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PROTO-CHADIC VERB CLASSES *

1. INTRODUCTION

Most analyses of Chadic languages are unconsciously influenced by patterns of thought established through the study of Hausa. This influence is particularly evident with regard to the manner in which scholars analyze basic verb forms. As systematically described by Parsons¹, the final vowel and tone of a Hausa verb are taken as affixal elements rather than as part of the underlying root. For example, the verb *fiɗá* „to go out” is analyzed as being composed of an underlying lexical root **fi-* plus an affix consisting of the terminal vowel *-a* and the tone pattern Lo-Hi². Similarly, *dáɗáa* „to cook” is composed of **daf-* plus *-aa* and Hi-Lo, *bi* „to follow” is composed of **b-* plus *-i* and Hi, etc. When we turn away from Hausa and look, for example, at Lukas’ description of Bole³, we find the same kind of analysis. With the exception

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¹ F. W. Parsons, *The Verbal System in Hausa*, „Afrika und Übersee” XLIV, 1960/61, pp. 1—36.

² As an abbreviation, high referring to tone will be written Hi, low will be written Lo.

³ J. Lukas, *Die Personalia und das primäre Verb im Bolanci (Nordnigerien)*, „Afrika und Übersee” LIV, 1970/71, pp. 237—86,

of a small number of verbs of the form CV, all verbs included in the lexicon are listed without final vowel or tone, e.g. *mot-* „to die”, *dapp-* „to sow”, *bas-* „to shoot”.

It is probably fair to say that the overwhelming majority of Chadic scholars have tacitly assumed that an analysis of verb forms along these lines was not only valid for individual present-day Chadic languages, but would also prove valid for the reconstructed verbal system of Proto-Chadic. However, on the basis of intensive research on Comparative Chadic carried out over the past five years, I have become convinced that this generally accepted way of looking at Chadic verbs is incorrect. I propose instead a radical revision in our approach to Chadic verbs, a revision which requires that the usual assumptions about the role of tone and final vowel in verbs be rejected. Contrary to previous approaches to Chadic verbs, I would argue for the adoption of a system in which these two variables, tone and final vowel, are deemed to have lexical significance. Specifically, I would wish to make the following claims about the Proto-Chadic verbal system:

(a) All verbs contained a final vowel as an integral, lexically determined component. This vowel was as much a part of the specification of that lexeme as the consonants and the internal vowels.

(b) Polysyllabic verbs occurred with two and only two final vowels, these being *-a* and *-ə*.

(c) Monosyllabic (CV) verbs in the proto-language also made use of these two vowels and very possibly occurred with one other high vowel as well.

(d) Verb tone was also lexically specific and not grammatical or derivative.

(e) Tone pattern and final vowel were independent rather than covarying features. The description and classification of a verb would thus depend on the intersection of these two variables. For example, a CV verb could end either in *-a* or *-ə* (limiting ourselves to these two) and have either Hi or Lo tone, thereby resulting in four possible verb classes, *Cá*, *Cà*, *Cá̃* and *Cà̃*.

LV, 1971/72, pp. 114—39. „Bolanci” is the Hausa word for the Bole language.

The Proto-Chadic system suggested above is still clearly reflected in the verbal system of present-day Chadic languages. While some languages have only retained the proto-system to a minor extent, the widespread distribution of the reconstructed features taken as a whole and the similarities in detail found among distantly related languages argue convincingly for the accuracy of the claims being made about the proto-language.

The primary data in this study are drawn from eight Chadic languages representing two major branches of the family, namely Tera, Ga'anda, Margi and Kotoko, representing the Biu-Mandara branch, and Ngizim, Bole, Kanakuru and Hausa, representing the Plateau-Sahel branch ⁴. For methodological reasons this study was purposely limited to these eight languages out of the more than sixty to eighty Chadic languages that exist. It was felt that in order to identify underlying morpho-syntactic patterns and reconstruct systems (rather than isolated traits) it was more important to compare a small number of languages that could be analyzed in depth than to treat a large number of languages in a superficial manner. It was also felt necessary to control the quality of the primary data being compared by restricting inclusion to languages that either had been studied by me personally or by one of my co-workers ⁵, or else had been the subject of a detailed modern-day description by some other reliable investigator ⁶.

⁴ The three most important sources for Chadic classification are J. H. Greenberg, *The Languages of Africa*, Bloomington 1963; P. Newman and R. Ma, *Comparative Chadic: Phonology and Lexicon*, „Journal of African Languages” V, 1966, pp. 218—51; O. Hoffmann, *Provisional Check List of Chadic Languages*, Chadic Newsletter (Marburg), 1971. My earlier opinion was that all Chadic languages could be assigned to one or the other of the two major branches, Biu-Mandara and Plateau-Sahel. I now feel that a third co-ordinate branch is needed to accommodate the East Chadic languages spoken in the Chad Republic.

⁵ My co-workers on the Comparative Chadic Syntax Project, to whom I owe a debt of thanks, were Dr. R. G. Schuh and Dr. R. M. Newman.

⁶ Since the scope of this study was delimited, a number of new works on Chadic languages have appeared, e.g. J. Carnochan, *Categories of the Verbal Piece in Bachama*, „African Language Studies” XI, 1970, pp. 81—112; H. Jungraithmayr, *Die Ron-Sprachen*, Glück-

To fully appreciate the significance of the similarities found in the verbal systems of these eight languages, two facts should be kept in mind. First, these languages were chosen for study *before* the analysis presented here was developed, i.e. they were not chosen because they exhibited these similarities, but rather were found to share various features only after having been selected for other reasons. Secondly, these languages occupy a wide geographical area and in many cases are quite distantly related to one another⁷. While all sub-groups and clusters within Chadic are not represented — the most serious omission is the East Chadic group spoken in the Chad Republic — the diversity of languages included rules out the possibility that the similarities found could be due to borrowing or to chance resemblance.

For purposes of the description that follows, verbs of the form CV will be set apart from the other forms of verbs. The CV verbs will be termed „monoverbs”; verbs of all other shapes including CVCV, OVCVCV, and even CVC will be termed „polyverbs”. To simplify the discussion, only polyverbs of the form CVC and CVC will be included, the assumption being that the less common verbs with more than two consonants could naturally be accommodated within the same system. Within polyverbs the Proto-Chadic distinction between those ending in *-a* and those ending in *-ə* will be referred to as *a*-verbs and *ə*-verbs („schwa-verbs”) respectively, regardless of the exact quality of the final vowel in the particular modern-day language under consideration.

Apart from the normal orthographic symbols with their recognized IPA values, the following special symbols and/or conventions will be employed in the examples: *β*, *d* = glottalized

stadt 1970; J. Lukas, *Studien zur Sprache der Gisiga (Nordkamerun)*, Glückstadt 1970; H. Meyer-Bahlburg, *Studien zur Morphologie und Syntax des Musgu*, Hamburg 1972. While these works are not incorporated in this paper, they were consulted carefully and nothing was found that contradicted the theory being presented here.

⁷ According to Lukas' earlier classification, languages such as Margi and Kotoko, or Tera and Hausa, were not even assigned to the same language family. See J. Lukas, *The Linguistic Situation in the Lake Chad Area in Central Africa*, „Africa” IX, 1936, pp. 332—400. D. Westermann and M. A. Bryan, *Languages of West Africa*, London 1952 [Chapters 9 and 10 prepared by J. Lukas].

stops; *mb*, *nd*, *nj*, *vg* = prenasalized obstruents (unit phonemes); *tl*, *dl* = voiceless and voiced lateral fricatives; *č*, *š*, *ž*, *ž* have the values of the initial sounds in English „church”, „judge”, „shoe”, and French „jeu”; *y* will represent the palatal semivowel in English „you”. Long vowels and geminate consonants will be written with double letters; tone will be indicated by accents, i.e. \acute{a} = Hi, \grave{a} = Lo, \acute{a} = mid, \hat{a} = falling, \tilde{a} = rising.

II. VERB CLASSES IN PRESENT-DAY CHADIC LANGUAGES

Biu-Mandara Branch

1. TERA⁸. Tera has a six vowel system commonly found in Chadic languages of northeastern Nigeria, namely *a*, *e*, *i*, *o*, *u*, *ə*. Phonemic vowel length exists but is lexically insignificant. Tera has three discrete tones: Hi, Mid, and Lo. Falling and rising tones occur but usually as a result of vowel deletion or contraction.

Polyverbs in Tera end either in *-a* or in the morphophoneme *-ə*⁹. The *ə*-verbs have three surface realizations:

(a) In absolute final position they are pronounced with a final */i/* due to the fact that */ə/* does not occur in Tera before phonological juncture, e.g. *wà vgúmi* „he tired”, *wà kədì* „he pulled (it)”.

(b) In non-final position, the *-ə* is usually deleted, e.g. *nə vgúm bá* „he didn't tire”.

(c) In cases where the *-ə* may not be deleted for phonotactic reasons (e.g. when preceded by abutting consonants or by a voiced obstruent), it remains and is pronounced as such, e.g. *nə kədò bá* „he didn't pull (it)”.

Out of the nine theoretically possible ditonal patterns available with three discrete tones, *a*-verbs make use of four (Hi-Hi, Mid-

⁸ P. Newman, *A Grammar of Tera*, Berkeley/Los Angeles 1970.

⁹ The reasons for utilizing the morphophoneme *-ə* in a synchronic description of Tera are given in P. Newman, *The Reality of Morphophonemes*, „Language” XLIV, 1968, pp. 507—15.

Mid, Lo-Lo and Lo-Mid) and *ə*-verbs only three, the Lo-Mid pattern not occurring. (For analytical purposes, I am treating the Hi-Mid pattern found with *ə*-verbs as equivalent to the Hi-Hi pattern of *a*-verbs.) With this adjustment, the inventory of Tera polyverb classes can be presented as follows:

	<i>a</i> -verbs	<i>ə</i> -verbs
Hi-Hi	<i>dǎká</i> to swallow	<i>ngúmǎ</i> to tire
Mid-Mid	<i>másá</i> to buy	<i>kǎdǎ</i> to pull
Lo-Lo	<i>lǎwà</i> to seize	<i>zǎnǎ</i> to know
Lo-Mid	<i>wǎdǎ</i> to finish	

Fig. 1a. Tera Polyverbs

Tera monoverbs occur with final *-a*, *-ə*, *-u*, and *-i*. In addition, two verbs have been found with final *-o*, *kó* „to sweep” and *γò* „to cry”. There are no *e*-final verbs. Because of the rule changing pre-junctural *-ə* to /i/, all *Cə* verbs have two realizations depending on the phonological environment, e.g. *wà dǎ gòmá* „he went to market”, but *wà dǎ* „he went”. In final position the distinction between *Cə* and *Ci* verbs is thus neutralized, with resultant ambiguity possible, though rare, e.g. *wà dǎ sǎlè* „he received a shilling”, but *wà dǎ* „he received (it)”, cf. *wà dǎ sǎlè* „he paid a shilling”, and *wà dǎ* „he paid (it)”.

Even though /u/ and /ə/ are normally contrastive in Tera, the *u*-final and *ə*-final monoverbs exhibit phonological complementarity in that all of the *Cu* verbs contain a bilabial consonant whereas no bilabials are to be found with the *Cə* verbs¹⁰. The phonological considerations aside, there are internal reasons why one would not want to collapse *Cu* and *Cə* verbs into a single class in a synchronic description of Tera. But viewed historically, the complementarity of the *Cu* and *Cə* verbs strongly suggests that

¹⁰ Contrary to the restriction found with monoverbs, note the following examples of /u/ preceded by a non-bilabial consonant and /ə/ preceded by a bilabial: *túnú* „thing”, *χúǎǎ* „to beg”, *bǎn* „arm”, *pǎdǎ* „to winnow”.

at an earlier period they probably did constitute phonologically conditioned submembers of the same monoverb class.

All four vowel classes of monoverbs in Tera occur with each of the three phonemic tones.

	-a	-ə	-u	-i
Hi	<i>pá</i> to bury	<i>dé</i> to go	<i>mbú</i> to follow	<i>xi</i> to grind
Mid	<i>na</i> to see	<i>dlé</i> to get	<i>pù</i> to rub	<i>vi</i> to enter
Lo	<i>zá</i> to drink	<i>zè</i> to say	<i>bù</i> to test	<i>yi</i> to shoot

Fig. 1b. Tera Monoverbs

2. GA'ANDA.¹¹ The vowel system of Ga'anda is just like that of Tera, to which it is closely related. That is, it has /ə/ as a sixth and frequently occurring vowel which, as in Tera, may not occur in utterance-final position, being either deleted or realized as /i/. Tonally Ga'anda also has three basic levels, Hi, Mid and Lo; but in addition it has a complex system of morphotonemic changes involving downstep, tone raising, and tone displacement¹². To simplify the exposition, Ga'anda verb classes will be described simply in terms of underlying basic tones without reference to the morphophonemic changes that verbs undergo in actual utterances.

Polyverbs in Ga'anda end either in -a or in Ø, the CVC verbs corresponding to CVCə verbs in Tera. Interestingly, the CVC verbs must be analyzed synchronically as having two tones (the second tone being realized on the following subject pronoun or verbal suffix) thereby giving internal evidence of the former existence of the final -ə. Both a-verbs and ə-verbs (now CVC) utilize five different tone patterns, more than is found with any of the other languages in this study. These tone patterns (Hi-Hi, Mid-Mid, Lo-Lo, Mid-Hi, and Lo-Hi) plus the two vowel classes, give a total of ten different polyverb forms in Ga'anda.

¹¹ R. M. Newman, *A Case Grammar of Ga'anda*, Ph. D. Dissertation, University of California at Los Angeles 1971.

¹² R. M. Newman, *Downstep in Ga'anda*, „Journal of African Languages” X, 1971, pp. 15—27.

	a-verbs	ə-verbs
Hi-Hi	<i>másá</i> to laugh	<i>yím'</i> to squeeze
Mid-Mid	<i>nə́ɔ́</i> to cook	<i>ɔ́ár'</i> to collect
Lo-Lo	<i>ràkà</i> to run	<i>sən'</i> to know
Mid-Hi	<i>yàrá</i> to write	<i>kən'</i> to tie
Lo-Hi	<i>kùkwá</i> to weave	<i>ɛ́ip'</i> to cover

Fig. 2a. Ga'anda Polyverbs

Monoverbs in Ga'anda are uncommon, less than fifteen having been found. Nevertheless, these monoverbs make use of three final vowels, -a, -ə and -e, and all three tone levels, Hi, Mid and Lo.

	-a	-ə	-e
Hi	<i>lá</i> to precede	<i>áʃ</i> to go	<i>ré</i> to pile up
Mid	<i>bá</i> to come	<i>ɛ́</i> to do	<i>ɛ̀</i> to spin
Lo	<i>sà</i> to drink	—	<i>è</i> to shoot

Fig. 2b. Ga'anda Monoverbs

3. MARGI¹³. Margi is basically a four vowel language expanded to six by the recent introduction of /e/ and /o/. In this language, the important vowel [ə] occurs finally as well as medially. In final position, its pronunciation tends toward that of a close back vowel. This has prompted Hoffmann to transcribe it with a separate symbol *ɥ* even though he himself recognizes that „it is not a phoneme by itself, but an allophone of ə in final position”¹⁴. In citing Margi examples from Hoffmann's work, I have therefore used the symbol ə for the schwa phoneme in all of its environments and have discarded the unnecessary symbol *ɥ* altogether. The tonal system of Margi is straightforward. There are two level tones, Hi and Lo, plus a common rising tone and an infrequent falling tone.

¹³ C. Hoffmann, *A Grammar of the Margi Language*, London 1963.

¹⁴ *Ibid.*, p. 21.

Margi polyverbs end either in *-a*, in *-ə* or in \emptyset ¹⁵. The verbs ending in *-ə* and those without a final vowel can be grouped together as phonologically determined submembers of the general class of *ə*-verbs. The consonant final verbs all end in a sonorant (nasal or liquid), whereas the verbs that preserve the original final *-ə* all have an obstruent as the second consonant.

Of the four tone patterns available combining the two basic tones, only three occur: Hi-Hi, Lo-Lo and Lo-Hi, no examples of Hi-Lo having been found. With the CVC verbs, the Lo-Hi sequence is realized as a rising tone.

a-verbs		ə-verbs	
		CVC _ə	CVC[_{+son}]
Hi-Hi	<i>tlšká</i> to sow	<i>kšbš</i> to meet	<i>pšr</i> to bathe
Lo-Lo	<i>šəlá</i> to watch	<i>pəllə</i> to break	<i>jàm</i> to end
Lo-Hi	<i>γəđá</i> to tire	<i>pəzš</i> to lay (eggs)	<i>vəl</i> to fly

Fig. 3a. Margi Polyverbs

Margi has *a*-final, *ə*-final and *u*-final monoverbs. Hoffmann also cites a number of *i*-final monoverbs, but in most cases the final */i/* turns out to be an allophone of */ə/* after a palatal consonant, e.g. *γyi* „to steal” **γγə*¹⁶. Tonally the monoverbs make use of the same three patterns as the polyverbs, i.e. Hi, Lo and Lo-Hi (= rising).

	-a	-ə	-u
Hi	<i>šá</i> to turn	<i>šə</i> to speak	<i>sú</i> to spoil
Lo	<i>sà</i> to drink	<i>pə</i> to pour	<i>gù</i> to search for
Lo-Hi	<i>ntswǎ</i> to thread	<i>ně</i> to mould	<i>mbũ</i> to hide

Fig. 3b. Margi Monoverbs

¹⁵ In addition there are a few rare examples of polyverbs ending in */i/*, e.g. *wàwì* „to boast”, *dlàwì* „to belch”.

¹⁶ The verb *fš* „to swell” is an unexplained exception with final */i/*.

4. KOTOKO¹⁷. Kotoko has the same six vowels as the three preceding languages. In this case, final *ə* poses no problem since it is extremely common and clearly pronounced as such. As far as I have been able to determine, Kotoko has two level tones, Hi and Lo, plus a possible downstep not used in basic verb forms. As in Margi, polyverbs in Kotoko end either in *-a*, in *-ə* or in \emptyset and, as in Margi, the CVC \emptyset and CVC verbs are phonologically determined submembers of the same class, the proto *-ə* having been lost when preceded by a sonorant. Most Kotoko polyverbs fall within the *ə*-verb class, the *a*-verbs being numerically quite uncommon. Of the four tone patterns theoretically available, only two are used, namely Hi-(Lo) and Lo-(Lo).

	<i>a</i> -verbs	<i>ə</i> -verbs	
		CVC \emptyset	CVC _{1(+son)}
Hi-(Lo)	<i>nɪyà</i> to lick	<i>wéegə</i> to want	<i>hən</i> to do
Lo-(Lo)	<i>dùwà</i> to buy	<i>gàdà</i> to follow	<i>yim</i> to eat

Fig. 4a. Kotoko Polyverbs

Monoverbs occur with four final vowels, the expected *-a* and *-ə*, plus *-i* and *-e*. The verbs *lù* „to come” and *dó* „to bring” stand as exceptions. All four vowel classes are found with each of the two basic tones.

	<i>-a</i>	<i>-ə</i>	<i>-i</i>	<i>-e</i>
Hi	<i>lá</i> to kill	<i>dś</i> to go	<i>sí</i> to marry	<i>gé</i> to finish
Lo	<i>ná</i> to ripen	<i>rgə</i> to see	<i>wì</i> to sell	<i>fè</i> to call

Fig. 4b. Kotoko Monoverbs

¹⁷ The Kotoko data presented in this paper are taken from my unpublished field notes of the Goulfei dialect. The speech of Logone represented in Lukas' description (J. Lukas, *Die Logone-Sprache im Zentralen Sudan*, Leipzig 1936) is sufficiently different from Kotoko to be considered a separate language and not just a sub-dialect.

Plateau-Sahel Branch

5. NGIZIM¹⁸. Phonetically, Ngizim looks like a six-vowel language, although the structural status of /ə/ is questionable. According to Schuh's description, /ə/ is not phonemic, even though it is extremely common, since it does not contrast with the high vowels /i/ and /u/. Nevertheless, he does make use of the symbol ə in his transcription system, sometimes to represent an epenthetic vowel inserted between two consonants, sometimes as a phonetic realization of the phonemes /i/ and /u/, and sometimes as a cover symbol for the high vowel archiphoneme which includes /i/, /u/, and /ə/. Tonally, Ngizim has two distinct levels, Hi and Lo, and a morphophonemically produced Downstep.

Regarding polyverbs, Schuh states, "Verbs fall into two lexical classes, final -a and final -ə depending on which final vowel they have in the perfective"¹⁹. The final -ə is often hidden due to the addition of the perfective marker -w and a rule that changes *ow* to *uw*. However, if a direct object immediately follows the verb, the -ə shows up clearly, e.g.

ná kʷid'úu „I ate (it)" < **ná kʷid'ə-w*

but *ná kʷid'ə tʷúwɔ́* „I ate the meat"

Compare an *a*-verb in the same contexts:

ná zəmáw „I smithed (it)"

ná zəmá dàbɛ „I smithed a hoe"

Tonally, polyverbs fall into two lexical classes, Hi and Lo depending on the tone of the first syllable. The tone of subsequent syllables is predictable by rule. To a great extent, moreover, even the lexically specified initial tone is predictable: Lo if the initial vowel is /ə/, Hi otherwise. However, since the correlation of initial vowel and tone is far from perfect, the tone of Ngizim polyverbs still has to be treated as a lexical feature even though the functional load of this tone is extremely low.

¹⁸ R. G. Schuh, *Verb Forms and Verb Aspects in Ngizim*, „Journal of African Languages" X, 1971, pp. 47—60; R. G. Schuh, *Aspects of Ngizim Syntax*, Ph. D. Dissertation, University of California at Los Angeles 1972.

¹⁹ *Ibid.*, [1972], p. 13.

	a-verbs	ə-verbs
Hi	(predictable) <i>dába</i> to push	<i>másə</i> to buy
	(non-predictable) <i>rəma</i> to escape	<i>kéto</i> to break
Lo	(predictable) <i>zəba</i> to marry	<i>təfo</i> to enter
	(non-predictable) <i>ràwa</i> to grow up	<i>bàmə</i> to hide

Fig. 5a. Ngizim Polyverbs

All Ngizim monoverbs (except the highly irregular verbs „go” and „come”) have *-a* as their lexical vowel, the usual *a/ə* contrast having been lost. (Compare, for example, Ngizim *tá* and *sá* „eat” and „drink” with Bole *tí/sá*, Hausa *či/šá* and Tera *njə/zà*.) Phonetically, both basic tones are found with the monoverbs, but the tone assignment is completely predictable. If the consonant of the verb is voiceless, the tone is automatically Hi; if the consonant is voiced, the tone is automatically Lo, e.g. *tá* „to eat”, *pá* „to pour” vs. *và* „to shoot” and *mà* „to take”. In short, from a lexical point of view, all Ngizim monoverbs belong to a single class, no contrast existing either in final vowel or in tone.

	-a
	<i>sá</i> to drink
Hi/Lo (depending on voice)	<i>bà</i> to get

Fig. 5b. Ngizim Monoverbs

6. BOLE²⁰. Bole, like Hausa, has a five vowel system, having completely lost the */ə/* so widespread in Chadic. All five of the vowels may occur long or short and this vowel length is lexically very important. By contrast, the two basic tones, Hi and Lo, play a small role in lexical discrimination.

Polyverbs end either in *-aa* or in *-u* (where the *-u* constitutes the present-day Bole reflex of the Proto-Chadic final *-ə*). These

²⁰ J. Lukas, 1970—72, *op. cit.*; P. Newman, *Unpublished Field Notes*.

lexically determined vowels, *-aa* and *-u*, appear only in the perfective; in other aspects they are replaced by morphologically specific vocalic suffixes used in forming the future, subjunctive, imperative, etc. In the case of Bole verbs, both polyverbs and monoverbs, tone is a completely predictable, redundant feature. The *u*-final verbs are all Hi-Hi if the first syllable is light (i.e. CV), Lo-Hi if the first syllable is heavy (i.e. CVV or CVC)²¹. The tone of the *a*-verbs shows a dialectal variation: in the Gombe dialect the *a*-verbs are all Hi-Hi, in the Fika dialect they are all Lo-Hi. In neither dialect is a tonal contrast involved. Thus we find that the tendency seen in Ngizim to „de-lexify” the tone of polyverbs has been carried to completion in Bole²². In contrast to Ga’anda which has five, Tera which has four, Margi which has three, and Ngizim, which has two, Bole has a single tone class to which all of its polyverbs belong:

a-verbs		ə-verbs	
[Gombe dialect]	[Fika dialect]	[Light 1st syllable]	[Heavy 1st syllable]
Hi-Hi/ <i>dámáa</i>		<i>ngórú</i>	
Lo-Hi to sweep (assigned by rule)		to tie	
	<i>dámáa</i> to sweep		<i>đóppú</i> to follow <i>jóotú</i> to comb

Fig. 6a. Bole Polyverbs

Bole monoverbs occur with two final vowels, *-aa* and *-i*. Consistent with the general Chadic principle that the number of tone classes of monoverbs can never exceed the number of tone classes found with polyverbs, all Bole monoverbs belong to a single class with Hi tone.

²¹ P. Newman, *Syllable Weight as a Phonological Variable*, „Studies in African Linguistics” III, 1972, pp. 301—23.

²² According to R. G. Schuh (personal communication) the tone of polyverbs also appears to be completely predictable in Bade, a language belonging to the same cluster as Ngizim.

-aa -i

Hi *sáa* to drink | *ít* to eat

Fig. 6b. Bole Monoverbs

7. KANAKURU²³. Kanakuru has six vowels, including /ə/, within a word, five vowels in final position²⁴. The few words that do end in -ə are thus considered to be prefixes rather than free forms, e.g. *mè sènt* „we remembered (it)” *kè tà-kú* „you (pl.) went”. Like the other Plateau-Sahel languages in this study, Kanakuru has just two discrete tone levels. In addition, it has a complicated system of Downstep caused by tonal displacement rules.

Kanakuru polyverbs end either in -e or -i. Taking the Proto-Chadic *a/ə* opposition as being basically a contrast in vowel height, we can identify the Kanakuru *e*-final verbs with the proto *a*-verb class and the *i*-final verbs with the *ə*-verb class. Both of these vowel classes make use of two tone patterns, Hi-Lo and Lo-Hi. These tone patterns, however, are only partly contrastive since the distinction is predictable to a great extent depending upon the nature of the initial phoneme of the verb. If the verb begins with a voiced obstruent, it will definitely have Hi-Lo tone; if it begins with a non-voiced obstruent (either voiceless or glottalized) it will almost always have Lo-Hi tone, only a few exceptions having been found. If on the other hand, the verb begins with a sonorant (nasal, liquid or semivowel) or with a vowel, its tone is not predictable.

a-verbs		ə-verbs
Hi-Lo		
[predictable]	<i>gásè</i> to drive out	<i>bínì</i> to belittle
[not predictable]	<i>nímè</i> to repair	<i>yíl</i> to raise
Lo-Hi		
[predictable]	<i>kápé</i> to sow	<i>śáhi</i> to ignore
[not predictable]	<i>ndaré</i> to dry	<i>yíri</i> to stop

Fig. 7a. Kanakuru Polyverbs

²³ P. Newman, *The Kanakuru Language*, West African Language Monographs No. 9, 1974.

²⁴ Theoretically, one could analyze Kanakuru as having *ə* as a word final morphophoneme which in all cases is either deleted or realized

Kanakuru has no true monoverbs. Instead it has verbs of the form CVV which have to be treated as a special type of polyverb. Some of these CVV verbs seem to have developed from monoverbs by the addition of a final vowel, e.g. *wàt* „to get” cf. Bole *wáa*; *yíé* „to do”, cf. Hausa *yí*. Others seem to have derived from OVCV verbs by the loss of the intervocalic consonant, e.g. *búú* „to shoot” < **búwí*, cf. Bole *básáa*; *tàt* „to go” < **tàwí*, cf. Hausa *tàfi*²⁵. Like the regular polyverbs, CVV verbs end either in *-e* or in *-i* and have either Hi-Lo or Lo-Hi tone, subject to the same conditions described above.

a-verbs	e-verbs
Hi-Lo [predictable] <i>dèè</i> to end [not predictable] <i>lúè</i> to put aside	<i>gái</i> to prevent <i>mói</i> to wait
Lo-Hi [predictable] <i>dèé</i> to grind [not predictable] <i>yíé</i> to do	<i>túí</i> to eat <i>ndí</i> to drink

Fig. 7b. Kanakuru CVV Polyverbs

8. HAUSA. Like Bole, Hausa has a five vowel system, all of which occur long or short. Also like Bole, it has a straightforward system of two level tones, Hi and Lo, with falling tone occurring as a combination of these two.

At first glance, the Hausa verbal system looks markedly different from that of the other languages included in this study. However, under closer analysis — which involves a reinterpretation of Parsons' grade system²⁶ as well as efforts at internal reconstruction — Hausa can be shown to share the major features of Chadic verb classification. Essentially this means that

as /i/. However, unlike the case of Tera, where such an analysis is required there is little synchronic motivation in Kanakuru for adopting this abstract approach.

²⁵ P. Newman, *Historical Sound Laws in Hausa and in Dera (Kanakuru)*, „Journal of West African Languages” VII, 1970, pp. 39—51.

²⁶ F. W. Parsons, *op. cit.*

Hausa has retained the opposition between monoverbs and polyverbs, and that within polyverbs it has continued to distinguish two and only two subclasses on the basis of the final vowel.

As I have demonstrated elsewhere²⁷, the contrast between grades I and II in Parsons' well-known system is merely a survival of the Proto-Chadic distinction between *a*-verbs and *ə*-verbs (the latter ending in *-i* in present-day Hausa). While this identification is not evident if one looks at Hausa verbs in their citation form only, it becomes immediately apparent as soon as one's focus is shifted to the verb form used before noun direct objects, e.g.

gásàà to roast *táa gásà náamàa* she roasted meat (*a*-verb)
sàyáa to buy *táa sàyi náamàa* she bought meat (*ə*-verb).

The *a/ə* opposition also shows up when so-called „irregular” verbs ending in *-i* are incorporated into the Hausa verbal system, e.g.

táa šìgá „she entered” (*a*-verb)
táa tàfi „she went” (*ə*-verb).

Contrary to what was previously thought, tone of basic verbs in Hausa is not a redundant feature. While the functional load of verb tone is admittedly low, nevertheless it is lexically determined and has to be marked as such. In the case of Hausa polyverbs, two tone patterns are used, Hi-Lo and Lo-Hi, both of which occur with both vowel classes.

	<i>a</i> -verbs	<i>ə</i> -verbs
Hi-Lo	<i>gásà</i> to roast	<i>fáadì</i> to fall
Lo-Hi	<i>fitá</i> to go out	<i>sàyi</i> to buy

Fig. 8a. Hausa Polyverbs

The Hausa monoverb system is practically identical to that of Bole. The monoverbs make use of the same two final vowels, *-aa* and *-i*, and occur with the same Hi tone. Hausa monoverbs such as *šéé* „to go” and *sóo* „to want” are derivative forms (grades IV

²⁷ P. Newman, *Grades, Vowel-Tone Classes and Extensions in the Hausa Verbal System*, „Studies in African Linguistics” IV, 1973, pp. 297—346.

and VI in Parsons' system) and thus do not constitute examples of other final vowel classes.

-aa

-i

Hi *šáa* to drink | *ší* to eat

Fig. 8b. Hausa Monoverbs

III. DISCUSSION AND CONCLUSIONS

The evidence from the eight languages surveyed above clearly supports the claim that Proto-Chadic Polyverbs fell into two phonologically distinct classes depending on the lexically intrinsic final vowel, either /a/ or /ə/. As best as can be determined, these verb classes were purely phonological classes with no semantic correlates. Considering the time depth that must be involved from Proto-Chadic times to the present day, it is remarkable that this basic *a/ə* dichotomy has been retained so faithfully in the languages in this study, and, moreover, that the original two vowels themselves have undergone such minimal change.

Having said that all the languages in the study manifest the original distinction between *a*-verbs and *ə*-verbs, it is important to point out a noticeable difference between the Plateau-Sahel languages and the Biu-Mandara languages. While the Plateau-Sahel languages do preserve the *a/ə* dichotomy, the contrast is much more fragile than in the case of the Biu-Mandara languages. That is to say, in all four Plateau-Sahel languages, one finds the *a/ə* dichotomy limited to verb forms used in certain environments, whereas in other morpho-syntactic environments the distinction is obliterated. In Ngizim, for example, verbs in the perfective aspect exhibit the *a/ə* contrast (e.g. *zə̀ba* „to marry” vs. *tə̀fə̀* „to enter”) whereas in the the subjunctive, they all replace the underlying final vowel by /i/, (e.g. *zə̀bí* „that one marry”, *tə̀fí* „that one enter”). In Kanakuru, the „second perfective” (an aspect used in place of the perfective in the context of negation or emphasis) requires the addition of a suffix /a/ to the verb,

thereby obliterating the distinction between the two verb classes, e.g.

<i>nà tìlé</i>	but	<i>wòndáa tìlá ù</i>
I burned it		I didn't burn it
<i>nà šèní</i>	but	<i>wòndáa šèná ù</i>
I remembered		I didn't remember

In Bole, interestingly, the distinction between the two vowel classes is retained (in modified form) in the singular imperative but overridden in the plural imperative, e.g.

basic verb	sg. imperative	pl. imperative
<i>bíndáa</i> to wash	<i>bíné</i>	<i>bíná</i>
<i>póru</i> to say	<i>pòrì</i>	<i>pòrà</i>

Finally, we can illustrate the same phenomenon in Hausa by comparing basic verbs with verb forms containing a derivational extension e.g.

basic verb	extended verb
<i>fítá</i> to go out	<i>fítóo</i> to come out
<i>fáadì</i> to fall	<i>fáad'óo</i> to fall (in this direction)
<i>dáfà</i> to cook	<i>dáfè</i> to cook all
<i>sáyí</i> to buy	<i>sáyè</i> to buy all

With monoverbs, it is also clear that Proto-Chadic distinguished between those that were lexically *a*-final as opposed to those that were lexically *ə*-final. Whether the Proto-language also distinguished a third vowel class is not clear. Since all of the Biu-Mandara languages in this study contained at least three vowel classes of monoverbs and none of the Plateau-Sahel languages contained more than two, it seems likely that this difference must date back to the time of the split between the two branches. Proto-Biu-Mandara would thus be reconstructed with three monoverb vowel classes, *-a*, *-ə* and *-i/-u* (the exact quality of the third vowel unknown) whereas Proto-Plateau Sahel would be reconstructed with two monoverb classes, namely final *-a* and final *-i* < **-ə*. For the time being I would not like to guess which

branch best represents the original system of Proto-Chadic and which branch has innovated by adding or losing the extra vowel class.

Considering the fact that tone has generally been ignored in treating Chadic languages at a comparative level, it is an exciting discovery to find that aspects of tone can be incorporated in a reconstruction of the Proto-Chadic verbal system. The major fact about Proto-Chadic tone that emerges from the evidence presented above is that tone was lexically significant for Chadic verbs and that the tonal patterns used were independent of (not covarying with) the vowel classes. It seems likely that the tonal patterns available for any one of the polyverb or monoverb vowel classes would have been available for any of the others.

Reconstruction of the actual tone patterns used with Proto-Chadic verbs is complicated by the fact that we do not know for certain whether the proto-language had two or three basic tone levels. Nevertheless, assuming an original two tone system²⁸, a consideration of the evidence does point to certain generalizations. If we compare Tera and Ga'anda, eliminating the Mid tone, with Margi and Kotoko, both of which are two tone languages, we can reconstruct three verb tone patterns for Proto-Biu-Mandara polyverbs, namely Hi-Hi, Lo-Lo, and Lo-Hi. There is no evidence for the existence of the theoretically possible fourth pattern, Hi-Lo. Proto-Plateau Sahel, on the other hand, probably utilized only two tone patterns for its polyverbs, namely Hi-(Lo) and Lo-(Hi). As in the case of monoverb vowel classes, we find Biu-Mandara with a richer inventory than Plateau-Sahel — and again we cannot decide which branch reflects the Proto-Chadic system.

Monoverbs in Proto-Biu-Mandara undoubtedly occurred with two and only two tones, namely Hi and Lo. The rising tone now found with Margi monoverbs, for example, must represent a secondary development from the Lo-Hi polyverb pattern. In neither Ngizim, Bole nor Hausa of the Plateau-Sahel branch is tone distinctive with monoverbs — Kanakuru has no true mono-

²⁸ While we cannot be certain about this, a broad look at Chadic languages suggests that the postulation of a two-tone system for Proto-Chadic is a much better working hypothesis than the postulation of an original three-tone system.

verbs — nevertheless we cannot conclude that this was already the case with the proto-language. It may be true that all Proto-Plateau-Sahel monoverbs belonged to a single tone class; but it is also possible that the proto-language lexically distinguished Hi tone from Lo tone monoverbs and that the loss of this contrast in the few languages surveyed represents convergent development.²⁰ In any case, while there are doubts about when and where this contrast was lost, we can be sure that Proto-Chadic monoverbs were lexically distinguished on the basis of tone, either Hi or Lo.

To summarize, we can say the following about verb classes in Proto-Chadic. All verbs ended in a vowel. The major distinction was between verbs of the form CV („monoverbs”) and those with other canonical shapes („polyverbs”), the most common type being CVCV. Polyverbs ended either in *-a* or in *-ə* and utilized at least two and possibly three tonal patterns, namely Hi-Hi, Lo-Lo, and possible Lo-Hi. Monoverbs occurred with final *-a* and *-ə* and possibly with a third vowel *i/u*. Monoverbs with both (or all three) final vowels occurred both with Hi and Lo tone. This reconstructed system of Proto-Chadic verb classes is depicted in the following diagram:

	Polyverbs		Monoverbs		
	<i>-a</i>	<i>-ə</i>	<i>a</i>	<i>-ə</i>	<i>i/-u</i>
Hi-Hi	XX	XX	XX	XX	X?
Lo-Lo	XX	XX	XX	XX	X?
Lo-Hi	X?	X?			

Fig. 9. Proto-Chadic Verb Classes

²⁰ In some Plateau-Sahel languages not included in this study, e.g. Sura, there are tonally distinct classes of monoverbs. H. Junggraithmayr, *Die Sprache der Sura (Maghavul) in Nigerien*, „Afrika und Übersee” XLVII, 1963/64, pp. 8—89, 204—20.