fula **ko** I are absent.

9.3.5.1.8 Class ***KWA I,II** (***Ø-… kwa**) with the subsequent appearance of -n in Sereer

A class for borrowings in Sereer, whereas in Fula it actively takes borrowings with a final -a. Hence, for example, the following distribution of the (possibly, parallel) borrowing from Manding languages: 'mur d'enceinte d'une ville, rempart': Sereer *tata fan* ~ Fula *tata*. For class ***Ø-… fan** in Sereer, a relevant semantic feature is "kinship terms; words for the members of some social groups". As a tentative hypothesis we can assume that this class is derived from class 1. If so, ***Ø-… ko** > *Ø-… ko-a > ***Ø-… kwa** (CL 1A).

9.3.5.1.9 Class ***DU I** (***Ø-… du**) and the derived classes ***O-DU I** (***o-…o-du**) and ***DU III**

Its origin from the Proto-Niger-Congo class 11 is highly probable. The prototypical meaning of the class is "long objects: cords, hair, tail (with the development "animals with tails" (some mammals, birds, and fish)". There are maybe three or four correspondences that go back to class ***du**:

- PFS ***Ø-… du** > Sereer ***Ø-… l** ~ Fula **…-du**: PFS ****gand* du** 'mamelle': Sereer *and l* ~ Fula *en-ndu*.
- PFS ***Ø-… du** > Sereer ***o-… o-l** ~ Fula **…-du**: PFS ****ɓos* du** 'chien': Sereer *o-ɓox ol* ~ Fula *ɓoosaa-ru*.
- PFS ***Ø-… du** > PFS ***Ø-… o-lu**: PFS ****ɓaak* du** 'corde': Sereer *ɓaak o…ol* ~ Fula *ɓoggol (< *ɓaak-gol)*. This correspondence (Sereer **o-… ol** ~ Fula **…-ngol**), is also characteristic of the derivation of infinitives in both languages.
- PFS ***Ø-… du** I > PFS ***Ø-… du** III in names for animals: PFS ****muus* du** 'cat': Sereer *muus n* ~ Fula *muusuu-ru*. A number of nouns not only in the zoological lexicon in Sereer changed from ***du** I to ***du** III. This transition

can also explain the divergence in mutation grades, for example for the PFS ***hʊɓ* du** I ‘knee’: Sereer *nguɓay n* III ~ Fula *how-ru* I; PFS ***xol* du** I ‘finger’: Sereer *nɔol n* III ~ Fula *hol-ndu* I.

9.3.5.1.10 Class *GU~WU III (*Ø-… gu/wu)

It includes the zoological vocabulary and is one of the two probable reflexes of the Proto-Niger-Congo class 9. Example: PFS ***mbaal* gu ~ wu** ‘sheep’: Sereer *mbaal n* ~ Fula *mbaalu*. Massively includes insect names (for example, PFS ***ɓook* gu ~ wu** ‘mosquito’: Sereer *ɓook n* ~ Fula *ɓon-ngu* < *ɓok-ngu*) and words with pejorative meanings. This allows us to express a hypothesis that the diminutive class ***GU-N III** (see discussion earlier) is derived from ***GU ~ WU III**.

9.3.5.1.11 Class *WA III (*Ø-… di) with the correspondence Sereer **Ø-… n** ~ Fula **mba ~ nga** and, possibly, derived from ***WA-… WA III** with the correspondence **fa-… fan** ~ Fula **mba~nga**

(Large) animals class, along with class ***GU / WU III** can be considered as a possible reflex of Proto-Niger-Congo class 9. Example: PFS ***njakw* wa** ‘guib harnaché’: Sereer *njaf n* ~ Fula *njawa ciiwa*. An example of a correspondence in a derived class is PFS ***wa-mbe* wa** ‘chèvre’: Sereer *fa-mbe fan* ~ Fula *mbee-wa*.

9.3.5.1.12 Class *KA III (*Ø-… ka) – Proto-Niger-Congo class 12?

There is a high concentration of words for items made from tissue, hide, and straw among Fula reflexes. Since the majority of original classes of Grade III have fused in class **Ø-… n** in Sereer, the prototypical semantics of class ***ka** remains unclear. An example is PFS ***cɛq* ka** ‘necklace’: Sereer *ceq n* ~ Fula *cak-ka*.

9.3.5.1.13 Class *DI III (*Ø-… di)

It combines words for substances in Fula. The class also includes names for reptiles. Some of them are also found in Sereer. An example is PFS ***ɓood* di** ‘snake’ (< ****ɓood*** ‘to crawl; to slither’): Sereer *ɓoɓood n (< ɓood-ɓood n)* ~ Fula *mbod-di*.

9.3.5.1.14 Class *GU-N III (*Ø-… ngu-N)

The diminutive singular class with the nasal marker of diminutivity. An example is PFS ***ɓi* ngu-N** ‘baby’: Sereer *o-ɓi onɔ* ~ Fula Adamawa *ɓin-ngum*. The class has been replaced by innovative diminutive classes in most Fula dialects. For Sereer,

we assume the development of the derived class * **Ø-… ngu-N** > o-… o-ngu-N > o-… ong III.

9.3.5.2 Plural classes

9.3.5.2.1 Class **ƁE I** (*Ø-… **ɓe**)

A human plural class going back to Niger-Congo class 2.[32]

9.3.5.2.2 Class ***-ʔEN** (***Ø-…-ʔen**)

It is the reflex of the Proto-Atlantic plural class 2A ***Ø-…-ni** for kinship terms and social groups. It seems to be the only Proto-Atlantic class with an obligatory suffix marker. It is reflected in Sereer by the suffix **-een** (see discussion above).

9.3.5.2.3 Class ***ƊE ~ LE II** (***Ø-… ɗe ~ le**)

A plural class with the paradigmatic meaning of collective plurality. Reflected as **Ø-… k** in Sereer as a result of the unification of determiners. It seems to serve as the basis for the development of the derived class **a-… a-k**. Both classes in Sereer, the original and the derived ones, correspond to the Fula class **ɗe ~ le**.

9.3.5.2.4 Class ***ƊI ~ LI II** (***Ø-… ɗi ~ li**)

A neutral plural class.

9.3.5.2.5 Class ***(A)-XA II**? (***(a-)… a-xa**)

We have considered arguments in favor of distinguishing a class with a postvelar consonant in PFS that has, as expected, disappeared in Fula, whereas in Sereer it has been preserved in the derived class **(x)a-… ax**.

9.3.5.2.6 Class ***KWO-N III** (***kwo-… kwon**)

A plural diminutive class.

[32] It does not make sense to give examples for plural classes, since these are self-evident.

9.3.5.3 Classes outside of number correlations

9.3.5.3.1 Class *A-MA III (*Ø-… a-ma)

The class of liquids and mass nouns going back to the Proto-Niger-Congo plural class 6N ***ma**. In Fula, it corresponds to class **ɗam**. In Sereer, it has been replaced by class **fo-… ol** without leaving any reflexes.

9.3.5.3.2 Class *U-MU II? (*Ø-… u-mu)

Possibly goes back to the Proto-Atlantic plural class 6B ***mu**. In Fula, it is class **ɗum**. It may have transformed in Sereer into the interrogative marker **-um**.

9.3.5.4 PFS class system

The final reconstruction of the PFS noun class system is represented on schema Figure 9.4.

NC CL	CL SG	grade	CL N CL	CL	grade	CL PL	grade	CL N CL
1	*KO	II				*BE	I	2
1A?:	*KWA (*ko-a)	absent				*-ʔEN	absent	2A
5	*DE	I				*DE~LE	II	
	*GO	I						
7?	*KWI	III						
	*A-DA < *DA	II						
	*GE	I						
	*KWO	I						
11	*DU (> *O-DU)	I, II > III				*DI~LI	II	
9? 3?	*GU~WU	III						
9?	*WA	III				*XA?	II	
12	*KA	III						
	*DI	III						
	*GU-N (< *GU III?)	III				*KWO-N	III	
			6N	*a-ma	III			
			6B	*u-mu	II			

Figure 9.4: PFS class system

Finally, our isolated reconstructions are consolidated in a rather harmonic system:

- We can postulate a special nasal diminutive marker for PFS: SG ***GU-N** / PL ***KWO-N**.
- Both classes for borrowings and kinship term (SG and PL), and only these, have a special suffix (SG **-a** / PL **-ʔen**). Note that these are not included in the system of root consonant mutation, thus preserving the donor language consonant.
- The main principles of mutations in SG/PL correlations have been confirmed. These correlations can be separated into three groups: classes for humans (PL – Grade I), size classes (PL – Grade III) and the remainder of classes (PL – Grade II). In size (diminutive) classes SG and PL forms are not distinguished by mutation grade (SG III / PL III). In other classes, the mutation grades are different for SG and PL: SG II / PL I in classes for humans, SG I / PL II or SG III / PL II are for classes neutral for size and person. These are the only counterexamples that have been found for the two reconstructed classes with a vowel augment which have SG II / PL II.
- Singular diminutive class ***GU-N** III may be derived from class ***GU ~ WU** with a relevant feature of a pejorative meaning.
- We can trace an opposition between a neutral plural class (**ƊI ~ LI** II correlating with eight singular classes) and a class with a collective plural meaning (***ƊE ~ LE** correlating with the four singular classes) for PL.
- Many classes can be etymologically related to Niger-Congo classes: ***1 / *2**, ***1A / *2A**, ***5**, ***7**, ***9**, ***12**. Plural classes are the most difficult ones in terms of etymologization, yet we know that plural classes in Atlantic languages often particularly show analogical transformations.
- The destiny of class 3 is unclear, a class for which the Proto-Atlantic form is reconstructed as ***(N)GWU** (Pozdniakov 2015: 76). Phonetically, the reflex of class 3 in PFS could be ***GU ~ WU**. Sereer also shows semantic arguments in favor of it. As has been shown, one of the most important semantic components in the Sereer class **Ø-… n** III is the feature “trees, plants”. What poses a problem is the almost total absence of plant names in the Fula class **ngu**. Yet, we have seen that this class is almost entirely taboo in Fula; Seydou’s dictionary has less than 100 words in this class.

> One can assume that plant vocabulary has been redistributed into class **ki**, which is possibly a reflex of class 7.

To conclude, I would like to return to the main innovation in the reconstruction of PFS noun classes, which is submitted for consideration to the reader in the present chapter and which makes the reconstruction proposed here radically different from the preceding ones, including (Doneux 1975; Pozdniakov 1993; Merrill 2018b). As has been shown above, the noun class determiner system that has been formed in Sereer invalidates any search for phonetic correspondences between these determiners and Fula class markers. The established fact of the determiner unification in accordance with consonant mutation associated with certain noun classes which is found in Sereer allows us to relate in a "morpho-phonetic" way any two Fula and Sereer classes characterized by the same mutation grade and close semantic relations, irrespective of the phonetic form of the class marker. This is a rather sad conclusion that implies a drastic extension of etymological correspondence possibilities, whereas a comparative linguist should strive to find restrictions rather than permissions for etymological comparisons (when the procedure of the comparative-historical method is not applied, everything is allowed, since one can relate any similar forms). Considering the history of Sereer determiners, there are almost no such prohibitions, unfortunately, so far as we are speaking about the phonetic substance of class markers in Sereer and Fula. The only formal anchor points for the reconstruction are the following: 1) affinity/difference of mutation grade, 2) class semantics, 3) some of Sereer class prefixes (with the initial f-), and 4) various statistical criteria that we applied in the course of the analysis. Of course, there remains an additional criterion of external comparison which is particularly important for such group as Fula–Sereer which, being highly divergent, is represented by only two languages. Yet in the present book we resort to this criterion only in extreme cases.

10 Basic lexicon in PFS reconstructions

One of the main results presented in the book is a detailed reconstruction of 716 PFS roots - ~475 with verb meanings and ~275 – of noun meanings (for several reconstructions both verb and noun meanings are postulated). Their list is provided in the Appendix.

This list includes some obvious borrowings because it is not always quite clear whether we are dealing with parallel borrowings in Fula and Sereer or with ancient loanwords in PFS that show regular correspondences in modern languages.

It should be noted that, at the stage where we are, we have few opportunities to clarify what exactly the reconstructed form meant. In addition to the well-known theoretical and methodological problems associated with semantic reconstruction, let us not forget that our subgroup consists of only two languages, in which case it is particularly difficult to separate the semantic fields of two reconstructed lexemes with overlapping meanings. Thus, without going beyond the subgroup, we have almost no support to clarify the semantics of the reconstructed roots ****xoos*** and ****ɲaxaɲ*** which mean something like 'to scratch; to scrape; to brush'. Thus, the PFS root meanings suggested in this book should be considered as "semantic codes" rather than true semantic reconstructions.

Here we present the results concerning the reconstruction of basic vocabulary, which is important, in particular, to clarify the date of the separation of Fula and Sereer. A superficial comparison of the Swadesh-100 list based on lexical resemblances gives approximately 35 common words. Merrill's point of view is: "Sapir's aforementioned lexico-statistical survey found Fula and Sereer to have 37% shared lexicon for the 100 most basic words (35% by my own count using the standard Swadesh list)" (Merrill 2018b: 70).

According to the Moscow comparative school method of counting, 35% of cognates gives a language divergence of approximately 4000 years BP (according to Sergei Starostin's rate (2007: 427), which is intuitively too much for the protolanguage of one of the subgroups of the North Atlantic branch, in which languages find systematic similarities in vocabulary and grammar. Can we adjust this date based on the data obtained in this book?

Merrill does not explain which Fula and Sereer words from the Swadesh list are recognized by him as cognates. Yet, we could suppose that his inventory is not

very different from that of David Sapir (1971) that includes the following lexical resemblances (Table 10.1).

It should be noted, however, that Merrill's list does not contain three items from the Swadesh list, namely "to go", "meat" and "round". They are replaced by three other meanings which are absent in the Swadesh list: "short", "dark" and "bent". It affects the statistics very little even if we ignore the reasons for these replacements. Two meanings that are not in Merrill's list give us common roots in Fula and Sereer: PFS ****reeɣ*** 'meat', ****(g)wir-*** 'round'. On the other hand, two meanings introduced by Merrill also show common roots: ****D/Taɓ*** 'short', ****niɓ*** 'dark' according to our reconstruction. Thus, we get 37 cognates, based not on resemblances, but on the regular correspondences discussed in this book.

The results presented above allow us to add at least four more cognates to the list: ****Gang*** 'breast', ****ɓos*** 'dog', ****ɓoof*** 'egg', ****bel*** 'good'.[1] Thus, we obtain a total of 41 cognates, which rejuvenates the proto-language a little; we should date PFS as 3800 BP, Starostin rate, 3000 BP Swadesh rate).

Here is not the place to discuss the general problems of lexicostatistics and alternative dating formulas. We focus in detail only on one aspect, which is fundamental for our case, namely on the specificity of the quantitative characteristics of language splitting in the case of groups restricted to only two languages. Whichever method of calculation we adopt (the Swadesh method or its modification in the works of Sergei Starostin and the Moscow school of lexicostatistics), shares a fundamental point: the number of core words in the list preserved in one language is essentially greater than the number of words preserved simultaneously in two related languages. The most transparent illustration can be the calculation of retained words at a depth of 5300 BP. This calculation can be represented as in the following Figure 10.1.

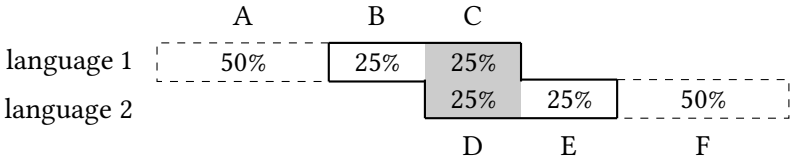

Figure 10.1: Retention of the core words since 5300 BP

According to Starostin's formula, an age of decay of 5300 BP corresponds to the following parameters: in each language 50% of the proto-language core list is preserved (zones BC and DE, and, of the 50% of the preserved vocabulary,

[1]Reflexes of these roots in Fula and Sereer are discussed in detail in the text of this book.

Table 10.1: The most transparent resemblances Sereer ~ Fula in Swadesh-100

(N Swadesh)	English (Swadesh)	Sereer (Merrill)	Fula (Merrill)	*PFS (Pozdniakov)
1	**all**	fop	fof	*fu(f)
2	**ashes**	ndaw n-	ndoondi	*ndɔw
3	**bark**	o-xoƥ ol-	koɓal, baajol, balol	*xoɓ
5	**big**	maak/maag	maw-	*magw
7	**to bite**	ŋat	ŋat-	*ŋat
8	**black**	ɓaal	ɓal-	*ɓal
10	**bone**	o-xiiƈ ol-	gi'al	*giƴƴ
14	**cold**	ɓut, ɓuuɓ, jogoñ	jaang-, ɓuuɓ-	*ɓuuɓ
15	**to come**	gar	'ar	*gar
18	**to drink**	yer	yar-	*yɛr
19	**dry**	weer	yoor-	*(g)wer
20	**ear**	nof n-	nofru/nowru	*nof
21	**to eat**	ñaam	ñaam-	*ɲaam
23	**eye**	a-ngid al-	yitere	*Giţ
27	**fish**	liƥ n-	liingu / lingu	*li(ɓ)
38	**head**	xoox l-	hoore	*xoox
39	**to hear**	nan	nan-	*nan
43	**I**	mi	mi /min	*mi
44	**to kill**	war	war-	*(b)war
45	**knee**	nguɓay n-	hofru	*Kʊɓ/f
46	**to know**	'and-	'and-	*ʔand
50	**liver**	xeeñ l-	heeñere / heyre	*xeeɲ
52	**man**	o-koor ox-	gorko	*goor
61	**new**	xas	hes-	*xas
67	**rain**	a-teƥ al-	toɓ-	*Toɓ
69	**road (Merrill: path)**	a-ƒat al-	ɗatal	*ɗat
78	**to sleep**	ɗaan	ɗaan-aa-	*ɗaan
81	**star**	o-xoor ol-	hoodere	*xoor/d
85	**tail**	a-las al-	laccol	*lac
88	**tongue**	ɗelem l-	ɗemngal	*ɗem
89	**tooth**	ñiiñ l-	ñiinde	*ɲiɲ
91	**two**	ɗik	ɗiɗi	*ɗi
94	**we**	'in(o)	en/enen	*in-
96	**white**	ran	ran-	*D/Tan
98	**woman**	o-tew ox-	debbo	*D/Tew

half (25%) is preserved simultaneously in two languages (zones C for language 1 and D for language 2). This means that if our comparison is limited to these two languages, we have no way to reconstruct 75% of the proto-language list (zones A, B, E, F) at the given temporal depth. Vocabulary in Zone A is not reconstructible because it has disappeared. Vocabulary in Zones B and E is not reconstructible because we have no grounds to do it.

If we make similar calculations for Fula–Sereer, where Zones C and D include 41 units and the split time is 3,800 BP, respectively, with 64 proto-language words preserved in each language, we get the following figures:

- N words preserved in one language (=64) minus N words preserved in both languages (=41) gives the number of proto-language words that have reflexes in either Fula or Sereer, but which we have no evidence to reconstruct (23 words in each language, zones B and E in the figure);
- In PFS, 36 words have disappeared in both languages (100–64, zones A and F), and we cannot reconstruct them.

It should be taken into account, however, that there is one specific factor, due to which in the case of Fula–Sereer the loss of the core vocabulary in both languages (in our case, as we have seen, 36 words of the Swadesh-100 list) turns out to be principally more extensive than in many other groups and families. This factor is due to the dependence of the percentage of extinct vocabulary on the configuration of the genealogical tree. Given that this question, as far as I know, has not been specifically studied in the theoretical literature on lexicostatistics, let us briefly examine it here.

The question can be put this way: how many words can be preserved in at least one of the modern languages of the group/family under various configurations of the tree. As will be shown below, the result depends on two factors: 1) the number of languages in the group; and 2) the timing of language separation in each branch of the tree.

We view these outcomes with the help of concrete examples. For simplicity and transparency of the obtained results, we will take the coefficient 0.1, i.e. 10 words per millennium, as the rate of lexical loss.

In our estimations we ignore the non-linear nature of the loss of vocabulary, that is, we conventionally assume that, for example, in the third and fourth millennium the same number of words disappear, and that the probability of disappearance of each word in the Swadesh list is the same.

The results of our estimations are shown in Figure 10.2.

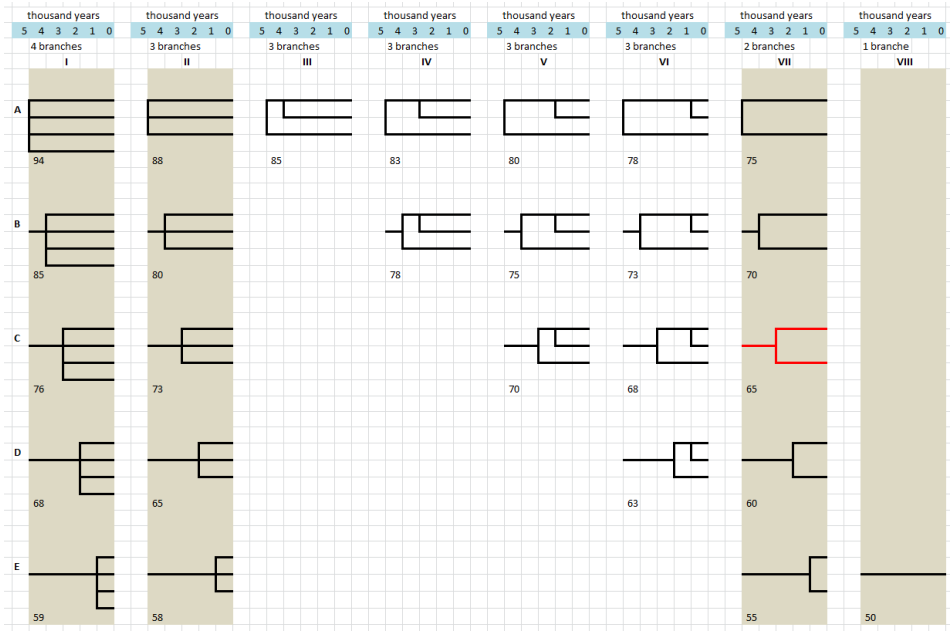

Figure 10.2: Retention of the core vocabulary in at least one of the languages of the genealogical tree

In Figure 10.2, the trees matched horizontally, include from 4 to 1 branches (the figures are numbered in Roman numerals).

Vertically, the time of a branch's separation from the tree is indicated (the figures are numbered in Latin letters). For each column a given time is shown (in millennia). For each case the number of proto-language words in the list that have a high probability of being preserved in at least one of the modern languages is calculated.

A comment is needed here. If we compare the cells inside any column (for example, II), we see that from top to bottom, the left side, represented by a single line, becomes longer (accordingly, the right side becomes shorter). This single line denotes the estimated lifetime of the proto-language: from the point of its separation from the main tree (let's call this point Proto1) to the point preceding the split of the proto-language into several branches (let us call this point Proto2). Traditional lexicostatistics refers to the Proto2 point - the percentage of preservation / loss of the basic vocabulary is calculated relative to it. In the calculations carried out in this study, we will be interested in the point Proto1. One of the purposes of Table 10.2 is to illustrate the following fact: the longer the line Proto1 – Proto2, the fewer words of a higher taxonomic level will be preserved

in at least one of the modern languages that we are analyzing. So, in cell EII, at the point Proto2, immediately preceding the division of the proto-language into separate branches, there will be no longer 100 words of a higher level, but only 60, that is, in modern languages, whatever the number of branches, 40 words will be irretrievably lost.

The bottom right figure in Figure 10.2 (E.VIII) is the most obvious. We have one isolated language with the above parameters it retains 50 words of the list over 5000 years.

A.VII corresponds exactly to the case presented in Figure 10.1 above (according to Starostin, we have 2 languages which diverged by about 5000 BP, each language retains 50 words, with half of the words (25) retained in the two languages simultaneously, that is, 75 words are retained in at least one of the languages). This case can be represented by the formula $(100 - 50) + (100 - 50) * 0.5 = 75$.

The bottom figure of the column in question (E.VII) assumes that the two languages diverged only 1000 years ago, that is, they lost together their common vocabulary over a stretch of 4000 years, in which case we get retention in at least one of the languages $= (100 - 50) + (60 - 50) * 0.5 = 55$.

The Fula–Sereer case appears to correspond approximately to C.VII, highlighted in red. We have two branches that diverged about 3,000 years ago. Thus, in the modern Fula and/or Sereer languages, we can expect to find at least $(100 - 50) + (80 - 50) * 0.5 = 65$ reflexes of the Proto-language list, which is what we observe (see zones B+CD+E in Figure 10.1 and in the commentary).

The upper left figure (AI) assumes that the maximum number of proto-language words is retained: $(100 - 50) + (100 - 50) * 0.5 + (100 - 50) * 0.5 * 0.5 + (100 - 50) * 0.5 * 0.5 * 0.5 = 94$ words.[2] This is due to the fact that this case contains the maximum number of branches in Figure 10.2 (4 branches) and the maximum degree of divergence, in which languages split simultaneously and lose their proto-language lexicon independently of one another.

We will not examine each individual case here, although Figure 10.2 seems to provide important insights for further refinement of lexicostatistical formulas. We wish only to consider the following statement: the vocabulary preservation rates are equal (65 words) for a tree of two branches of age 3000 BP (C.VII, Fula–Sereer) and for a tree of three branches of age 2000 BP (D.II), which is younger but with more branches. Approximately identical percentages of retentions are shown in cells A.VII and C.I, C.VI and D.I, etc.

[2] In a group/family of seven languages which split 5000 BP, with the given parameters, we should expect almost 100% retention of the proto-language list in at least one of the modern languages.

In sum, I emphasize once again that the very great age of the Fula–Sereer split which is indicated lexicostatistical data can partly be explained by the fact that we are dealing with a group with only two languages. This is important to keep in mind especially when using lexicostatistical data to reconstruct West African language history.

In conclusion of this chapter, abstracting from absolute dating, we ask the following question: can we try, without resorting to external comparison data, to attribute to the PFS stock some words which are retained in only one of the languages – in Fula or Sereer? Recall that even if we do not know these words, we have every reason to believe that there are more than 20 such words of the Swadesh-100 in Fula and Sereer (zones B and E in Figure 10.1, 23 words each for Fula and for Sereer).

The best candidates in this regard are cognates that imply semantic change in one of the languages. We cannot account for them with the lexicostatistics procedure, but we can assume that some of them existed in PFS. We can cite 21 such roots, and for every root we can reconstruct for PFS a meaning that is included in the Swadesh list.

The meanings from the Swadesh list are highlighted in bold in the table. There are 11 such items in the table for Sereer and 10 for Fula .

It should be also taken into account that when estimating the Fula data, we limit ourselves to one particular dialect (that of Maasina), although lexical data from other dialects were occasionally considered. Meanwhile, divergences in the Swadesh list between Fula Maasina and, for example, Fula FJ, are at least 10%. This allows us to speak not about the Fula dialects but Fula languages. If we systematically included all the Fula dialects in the etymological base, it is obvious that the percentage of related roots in Fula and Sereer would be even higher. This problem could be illustrated by the example of correspondences with the Swadesh list meaning "round".

In Fula Maasina the general word for "round" is *mbeɗu / beɗi* 'rond, disque; disque de vannerie rigide servant de couvercle, de van, de plateau', *mbeɗuwol* 'cercle (figure géométrique)'. The only (although not very reliable) parallel in Sereer is the following: *mbeɗ n / peɗ k* 'le bandeau de perles', *peɗ o...ol / peɗ a...ak* 'ceinture composée de boutons et de perles'.[3] We could try to reconstruct ****mbeɗ*** 'round', but we cannot use this root for the glottochronological estimates, considering the semantic change in one of the languages, namely Sereer.

[3] Another interesting root in Sereer is *per o...ol / per a...ak* 'l'ensemble des perles enfilées' (Merrill: *o per* 'pearl') ~ Wolof *per* 'perle', *fer* 'ceinture de perles'. Yet, this seems to be borrowed from French.

Table 10.2: Correspondences in Swadesh-100 with semantic change in one of the languages

Swadesh	Root	Sereer	Fula
belly	***D/Teer** ‘ventre; milieu’	‘milieu, centre’	‘**ventre**’
blood	***ɣel** ‘sang’	‘caillot de sang’	‘**sang**’
burn	***sum** ‘chaud; brûler’	‘être **chaud**’	’brûler’
fat	***neɓɓ** ‘gras; graisse’	‘**gras**; graisse’	huile, beurre’
fly	***diw** ‘sauter, voler’	‘sauter à l’eau’	‘**voler**, sauter’
foot	***Qoos** ‘jambe’	‘le devant de la jambe; le tibia’	‘**pied**; jambe; patte’
give	***D/Tox** ‘donner’	‘donner une part à quelqu’un’	‘**donner**’
give	***Coox** ‘donner’	‘**donner**, accorder’	‘accorder de la chance’
ground	***lees** ‘terre, sable’	‘tas de sable’	‘ terre, sol’
horn	***luʔ** ‘corne’	‘extrémité de la corne’	‘**corne**’
hot	***fok/w** ‘chaud’	‘chauffer (liquide); fièvre’	‘être **tiède**’
many	***bet** ‘beaucoup’	‘**beaucoup**, trop’	‘au moins; trop’
night	***ɣeng** ‘nuit’	‘**nuit**’	‘être en pleine nuit’
person	***ʔiin** ‘personne (humaine)’	‘**personne** (humaine)’	‘des gens’
root, vein	***daaɗ** ‘racine, veine’	‘liane; ‘plante herbacée; herbe’	‘**racine**, veine’
seed	***(g)waɓ** ‘graine’	‘graine sp.’	‘**grain**, pépin’
seed	***xo nɢ** ‘noyau, graine, noix’	‘noyau, **graine**’	‘noyau; noix’
skin; strip	***ɗool/r** ‘peau; dépouiller’	‘**peau**, cuir; dépouiller’	‘arracher de la peau, écorcher’
sleep	***(b)wɔnd** ‘(se) coucher, (se) reposer’	‘**coucher**’	‘se reposer sur...’
stand	***daar** ‘debout’	crépir, se tenir debout sp.’	‘mettre **debout**, dresser’
walk	***ɲaaɣ** ‘marcher; se promener’	‘**marcher**, aller à pied’	‘marcher fièrement’
walk; foot plant	***jaɓ/f-** ‘marcher; plante de pied’	‘**pied**’	‘marche sur...; plante du pied’

In Sereer the main word for "round" is *kurulox* 'être rond; cercle'. It finds parallels in some Fula dialects, for example, Fula FJ *kurunwol* 'cercle, ronde'. Thus, it should be reconstructed in PFS (***kuru**-). Yet, it cannot be included in the Fula Maasina – Sereer comparative list.

Finally, we could try to reconstruct another PFS root, ***mur,** taking into account the possible cognate Sereer *moor-gel (mir-gel)* 'être rond, être sphérique; cercle' (*mir* 'entourer, enrouler, vriller'*, muurulax a...al / murulax a...ak* 'cercle; disque [d'un astre]') ~ Fula Adamawa – Fuuta-Jalon *murl-* 'rond, cylindrique, circulaire', 17th century: *morlerei* 'rond' (cf. Jaad *muur* 'rond'). However, here too the root seems to be absent in Fula Maasina. In addition, we cannot include it in the PFS list, as it is suspected to be borrowed from the Mande languages, where it is quite widely represented in the Manding branch (for example, Mandinka *múrù ~ múrùù ~ múrùŋ*).

Thus, none of these three roots gives us a reliable cognate for Sereer and Fula Maasina. However, it is clear that if we compare all dialects of Fula with Sereer, we have to reconstruct at least PFS ***kuru**- 'round' for the Swadesh list.

Finally, a number of words with meanings included in Swadesh's list are not included in these cognates, being preserved in only one of the languages, but they may well be PFS reflexes. The only way to discover some of these PFS words from the core vocabulary is to refer to other Atlantic languages. Thus, in the Atlantic context there is no doubt that Fula *hinereere/ kinereeje (kine)* 'nose' is related to the Proto-Atlantic root ***kin/*cin** 'nose' while the reflex of this root was lost in Sereer and subsequently replaced by the innovation *ɲis o...ol ~ ɲus go...ol* 'nose' derived from *ɲis* 'renifler', which in turn had possibly been borrowed from Wolof *ɲus* 'renifler sa morve'.

Such roots are given below. We reconstruct them for PFS by placing such hypothetical reconstructions in brackets.

10.1 Presumptive PFS roots, reflected in Fula, but not in Sereer

PFS ***(b)waal** 'lie (vb), lay (vb)'?: Fula *waal / baal* ~ Nyn Gubaher *kʊ-waan*, Nyun Guñamolo *bʊ-waana* (cf. Limba *ŋɔlɔ (wɔlɔ)*).

PFS ***D/Taaƭ** 'neck'?: Fula *daa-nde / daa-ɗe* ~ Laala *laat*, Wolof *loos*; Balant *gì-làdí / làdí.*

PFS ***fay** 'fat (svb)'?: Fula *faya* 'être gros, gras' ~ Palor *foyʊm*, Ndut *fəyʊm*, Saafin *fajum*, Noon *fəyəm*, Laala *fəyəm.*

PFS ***haay*** 'stone'?: Fula *haaɣre / kaaɣe* ~ Basari *e-kàỹ*, Tanda *e-kay / o-ɣay*, Bapen *ɛ-kaɲ / mo-haɲ*.

PFS ***hine***- 'nose'?: Fula *hinereere / kinereeje (kine)* ~ Nyun Guñamolo *ɲan-kındɛŋ / ɲan-kındɛ-ɛŋ*, Basari *ɛ-cɛn*, Bedik *ɛ-cʌl*, Konyagi *ì-cəl̰əlwæ̀-səl̰*; Joola Kwaatay *e-hinu* (cf. Limba *hu-tini*).

PFS ***ƭaar*** 'sand'?: Fula *njaareendi / njaareendɗe (njaareele)* ~ Kasanga *ti-yaar*.

PFS ***jooɗ*** 'sit (vb)'?: Fula *jooɗ* ~ Nyun (17th c.) *no-joti*, Kobiana *yed*, Kasanga *yedd* (cf. Landuma *jɔd*).

PFS ***lek***- 'tree'?: Fula *leggal / lekki* ~ Palor *kɪ-lɪk*, Ndut *kɪ-lɪk*, Saafin *ki-dik*, Noon *kɛ-dɛk*, Nyun Gubaher *leex*, *Kasanga gu-rien / ŋa-*, Nalu *dik*, Baga Fore *ɛlik / ɛlik-il*, Pukur Mboteni *ndí / tí-lí*; Balant *m-ndíŋá / ndíŋá* (cf. Sua *irɛɛk*).

PFS ***sol***- 'bird'?: Fula *sonndu / colli (solndu / colli)* ~ Saafin–Noon *sɛl*, Basari *a-cəl*, Bedik *ɛ-cʌɗ*, Bapen *a-cʌɗ / ɓa-*, Konyagi *səry / wæ̀-səry*, Jaad *ku-cid*, Biafada *gu-ncudu / bwa-sudu*; Manjaku *un-kud*, Bijogo *ŋu-nkude / mu-nkude*.

PFS ***tem***- 'louse'?: Fula *tennga / tendi* ~ Joola **tem*, Manjaku Bok *tsem*, Mankanya *u-ʈeem*, Pepel *ʂɛmɛ*.

PFS ***tul***- 'mountain, hill'?: Fula *tulde / tule* ~ Wolof *tund*, Laala *tundə*, Basari *e-tənd*, Bapen *ɛ-tʌnd / mɔ-sʌnd*, Kobiana *u-ntunda*; Manjaku *ntʊnda*.

10.2 Presumptive PFS roots, reflected in Sereer, but not in Fula

PFS ***(b)weɣ*** ' swim (vb)'?: Sereer *weɣ* ~ Palor *wec*, Jaad *waj*, Nyun *gʊ-way*, Nalu *wac*; Joola Foonyi *ɛ-wac*, Joola Kasa *waj*, Balant *waa*).

PFS ***(b)wil*** 'hair'?: Sereer *wiil o...ol / biil a...ak* (*wiil a...ak*) ~ Bedik *gu-mbál*, Basari *ɛ-mbăn*; Balant *kə-wul*, Mankanya *ka-weel*, Pepel *iel*.

PFS ***ɓaal*** 'louse'?: Sereer *ɓaal n / ɓaal k* ~ Basari *ɛ-pəl*, Tanda *e-pəl / o-vəl*.

PFS ***dox*** 'burn'?: Sereer *dox* ~ Basari *a-lɔxʷ / ɗɔxʷ*, Bedik *ɔ-ɗʌk-ʌn*, Jaad *rok*, Saafin *dɔx*, Nyun Guñamolo *bu-duhuna*; Joola Kasa *rok-ot-*.

PFS ***neer*** 'fat'?: Sereer *neer* ~ Konyagi *ì-níry*, Basari *ɔ-nĭl*; Manjaku *nir*, Mankanya *p-niir*, Pepel *niir*.

PFS ***suun*** 'smoke'?: Sereer *suun fo...ol* ~ Basari *ɔ-kʷɔ-cʌn*, Konyagi *ì-cəl̰*, Biafada *fu-cu / ba-fu-cu*, Wolof *cuulul* (< *cul-cul*?), Kasanga *ga-sulu*, Kobiana *a-culugu / ga-s-*.

PFS ***tang**-* 'mountain, hill'?: Sereer *rangor n / tangor k* ~ Palor *təngəl*, Saafi *tangɔ*, Baga Fore *ɔrónk / ɔrónk-èl*, Nalu *tɔ-rɔŋ*; Joola Banjal *ɛ-rɪjaŋ*, Bijogo *e-dingi / ku-dingi* (cf. Sherbro *rɔng*, Baga Koba *ta-roŋ*, Kisi *lùàŋ-ndé*).

PFS ***xon*** 'die (vb)'?: Sereer *xon* ~ Laala *ka-kaan*, Palor *xul*, Ndut *hʊ̀l*.

PFS ***yet*** 'fly (vb), jump (vb)'?: Sereer *(y)et* ~ Nalu *yeeθ* , Bedik *u-yìcìté*, Nyun *yiir*; Joola Foonyi *ɛɪt*, Joola Banjal *e-yit*, Joola Kwaatay *bʊ́-wɪtɔ*, Manjaku Bok *its*, Manjaku Basarel *iʈ*, Mankanya *yiʈ*, Pepel *yɪs*, Balant *yiθ*.

The above 20 potential PFS roots are not added to the overall list of reconstructions provided in the Appendix.

Appendix A: The PFS reconstructions

To remind that the slash in reconstructions is used when it is difficult to give a diachronic interpretation of the postulated correspondence. In these cases, the Sereer consonant (or vowel) is placed before the slash, and the Fula consonant (vowel) is placed after the slash. Thus, the reconstruction of PFS ***suul/r*** 'to smell' suggests that Sereer *suul* and Fula *suur* are proposed as related words, but the regular correspondence of the root-final Sereer -l ~ Fula -r is left without a diachronic interpretation. The presence of the slash means that the proposed reconstruction is unproven in one of its segments and should have been given with a question mark.

Note the fundamental difference from capital letters, which are also used in reconstructions. A capital letter in the notation adopted here means a problematic reconstruction; one in which it is legitimate to reconstruct both variants. Thus, the reconstruction ***Puc*** (*__p__- ~ *__f__-) 'pierce (abscess) (vb)': Sereer *puc* ~ Fula *fuccita* means that both *__p__- and *__f__- consonantal reconstructions are possible in initial position. On the contrary, the reconstruction ***suul/r*** implies that within the framework of the proposed system, it is impossible to reconstruct either *__-l__ or *__-r__ in a given root – it is only an attestation of modern forms not satisfactorily explained.

*PFS	English	French
ʔur	abscess	abcès
Cəll	acacia sp. 1	acacia sp. 1
ngɔbw	acacia sp. 2	acacia sp. 2
Caas 1	acacia sp. 3	acacia sp. 3
jaɓ	accept (vb)	accepter, recevoir, se marrier
tooɲ	accuse (vb), offend (vb)	accuser, offencer
fi	act (vb); thing	agir; chose
yem/ɓ	admire (vb)	admirer
sawta	adze	herminette
diid/r	afraid (svb); funk panic?	peur (avoir); panique
w/muj/ƴ	agitate (vb)	(se) troubler, s'agiter
fu(f)	all	tout
tool	alone, solitary (svb)	seul, solitaire

hwob	amass (vb); swarm	(s')amasser, essaim
taan	ancestor; grandchild	ancêtre; petit-fils
ŋVŋ	ant	fourmi
njakw	antelope sp. (Guib)	antilope sp. (guib)
Bill	antelope sp. (Kob)	antilope sp. (cobe)
mbat/ɗ	antilope sp.	antilope sp.
suus	anus	anus
Taan	anvil	enclume
feeŋ	appear (vb)	apparaître
jVn?	arm	bras
hwus	arm; biceps	bras, biceps
naq	arm; handful	bras, poignée
naap	armpit	aisselle
ndɔw	ash	cendre
laam	ask (vb), question (vb)	demander, interroger
song	assault (vb)	(se) jeter sur
sVnɢ	assemble (vb)	assember
dug/h	attach (vb); belt	attacher; ceinture
moy	avoid (vb)	éviter
sombe	ax sp.	hache sp.
lʌnɢ	background; deep (svb)	fond; profond
bon	bad (svp)	mauvais
jay/ɣ	balance (vb) 2	balancer 2
meeɣ/j	balance sp. (vb)	balancer sp.
moorl	ball	boule
ramb	ball, grip	boule, poingnée
ɓaak	baobab	baobab; corde
xoɓ	bark (n)	écorce
(g)wox/f	bark (vb) 1	aboyer 1
ŋaf	bark (vb) 2	aboyer 2
box	bark (vb) 3	aboyer 3
cVng	basket sp.	panier sp.
biɗ/l	bat sp.	chauve-souris sp.
sVmb	bathe (vb), wash (vb)	baigner, se laver
ŋVw/b	bean	haricot
nakw	beat (vb); hurt (vb)	battre, blesser
D/Teer/d	belly; middle	ventre, milieu
tuɗ/r	bend (vb)	courber
lunk	bend (vb); rump	courber, croupe

naɗ	bend (vb); stretch (vb)	courber; s'étirer
ƴuug	bend down (vb)	se baisser
magw	big; old (svb)	grand, agé
D/Tim	birth (vb)	enfanter
ɓas	birth (vb); family	enfanter, famille
ŋat	bite (vb)	mordre
xaaɗ	bitter (svb)	amer
ɓal	black (svb)	noir
Bajj	blanket	couverture
Tuy/ƴƴ	bleed (nose) (vb)	saigner du nez
ƴel	blood	sang
fVɲ	bloom (vb)	fleurir
bul	blue (svp)	bleu
ɓaal	body	corps
(b)waƴ	boil (vb)	bouillir
giƴ/ʔ	bone	os
luɓ	borrow (vb), lend (vb)	emprunter, prêter
Pet	bounce (vb)	rebondir
Pʊd/r	bowels	entrailles, intestins
jaj/w	bracelet sp.	bracelet sp.
mod/r	braid (vb)	tresser
xaw	braid (vb), twist (vb)	tresser, corder
ngand	brain	cerveau
sal	branch (vb; n)	bifurquer; branche
D/Taang/g	branch of rônier; mat sp.	branche de rônier; natte tressée sp.
toƴ	break (vb)	briser
ʔat/d	bring (vb)	apporter
ɓoof 1	brood (vb); egg	couver, œuf
Cəw	bucket; extract (vb)	seau; extraire
jap/b	buddle of rice	gerbe de riz
max	build (vb)	construire
bang	build a dike (vb)	faire une digue
ngɔɔx	bull	taureau
ƴ/Jong	bump 1	bosse 1
bɔmb	bump 2	bosse 2
sunj/ƴ	bump 3	bosse 3
ʔuf	bury (vb)	enterrer
fal 2	calabash	gourde
(b)waag/w	can (vb)	pouvoir

jaab/w	canter (vb)	galoper
dag/h	captive	captif
(b)wax	carry (vb)	porter
gad/ɗ	carry (vb), place (vb), charge (vb)	porter, placer, charger
sex	carve (wood) (vb)	tailler du bois
ɓuj	castrate (vb)	castrer
muus	cat	chat
luf?	cavity 1	cavité 1
lɔx	cavity 2	cavité 2
cal-cal	chain	chaîne
j/ɲeɗ/dd	challenge (vb), argue (vb), insult (vb)	contester, disputer, insulter
bes/c	change (vb), switch (vb)	changer
Gang	chest	poitrine
ƴax	chew (vb)	mâcher
ɓi	child; fruit	enfant; fruit
soɗ	choke (vb)	avaler de travers
kuru	circle	cercle
hadd	circumcise (vb)	circoncire
juul	circumcised (n)	circoncis
ɲaas	claw (vb); tattoo (vb)	griffer; tatouer
fop	clean (vb)	nettoyer
Nɢereɲ	clever (svb)	habile
ƴoƴ	clever, cunning (svb)	malin, rusé
jat/d	clitoris	clitoris
muɓ	close (vb), cork (vb)	fermer, boucher
ʔup/bb	close (vb); bury (vb)	fermer, enterrer
jɔgɔɲ	cold (svb)	froid
gərd/j	collapse (vb)	(s')écrouler
noon	color; type	couleur; type
jar-it	comb (vb)	peigner
hVp/f	comb sp. (vb)	coiffer sp.
gar	come (vb), arrive (vb)	venir, arriver
xeƴ	contain (vb); suffice (vb)	contenir; suffire
ɓay	cool (svb), wet (svb)	frais, humide
ɓuuɓ	cool (svb), cold (svb)	frais, froid
jar	cost (vb)	coûter
lig-	cotton plant	cotonnier

gaar	cotton thread	fil de coton
lim	count (vb)	compter
bomb- 2	cover (vb) 1	couvrir 1
gul/dd	cover (vb) 2	couvrir 2
ƴaf	cover (vb) 3	couvrir 3
naak	cow	vache
yol/r	coward (svb)	détendre
nawl	co-wife	coépouse
Peeɗ/ƴƴ	crack	crevasse
gekw	crack (vb), break (vb)	craquer, casser
ɓood	crawl (vb); snake	ramper, serpent
hwanx/ŋ	crazy (svb)	fou
noox/r	crocodile	crocodile
Pɔr	cross (vb)	traverser
mooɲ	crush (vb); crumble (vb)	écraser; émietter
Baax	custom	coutume
Taƴ	cut (vb); block (vb)	couper, barrer
seel	cut into strips (vb)	découper en lanières
yaq	damage (vb)	abîmer
seeɓ	dampness	moiteur
niɓ	dark (svb)	obscur, sombre
beeʈ	dawn (vb; n)	aurore, aube
ɲall	day	jour
hʌll	deceive (vb) 1	tromper 1
maak	declare (vb)	déclarer
ɓoos	deflate (vb), massage (vb)	dégonfler, masser
jip	descend (vb) 1	descendre 1
yoor	descend (vb) 2	descendre 2
saɓ	designate, point (vb); index	désigner du doigt; index
yakw	despise (vb)	mépriser
Caar	diarrhea	diarhée
ɗom	difficult (svb); thirst	difficile; soif
gas 1	dig (vb)	creuser
cuq	digging stick	bâton à creuser
bʊt	dine (vb)	dîner
toɗ	dirty (svb)	sale
das-	disperse (vb)	disperser
samb/nw	disperse (vb); abandon (vb)	(se) disperser, abandonner
xɛɛf	disregard (vb)	mépriser

gʌll	dizziness	vertige
ɓox/s	dog	chien
Baam	donkey	âne
dir	drag (vb), roll (vb)	traîner, rouler
ƴɐw/g	draw (water) (vb)	puiser
Tuf	drill (vb) 1	percer 1
yul	drill (vb) 2	percer 2
yɐr	drink (vb)	boire
yɔɔr	drool (vb); slobber	baver; bave
Bak	drum sp. 1	tambour sp. 1
bomb 1	drum sp. 2	tambour sp. 2
(g)wer	dry (svb)	sec, sécher
D/TVm	dwarf	nain
gend	dwell (vb) 1	habiter 1
kʊɗ	dwell (vb) 2	habiter 2
suup/w	dye (vb)	teindre
nof	ear (n)	oreille
yurn	ear (vb)	épier
yɔɔɓ/f	easy (svb)	facile
ɲaam	eat (vb)	manger
muɗ	eat something starchy (vb)	manger qqch farineuse
ƴar/dd?	educate (vb); whip (vb)	éduquer; fouetter
ɲigw	elephant	éléphant
(G/B)waaɲ	eliminate (vb)	écarter
hwof	enclose (vb), hug (vb), kiss (vb)	renfermer, se serrer, embrasser
ɲɪng/ɲ	engrave (vb), decorate (vb)	graver, décorer
g/ŋas/j	enjoy (vb), gossip (vb), play (vb)	s'amuser, bavarder, jouer
foƭ	equal (svb)	égal
hir	evening	soir
daɗ	exceed (vb)	dépasser
sof	exchange (vb)	échanger
(g)wor	exit (vb) 1	sortir 1
sut	exit (vb) 2	sortir 2
ɲəf	extinguish (vb)	éteindre
Giƭ	eye	œil
maf 1	falcon	faucon
yool/r	fall (vb; n)	tomber, chute
ɓaɓɓ	fall (vb) 1	tomber 1
sam	fall (vb) 2	tomber 2

yɛn	fall (vb) 3	tomber 3
goɗ	far (svb)	loin
hoor	fast (svb); abstinence	jeûner
neɓ/b	fat	gras; graisse
ɓuɓ	fat (svb); abscess	gras; abcès
baaba	father	père
gəd	fatten (vb)	engraisser
ɗing?	fence (vb), enclosure	clôturer, enclos
Dim	ficus sp. 1	ficus sp. 1
ndubale	ficus sp. 2	ficus sp. 2
heb	fill (vb), charge (vb)	remplir, charger
may	fill (vb); much; high tide	remplir; marée haute; être beaucoup’
sɪɗ	filter (vb), sift (vb)	filtrer, tamiser
Qol	finger	doigt
li(ɓ)	fish	poisson
ɓaaf/p	fish sp. (vb) 1	pêcher à la main
bʌɓ/bb	fish sp. (vb) 2	pêcher sp.
feɗ	fix (vb), button (vb)	fixer, boutonner
ɗep	flat (svb)	plat
ɓomb	flatten (vb); wither (vb)	rendre aplati; flétrir
man	flatter (vb)	flatter
pin/l-pin/l	flea	puce
D/Tay	float (vb) 1	flotter
humb	float (vb) 2	flotter, surnager
(b)waam/b	flood (vb), overflow (vb)	innoder, déborder
yʊʊr	flow (vb)	couler
sib/w	flow (vb), filter (vb)	couler, filtrer
(b)wal 2	fluid (svb)	fluide
liit	flute 1	flûte 1
sel/r	flute 2	flûte2
Coow	fly sp. (n)	mouche sp.
Guf	foam	mousse
Cut	fog (n)	brouillard
ŋok/g	fold (vb)	plier
dor	fold (vb), wrap (vb)	enrouler
D/Tekw	follow (vb) 1	suivre 1
doŋ/n	follow (vb) 2	suivre 2
ɗukw	fontanel	fontanelle

gubb	forage (vb); fodder (n)	fourrager, fourrage
sool	foreskin	prépuce
bayl	forge (vb); black-smith	forger; forgeron
Taf	forge (vb; n); black-smith	forger; forge; forgeron
(g)weƴ	forget (vb)	oublier
nai	four	quatre
xɛwt	gather (vb)	réunir
tⱯɓ	gather fruits (vb)	cueillir des fruits
ball	get in the way (vb)	mettre en travers
ʔin/m-ox	get up (vb)	se lever
Coox	give (vb) 1	donner 1
D/Tox	give (vb) 2	donner 2
ɗaq	glue (vb)	coller
ŋooɲ	gnaw (vb)	ronger
jag	go (vb)	aller
ɓelt	go through (vb)	passer par
mbe	goat	chèvre
yoox	goitre	goître
moƴ	good (svb), best	bien, meilleur
maam	grandparent	grand-parent
D/Tud/r	graze (vb) 1	brouter
suuf	graze (vb) 2	brouter, pâturer
dɪd/r	greedy (svb)	gourmand
(b)wal 1	greet in the morning (vb)	saluer le matin
saf/h	grill (vb)	griller
ɓiŋ	grimace	grimace
sox	grind (vb), pound (vb)	ôter le son, piler
gawul	griot	griot
maabo	griot; weaver	griot, tisserand
Pʊmp	grope (vb)	tâtonner
ŋuur	grunt (vb)	grogner
jaaw	guinea fowl	pintade
leeɓ	hair (body hair)	poil
mup	handle; beat sp. (vb)	poignée; battre sp.
saɗ	hard, difficult (svb)	dur, difficile
caam	harpoon 1	harpon 1
jor	harpoon 2	harpon 2
jeg/y	have (vb)	avoir, posséder
xoox	head	tête

nan	hear (vb)	entendre
yɛgg	hear (vb), perceive (vb)	entendre, percevoir
j/ɲaɓ/f	heavy rain	pluie forte, averse
meɗ	heavy, difficult (svb)	lourd, difficile
dank	heel	talon
biʔ/g	heifer	génisse
yoom	helpless, discouraged (svb)	impuissant, découragé
fud/ɗ	henna; yellow	henné; jaune
coggal	herd	troupeau
gay	herd (vb)	paître
ləkiƴ	hiccough	hoquet
bɪd/r	hide (vb), cover (vb), bury (vb)	cacher, couvrir, enterrer
took/w	high (svb)	haut
tok/ng	hinder (vb)	entraver
hwʌnx	hit (vb), bump (vb)	heurter 3
buɓ	hit (vb) 1	heurter 1
gVmp	hit (vb) 2	heurter 2
xaw/ɓ	hit (vb), beat (vb)	frapper, battre
Dung	hive	ruche
dam	hold (vb); grab (vb)	tenir; saisir
yuum	honey	miel
hwoos	hoof	sabot
saaɗ	hook someone's leg (vb)	croc-en-jambe
luʔ	horn	corne
kilikoko	hornbill	calao
pəs	horse	cheval
fok?	hot (svb)	chaud
sum	hot (svb); burn (vb)	chaud; brûler
xeex/g	hunger	faim
gaw	hunt (vb); throw (vb)	chasser, lancer
ɗan?	hunter, shooter	chasseur
gaaɲ	hurt (vb)	blesser
ŋaw/ŋ	Ibis sp.	ibis sp.
jir	ill (svb)	malade
fes	incise (vb)	inciser
gaɗ/d	indigo; dye (vb)	indigo; teindre
Puut	inflate (vb)	gonfler
(b)wen	insult (vb)	insulter
njɛlɛm	iron	fer

gaaɓ	jaw; cheek	mâchoire; joue
dab	join (vb) 1	joindre 1
jʊx	join (vb) 2	joindre 2
haf	joke (vb), revel (vb)	plaisanter, s'amuser
Cir	jump (vb) 1	sauter 1
fol	jump (vb) 2	sauter 2
diw	jump (vb), fly (vb)	sauter, voler
xonɢ	kernel, grain, nut	noyau, grain, noix
damp-	kick (vb; n)	coup de pied
(B)War	kill (vb)	tuer
(b)waaɲ	kitchen	cuisine
naaw	kite	cerf-volant
Kʊɓ/f	knee	genou
gwuɓ	knock (vb) / pull down (vb)	abattre
ʔand	know (vb)	savoir
xɔɔt	lack (vb)	manquer
Beel	lake, pond	lac, étang
yaaj	large (svb)	large
jal 1	laugh (vb)	rire
doxon/nd	lay on (vb) 1	poser sur 1
yebw	lay on (vb) 2	poser sur 2
ʔir	lay on the ground (vb)	poser à terre
xorb	layer (vb), garnish (vb)	garnir
betex	lead (metal)	plomb
ɓis	lead (vb), send (vb)	conduire.envoyer
geƴ/s	lean (vb)	adosser, appuyer
jang	learn (vb)	apprendre
ʔaq	learn (vb); teach (vb)	apprendre, enseigner
(g)was	leave (vb)	laisser, quitter
ɗal	leave (vb), avoid (vb)	laisser, éviter
baf	leave (vb), get up (vb)	partir, se lever
Qoos	leg	jambe
lamƴ	lick (vb) 1	lécher 1
met	lick (vb) 2	lécher 2
fen	lie (vb)	mentir
(b)wɔnd	lie down (vb), repose (vb)	coucher, (se) reposer
jaw	light a fire (vb); cook (vb)	allumer, cuire
Kʌɓɓ	light up (vb) 1	allumer 1
yɔɓ	light up (vb) 2	allumer 2

yɛlɛf	lightweight, easy (svb)	léger, facile
layˁ	limp (vb)	boiter
ŋjɔgɔy	lion	lion
Ton	lip	lèvre
j/ɲoow/ɓ	live (vb), feed (vb)	vivre, se nourrir
xeeɲ	liver	foie
Bu(u)d	loincloth sp.	pagne sp.
(g)woot	lonely, alone (svb)	solitaire, seul
(G/B)weyˁ-ox	look back (vb)	regarder derrière soi
mɔyˁ/j	lose (vb)	perdre
hwex	love (vb)	aimer
suuy	lower (slowly) (vb)	abaisser lentement
saafaandu	lycaon, wild dog	lycaon
daa(s)k	magpie	corbeau-pie
goor	man	homme
Birq	manure	fumier
bet	many	beaucoup
hap	measure (vb)	mesurer
regeyˁ/w	meat	viande
sɔɔy	melt (svb)	fondre
ŋeew	meow (vb)	miauler
sow	milk	lait
ɓir	milk (vb)	traire
gakw	millet	mil
ɲak	miss (vb)	manquer
fal 1	mistake (vb)	(se) tromper
babw 2	molar	molaire
naar	Moorish	maure
log	morsel; put in mouth (vb)	bouchée, mettre dans la bouche
babw 1	mortar	mortier
ɓook	mosquito	moustique
yaay	mother	mère
ɲaaw	mourning; widow	deuil; veuve
yˁaʔ?	move (vb)	déplacer
loof	mud, sink into the mud (vb)	boue, enfoncer dans la boue
muum	mute (svb)	muet
xool	naked, clean (svb)	nu, propre
KWadˁ	neck, throat	cou, gorge

cɛq	necklace	collier
yaap/b	neglect (vb)	négliger
Nɢakwal	neigh (vb)	hennir
samb/bb	nest	nid
muk	never	jamais
xas	new (svb)	nouveau
ŋaɓ/p	nibble (vb)	mordiller
yeng	night	nuit
gand	nipple	mamelle
(G)Wors	noose	noeud coulant
ganj/ŋa	okra	gombo
nɔgɔy	old (svb)	vieux
hid/ɗɗ	old (svb), worn (svb)	vieux, usé
fer	open (vb), begin (vb)	ouvrir, commencer
mʌɓɓ-it	open sp. (vb)	ouvrir sp.
(G/B)wan	orphan	orphelin
yˈool	overflow (pot) (vb)	déborder (marmite)
gak	pack (vb); stain (vb)	tasser, tacher
ɗanɢ/k	palate	palais
D/Tof/ɓ	palm sp.	palmier rônier
ɓoof 2	paralyze (vb)	paralyser
faaf	pass (vb); meet (vb)	passer, rencontrer
ɓak	paste (vb); berth (vb)	coller, accoster
ɓool	peel (vb)	écorcer, éplucher
ʔiin	person	personne (himaine)
ʔun	pestle; pound (vb)	pilon, piler
kakaraw	pharaoh hen	poule de pharaon
ɓʊf	pick up (vb)	ramasser
jʌnɢ	picket	piquet
mer/t	piece of cloth	bande de tissu
Puc	pierce (abscess) (vb)	percer (abcès)
ga-D/Tur	pig, boar	cochon, sanglier
julm	pile up (vb)	entasser
ɓeɗ	pinch (vb) 1	pincer 1
ŋut/c	pinch (vb) 2	pincer 2
Boɓ	plane tree sp.	Platane du Sénégal (*Sterculia* sp.)
j/ɲimb/ɓ	plant (vb)	planter, transplanter
ndo(n)x	plant sp. (*Annona senegalensis*)	*Annona senegalensis*
Gan 2	plant sp. (*Celtis intergrifolia*)	*Celtis intergrifolia*

bos	plant sp. (*Gardenia ternifolia*)	*Gardenia ternifolia*
Qel	plant sp. (*Grewia bicolor*)	*Grewia bicolor*
basak	plant sp. (*Hibiscus esculentus*, okra)	*Hibiscus esculentus*, gombo
ban/nd	plant sp. (*Pennisetum pedicellatum*)	*Pennisetum pedicellatum*
ban	plant sp. (*Pterocarpus erinaceus*)	*Pterocarpus erinaceus*
bel	pleasant (svb)	bon, agréable
(G)Wor	pluck (vb) 1	effeuiller 1
gos/c	pluck (vb) 2	effeuiller 2
səp	plug (soil)(vb), plant (vb)	ficher (en terre), planter
muʈ	plunge (vb); press in (vb)	plonger, enfoncer
jox/r	point (with a finger) (vb)	montrer du doigt
sangal	porcupine	porc-épic
Bonɑ/s	porridge	bouillie
dəbb	pound (vb) 1	piler 1
sɔmp	pound (vb) 2	piler 2
Pac	pour (vb) 1	verser1
yəp	pour (vb) 2	verser 2
lVɣ/jj	pour (vb); overthrow (vb)	verser; renverser
ʔad-ox	precede (vb)	devancer, précéder
hwɔm	pregnant (svb)	enceinte
maaʈ	present (svb)	présent
caga	prostitute	prostituée
dal	prove (vb)	prouver
(G/B)wos	pull (vb), remove (vb)	tirer, enlever
kurup/feŋ	punch	coup de poing
boor	pus; ripe (svb)	pus; être mûr
D/Tʊŋ	push (vb)	pousser
ɗis	push (vb), extract (vb), pull (vb)	enfoncer, arracher, tirer
Kip	push (vb), turn over (vb); pour out (vb)	pousser; renverser; vider
fus	pustule	pustule
fut	pustule; bloom (vb)	pustule; fleurir
ngowl	python	python
deɓ	rain (vb; n) 1	pleuvoir; pluie1
Toɓ	rain (vb; n) 2	pleuvoir; pluie 2
Baal	rainbow	arc-en-ciel
ndəg/ɓ?	rainy season	saison des pluies

duɗ	raise (vb)	élever
hwad/ɗ	reach (vb)	atteindre
day/ƴ	reach (vb), stop (vb)	atteindre, (s')arrêter
sop	reclaim (soil) (vb)	défricher, becqueter
(b)waj	reduce (vb), decrease (vb)	diminuer
jank	refuse (vb)	refuser
baŋ	refuse (vb); hate (vb)	refuser; détester
(g)wuus/r	renounce (vb)	renoncer
xemb	repair (vb)	réparer
nand	resemble (vb)	ressembler
xuuc	return (vb), come back (vb)	retourner, revenir
(b)wec	rib, side	côte
mal/ro	rice	riz
jop/b	rice sp.	riz sp.
mal	rich (svp); happiness	riche; bonheur
few	right (svb)	droit
laaɓ	rinse (vb)	rincer
yal/n	ripe (svb)	mûr
ɓel/nd	ripen (vb); cooked (svb)	mûrir; être cuit
ɗat	road, path 1	chemin
mbedd	road, path 2	route, chemin
gas 2	roar (vb)	mugir
juɗ	roast (vb), grill (vb)	rôtir, griller
hwuɗ/r	roast (vb), grill (vb)	rôtir, griller
Pəmb	rock, mountain, obstacle	rocher, montagne, obstacle
ŋap	roof (vb)	poser de toit
daaɗ	root; vein; creeper; grass	racine; veine; liane; herbe; graminée
mbeɗ	round; circle	rond; cercle
jaj/ƴ	rub (vb), clean (vb)	frotter, nettoyer
hwor-it	rub (vb), cure (vb)	frotter, curer
Pool/re	rubber	caoutchouc
dog	run (vb); trample on (vb)	courir, piétiner
goyl?	rust	rouille
(b)wiir	sail	voile
daq	sap	sève
goon	sap; tear	sève; larme
Pɪɗ/r	sapling	gaule; gauler
həs	save (vb)	(se) sauver

buub/w	scan (vb), brush (vb)	balayer, balai
g/ŋaj/ƴ	scar (vb), incise (vb)	scarifier, inciser
sank	scatter (vb), lose (vb)’	disperser, perdre
gid	scold (vb), thunder (vb), threaten (vb)	gronder, tonner, menacer
xoos	scrape (vb)	gratter, racler
ɲaxaɲ	scratch (vb)	gratter
ŋər	scratch (vb), claw (vb)	griffer
(g)wog	scrub (vb) 1	frotter 1
girg	scrub (vb) 2	frotter 2
sooc	scrub (vb) 3	frotter 3
fel-ox	search (vb)	chercher
(G)Waɓ/b	seed	graine
l/nul	send (vb)	envoyer
xaƴ	separate (vb), divide (vb)	séparer, partager
gen/ng	set (vb)	fixer
ɲoʔ	sew (vb)	coudre
mbel	shadow	ombre
ɗⱯkw	shadow; shelter	ombre, abri
(b)wis	shake (fingers) (vb); sprinkle (vb)	secouer (les doigts); asperger
yenk	shake (vb)	secouer
fiɗ	shake (vb), stir (vb)	secouer, remuer
gace	shame	honte
(b)well	sharp (svb)	tranchant
lak/gg	sharpen (vb)	aiguiser
xol	sheath	gaine, fourreau
mbaal	sheep	mouton
mum	shell (vb)	égrainer
labw	shell, hull	cosse, coquille
ɗel	shine (vb)	briller
jal 2	shine (vb), light (moon) (vb)	briller, éclairer (lune)
mel-	shine (vb), sparkle (vb)	briller, étinceler
D/Taɓ	short (svb)	court
canɕ	shoulder blade, back (n)	omoplate, l’arrière
ŋaax	shout sp. (vb)	crier sp.
(B)Wan/ŋ	side	côté
(b)wind/r	side, flank	côté, flanc
gim	sing (vb)	chanter

TenkV	sit on the ground (vb)	s'asseoir par terre
sɛd/r	skillful, agile (svb)	habile, agile
hut	skin (vb) 1	écorcher, dépiauter
seɓ	skin (vb) 2	écorcher
ɗool/r	skin; strip (vb)	peau, dépouiller
yooy	skinny (svb)	maigre, décharné
ɲʊʔ	slander (vb)	médire
baɗ/nt	slap (vb)	gifler
bukVnek/t	slave 1	esclave1
kab/ɓ	slave 2	esclave 2
xiris	slay (vb)	égorger
ɗaan	sleep (vb)	dormir
sVr	slip (vb)	glisser
tayl/ɗ	slow, lazy (svb)	lent, paresseux
mol	small (svb); foal	petit; poulain
suul/r	smell (vb)	parfumer
guur	smell (vb), mold (vb)	sentir, moisir, rancir
Gʊʊrʊ	snake sp. (Corn snake)	couleuvre
hakw	snap (vb); pounce on food (vb)	happer; se jeter sur la nourriture
ɗoof	snatch (vb) 1	arracher 1
hwar	snatch (vb) 2	arracher 2
ŋuy	sneer (hyena) (vb)	ricaner (hyène)
fiip	sniff (vb) 1	(se) moucher 1
ɲit	sniff (vb) 2	(se) moucher 2
xəl/r	snore (vb)	ronfler
xooƴ	soak (vb)	tremper
l/neɓ	soft	mou, doux
ɗok/ŋ?	soil sp.	terre argileuse
lees	soil; sand	terre, sable
hwɪr	solid (svb)	solide
Kees	solid (svb), stiff (svb)	dur
yeew	solitary, alone (svb)	solitaire, isolé
pimpi	soot	suie
ɓasi	sorghum	sorgho
ʔax/w	sow (vb); seed	semer; semence
yax	speak (vb), entrust (vb)	parler, confier
jamb	speak against (vb), accuse (vb)	parler contre, accuser
Caas 2	spindle	fuseau
poroc/ƴ	spit (vb) 1	cracher 1

Tuƭ	spit (vb) 2	cracher 2
ɗaamb	spleen	rate
ʔees	split (vb), tear (vb)	fendre, déchirer
kudu	spoon	cuillère
liil	spread (to dry) (vb)	étendre (pour faire sécher)
law/y	spread (vb)	(s')étendre, se propager
(G/B)woŋ	spread (vb), avoid (vb)	écarter, éviter
laŋ	spread, disperse (vb)	étaler, étendre, disperser
jɔl	sprout (vb)	germer
naj/nj	squash	courge
ɓiic	squeal (vb)	couiner
sirɗ	squirt (vb)	jet de salive
jaɗ	stall (vb)	caler
daar	stand (vb), be up (vb)	debout
xoor/d	star	étoile
dVr	start (vb)	commencer, démarrer
xes/jj	stay up (vb), spend the night (vb)	veiller, passer la nuit
guɗ/jj	steal (vb); thief	voler, voleur
Gat/d	sterile (svb)	stérile
dɔf/bb	stick (vb), plant (vb)	ẹnfoncer, planter
loƴ/j	stick in the eye (vb)	enfoncer une chose dans l'œil
ŋoɗ/dd	stingy (svb)	avare
sis	stink (vb)	répandre une odeur forte
yoŋ	stir (vb)	remuer
hwong/kk	stop (wind, rain) (vb)	cesser (vent, pluie)
ɓoor	strip (vb); pluck (vb)	dépouiller; effeuiller
tumb-	Strychnos spinosa (fruit)	Strychnos spinosa (fruit)
soox	stuff (vb), cram (vb)	boucher, bourrer
ɗɔf/ɓ	stupid (svb)	stupide
baɗ/yʔ	submit (vb)	soumettre
mur	suck (vb)	sucer
ɓuus/c	suck (vb), suckle (vb)	sucer, téter
maf 2	support (vb), take (vb)	soutenir, prendre
ɓur	surpass (vb)	dépasser, surpasser
diir	surpass (vb), overcome (vb)	surpasser, vaincre
hebw	surround (vb), fence (vb)	entourer, clôturer
joŋ/ng	suspend (vb)	suspendre
ɗagg	suspend (vb); granary	suspendre, grenier

ɗVd/ɗ	swallow (vb) 1	avaler, dégloutir
mʊd/ɗ	swallow (vb) 2	avaler
Tir	swell (vb) 1	enfler 1
ƴ/Juɗ/l	swell (vb) 2	enfler 2
(b)wɪl	swing (vb), balance (vb) 1	balancer 1
Poot	syphilis	syphilis
las/c	tail	queue
xot/ƴ	take (vb)	prendre
topat	take care of (vb)	(s')occuper de, prendre soin de
git	take off (vb)	enlever
Peƴ/cc	take the bait (vb)	mordre à l'hameçon
jɔɔɓ	Tamarisk	tamarinier
sɔɔf/ɓɓ	tasteless (svb)	fade
fVVr	tear (vb)	déchirer
sir	tear into strips (vb)	déchirer en bandes
max/ƴ	termite	termite
Gan 1	termite soldier	soldat de termite
Teng/kk	thick (svb)	épais
hwor 2	thin (svb)	maigre
yurɓ	thread (vb)	enfiler
taʈi	three	trois
(b)woq	throat	gorge
Teɓ/p	throw (vb)	jeter, lancer
bet/d	throw (vb), launch (vb)	lancer, jeter
hwayx	throw down (vb); lose (vb)	jeter par terre, perdre
feɗ/tt	tick	tique
ɲell-	tickle (vb)	chatouiller
hum	tie (vb) 1	lier, attacher
mir	tie (vb) 2	ficeler, attacher
tir	tie (vb) 3	attacher, ficeler
xit/ɗ	tight, narrow (svb)	serré, étroit
gayw	tired (svb) 1	fatigué 1
yaar	tired (svb) 2	fatigué 2
faɓ	toad	crapaud, grenouille
xande	today	aujourd'hui
ɗe(le)m	tongue	langue
ɲiŋ	tooth	dent
jam	torch	torche
xomb	tortoise	tortue

mVm	touch (vb), feel (vb)	toucher, palper
gir	tremble (vb)	trembler
send	tremble (vb), shiver (vb)	trembler, frissonner (du froid)
yɛr-n	trough	abreuvoir
hool-ox	trust (vb)	avoir confiance
hwor 1	try (vb)	essayer, tenter
(g)wur	turn (vb), drill (vb)	tourner, percer
siwd	twin	jumeau
(g)wir	twirl (vb), go around (vb)	tournailler, tourner au rond
ɗi	two	deux
bajj	unique (svb); only child	unique; enfant unique
Caŋ-it	untangle (vb), untwist (vb)	demêler, détordre
sed/ll	urinate (vb)	uriner
muur/nd	veil (vb), cover (vb)	voiler, couvrir
Coy	very (red)	très (rouge)
laalo	viscious sauce	liant sauce
duƭ	vulture	vautour
muŋ	wait (vb)	patienter
ŋaaƴ	walk (vb)	marcher, se promener
jaf/ɓ	walk (vb); foot plant	marcher, marche, plante de pied
dag/jj	walk sp. (vb)	marcher fièrement
bVg	want (vb), love (vb)	vouloir, aimer
ƴVg?	wave	vague
sanj	weave (vb), braid (vb)	tisser, tresser
ɓurg	weed (vb)	sarcler
gurb	weed (vb), reclaim (vb)	sarcler, défricher
tedd	weighty, important, honored (svb)	pésant, important, honoré
guyɓ/b	wet (svb)	mouiller
Ban	when?	quand?
paxt	whip	cravache
Qɔrɔn-	whiskers	favoris
(g)wuuƴ	whistle (vb)	siffler
D/Tan	white (svb)	blanc
berekw	wild watermelon	pastèque sauvage
xeŋ/n	wind; odor	vent, odeur
bes	winnow (vb) 1	vanner 1
jeer	winnow (vb) 2	vanner 2
ɓiir	wipe (vb)	essuyer

moos	wipe (vb), massage (vb), caress (vb)	essuyer, masser, caresser
ɗaay	wither (vb); wildfire	(se) flétrir; incendie des herbes
D/Tew	woman	femme
(g)wuɗ	wormy (svb)	vermoulu
ɲud/ɗ	wrinkle, crease	ride
bind	write (vb), trace (vb)	écrire, tracer
xaq	wrongly accuse (vb), slander (vb)	accuser; injuste
gaam	yawn (vb) 1	bâiller 1
y/ŋaaɓ	yawn (vb) 2	bâiller 2
hiiʈ	year	année
hwa(n)kV	yesterday	hier

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Name index

Language index

Proto-Fula-Sereer

This monograph proposes a reconstruction of the lexicon, the morphophonology and the noun class system of Proto-Fula–Sereer (3500 BP). Fula–Sereer represents one of the six branches of the North-Atlantic group. North-Atlantic, together with the Bak group of languages, forms the Atlantic family, which represents a separate branch within the Niger-Congo macro-family.

The lexical reconstruction of the proto-language of a group such as Fula–Sereer requires the solution of a number of questions that are of interest for the general theory of comparative studies. These questions deal with the morphophonological mutations of root-initial consonants. Since consonant mutations were structured into morphological paradigms already at the Proto-Fula–Sereer stage, the evolution of initial consonantism in Fula and Sereer was based not on regular phonetic changes, but on massive irregular analogous changes. The reconstruction of Proto-Fula–Sereer consonant mutations is given in Chapter 2. In Chapters 3-6 the author proposes a reconstruction of the initial consonants. Next, the reconstruction of final consonants (Chapter 7) as well as vowels (Chapter 8) is given. In Chapter 9, taking in account the lexical cognates, the long-standing problem of the PFS noun class reconstruction is rediscussed. The Appendix provides a list of 720 lexical reconstructions and their approximate meanings.