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The phonology of Proto-Central Chadic : the reconstruction of the phonology and lexicon of Proto-Central Chadic, and the linguistic history of the Central Chadic languages

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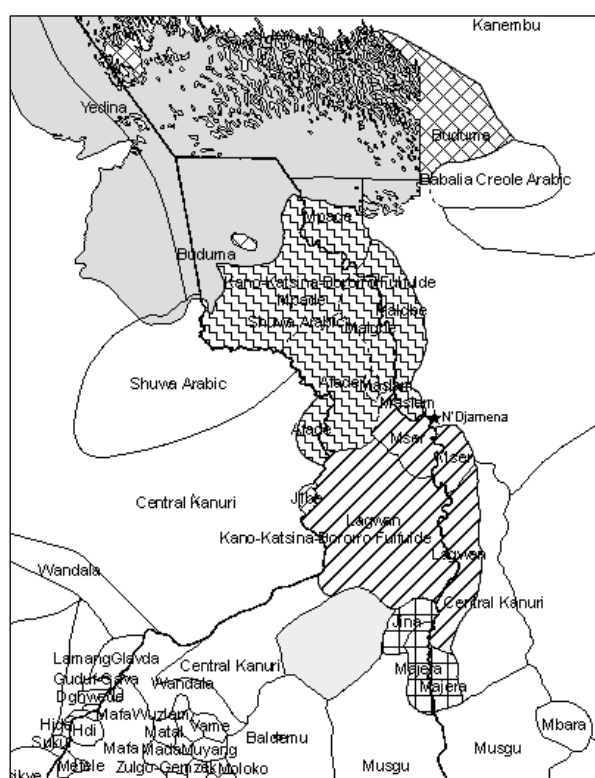
8 Kotoko Languages

8.1 Introduction

The Kotoko languages are divided into four groups (Tourneux 2001):

1. Kotoko South – Zina, Mazera
2. Kotoko Centre – Lagwan, Mser
3. Kotoko North – Mpade, Afade, Malgbe, Maltam
4. Kotoko Island – Buduma (Yedina)

The following map shows the locations of the four Kotoko groups and the languages within each group.



Map 28 - The Kotoko languages

The Kotoko languages have long been considered to form a genetic unit (Newman 1977a; Barreteau 1987a), but this analysis is probably incorrect (Gravina 2011). However they do form both a cultural grouping and also a linguistic area, sharing many phonological, lexical and grammatical features.

The Kotoko vowel system is probably the least ‘interesting’ of those studied here. There are very few signs of any prosodic activity, and in most cases a simple segmental analysis is adequate.

In this section we will look at the phonologies of the different languages, and for each group deduce as much as is possible about the phonology of the proto-language. Whilst the evidence rules out the reconstruction of any prosodies for any of the groups, we are in some cases able to find evidence for an underlying three-vowel system, and in all cases we can find evidence for the existence of labialized velars.

One of the features of the Kotoko languages is the strong influence from Kanuri. Many Kanuri lexical items have been incorporated into the lexicons of Kotoko languages (Allison 2005a), and this serves to obscure the phonological features inherited from the ancestor languages.

Four of the languages have been the subject of linguistic studies, one from each of the Kotoko groups: Zina from Kotoko South (Schmidt, Odden, and Holmberg 2002; Odden 2005; Odden 2007); Lagwan from Kotoko Centre (Lukas 1966; Ruff 2005); Mpade from Kotoko North (Mahamat 2005; Allison 2005b; Allison 2012); and Buduma from Kotoko Island (Lukas and Nachtigal 1966; McKone 1993; Awagana 2001).

8.2 The Kotoko South Group

The Kotoko South Group consists of two languages, Zina and Mazera. Only Zina has been the subject of linguistic study (Odden 2002a; Odden 2002b; Odden 2005; Odden 2007). This group is the most distinctive of the four Kotoko groups, and shares many cognates with languages from the Mandara, Hurza and Mofu groups, rather than with the other Kotoko groups. These languages are separated from the Kotoko South languages by the Waza National Park, and areas where Kanuri and Fulfulde are spoken. However, the presence of the Kanuri and Fulani only dates back a few centuries and the national park is a recent creation, so it is probable that the Kotoko South languages were direct neighbours of these other Central Chadic languages before these events. The

evidence overall is insufficient to determine whether the Kotoko South languages are more closely related to the other Kotoko groups or to the Mandara, Hurza or Mofu groups.

8.2.1 Zina Vowels

Odden describes Zina as having a six vowel system consisting of the five standard vowels plus schwa.

In verbs, [u] always occurs following a velar or /w/, and so is better analysed as /ə/, with a preceding velar being labialized. Almost all [u] in the data can be accounted for in this way, with most of the remaining examples appearing in loan words. Similarly, the status of the phoneme /o/ is marginal. Most of the occurrences of [o] are in loan words. Other occurrences could be analysed as resulting from the sequences /wa/, /aC^w/ or /C^wa/.

(120)	tʃu	/tʃəw/	'two'	cf. Mbuko tʃew
	wunha	/wənha/	'to ripen'	
	gula	/g ^w əla/	'to scratch (chicken)'	
	ᵑguna	/ᵑg ^w əna/	'to be big'	
	fodi	/f ^w adi/	'four'	cf. Vame fudaw
	hok ^w a	/hak ^w a/	'three'	cf. Gidar hoku (/hakə ^w /)

The vowel /e/ is rare, and appears primarily in loan words. The vowel /i/ is well attested.

There is no indication of any vowel harmony or other prosodic process.

(121)	bisa	'to marry'
	diman	'year'
	ɗaɗin	'smoke'
	gabil	'enemy'
	bəɗa	'not'
	lahə	'to be difficult'
	həni	'girl'
	ləvin	'night'
	lisən	'river'

From this we can propose that the core vowel system of Zina comprised /a/, /ə/ and /i/.

8.2.2 *Zina Consonants*

There is a set of labialized velar consonants, but post-consonantal /j/ is analysed by Odden as a separate segment and not as a component of a palatalized consonant.

There are both laminals and palatalized laminals in Zina. However, the affricates are always realised as [tʃ] and [dʒ], and the fricatives as [s] and [z]. There is no variation or allophony of any type.

Lateral fricatives have been lost in Zina, with *ɬ→s.

8.2.3 *Mazera*

For Mazera there is nothing published on the language, and the only data available is a list of 350 words (Allison n.d.).

The data is consistent with the tentative analysis described for Zina.

8.2.4 *Reconstructions*

There are only a few words in the data where reconstructions are possible, and no general conclusions can be reached from such limited data.

8.3 The Kotoko Centre Group

The Kotoko Centre group consists of the two languages Lagwan and Mser. There is a published phonology of Lagwan (Ruff 2005) but there is nothing published on Mser.

8.3.1 *Lagwan*

Ruff (2005) gives a very thorough analysis of Lagwan phonology. The consonantal system includes a set of labialized velars, and this labialization spreads optionally to the other velars in the word. There are no palatalized consonants in the core phonological inventory, though a number exist in the language in the large sub-lexicon of loan words.

Ruff analyses Lagwan as possessing one vowel phoneme at the deepest level, namely /a/. However, both /e/ and /o/ have also become phonemicised, though their distribution is very limited. They may have their origins in sequences such as /aj/ and /aw/ or /C^wa/, but there is evidence that these vowels exist now as phonemes. Ruff describes the phonologisation of /e/ as being more advanced than that of /o/.

Similarly, the vowels /i/ and /u/ have only been phonemicized word-finally. /i/ is more common than /u/.

Some verbal suffixes are ‘root vowel integrating’, i.e. they cause all the vowels in the verb root (except schwa) to assimilate to the suffix vowel. The suffix /-e/ forms verbal nouns from transitive verbs, /-u/ forms verbal nouns from verbs with extensions, and /-o/ is the ventive suffix.

root	+e	+u	+o	meaning
/kala/	/kele/	/kulu/	/kolo/	‘to gather’
/dana/	/dene/	-	/dono/	‘to transport’
/gala/	/gele/	-	/golo/	‘to hunt’
/p̄araka/	/p̄areke/	/p̄aruku/	-	‘to separate’

Table 97 - Root vowel integrating suffixes in Lagwan

The vowel [ɪ] is analysed as an epenthetic vowel.

8.3.2 Mser

There is no published work on Mser, but there is a word list of 1,800 words (Allison n.d.).

From the data available, the characteristics appear broadly comparable to Lagwan. There is a set of labialized velar consonants, and no palatalized consonants.

The vowel system is comparable with Lagwan, though the front and back-rounded vowels seem more central to the system than they do in Lagwan. Further research is needed on this language in order to properly establish its phonological characteristics.

8.3.3 Reconstruction

It is possible to reconstruct a good number of items for Proto-Kotoko Centre, though with only two languages to provide evidence, the reconstructions are necessarily tentative, and rely on external data as well as internal data.

In the vowels, *o is absent from the reconstructed forms for native words, though present in a couple of loan words.

*u is also absent, having developed from the influence of /w/ or a labialized velar. Internal evidence would support the reconstruction of *u in certain cases,

but the external evidence, combined with the widespread co-occurrence of /u/ with velar consonants, makes it more natural to analyse /u/ as an innovation in Lagwan and Mser that was not present in Proto-Kotoko Centre. The forms given for Proto-Kotoko Centre take into account external as well as internal evidence.

Gloss	Proto-Kotoko Centre	Lagwan	Mser
child	ɣ ^w il	yuli	ulo
mouse	k ^w isim	xsumi	kusum
fly (insect)	ziwid ^f	zu	ms'əwi

Table 98 - Creation of /u/ in Kotoko Centre

*e is well attested amongst the reconstructions, but most often in word-final position.

Gloss	Proto-Kotoko Centre	Lagwan	Mser
to cry	siwe	səwe	swe
dog	kile	kle	kle
dream	siwane	swane	sware
moon	tedi	tedi	tedi
night	nvade	nvade	nvade

Table 99 - /e/ in Proto-Kotoko Centre

*i is almost exclusively found in word-final position where it results from *ij (with *j coming from *d^y in some instances), or else is a reflex of the palatalization prosody. Under this analysis, the phoneme *i is an innovation in Proto-Kotoko Centre and not an inherited phoneme. (An alternative analysis could be that the word-final *i is a retention of an archaic vowel that developed into the Proto-Central Chadic palatalization prosody. However, this would not account for data with a final /d/ in other languages.)

Gloss	Proto-Central Chadic	Proto-Kotoko Centre	Lagwan	Mser
tongue	naɬij	enɬi	nɬi	enɬi
nose	h ^w itsin ^y	hisini	xsini	asin
tooth	ɬidɪn ^y	ɬini	ɬini	sir
ear	ɬimid ^y	ɬimi	ɬimi	sim
fly (insect)	dziwid ^y	ziwid ^f	zu	ms'iwi

Table 100 - Final *i in Proto-Kotoko Centre

We can tentatively conclude that Proto-Kotoko Centre had at least four vowel phonemes, /a/, /i/, /e/ and /ɪ/, though the vowels in the reconstructed forms for Proto-Kotoko Centre should be considered provisional in many cases.

The consonants include a set of labialized velars.

Gloss	Proto-Kotoko Centre	Lagwan	Mser
urine	k ^w ine	nkune	kure
faeces	ɲg ^w i	ɲgu	e ^ɲ go
drought	k ^w ala	k ^w ala	k ^w alo
kidney	h ^w idɪs	xudusi	hidis
child	ɣ ^w il	ɣuli	ulo

Table 101 - Labialized velars in Kotoko Centre

8.4 The Kotoko North Group

The Kotoko North Group comprises four languages: Mpade, Afade, Malgbe and Maltam. Of these, only Mpade (Mahamat 2005; Allison 2005b) has been the subject of linguistic studies.

8.4.1 Mpade

Allison (2012) analyses the labialized velars in Mpade as being /Cw/ sequences. This is a synchronic analysis based on the Makary dialect. However he gives comparative data from the Bodo dialect, showing that /Cw/ sequences in Makary are equivalent to labio-velars in Bodo. This implies that Proto-Mpade had phonemic labialized velars. Tourneux (2001) includes labialized velars amongst the phonemes in Mpade.

There is also a set of palatalized laminal consonants, but their status is considered marginal, and accounted for largely by borrowings.

Mahamat describes the language with five vowels, plus an epenthetic vowel, with no evidence of vowel harmony or of systematic palatalization of consonants.

Allison concludes that synchronically the language has six vowels (Allison 2012), but argues that, if borrowings from Kanuri and Shuwa Arabic are excluded, the language can be analysed with three vowels /e/, /a/, /o/, plus schwa (Allison 2005b). Allison also provides evidence that the schwa should be analysed as a full phoneme and not as an epenthetic phone (Allison 2012). [i] is

due either to the vocalisation of /j/ or the palatalization of [ə] by a preceding post-alveolar consonant (/ʃ/, /tʃ/, /tʃʰ/ and /dʒ/). [u] is due either to the vocalisation of /w/, the labialization of [ə] by a preceding labialized velar (/k^w/, /k^{wʰ}/ and /g^w/), or else the labialization of a word-final [ə] by a preceding labial consonant.

8.4.2 *Afade*

There is no published work on Afade, except for the comparative studies by Tourneux (2001; 2003), though there are wordlists collected by Lebeuf (1942), and Allison (n.d.).

From Allison's data, Afade appears to have neither labialized nor palatalized consonants. The surface vowel system consists of the six vowels [i], [e], [a], [o], [u] and [ɪ].

Afade also has the ejective consonants [kʰ], [fʰ], [sʰ] and [tʰ]. These are the result of an historic process where there was fusion of the base consonant with the glottal component of an implosive (see section 3.4.7).

8.4.3 *Malgbe*

Malgbe, also known as Goulfey, has not been the subject of any phonological study, except again for the comparative studies by Tourneux (2001; 2003). There is also a wordlist (Allison n.d.).

As with Afade, Malgbe has neither labialized nor palatalized consonants. However Malgbe includes a set of labial-velar consonants: [kp̠], [gb̠], [gb̠] and [ᵐgb̠]. For [gb̠] and [ᵐgb̠], these can be seen to have developed historically from *k^w/*g^w and *ᵐg^w.

Gloss	Proto-Central Chadic	Proto-Kotoko North	Malgbe
faeces	ᵐg ^w ɪ	eᵐg ^w ɪ	eᵐgb̠ɪ
cow hump	dzɪg ^w ɪr	sig ^w ɪre	sig̠b̠ɪre
mouse	k ^w ɪsɪm	k ^w ɪsɪm	gb̠ɪm

Table 102 - Development of labial-velars in Malgbe

Malgbe also has the ejectives [sʰ], [kʰ] and [tʰ], with a history similar to those of Afade.

The surface vowel inventory of Malgbe is the same as Afade.

8.4.4 *Maltam*

For Maltam, the only available data is a short wordlist (Allison n.d.). The consonant inventory is similar to Afade, including the ejectives [s'], [k'] and [ʔ]. The surface vowels are the same as in Afade and Malgbe.

8.4.5 *Reconstructions*

With four languages and a good amount of data it is possible to find a reasonable number of reliable reconstructions for the group.

The labialized velars are well-attested in Proto-Kotoko North. In Malgbe they mostly have reflexes that are labial-velar double plosives. Labialized velars have been lost in Afade and Maltam, with many appearing as implosives.

Gloss	Proto-Kotoko North	Afade	Maltam	Mpade	Malgbe
mouse	k ^w isim		ḃisim	kusumu	ḡbim
belly	ᶯg ^w in	mḃin		ᶯg ^w in	mḡbin
faeces	eᶯg ^w i	e ^m ḃo		eᶯgu	e ^m ḡbi
to vomit	tak ^w a	doḃa		tak ^w a	daḡḃawun
cough	h ^w iḃiḃa	ḃiḃa		k ^w aḃan	ḃaḃawun

Table 103 - Labialized velars in Proto-Kotoko North

The vowel /a/ is easily reconstructed.

Gloss	Proto-Kotoko North	Afade	Maltam	Mpade	Malgbe
claw	nk'an	nk'an	ngare	nk'an	nk'in
four	gaḃe	gaḃe		gaḃe	gande
guinea fowl	tsafan	tsifan	safan	safan	safan
honey	mam	mam		mam	mam
night	faḃe	faḃe		faḃe	faḃe

Table 104 - /a/ in Proto-Kotoko North

Likewise, /i/ appears with a good degree of consistency across a number of cognates.

Gloss	Proto-Kotoko North	Afade	Maltam	Mpade	Malgbe
to cry	tsiwe	tsiwe		siwe	siwe
dog	kilew	gilew		kilew	gilew
ear	ɛim	ɛim		ɟimu	ɛim
hut	fin	fin		fin	fin
navel	tsimtsim	tsimtsim	simsim	simsim	simsim

Table 105 - /i/ in Proto-Kotoko North

There are several roots reconstructed containing /o/, but only a few which may come from Proto-Central Chadic, and the data is not always consistent. /o/ almost always occurs word-finally.

Gloss	Proto-Central Chadic	Proto-Kotoko North	Afade	Maltam	Mpade	Malgbe
head	ɣ ^w i→g ^w a	go	go		go, ko	
bird	-	tsabo	tsabo	sapo		sagbi
field	sika	sko			sko	sko
hut	ɣaj	ho	ho		ho	ha
millet	vijaw	fiɟo	feyo		fio	fiyo

Table 106 - /o/ in Proto-Kotoko North

The vowel /u/ exists as the remnant of an historic labialized velar (via vowel assimilation processes), or else in probable loan words. Data from Lagwan (Kotoko Centre) is given for comparison.

Gloss	Proto-Kotoko North	Afade	Maltam	Mpade	Malgbe	cf. Lagwan
cow	dum			dumu	dum	/diɣ ^w imi/ [duɣumi]
flour	muɓi	muɓi	mɓi		mamɓi	/mɪx ^w bi/ [muxɓi]
porcupine	a ^m bu	a ^m bu		a ^m bu	a ^m bu	
quiver	suru	suru		suru	suru	

Table 107 - /u/ in Proto-Kotoko North

The vowel /i/ is only attested in word-final position. In most of the cases where the Proto-Central Chadic roots are known, the /i/ has come from *ij.

Gloss	Proto-Central Chadic	Proto-Kotoko North	Afade	Maltam	Mpade	Malgbe
bone	dɪɬ	enʔi	enʔi		enʃi	enɬi
monkey	vidij→virij	fili	fili		fli	fli
tongue	naɬij	enɬi	enɬi		enʃi	enɬi
fly (insect)	dziwid ^y →ts'iwi	ts'iwi	tsiwi	s'iwi		

Table 108 - /i/ in Proto-Kotoko North

The vowel /e/ is well-attested.

Gloss	Proto-Kotoko North	Afade	Mpade	Malgbe
to cry	tsiwe	tsiwe	swe	suwe
dog	kilew	gilew	kilew	gilew
dream	saware		sware	yaware
moon	tedi	dedi	tedi	tedi
night	fade	fade	fade	fade

Table 109 - /e/ in Proto-Kotoko North

We can provisionally conclude that Proto-Kotoko North had at least the vowels /a/, /ɪ/ and /e/, and possibly also /i/ and /u/, though these last two would be innovations.

8.5 The Kotoko Island Group

The Kotoko Island Group consists of the single language Buduma, also known as Yedina. There is a published grammar of Buduma (Awagana 2001), and also a phonological analysis (McKone 1993).

Buduma has undergone a number of sound changes which have severely reduced its consonantal inventory. Voiced fricatives have been devoiced, and *ɬ and *s have both developed into /h/.

McKone includes just one labialized velar phoneme, /k^w/, but Awagana includes data showing labialization of a number of consonants from all places of articulation. Neither includes underlying palatalized consonants in their analyses, though the laminal affricates are realised as post-alveolar affricates [tʃ] and [dʒ].

The Buduma vowel system is difficult. McKone presented several possible analyses, from a system based on three underlying central vowels, with fronting and back-rounding caused by palatalization and labialization or adjacent semi-vowels, to a system of nine vowel phonemes.

The three central vowels are illustrated by the following examples:

(122)	/ə/	[kəməne]	'this year'	[gəhənni] ~ [kənni]	'you know me'
	/ɜ/	[kəmɜni]	'show me'	[kɜni]	'true'
	/a/	[kəmani]	'master'	[kani]	'goat'

McKone shows that, once the influence of neighbouring consonants and various coalescence phenomena are taken into account, the nine vowel system can be reduced to a six vowel system (/i/, /e/, /ə/, /a/, /u/, /o/). This is the same synchronic vowel system as found in the other Kotoko languages.

8.6 The Question of Proto-Kotoko

The Kotoko languages have long been thought to form a single genetic unit. Newman (1977a) classified the Kotoko languages together in group B.1 of Central Chadic (Biu-Mandara). Barreteau (1987a), using lexico-statistics, classified the Kotoko languages as a separate unit at a higher level, with the Kotoko languages described as Central Chadic North, and the rest of Central Chadic and Masa forming Central Chadic South.

However, whilst the four Kotoko groups are related culturally, the evidence from sound changes argues against considering them being descended from a common linguistic ancestor (see Gravina (2011) and sections 3.2.3, 3.3.16 and 3.3.17). No sound changes have been presented in favour of the genetic unity of the Kotoko groups. In the case of the Kotoko South languages (Zina and Mazera), the lexicostatistical evidence shows a similar degree of similarity between them and the languages of the Mofu and Mandara groups as they have with the other Kotoko languages. Given the high degree of contact between the Kotoko South languages and the other Kotoko languages, and the geographic separation between the Kotoko South languages and the Mandara and Mofu group languages, it is more likely that their genetic relationships are closer to the Mandara and Mofu groups and that their lexical similarity with the other Kotoko groups has come from contact.

We have treated the Kotoko languages as constituting four different groups within Central Chadic. However, the Kotoko languages do form a linguistic area, and it is relevant in that context to attempt to describe the phonologies of the area in terms of variants of a single system.

Tourneux has published a number of comparative papers on the Kotoko languages, including discussions of the vowel system (Tourneux 2003) and the consonantal system (Tourneux 2001).

Tourneux's Proto-Kotoko consonantal system includes a set of labialized velars. There is no contrast between palatalized and unpalatalized laminals. Tourneux does not reconstruct voiced fricatives or pre-nasalized consonants.

For the vowel system, Tourneux reconstructs a two-vowel system, *a and *ə (or absence of a vowel). He ascribes the existence of /i/ to *ə adjacent to /j/, and *e to the combination /aj/. /o/ and /u/ are formed from *a and *ə adjacent to /w/ or a labialized consonant. He states that /e/ and /o/ are phonemicised in the present-day languages, whereas for /i/ and /u/ this process is still under way, and these vowels may not constitute vowel phonemes in the present-day languages.

Whilst I do not consider the Kotoko languages to form a genetic unit (Gravina 2011), their phonologies do form a coherent type. We have seen from the reconstructions in at least two of the groups that the vowel systems may include a third vowel *e alongside *a and *ə. Contrary to Tourneux, there is a voiced-voiceless distinction in fricatives, except where it was lost in Kotoko Island and Kotoko North (see section 3.2.3). In agreement with Tourneux, a set of labialized velars can be reconstructed for the different Kotoko groups.

