

A RECONSTRUCTION OF THE PAJADE MUTATION SYSTEM

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It is well known that Klingenheben in 1924 demonstrated from Koelle's material that Fula was not the only West African language with initial consonant mutation. Klingenheben was able to show that this feature, which had mystified so many linguists, was also found in Biafada. It was in all probability due in origin to phonologically conditioned variation, but the variant consonants concerned had continued to be used even when the phonological context had changed.

What is less widely known is that there are above half a dozen West Atlantic group languages with consonant mutation, and furthermore that, related to some of these, there are languages in which there are traces of a former mutation system that no longer operates.

It is the purpose of this paper to show, firstly, how far one can reconstruct the mutation system of one of these languages by analogy with those of related languages, and, secondly, to show how far such a reconstruction is related with the establishment of sound correspondences with the languages which still have a mutation system.

The languages to be considered are in one subgroup¹ of the West Atlantic group. This subgroup is quite distinct from other subgroups, though it is not so close-knit as most. The languages² concerned are: Pajade, Biafada; Tanda;³ Konyagi. These are spoken by widely separated tribes in Portuguese Guinea and the North-East of the Republic of Guinea.⁴

¹ The other subgroup whose members have mutation systems comprises Cobiana, Cassanga and Banyun. In Banyun the mutation no longer operates, though many mutation forms survive, suggesting a system similar to those which operate in the other two languages.

² The classification of these languages in Westermann and Bryan (pp. 16, 17) is misleading: Pajade, Konyagi and Basari are there said to constitute a 'Tenda' subgroup, while a relationship is postulated between Biafada, Bijagó and the Manjaco subgroup. In fact Bijagó is alone in its own sub-group, and, as Koelle had correctly indicated in his *POLYGLOTTA*, Biafada is quite closely related to Pajade.

³ The Tandas whose dialect was sampled called themselves *bə-lian* (sg. *a-lian*) and their language *o-nian*. According to Mademoiselle M.-P. Ferry of the Centre de Recherches Anthropologiques, Paris, these names are the same as those which the so-called Basaris of near Youkounkoun give to themselves and their language. A comparison of vocabulary and grammar samples indicate that the Tanda and Basari dialects in question are virtually identical.

An elderly Tanda informant said that he was born near Boké in the Republic of Guinea, during his people's migration from Sanga (?=Sangalan, 120 miles East of Youkounkoun) to Cacine, their present home. This man named four sections of *bə-lian* people: *bə-lian bə-kakani* (his own, section), and *bə-lian bə-ŋgong* (alias 'Tanda Mayo'); also, more distantly related, *bə-lian bə-boin*, and *bə-lian bə-rəgəpog* (alias 'Tanda Dunka'). It is not certain who these last named are; they are said to live near Youkounkoun. It appears that both names of this fourth section have also been applied to the Konyagis by some of their neighbours.

⁴ Taken geographically from South West to North East, the languages of the subgroup are spoken in the following areas:

Tanda (Kakani dialect): near Cacine in S.W. Portuguese Guinea; probably less than 500 speakers. They are the only Tandas in this territory to have retained their language.

Biafada: coastal area of Portuguese Guinea, southwards from opposite Bolama; about 12,000 speakers.

Pajade: round Canquelifá, in the chiefdom forming the N.E. corner of Portuguese Guinea; about 1,100 speakers.—*Continued on following page*

In all but the first named of these there is a mutation system of some complexity, intimately bound up with the class concord operated by prefixes. In Pajade the former operation of mutation can be inferred from a few surviving forms and from lexical correspondences with the rest of the subgroup. Before discussing Pajade in detail, the mutation in the other three languages will be briefly described.

RELATED MUTATION SYSTEMS

In all these languages with both class prefixes and mutation, each class prefix is followed by a limited number of radical initial consonants, to the exclusion of others. It is possible to classify the consonants into groups according to the prefixes they follow, while by comparing the various initials that can occur in a given root one may establish sets of related consonants, each of which will occur with a given prefix, and so represent what is termed a mutation grade.

For Biafada the table of consonants is as follows. The horizontal rows represent mutation grades,⁵ and the vertical rows sets of related radical initials.

I	mp	nt	nc	ŋk	mbw	mb	nd	nj	ŋg	ŋgb	nr	mm	nn	nyy	ŋŋ	ww	yy
II	p	t	c	k	bw	bb	dd	j	gg	gb	r	mm	nn	nyy	ŋŋ	ww	yy
III	f	r	s	h	bw	b	d	j	g	bw	l	m	n	ny	ŋ	w	y

Biafada has twenty-one classes, each with its concord prefix, and each requiring a given mutation grade in concordant words. These are as follows:

Classes requiring grade I: ga- gu- ma₁- nu-

Classes requiring grade II: (wa-) fu- ma₂- sa-

Classes requiring grade III: u- bæ- (gaa-) bee- bu- bwa- fa- ge- lu- ju- maa- nya- saa-

(Note: Classes indicated in brackets have zero prefixes in nouns and certain dependent words. Zero is indicated by \emptyset in the examples below.)

Grade I initials are found in nouns of the (wa-) class, but this does not appear to affect the grade of their dependent words.)

It will be seen that all the prefixes with long vowels require grade III: this may well be a survival of one of the phonologically conditioning factors that originated the mutation.

Classes ma₁- and ma₂- are distinguished by different mutation grades and by different demonstratives. Here are some examples showing concord operated by both prefix and mutation grade:

nə-nda	nə-mbe	u-diigal/ma-dda	ma-bbe	u-diigal	the stranger's child/-ren
økəda	øbbe	u-diigal/maa-həda	maa-be	u-diigal	the stranger's area/-s of bush
ønrama	øbbe	gu-r/ma-nrama	ma-mbe	gu-r	the tree's fruit/-s

The consonant tables for 'Tanda and Konyagi are given at the end of this paper. In these languages several of the prefixes are exponents of more than one concord class, the distinction then being shown by mutation agreement. In Tanda for instance, there are

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Konyagi: round Youkounkoun, in N.W. Republic of Guinea; 10,000 speakers, according to Madame M. Gessain. The figure of 85,000 quoted in Westermann and Bryan is erroneous.

Bədik, or Mənik (alias 'Basari du Bandemba' or 'Tanda Bande'): near Kédougou, Sénégal, 50 miles East of Youkounkoun; 1,400 speakers, calling themselves bə-dik, and their language mə-nik.

A further related language is Bapē, spoken near Sangalan (?=Sanga) by a very few people, in what is now a Jalonka speaking area. Bapē appears to have points in common with both Basari and Bədik.

(We are indebted to Mademoiselle Ferry for our information on Bədik and Bapē.)

⁵ These are often referred to as N (prenasalised), P (plosive) and F (fricative), but since these terms do not fit all the items in the respective grades, it is preferred to use numerals to designate the grades.

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three classes with the prefix e-, each characterised by a different mutation grade in the roots of concordant words.

Since all these languages have consonant systems appreciably different from the better known Fula system, a table of Fula mutation grades is added for comparison.

RECONSTRUCTING THE PAJADE MUTATION SYSTEM

In reconstructing the Pajade system it was postulated that the surviving traces of mutation were vestiges of a system similar to those of related languages. Within Pajade there are a few consonant sets and there is a restriction on initial consonants after noun prefixes. Surviving mutation forms are:

pe-bər	:	ma-mbər	breast	:	milk
be-jad	:	ka-njad	Pajade people	:	Pajade language
pe-jad			Pajade country		
teea!	:	ree-	go (imperative)	:	stem

The following radical initials never follow the class prefix pa-:

mp nt nc ŋk mb nd nj

The following radical initials occur only after pa-:

ḅḅ ḁḁ 'y (glottalized consonants)

The full range of radical initial consonants that has to be classified is as follows:

pp	tt	cc	kk	ḅḅ	ḁḁ	'y	mm	nn	ny	ŋŋ					
p	t	c	k	b	d	j	m	n	ny	ŋ	f	r	s	w	y
mp	nt	nc	ŋk	mb	nd	nj									

Of these, the nasal combinations and the glottalized consonants will have to be allocated to different grades since they are mutually exclusive in relation to the prefix pa-. The members of the sets b/mb, j/nj and t/r shown in the nouns and verbs quoted above will also have to be allocated to different grades.

It may further be postulated that, as in Biafada, the geminate and the simple nasals are related and so represent different grades. Again, the geminate voiceless stops may be taken as being in the same grade as the other geminates.

A question that arises is whether or not pp tt cc kk are related to mp nt nc ŋk, and whether either of these series is related to p t c k. This can only be answered after lexical comparison with Biafada: this comparison indicates that Pajade kk and ŋk are probably not related, nor kk and k.

For the position of the glottalized consonants ḅḅ ḁḁ 'y, two solutions may be put forward. Either they are nonmutating and unrelated to other consonants, as in Tanda (and Fula), or they are related to mb nd nj, as in Konyagi. This latter is preferred, since (a) in a number of roots, non-initial ḅḅ and ḁḁ correspond to Biafada bb and dd; and (b) within the Pajade system, ḅḅ ḁḁ 'y are the only consonants that could be regarded as geminates corresponding to b d j, thus paralleling the geminate/simple contrasts observed in the nasals.

All the above considerations lead to the setting up of a partial table, as follows:

I					mp	nt	nc	ŋk	mb	nd	nj				
II	pp	tt	cc	kk	p	t	c	k	ḅḅ	ḁḁ	'y	mm	nn	ny	ŋŋ
III									b	d	j	m	n	ny	ŋ

The remainder of grades I and II are filled by analogy with those of related systems. The stops p t c k are assigned to grade II since nowhere else is this series met in grade III, and furthermore in the set t/r the second member is the more likely to be in grade III.

Grade III as a whole is the most difficult to reconstruct, as there are so few nouns that take the prefixes requiring this grade alone. It survives more clearly in the verb, but since all but two of these that were examined are nonmutating, it is impossible from internal evidence alone to relate grade III and grade II for every set. Reference has to be made to sound correspondences with Biafada, of which the following are relevant here:

Bf. mp/p/f	: Pj. f	Bf. nc/c/s	: Pj. cc, s
Bf. mbw/bw/bw	: Pj. p	Bf. nt/t/r	: Pj. tt, s
		Bf. nr/r/l	: Pj. t/r

From these correspondences it is seen that Pajade p and f are not related. Pajade s should be regarded as a member of two sets, being sometimes related to cc and sometimes to tt. Similarly in Tanda z is related to c and to t.

The evidence for grade III equivalents of p and c is not satisfactory. It is not indeed certain that any such forms have survived. The verbal stems that have p and c may be grade II forms.

There is no evidence that w and y occur in any but grade III.

The grade III equivalents of kk and k are discussed in detail later.

The table of Pajade mutation may now be completed thus:

I	pp	tt	cc	kk	mp	nt	nc	ŋk	mb	nd	nj	mm	nn	nny	ŋŋ
II	pp	tt	cc	kk	p	t	c	k	ɓɓ	ɗɗ	'y	mm	nn	nny	ŋŋ
III	f	s	s	ø		r		ø,w	b	d	j	m	n	ny	ŋ w y

Classes requiring grades I and III: ka- ku- ma- ne- ŋa- we-

Classes requiring grades II and III: pa- pe- (se-)

Classes requiring grade III only: be- fa- ko- nya-

(Note: (a) The only grade II items after pe- are c and nny.

(b) The only grade II items in se- class nouns are p t c k. In this se- class the nouns have zero prefix, and no other grade II (or grade I) items can occur initially.

(c) The only plural prefix is be-. It replaces the singular prefix we-, but is added in front of all other singular prefixes.)

PAJADE-BIAFADA LEXICAL CORRESPONDENCES

Compared with other West Atlantic subgroups, the lexical affinities within the subgroup under consideration are not very great. The 'Swadesh First 100' word list gives the following approximate figures, spreading the net to include all possible look-alikes:

Pajade-Biafada 50; Pajade-Tanda 20; Pajade-Konyagi 25

The last figure is strikingly low, since the tribes concerned are the most nearly neighbouring of any in the subgroup.⁶

⁶ The following provisional figures represent the percentages obtained from a comparison of 85 to 90 items available from the Swadesh first hundred; the figures in the last line indicate the percentage of words exclusive to the language concerned:

	Pajade	Biafada	Tanda	Bødik	Konyagi
Biafada	50				
Tanda	20	19			
Bødik	20	18	52		
Konyagi	25	24	39	40	
exclusive	40	46	39	24	37

The percentage of items common to all five languages is 12. The main cleavage within the subgroup is: Pajade and Biafada vs. Tanda, Bødik and Konyagi.

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There are sufficient relatable roots in Pajade and Biafada to be able to set up a number of well attested sound correspondences, which the following examples illustrate:

Pajade	Biafada		Pajade	Biafada	
fuur-	fuul-	blow	pər-	bwəl-	rot
səf-	rəf-	sew	kam-	gam-	dance
ɲas-	ɲar-	bite	ree-	lee-	come
wucc-	wucc-	undress	cidd-	jədd-	shut
ko-bəda	ge-bəda	hand	pe-mməs	ømməsλ	mouth
pe-deema	bu-deema	tongue	pe-dikka	bu-dəgga	horn

Other correspondences show differences which are due to the fact that the prefixes in either languages require different mutation grades:

B. ma-tto Bf. ma-nto 'saliva' Pj. ma-tte Bf. gu-r (pl. maa-r) 'tree'

In Pajade both nouns have the same prefix, and the same initial in the root, *tt*; in Biafada both these nouns have different prefixes, requiring different mutation grades, but both radical initials are members of the set *nt/t/r*.

The sets of consonants involving velar stops present a special problem. The Pajade sets postulated are *kk/kk/ø* (Bf. *ɲk/k/h*) and *ɲk/k/ø,w* (Bf. *ɲg/gg/g*). This means that Pajade occasionally has no consonant where Biafada has a velar plosive or *h*; before the vowel *u* Pajade has *w* corresponding to Biafada *g*. The following demonstrate the correspondences concerned:

Pajade <i>kk/kk/ø</i>	Biafada <i>ɲk/k/h</i>	
pa-kkusa	økəsλ	axe
we-kkide	øhudλ	scorpion
maae (*maa-e)	ma-ɲke, ma-ke, maa-he (etc)	two
ad-	had-	leave (vb)
Pajade <i>ɲk/k/ø,w</i>	Biafada <i>ɲg/gg/g</i>	
wa-ɲkuwa	øɲguwa (pl. ge-guwa)	hippo
pa-wum	bu-gum	knee
maasa (*ma-əsa)	øgərλ (pl. maa-gərλ)	eye
poofa (*pa-ofa)	boofλ (*bu-əfλ)	head
	(pl. maa-gəfλ)	

This last example is difficult to accommodate, the Pajade vowel not being regular, nor the treatment of the radical initial in the Biafada singular. The postulating of this correspondence, however, may be justified on two grounds:

1. A relatable root for 'head' occurs in Tanda øgav and Konyagi a-ɲkaϕ, and is one of the most widespread in the West Atlantic group.
2. Its behaviour is closely similar to that of the root for 'eye'. This root is even more widespread in West Atlantic and the two roots usually have corresponding initials in all the languages in which both occur. Tanda has a-ɲgəz, and Konyagi i-ɲkər.

Without a satisfactory number of sound correspondences it would have been difficult to consider such pairs as Pj. matte : Bf. gur 'tree' or Pj. maasa : Bf. gərλ 'eye' even as look-alikes, let alone cognates. The task of relating Pajade and Biafada is facilitated by our being able to reconstruct something of Pajade's former mutation system.

It may be that there are language groups in which application of the comparative method is made extremely difficult by the fact that one or another, or even perhaps all the languages concerned have previously had some comparable feature, though its

former operation has remained unsuspected. It is hoped that what has been presented here may suggest a method of procedure that will be applicable to such situations.

APPENDIX 1

A. Tanda mutation system:

I	p	t	c	k	kw	(mb)	n	(nd)	nj	ŋg	ŋgw	m	m	n	ny	ŋ				
II	p	t	c	k	kw	b	b	d	d	j	g	gw	ɓ	'y	m	n	ny	w	y	
III	v	z	z	ɣ	ɣw	w	b	l	r	y	ø	ɓ	'y	b	w	n	y	ø	w	y

Items in brackets are those whose relationship with the grade II and III forms is uncertain.

B. Konyagi mutation system:

I	p	t	c	k	mp	nt	nc	ŋk	mb	nd	nj	m	n	ny	ŋ
II	p	t	c	k	b	d	j	g	ɓ	d'	'y	m	n	ny	ŋ
III	ɸ	r	s	h	w,β	l	y	ø,w,y	β	ry	y	~w	ŋ	~y	~y

(ɸ, β : bilabial fricatives; h : 'voiced h'; ~w, ~y : nasalised vowel plus w, y; ŋ : nasal flap)

C. Fula mutation system (Western dialects, according to Labouret) for comparison with the four in the subgroup treated in this paper:

I	p	t	c	k	mb	nd	nj	ŋg	} ɓ d' 'y l m n ny ŋ
II	p	t	c	k	b	d	j	g	
III	f	t	s	h	w	r	y	y,w,'	

Notice the great number of nonmutating consonants, including t. Fula has suffixes in its nouns; suffix initials mutate according to the stem whose class they indicate, but the suffix-initial sets are not all relatable to the stem initials here listed.

(Biafada system, see page 16. Pajade system, see page 17.)

APPENDIX 2

Pajade, Biafada, Tanda and Konyagi have the following vowel phonemes:

i ə u
e a o

In Biafada the final vowel [ʌ] was frequently noted, but this is not apparently phonemic, and should probably be allocated to a.

There is phonemic contrast between long and short vowels in all four languages.