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THE WEST-A-BRANCH OF THE
CHADIC LANGUAGE FAMILY:
A Comparative Study of
Hausa, Sha, Angas, Karekare, and Dera

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By

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ABSTRACT

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OF THE
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This thesis is a comparative study of five languages from the West-A branch of the Chadic language family as classified by Paul Newman (1977). The comparative method is employed to derive a proto-lexicon for the Chadic West-A branch, using the Hausa, Sha, Angas, Karekare, and Dera languages. The main purpose of the thesis is to test whether or not Newman's 1977 proto-Chadic reconstructions adequately reflect the lower levels of his Chadic classification as well as the Chadic language family as a whole. A comparison of the Chadic West-A reconstructions, termed 'Provisional Reconstructions,' with Newman's 1977 proto-Chadic reconstructions demonstrates the outcome of this test. Contrary to expectation, more similarities than dissimilarities are shown, suggesting that Newman's reconstructions do adequately reflect the lower levels of the Chadic classification. But, due to the scarcity of cognates revealed in the comparative study of the five languages, this finding has conflicting implications.

To My Beloved Grandfather,

Alfred Lax, Sr.
(1898-1986)

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TABLE OF CONTENTS

LIST OF FIGURES

ABBREVIATIONS

A	Angas
D	Dera
H	Hausa
J	Jungraithmayr
K	Karekare
N	Newman
n.	noun
PR	Provisional Reconstruction
S	Sha
Sc	Schuh
v.	verb

CHAPTER I

INTRODUCTION

Chadic Linguistics

Chadic languages are spoken south of the Sahara in northern Nigeria, northern Cameroon, around Lake Chad in the Republic of Chad, and in Niger. For years linguists have attempted to classify the many languages spoken in these areas. Most of them are now recognized as a linguistic unit now called the Chadic language family, which is generally considered as one of the six branches of the Afroasiatic family of languages.[1]

Johannes Lukas was among the first to attempt a classification of these languages. According to Newman and Ma (1966), Lukas (1936)[2] classified some of them into two different groups, Chado-Hamitic and Mandara, based chiefly on the typological criterion of grammatical gender.[3] Languages such as Hausa which is characterized by the presence of grammatical gender were classified as Chado-Hamitic, while languages without grammatical gender, such as Margi, were classified in the Mandara group. As noted in Newman and Ma (1966), Lukas (1952)[4] expanded each

group by including more of the languages from the geographical areas concerned. There were similarities between the two groups but Lukas "contended that these were not adequate to justify combining them into a single family" (Newman and Ma 1966:218).

Not until Greenberg's 1950 publication[5] in which he attempted a classification of these languages, were they recognized as forming a single linguistic unit (Newman and Ma 1966). Coining a name from the geographical regions in which these languages are spoken, Greenberg termed this linguistic unit the 'Chad' language family, which is referred to today in the literature as the 'Chadic' language family. Greenberg's classification included more languages from the geographical areas concerned than did Lukas's. He classified the languages into nine groups (see Figure 1) versus Lukas's two-group classification.

While Greenberg presented linguistic evidence to illustrate the genetic relationship of the Chadic languages with the so-called Hamito-Semitic languages, he did not present separate linguistic evidence to establish that the Chadic languages in fact formed a single linguistic unit (Newman and Ma 1966:219). "His proof of the unity of the Chad family was thereby rendered weaker than it need have been" (Newman and Ma 1966:219). Consequently, in their 1966 publication, Newman and Ma set out to "demonstrate conclusively that the Chad family as postulated by Greenberg does indeed constitute a valid linguistic unit" (p. 219).

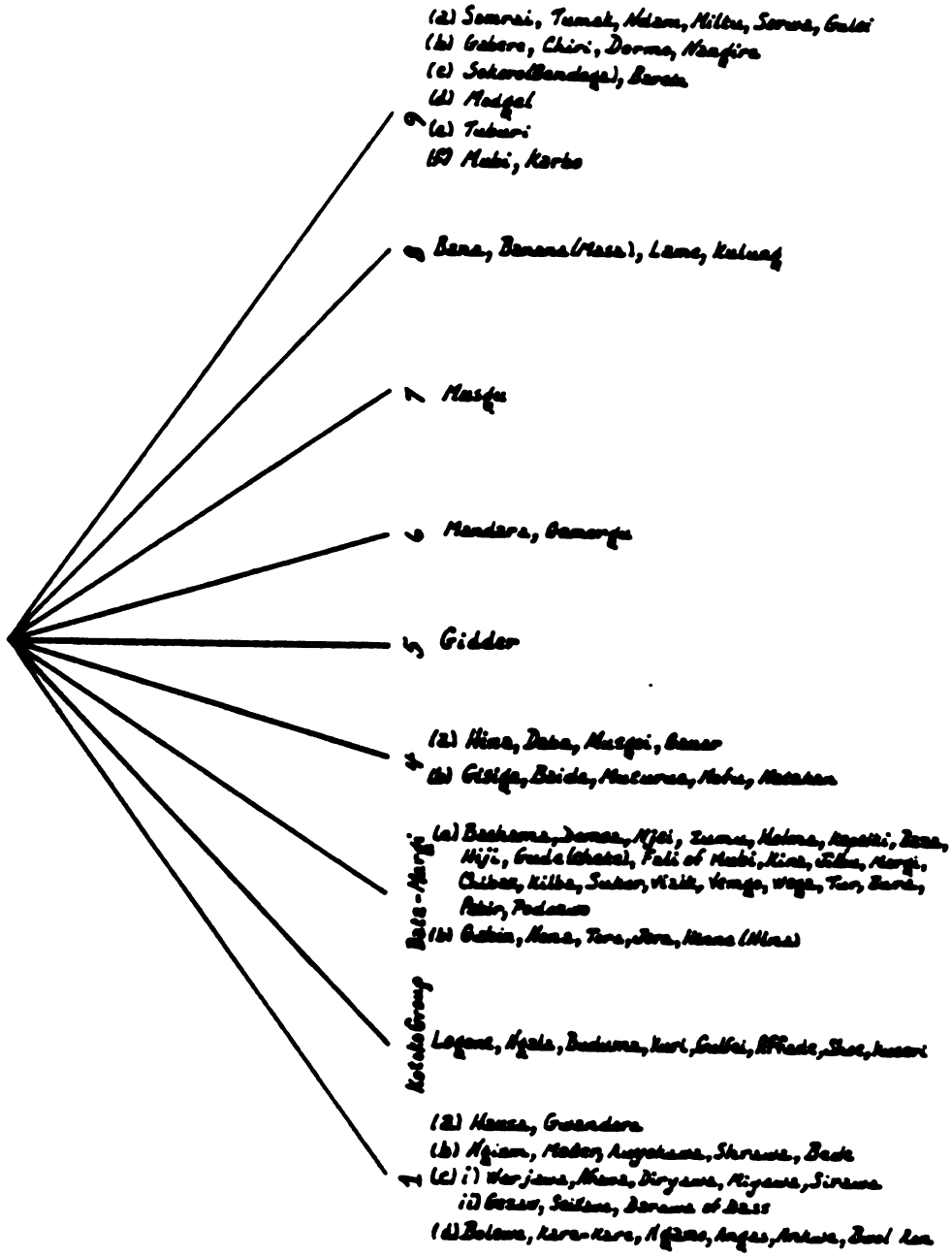

Figure 1

CHADIC FAMILY

(Taken From Greenberg 1963)

Following Lukas's framework for his classification, Newman and Ma reclassified the languages into two groups which they named Plateau-Sahel and Biu-Mandara. They also postulated subgroupings for the languages within the classification (see Figure 2). Subsequently, Newman and Ma presented proof that the Chadic family formed a valid linguistic unit by identifying cognates and positing reconstructions for one hundred and forty-five Chadic lexical items, based on regular phonological correspondences established between their postulated Plateau-Sahel and Biu-Mandara groups. The reconstructions were rated as either first level confidence reconstructions for which there was little doubt concerning their accuracy, or second level confidence reconstructions which were based on insufficient data.

The Newman and Ma 1966 reconstructions did not include vowels, only consonants, and, as Newman states in his 1977 publication, were sometimes based on questionable data. Upon the availability of more reliable data, Newman (1977) re-evaluated the lexical reconstructions posited in Newman and Ma (1966). Newman omitted some, added others, and revised more than half of the reconstructions posited in Newman and Ma (1966). This re-evaluation yielded a total of one hundred and fifty proto-Chadic lexical reconstructions which include vowels as well as consonants, and all are described by Newman as having a 'high degree of confidence.' These reconstructions are based on regular

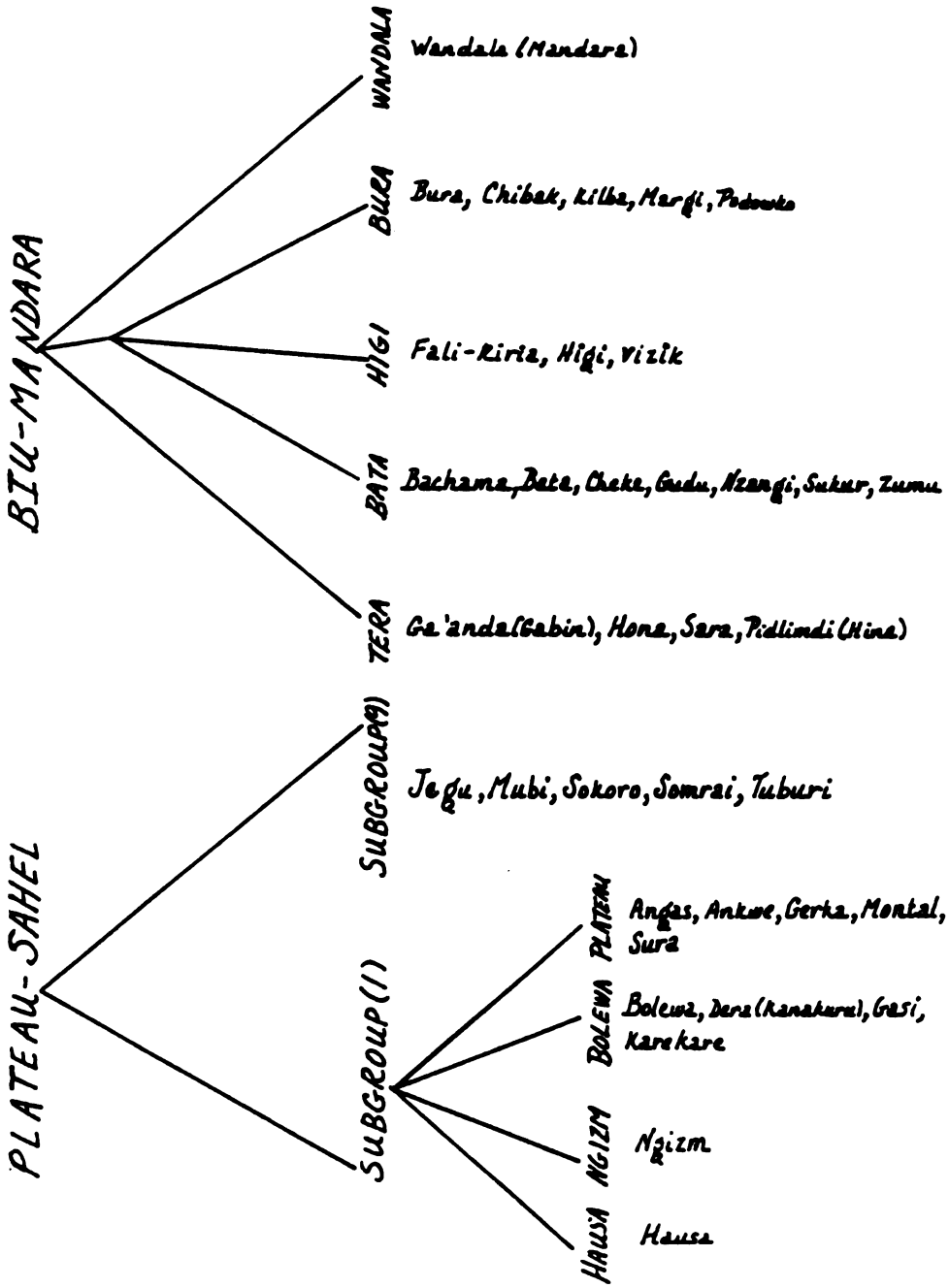

Figure 2

CHADIC FAMILY

(Taken From Newman And Ma 1966)

sound correspondences, and what Newman calls sound laws are given to account for the present-day reflexes in individual languages and language groups. In proposing these improved proto-Chadic lexical reconstructions[6] Newman presented a revised classification of the Chadic languages which demonstrated "...greater and more precise internal structure than provided in any previous classification" (1977:2).

Newman's 1977 Chadic classification consists of four branches,[7] the Masa, East, Biu-Mandara, and West,[8] which include approximately one hundred and twenty-five languages[9] (see Figure 3). Though there remains room for improvement regarding the classification of the Chadic languages, Newman's 1977 classification is the most comprehensive and most widely accepted to date. It is Newman's proposed subbranch A of the West branch with which the present study is concerned.

Purpose of Thesis

This thesis is a comparative study of five languages from the West-A branch of the Chadic language family as classified by Newman (1977). The hypothesis of this study is that a proto-lexicon for Chadic may be derived which is more reflective of Chadic as a whole, and of the lower level structures (e.g. branches and subbranches) within the classification, by first positing proto-lexical forms

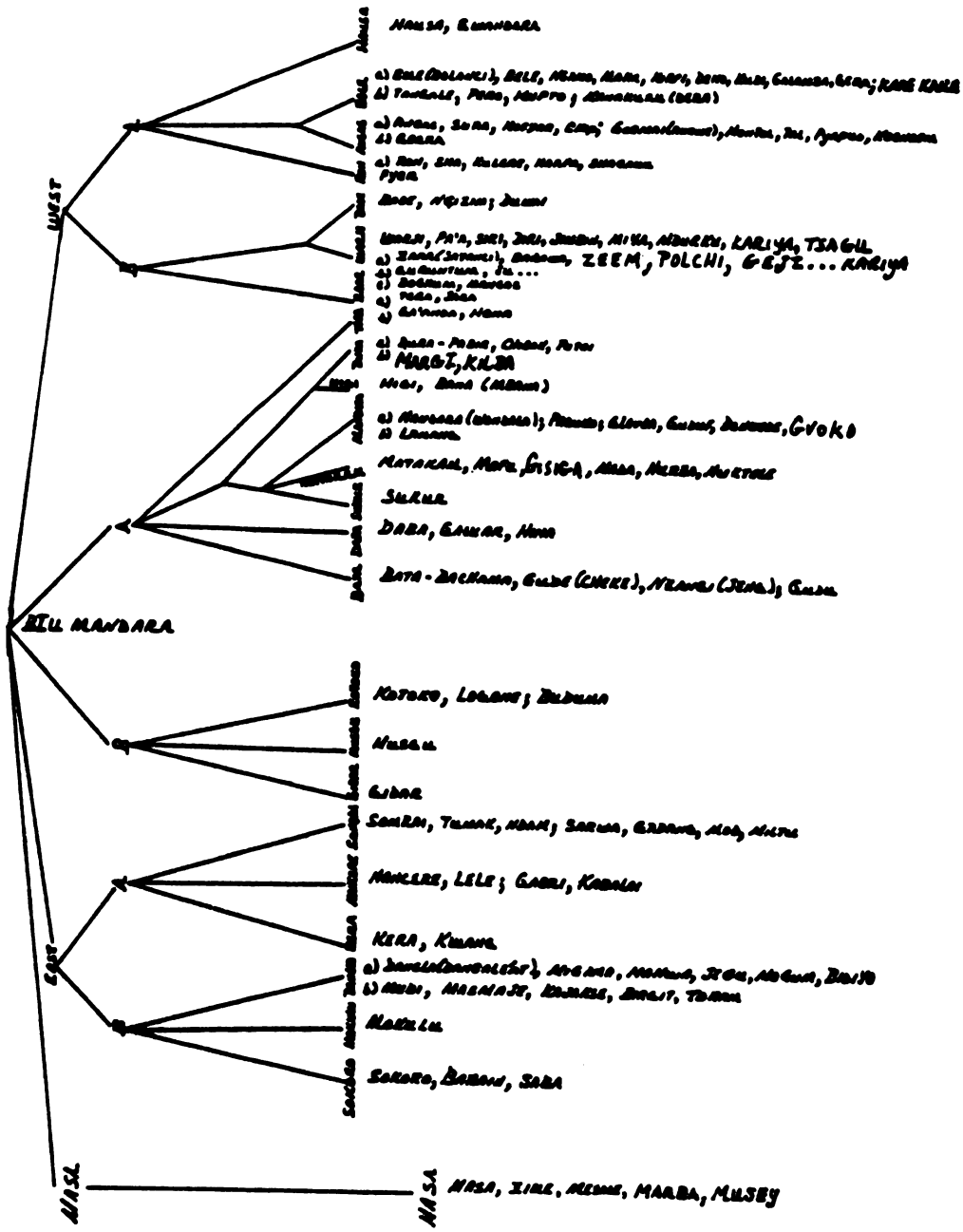

Figure 3
CHADIC FAMILY
(Taken From Newman 1977)

for each branch or subbranch and subsequently comparing these proto-lexica, rather than the method of comparison employed by Newman (1977). In this publication, Newman used a limited number of citations from sometimes as few as two of the major branches in the Chadic family as a basis for his lexical reconstructions, which are meant to represent the entire Chadic language family.

The purpose of this comparative study is then twofold. It suggests the viability of positing reconstructions at the lower levels first, and subsequently comparing these proto-lexica for reconstructing proto-forms for Chadic. Secondly, it tests the viability of the suggestion by using the West-A branch to answer the question, 'Do Newman's 1977 reconstructions which purportedly represent the entire Chadic family adequately reflect its individual branches and subbranches?' The lexical reconstructions derived from the comparison of five West-A languages are compared with Newman's 1977 lexical reconstructions in an attempt to provide an answer to this question.

The hypothesis proven, subsequent work would include positing proto-lexical forms from comparative studies of languages from each individual branch or subbranch to derive a proto-Chadic lexicon reflective of the entire Chadic family as well as each individual branch and subbranch.

Method

The goal of this thesis is approached through the comparative method. Proto-West-A lexical forms are reconstructed based on 'regular' sound correspondences deduced from the comparison of five languages from the West-A branch (Hausa, Sha, Angas, Karekare, and Dera (Kanakuru),[10] and regular sound correspondences noted and cited by Newman and Schuh in their various publications for the appropriate languages.

These reconstructed lexical forms which represent a lexicon from which the languages in the West-A branch may have derived are then compared with the corresponding proto-Chadic lexical items posited by Newman (1977). The outcome of this comparison, illustrated by highlighting the similarities and differences between the two sets of hypothesized forms, serves as the criterion used to determine the answer to the question posed in the purpose of this study.

Procedure

The West-A branch is divided into four groups of languages as shown in Figure 3: the Angas, Bole, Hausa, and Ron groups. Based on the assumption that languages classified together at the group level are closely related enough, such that it is possible for any given language of

its respective group to represent that group, the intention was to choose one language from each of the four groups of the West-A branch. However, in fact, five languages were chosen to be included in this study; a second language from the Bole group was added.

Languages were chosen from each group for which the best documented materials were available: Hausa, by far the best documented Chadic language, was chosen from the Hausa group over the only other member, Gwandara. Available sources for the Ron languages are all equally scarce; Sha was chosen from among them. Angas was chosen from the Angas group, subgroup a (Angas-a group), Dera from the Bole-b group, and the second language from the Bole group included in this study is Karekare, which is a member of the Bole-a group. While there exists more available documented material for Dera, Karekare is included mainly because of the author's interest in the language due to a previous investigation of the language for a study project.[11] The primary sources consulted for the corpus of data for the languages concerned are Kraft's Chadic Wordlists (1981) for Angas and Karekare (used as a secondary source for Hausa and Dera), Abraham's Dictionary of the Hausa Language (1962) and Newman's The Kanakuru Language (1974) for Hausa and Dera, respectively, and for Sha, Jungraithmayr's Die Ron-Sprachen (1970).

The word list for this study was compiled with three ideas in mind; to include glosses for which Newman (1977)

reconstructed proto-Chadic forms, secondly, to include enough other basic vocabulary items in an attempt to exclude loan words and to maximize the chance of finding cognates across all five languages, and thirdly, to include those basic vocabulary items for which citations could be found from the available sources for at least four of the five languages concerned. Therefore, the glosses that appear in the word list are taken from Newman (1977) and Kraft (1981), which included vocabulary items used by Joseph Greenberg in his 1963 African language classification.

A total of two hundred and ten items appear in the word list of this study.[12] Eighty-four of the items used in Newman (1977) are included in the list. Some of the items used by Newman were not included in the word list in this study due either to the fact that lexical citations were not available for at least four of the five languages for the respective glosses, or because some of the glosses used by Newman (1977) proved to be semantically dubious. For example, items with glosses such as 'grass' and 'calabash', for each of which there are many types, were omitted because the identity of the type referred to and the type referred to in the corresponding lexical citations in the sources used for the languages concerned is not always clear.[13]

Only some of the four hundred and thirty-four items from the Kraft (1981) list were included in the word list

in this study. Kinship terms were not incorporated though they are words which are considered basic vocabulary items. Although the words for 'father' and 'mother', in Angas baba and nana, in Karekare babu and nanu, and in Dera baba and nana, are 'cognate', such forms are nearly "universal" and are not seen as significant for relationship. Some other glosses were not included because the corresponding lexical citations are derivatives of other words, and yet others like 'grass' and 'calabash' from Newman (1977), were not included because of dubious semantics. A further constraint, as mentioned above, was the effort to include glosses for which citations were available for at least four of the five languages. The difficulty of finding citations for at least four of the five languages was further compounded by the fact that semantically related items were not conscientiously considered in the comparison of the lexical items for reconstructions, i.e. most of the reconstructions were based on the comparison of respective lexical items with an equivalent gloss. For example, a semantically related item, 'haze', was not considered in the comparison for a possible reconstruction for #166 'smoke'. Consequently, conservative reconstructions are presented in this study. Unless it is meant to be implied otherwise by virtue of the comparative method, evidence in his 1977 publication indicates that Newman took semantically related items into consideration in his reconstructions, but only to a small extent.

The word list in its entirety appears below as Appendix B, in which the languages are listed in left-to-right geographic order corresponding to their west-to-east position. Hausa is listed first, Sha, Angas, Karekare, and then Dera. Languages in the word list and in the examples given throughout the discussion are designated by an abbreviation using the first letter of each name: H, S, A, K, D.

For each gloss, words appear for at least four of the five languages concerned. Items in the word list are as they appear in the sources consulted, i.e. the phonemic symbols, vowel length and tone markings are those of the sources from which they are taken (with the exception of Hausa; vowel length and tone markings are taken from Abraham (1962) but the convention used for these markings is that used in Kraft (1981). When an item is taken from a secondary source, the name of the author of the source appears directly below it in abbreviated form along with the date of the source in parentheses in the comparative word list in Appendix B. Consult the list of abbreviations. Newman's proto-Chadic lexical reconstructions appear as the last item, after the lexical reconstructions posited in this study. Newman's reconstructions are designated by a single asterisk (*). Where appropriate, reconstructions posited in this study are found directly after the lexical citations. Because of the nature of the data upon which these reconstructions are based, they are

referred to as 'provisional reconstructions' and are designated in the appendices and in the examples given throughout the thesis by a double asterisk (**).

These provisional reconstructions (PR's hereafter) for the West-A branch posited in this study include consonants. An attempt is also made at reconstructing vowels. Though it is recognized that tone and vowel length play a very important role in Chadic phonology, no attempt is made to reconstruct these in this study. Vowel length would be very difficult to reconstruct because of inconsistent marking of vowel length for citations in varying sources. This also holds in many cases for tone markings. Moreover, many Chadic words have alternate tone patterns depending on the context in which they appear. Therefore, due to the absence of consistent and reliable data on vowel length and tone markings, these aspects are not considered in the PR's. Tone and vowel length are not marked in the examples given throughout the discussion, but, as far as the sources will allow, are included in the citations in the comparative word list found in Appendix B. The PR's make use of the symbols given in the proto-Chadic West-A phonemic inventory of Chapter Three.

Expectations

Because of the proposed close relationship of the languages, implied by their position at the subbranch level in

the classification, one might expect to find numerous cognates, and regular sound correspondences from which proto-lexical forms for the West-A branch may be posited. Because of the hypothesis espoused in this study, a low degree of consistency is expected from a comparison of the PR's for the West-A branch and the corresponding lexical reconstructions posited by Newman (1977). It is hypothesized that Newman's reconstructions do not adequately reflect the individual lower structures within his Chadic classification.

Results

First of all, contrary to expectation, the comparison of the five West-A branch languages has revealed very few cognates. Sound correspondences exist. However, few are very regular. The scarcity of cognates and the sporadic nature of the 'regular' sound correspondences, makes it difficult, if not impossible, to posit reliable and valid lexical reconstructions for the West-A branch. Of the two hundred and ten items on the comparative word list, PR's were possible for only one hundred and thirty-three. Because of the scarcity or lack of cognates found among all five of the languages concerned, more than half of these PR's are based on as few as two of the five languages.

Seventy-two of the one hundred and thirty-three PR's correspond to Newman's reconstructions. Contrary to

expectation, the comparison of the PR's with the corresponding proto-Chadic lexical forms posited by Newman reveals more similarities than dissimilarities. This finding suggests that Newman's proto-Chadic lexical reconstructions do adequately reflect the West-A branch of the present Chadic classification. However, given the dubious nature of the PR's due to the poor quality of the cognates and sound correspondences upon which they are based, this finding has conflicting implications as discussed in the conclusion.

The structure of the remainder of this thesis is as follows. Chapter Two includes general and linguistic information about each language included in this study. Chapter Three includes a phonemic inventory for proto-Chadic West-A, regular sound correspondences for consonants and vowels revealed by the comparison of the languages, and a discussion of these proto-phonemes and sound correspondences. Chapter Four deals with the comparison of the West-A PR's with the corresponding Chadic reconstructions posited by Newman. The conclusion is presented in Chapter Five, followed by the appendices; Appendix A lists each set of cognates, its associated gloss and its respective PR. The cognates and accompanying PR's are presented in alphabetical order according to gloss by descending order of the number of cognate items in each set; Appendix B contains the comparative word list which is outlined as explained above.

NOTES

[1]Greenberg (1963) presented linguistic data in the form of lexical and morphological cognates as evidence of the genetic relationship of the Chadic languages with the so-called 'Hamito-Semitic' languages, which consisted of Berber, Semitic, Egyptian, and Cushitic languages. Greenberg named this new five-branch system of languages the 'Afroasiastic' family, thus abandoning the term 'Hamitic' which had developed racial connotations.

A more recent theory concerning the relationship of Chadic to other branches of Afroasiatic suggests that "the co-equal or coordinate branches of Greenberg's Afroasiatic are no longer co-equal" (Fleming 1983:23). Omotic (formerly grouped with Cushitic), is now generally considered a sixth branch of the Afroasiatic language family.

[2]Lukas, Joannes, 1936. "The Linguistic Situation in the Lake Chad Area in Central Africa." Africa vol 9. 332-349.

[3]Concerning Lukas's classification, in their 1966 publication, Newman and Ma state "some languages were incorrectly classified because of the inordinate importance ascribed to certain typological features (notably grammatical gender), but on the whole, Lukas presented a reliable, conservative classification based on considerations of phonology and vocabulary as well as grammar" (p. 218).

[4]In Westerman, D. and M.A. Bryan, 1952. Languages of West Africa. London: International African Institute. (Later edition 1970).

[5]Greenberg, Joseph H., 1950. "Studies in African Linguistic Classification, IV. Hamito-Semitic." South West Journal of Anthropology, vol. 6, 47-63. This article appears in Greenberg (1963) The Languages of Africa.

[6]Newman (1977) also offers an improved inventory of proto-Chadic phonemes which are used in the re-evaluated proto-lexical reconstructions.

[7]Newman (1977) states that he relies on Caprile and Jungraithmayr (1973), E. Wolff (1971), and Hoffmann (1971) for the nomenclature of the languages, and for the relationship of the lower level groups and clusters, while he himself is responsible for the 'higher groupings showing the general structure of the sub-classification within Chadic' (p. 4.).

[8]Newman's East and West branches represent a division of the former Plateau-Sahel group which was coordinate with the Biu-Mandara group in Newman and Ma's 1966 classification.

[9]More recent Chadic theory suggests that the Chadic language family is comprised of some one hundred and forty languages (Fleming 1983:19).

[10]Dera and Kanakuru are alternate names for the same language and for the group of people who speak the language. I have chosen to use the term Dera in this study since "Dera is the peoples' own name for themselves" (Newman 1974:ix).

[11]This study project involved the elicitation of words from a Karekare informant for phonemic analyses for partial fulfillment of a course on Afroasiatic linguistics with professors Neil Skinner and Patrick Bennett at the University of Wisconsin-Madison.

[12]Ninety of the two hundred and ten words included on this word list correspond to vocabulary items used on the Swadesh list. Nearly all of them (one hundred and ninety-six) correspond to the items used on the word list compiled for Chadic languages by Jungraithmayr (1975).

[13]Because of the need to compile a sizeable word list for comparative purposes, it was not possible to omit all of the semantically dubious items.

CHAPTER II

HAUSA, SHA, ANGAS, KAREKARE, AND DERA: GENERAL AND LINGUISTIC INFORMATION

General Information

All of the languages concerned in this study are spoken in northern Nigeria (see Figure 4). Hausa, also spoken in Niger, northern Cameroon, and in geographical pockets throughout west Africa, has as many as twenty million speakers. Hausa is spoken in all of the northern states of Nigeria (i.e., Sokoto, Kano, Borno, Niger, Kaduna, Bauchi, Plateau) and has many dialects depending on the region where it is spoken; e.g., Sokoto, Zaria, Kano. The Kano dialect is considered the Standard. It is Standard Hausa that is referred to in this study.

Though there are many languages spoken throughout northern Nigeria, Hausa is the major language of the area and functions as the lingua franca. Thus speakers of minor languages, e.g., Sha, Angas, Karekare, and Dera, typically speak Hausa as a second language. Hausa has linguistically influenced minor languages as evidenced by lexical borrowings from Hausa. Hausa is the most thoroughly studied and documented Chadic language, thus the quantity of linguistic

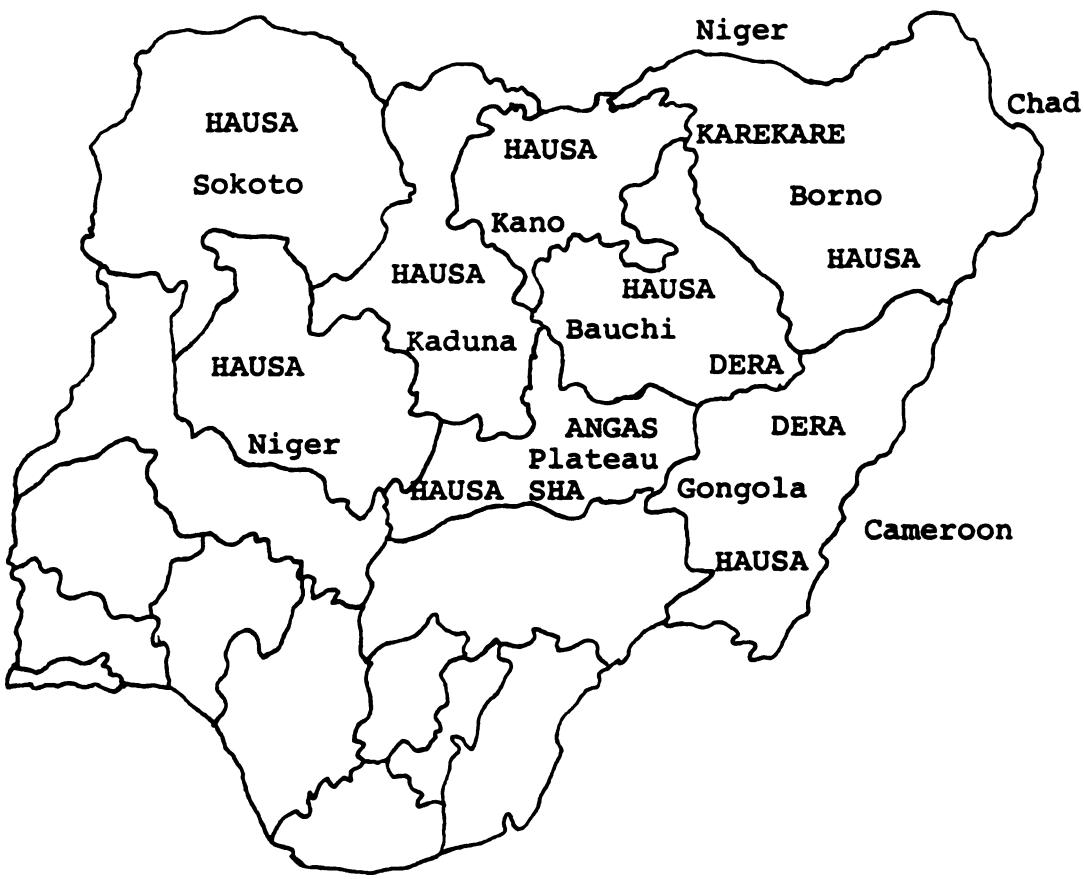

Figure 4

LANGUAGE MAP
(Taken From Ikwue 1984)

CAPITAL LETTERS = LANGUAGES

Lower Case Letters = States

literature on Hausa abounds in comparison to the paucity of available data for minor languages like Sha, Angas, Karekare, and Dera. The quality and reliability of Hausa data also exceed the quality and reliability of data for the other Chadic languages.

Sha is spoken near the southern edge of the Jos Plateau in Plateau state. Other languages belonging to the Ron group, e.g., Daffo-Batura, Bokkos, Kulere, and Fyer, are spoken in surrounding areas. Sha is spoken by approximately one thousand and five hundred people (Jungraithmayr 1966:169).

Angas is spoken in Pankshin and the surrounding areas including Amper, Wokkos, Ampan, Kabwir, and Garram (Shimizu 1974) in Plateau state. There are two main dialects, Plains Angas and Hill Angas. Lexical and phonological evidence indicate that the dialect used in this study is Plains Angas.[1] Angas speakers number 138,224 according to the 1963 census (Nigeria Handbook 1973). Besides Hausa, languages neighboring Angas, include those belonging to the Chadic family as well as those belonging to the Benue-Congo branch of the Niger-Congo language family.

Karekare is spoken in the western area of Borno state in Potiskum and Fika, and in Bauchi state, in Dagauda and Jalam, extending just east of Kano. Dialects of Karekare include Jalalum in the west, Pakaro in the north, and Ngwajum in the east (Hansford et al. 1976). According to the 1963 census, there are 128,802 Karekare people

(Nigerian Handbook 1973) presumably first or second language speakers. Neighboring languages include Bolanci, Ngamo, and Ngizim, all of which are Chadic languages. Kanuri, a Nilo-Saharan language, is a major neighboring language spoken in the area north of where Karekare is spoken.

Dera is spoken along the Hawal and Gongola rivers at Shellem and Kiri near Numan in Gongola state and in Shani and Gasi near Biu in Borno state. The two major dialects are spoken in Shani and Shellem. The dialect of this study is the Shellem dialect. There are approximately 11,000 speakers of Dera according to Westerman and Bryan 1970.[2]

Linguistic Information

A phonemic chart for each language is followed by pertinent phonological descriptions.

Hausa Phonemic Inventory

Consonants

	Labial	Dental	Palatal	Velar	Glottal
Stops		t	c	k	'
	b	d	j	g	

	Labial	Dental	Palatal	Velar	Glottal
Glottalized Stops	ɓ	ɗ		ƙ	
Glottalized Fricative		ts			
Fricatives	f	s	sh		h
		z			
Nasals	m	n			
Liquids		l			
		r, r̃			
Semivowels	w		y		
Glottalized Semivowel			'y		

Vowels

i u

e o

a

1. /f/ is pronounced more like a voiceless bilabial fricative in some dialects.

2. /'/ has phonemic status in Hausa. It usually precedes what would otherwise be described as vowel initial words.

3. Palatalization occurs with dental and velar consonants when they are followed by front vowels.

4. Labialization occurs with labial and velar consonants when they are followed by back vowels.

5. Only one glottalized consonant occurs within a word unless it is a geminant glottalized consonant.

6. Most Hausa words do not end in consonants.

7. All vowels occur long and short; vowel length is contrastive. /o/ and /e/ are not common vowels and usually occur long in final position.

8. There are two basic tones, high and low.

Sha Phonemic Inventory

Consonants

	Labial	Dental	Palatal	Velar	Laryngeal	Glottal
Stops		t	c	k	ʿ	'
	b	d		g	ḥ	
Prenasalized Stops	b̃	d̃	j̃	g̃		
Glottalized Stops	ɓ	ɗ				
Fricatives	f	s	sh	h		
	v	z				
Nasals	m	n				
Liquids		l				
		r				
Semivowels	w		y			

Vowels

i	u
e	o
a	

1. /ᶜ/ and /h̤/ may be allophones of the same phoneme according to Jungraithmayr (1966). ᶜ̲ occurs intervocalically and before some vowel initial words. /h̤/ occurs word initially, finally, and intervocalically in a few examples. As illustrated in Jungraithmayr (1966) /h̤/ often corresponds to /r/ and /ɗ/ in other Chadic languages.

2. /'/ occurs preceding vowel initial prefixes.

3. /b̰, d̰, j̰/ and /g̰/, represent a full range of prenasalized consonants; they occur in initial position.

4. Most of the Sha citations end in consonants, monosyllabic and disyllabic in structure.

5. Vowel length is not marked except in a few examples in the source from which the data were taken.

6. There seem to be two basic tones, high and low, and a falling tone. In a few cases rising tones are marked.

Angas Phonemic Inventory (Taken from Kraft 1981)

Consonants

	Labial	Dental	Palatal	Velar	Glottal
Stops	p	t	c	k	(')
	b	d	j	g	
Glottalized Stops	ɓ	ɗ	ʄ		
Fricatives	f	s	š	(h)	
	v	z	ž		
Nasals	m	n			
Liquids		l			
		r			
		[r̃]			
Semivowels			y	w	

Vowels

i	ɨ	u
e		o
	a	

1. ['] occurs phonetically preceding vowel initial words according to Kraft (1981). In Kraft (1981), it is included parenthetically in the phonemic inventory.

2. /ɠ/ represents a palatal implosive stop according to Kraft (1981). In Shimizu (1974) this phoneme is described as a palatalized velar implosive.[3]

3. [r̃] is not included in the phonemic inventory in Kraft (1981). According to this source it is a phonetic variant of /r/ occurring in initial and final position. However, a flap [ř] is also found in these positions.

4. Voiced stops do not occur word finally. They are sometimes replaced by voiceless stops in initial position.

5. Most of the words in Angas end with consonants.

6. Burquest (1971) states that long vowels rarely occur in Angas; contrastive vowel length only occurs in a few examples, e.g., 'tooth' aas and 'dog' as. There are only a few citations which are marked with long vowels in Kraft (1981). However, in some cases where Kraft does not indicate a long vowel, Jungraithmayr (1963) does.

7. Burquest (1971) states that there are three tones in Angas, high, mid, and low. However, in Kraft (1981) (the main source consulted for Angas data) only high and low tones are indicated. If no tone mark is used to indicate mid tone, it is not explicitly stated in Kraft (1981).

8. The vowel /ɨ/ represents a high front closed unrounded vowel (Burquest 1971).

Karekare Phonemic Inventory (Taken from Kraft 1981)

Consonants

	Labial	Dental	Palatal	Velar	Glottal
Stops		t	c	k	
	b	d	j	g	
Glottalized Stops	ɓ	ɗ			
Fricatives	f	s	š		(h)
Lateral Fricative		ɬ			
Nasals	m	n	(ny)		
Liquids		l			
		r			
		r̃			
Semivowels	w		y		
Glottalized Semivowels			'y	'w	

Vowels

i		u
e	(ə)	o
	a	

1. /r̃/ is not included in the phonemic inventory in Kraft (1981). It occurs word initially and finally. /r/

also occurs in these positions.

2. /ɬ/ represents a voiceless lateral fricative. It occurs word initially and medially, however, it does not frequently occur in the language.

3. /'w/ and /'y/ represent glottalized velar and palatal semivowels, respectively. They are included in the phonemic chart in Kraft (1981). However, it is also suggested in Kraft that perhaps ['w] is an allophone of /'y/, occurring before a back vowel.

4. /ny/ and /h/ occur word initially. Both phonemes occur only in a few items in Kraft (1981).

5. According to Schuh (1978) all vowels have contrasting length. However, as in Hausa, a phonemic contrast between long and short /e/ and /o/ is unusual.[4] Vowel length is not indicated in the Karekare forms in Kraft (1981), but are indicated in Schuh (1984).

6. Schuh (1978) states that there are two contrastive tones which occur in Bole languages, high and low. These tones are marked in the Karekare items in Kraft (1981), as well as an occasional falling tone (a high tone followed by a low tone on the same syllable).

7. According to Schuh (1978) and (1984), /ə/ is analyzable as a vowel reduction from /i/, /u/, or /a/.

Dera Phonemic Inventory (Taken from Newman 1974 and Kraft 1981)

Consonants

	Labial	Dental	Palatal	Velar
Stops	p	t		k
	b	d	j	g
Glottalized Stops	ɓ	ɗ		
Fricatives			š	(h)
Nasals	m	n		ŋ
Liquids		l		
		r		
Semivowels	w		y	

Vowels

i		u
e	ə	o
	a	

1. /h/ is a voiced velar fricative. It is a phonetic result of the weakening of intervocalic velar obstruents. It occurs between two non-identical vowels.

2. The only sibilant which occurs in present day Dera is /š/. This can be accounted for by a sound law posited by Newman (1970) in which all sibilants shifted to

/y/, followed by the shift c → š. Therefore, there is no voiceless palatal stop in Dera.

3. All vowels occur short and long except schwa, /ə/.

4. There are two contrastive tones, high and low, and a falling tone (a high tone followed by a low tone) occurs within a single syllable.

Chadic Phonological Traits

General Traits

Newman and Ma (1966) cite four phonological traits which are common among Chadic languages. They are as follows:

1. Palatalization: Palatals are most likely allophones of their corresponding alveolars, e.g., š < *s and c < *t.

2. /w/ and /y/ interchange: For comparative purposes, these phonemes can often be interpreted as phonetic variants.

3. Neutralization of prosodic contrasts: The full range of prosodic features (voiceless, voiced, and glottalized) in syllable final position does not occur anywhere in Chadic.

4. /ɗ/ → /r/ in syllable final position.

Specifically for Hausa and Dera, numerous linguistic properties and regular sound correspondences (which Newman refers to as sound laws) are noted in various works by Newman (1970, 1974, 1976, 1977) and Schuh (1976, 1978). These points are presented here because they aid in recognizing cognates and sound correspondences in the data presented in Chapter Three.

Hausa Traits

1. *r > y. This is a regular phonological shift postulated by Newman (1970). It occurs in all environments including intervocalically and in syllable final position. Secondary phonological shifts include y → w/___u,o and y → i/___$ (in syllable final position).

2. *l > r

3. *l > y. This is not a regular phonological shift.

4a. *N > ∅/___#. Nasal consonants, *m or *n, are lost in word-final position. Also, according to Schuh 1976 *N → ŋ/___#, i.e., *m or *n may appear as a velar nasal [ŋ] word finally.

4b. /n/ and /m/ assimilate to the point of articulation of a following consonant. Complete assimilation takes place before liquids. /m/ is subject to weakening to [w] before /r/ and /n/.

5. In word final or syllable final position, *K → [u] or [w] where *K represents the velar obstruents /k/, /g/, and /ƙ/; *T → [r] or [l] where *T represents the alveolar obstruents /t/, /d/, and /ɗ/; *P → [u] or [w] where *P represents the labial obstruents /p/, /b/, and /ɓ/.[5]

6. Palatalization of alveolar consonants occurs in the environment preceding front vowels as mentioned above; t/d/s/z/___ V +front → c/j/sh/j.

7. *ɗ → r following a long vowel in intervocalic position. This shift does not occur in initial position or following a short vowel.

8. /f/ → [h] /___V +back

9a. A regular sound correspondence occurs between initial /h/ followed by a short /a/ and initial ø in closely related Chadic languages. This can be accounted for by Newman's proposal in his 1970 publication, that this /h/ is derived from nothing, i.e., /h/ < *ø, "by phonemicization of a phonetic feature of word onset along the same lines described by Greenberg (1947) for the origin of /'/" (p. 173).[6]

9b. According to Newman (1976), sometimes a glide or semivowel occurs phonetically as onset before words which are otherwise analyzed as vowel-initial; [w], or [y], is used instead of [h] or ['']. The phonotactic constraints in Hausa disallowing vowel-initial words can be schematically summarized:

$*\emptyset V_1CV_2$ → $'V_1CV_2$, where C = -glottalized

→ hV_1CV_2, where V_1 = short /a/

→ wV_1CV_2, where V_1 = /u/

→ yV_1CV_2, where V_1 = /i/

10. Newman (1977) notes that Hausa /ʃk/ corresponds to ʃy, gy, 'g, k, 'w, 'y, ', or ∅, in other Chadic languages.

11. Hausa makes use of an epenthetic syllable final /r/.

Angas Traits

1. Newman and Ma (1966) point out that devoicing of obstruents takes place in initial and final positions in Angas.

2. Newman and Ma (1966) also claim that /n/ in Plateau languages often correspond to *r.

Dera Traits

1. Intervocalic weakening of obstruents to sonorants. *P → w, where *P represents labial obstruents, /p/, /b/, and /ɓ/. A secondary shift occurs in some Dera dialects where the weakening process is reversed and /ɓ/ is used intervocalically instead of /w/; *T → r, where *T represents alveolar obstruents, /t/, /d/, and /ɗ/; *K → h, where *K represents velar obstruents, /k/ and /g/. Two secondary shifts take place concerning the weakening of

the velars. /h/ → $\emptyset / V_1 \_\_\_ V_1$, i.e., /h/ is deleted in the environment between two identical vowels, and /h/ → [w] / (V+back)___(V+back), i.e., /h/ → [w] preceding, or following a back vowel.[7]

2. Final position hardening. /r/ → [t] in final position. According to Newman this is a diachronic shift. Intervocalic /r/ in Dera corresponds to /t/ in related languages whereas /t/ in final position corresponds to /r/.

3. r → ɗ synchronically.

4. Loss of sibilants. *S → y where *S represents the sibilants /s,z,š/ and /ž/. This shift operates in all environments. A secondary shift, y → w /___V+back, sometimes occurs.

5. Reappearance of /š/. *c > š. Dera š corresponds to c/k/t in other related Chadic languages.

6. Vowel harmony occurs in trisyllabic verbs. If the first vowel of a verb is +hi, then the penultimate vowel is +hi and agrees in frontness with the first vowel. If the first vowel is not /i/, or /u/, the penultimate vowel is /ə/. There is one exception ɗibəre 'buy' (Frajzyngier 1976).

7. /a/ is the only vowel which occurs in word initial position.

NOTES

[1]It is not explicitly stated in Kraft (1981) which dialect of Angas is used in the data presented. However, the two dialects are distinguishable phonologically and lexically. In many words Plains Angas has the vowel aa (long a) where Hills Angas has oo (long o), e.g., 'stand up' in Plains Angas is /yaal/, while in Hills Angas it is /yool/.

[2]Given that the number of speakers cited in this source for Angas and Karekare are off by a count of about one hundred thousand compared to the more recent figures cited for these languages in the 1963 Nigerian census, it is suspected that this figure may grossly underrepresent the current number of Dera speakers.

[3]Burquest (1971) treats /ɠ/ as an allophone of /'/ occurring only with the feature of palatalization syllable initially, with /'/ occurring elsewhere syllable initially.

[4]Schuh (1978) states that short /e/ and /o/ may be variants of short /a/ conditioned by consonantal environment.

[5]This set of phonological shifts is referred to as the Klingenheben laws after August Klingenheben for his article "Die Silbenauslautgesetze Des Hausa" Zeitschrift für Eingeborenen-Sprachen, Band XVIII, no. 4, 1928.

[6]Because an initial /a/ commonly occurs in body part terms in Chadic languages, there is a theory which suggests that this initial /a/ may be a prefix. However, Newman asserts that /a/ was not a prefix in proto-Chadic; rather, it was an inseparable part of the individual lexical items.

[7]The intervocalic weakening of obstruents to sonorants does not take place when the obstruent precedes /e/, when the obstruent follows a short vowel, and when the obstruent is the consonant in a syllable of Cə of trisyllabic words.

CHAPTER III

PROTO-FORMS FOR CHADIC WEST-A

In this chapter a phonemic inventory is presented for proto-Chadic West-A consonants and vowels based on the comparative data. 'Regular' sound correspondences are illustrated for consonants and vowels for each set of cognate items to exemplify each reconstructed phoneme postulated in this study. A discussion of the proto-phonemes and 'regular' sound correspondences are included also. The cognates and the reconstructions for Chadic West-A are listed in Appendix A.

Phonemic Inventory of Provisional Reconstructions

Consonants

	Labial	Dental	Palatal	Velar
Stops		t	č	k
	b	d		g
Glottalized Stops	ɓ	ɗ		K, (C_x)
Fricatives	f	s	š	
		z		

	Labial	Dental	Palatal	Velar
Nasals	m	n		
Liquids		l		
		r		
Semivowels	w		y	

Vowels

Initial Vowels:	i, Y, a, V
Medial Vowels:	i, e, Y, V +hi, u, o, W, a, V
Final Vowels:	i, e, Y, u, o, W, V, (-V)

Discussion of Phonemic Inventory of Provisional Reconstructions

Consonants

A voiceless bilabial stop is not included in the phonemic inventory. There is no evidence in the data which warrants that a **/p/ be reconstructed. /p/'s occur initially in Angas and Dera. However, they correspond mostly to initial underlying /f/'s in Hausa, Sha, and Karekare. Since the phoneme /f/ occurs in the majority of the five languages this is chosen as the symbol in the reconstructions rather than /p/. There is no evidence for reconstructing a voiced palatal stop, a voiced labial fricative, or a voiced palatal fricative.

**/K/ is used as a symbol which represents some glottalized velar phoneme with its varying reflexes occurring in each language under unidentified conditions. In the few examples given in the list of sound correspondences, it occurs both initially and medially. Its reflexes include /k/, /g/, /ƙ/, /'/, /ɗy/, /kw/, /w/, and /ɠ/, for the various languages.

The symbol **$\underline{C}_x$ is not a phoneme. Rather, it is a symbol used to represent some sort of phonetic onset of word-initial vowels. This parallels Newman's scheme for the phonetic onset of Hausa word-initial vowels. **$\underline{C}_x$ corresponds to Newman's *Ø. The various reflexes in the languages include [h], ['], [w], [y], [kw], [gw], and Ø.

Vowels

The symbols /Y/ and /W/ represent a front vowel and a back vowel, respectively. The symbols /V/ and /(-V)/ both represent unspecified vowels; the latter symbol applies only to final vowels of verbs. The initial vowels /i/ and /a/ occur with verbs and nouns, and /Y/ and /V/ occur only in a few nouns in the data examined. The vowels which occur in medial position are noted above. /e/, /o/, and /W/ do not occur medially with the verbs, and each phoneme occurs in only a few of the items in the data. The other medial vowels occur with all of the grammatical categories represented in the word list. The only final vowel which

applies to verbs is /(-V)/, where the hyphen indicates that the vowel is a suffix with phonological or morphological implications (depending on the language), and the parentheses indicate the uncertainty of the existence of such a final vowel in proto-Chadic West-A verbs.

'Regular' Sound Correspondences

In the following list of 'regular' sound correspondences, the position of corresponding phonemes within a word is noted by the placement of hyphens with each phoneme. A hyphen following a phonemic symbol indicates that the sound occurs word initially; a hyphen preceding a phonemic symbol indicates that the sound occurs in word final position; a hyphen on either side of the phonemic symbol indicates that it occurs medially. In some examples medial phonemes correspond with final phonemes. This happens where the form for a particular language for a particular item ends with a vowel and the corresponding citation(s) in another language(s) is consonant final.

A plus sign (i.e. +) indicates a morphological boundary. If it is placed preceding a phoneme, this indicates that a morphological unit precedes it, be it the root or a prefix; if it is placed after a phoneme, this indicates that a morphological unit follows it, be it the root or a suffix.

Consonants

	**b	H	S	A	K	D
3.	ashes			fw-	b-	
9.	beard				b-	b-
16.	blind man			v-		b-
21.	bow	b-	b-			
32.	charcoal	-w-		-p		
43.	divide	-b-	-p	-b-		
64.	five	b-		p-	b-	b-
71.	give	b-		p-	b-	
77.	groundnuts				-b-	ø
92.	hunt				b-	b-
97.	knee			f-		b-
106.	liver				-b-	-w-
116.	mouth	b-		p-	b-	b-
				-ø-		-b-
121.	night			mp-	b-	b-
128.	open	b-	b-			
					-f-	-b-
132.	place			p-	b-	b-
156.	shoot		b-	p-	b-	b-
195.	two	b-			b-	
	**ɓ					
87.	horn				ɓ-	ɓ-
187.	tie	-u-		-ɓ-		-ɓ-

	**t	H	S	A	K	D
3.	ashes			-t	-t-	
23.	break into pieces				t-	t-
26.	burn	t-		t-		t-
41.	die	-t-	-t	-t	-t	-r-
51.	eat	c-	c-		t-	t-
62.	fire	-t-				-t-
70.	gather	t-	t-		t-	
72.	go	t-				t-
74.	go out	-t-		-t-	-t-	-r-
103.	lie down			t-	t-	
114.	moon			t-	t-	t-
122.	nose	+-c-	+-t-		+-t-	+-r-
146.	rope		+-c-	t-		
155.	sheep	t-			t-	t-
161.	sit			t-	t-	
162.	skin	-t-	-t-			
167.	speak		t-		t-	
175.	sun		-t		-t-	-r-
184.	thigh				-t-	-d-
190.	tooth				-t-	-r-
210.	woman	-t-	-ø-	-t	-d-	
	**d					
8.	beans			-r-	-d-	-r-
13.	bite			-t	-d-	
17.	blood	j-	z-	t-	d-	d-

	**d (cont'd)	H	S	A	K	D
36.	come	z-		j-	nd-	d-
54.	eye	-d-	-ḥ-	-t	-d-	-r-
66.	fly				d-	d-
79.	guinea fowl				d-	d-
85.	hit		d-		d-	
88.	horse	d-			d-	d-
95.	kill				d-	d-
134.	pull		d-	d-		
137.	quiver			d-		d-
153.	sew				d-	d-
159.	sickle	-j-			-d-	
162.	skin			š-		d-
190.	tooth	-r-	-ḥ-			
197.	urine				-d-	-d
	**ɗ					
11.	bird			-r		-ɗ-
18.	blow	-r-	-ɗ-		-t-	-d-
24.	(woman's) breast			-r	-ɗ-	-r-
25.	build				ɗ-	ɗ-
37.	cook		ɗ-		ɗ-	ɗ-
45.	dog				-d-	-ɗ-
57.	fall	-ɗ	-ḥ			
64.	five	-r̃		-t	-ɗ-	-t
68.	four	-ɗ-	-ɗ	-r	-ɗ	-r-
103.	lie down			-r	-ɗ-	

**ɗ (cont'd)	H	S	A	K	D
111. millet				-ɗ-	-ɗ-
121. night			-r	-ɗ-	-r-
128. open	-ɗ-		-t		
142. refuse	-ø-			-ɗ-	-r-
153. sew				-ɗ-	-ɗ-
177. swallow	+-ɗ-	d-	ɗ-	ɗ-	ɗ-
187. tie	ɗ-		t-		ɗ-
**č					
98. knife		sh-	c-		
113. monkey			j-		sh-
152. seize				c-	sh-
171. steal				c-	sh-
**k					
2. arrow				-k-	-k
7. baobab tree	k-			k-	
	-k-			-c-	
19. body	+-k	+-k	+-k		+-k
21. bow	-k-	-c-			
				-k-	-h-
25. build				-k-	-ø-
32. charcoal				k-	k-
				-k-	-g-
37. cook		-ø-		-k-	-g-
38. cooking pot			c-		k-

**k (cont'd)	H	S	A	K	D
50. ear	k-	k-	k-	k-	k-
63. fish	k-			c-	sh-
67. forge	ʃk-		k-		
75. goat	-k-			-c-	
79. guinea-fowl				-k-	-ø-
80. hair				-k-	-k-
81. head	k-		k-	k-	k-
84. hen	k-			k-	
85. hit		-k		-k-	
88. horse	-k-			-k-	-k
91. hunger				k-	k-
95. kill				-k-	-w-
98. knife		-k	-k		
112. moisten	-ʃk-				-k-
116. mouth	+-k-				+-k
118. navel			k-		k-
140. rat	k-			c-	k-
142. refuse	ʃk-			k-	k-
151. seed			k-		k-
155. sheep	-k-			-c-	-ø-
172. stomach		+-j-		+-k-	+-w-
185. three	k-	k-	k-	k-	k-
194. turtle	k-	+-k-	k-		
202. wash	-k-		-ø-		
204. weave	-k-		-k-	-k-	

	**g	H	S	A	K	D
9.	beard				-g-	-ø-
32.	charcoal	g-		g-		
60.	fill			g-		g-
130.	person			g-	ŋg-	
139.	ram			ng-	g-	g-
161.	sit			-ø-	-g-	
182.	tear (v.)	-g-			-g-	
183.	ten	g-				g-

	**K					
8.	beans			g-	'-	w-
20.	bone	ʃk-	g-	ʤy-	kw-	w-
56.	faeces	k-		ɠ-	'-	k-
190.	tooth	+-ʃk-	+-g-			

	**C_x					
13.	bite			ø-	'y-	
44.	do	y-			'-	y-
45.	dog				'-	y-
52.	egg			ø-	'-	
65.	flour			ø-		ø
75.	goat	ø/'-			ø/'-	
94.	intestines	h-+			ø/'-+	
122.	nose	h-+	'-+		kw-+	w-+
128.	open				'-	ø-
172.	stomach				ø-	ø-

	**C_x (cont'd)	H	S	A	K	D
177.	swallow	h-+	ø-	ø-	ø-	ø-
189.	tongue	h-+	'-+			
190.	tooth	h-+	'-+			
203.	water		h-	ø-	ø/'-	gw-
	**f					
2.	arrow			p-	f-	p-
18.	blow	h-	f-		f-	p-
34.	close		v-	p-	f-	
57.	fall	f-	f-			
63.	fish	-f-			-f-	-w-
68.	four	h-	f-	f-	f-	p-
72.	go	-f-				-w-
74.	go out	f-		p-	f-	p-
120.	new			mp-		p-
162.	skin	f-	f-			
175.	sun		f-		f-	p-
184.	thigh				f-	p-
207.	white	f-	fy-			
	**s					
1.	arm			s-	s-	
2.	arrow			-s	-s-	-ø-
20.	bone	-sh-	-sh-	-s	-s	-y-
32.	charcoal				-s-	-ø-
46.	dream			s-	s-	j-

	**s (Cont'd)	H	S	A	K	D
52.	egg			-s-	-s-	
56.	faeces	-sh-		-s	-s-	-y-
62.	fire			-s	-s-	
65.	flour			-s		-sh-
80.	hair				s-	w-
99.	know	s-	sy-			
101.	leg			š-	s-	y-
106.	liver				-s-	-ø-
110.	medicine				s-	w-
117.	name	s-	+-y-	s-	s-	y-
138.	rabbit	z-	s-		s-	
140.	rat	-s-		-z-	-s-	-ø-
145.	roast			-s		-sh
156.	shoot		-c	-s	-s	-ø-
189.	tongue	-sh-	-s	-s	-s-	-ø-
204.	weave	s-		s-	c-	
	**z					
19.	body	j-	z-	š-	z-	y-
84.	hen	-z-			-z-	
91.	hunger				-z-	-y-
94.	intestines	+-j-			+-z-	
108.	man	-j-		-s	-z-	
112.	moisten	j-				y-
136.	put down				z-	w-

	**z (Cont'd)	H	S	A	K	D
146.	rope				z-	w-
161.	sit	z-	z-			
	**š					
47.	drink	sh-		š-	s-	
98.	knife		sh-	c-		
126.	old				-sh-	-j-
	**m					
8.	beans			-m	-m	-m
16.	blind man			-m		-m
17.	blood	-n	-m	-m	-n	-m
32.	charcoal				-ø	-m
41.	die	m-	m-	m-	m-	m-
50.	ear	-nn-	-m	-m	-m-	-m-
60.	fill			-m		-m-
67.	forge	-ø		-m		
79.	guinea-fowl				-m-	-ɲ-
91.	hunger				-m	-m
97.	knee			-m	-m	
108.	man	m-		+-m-	m-	
109.	meat	-m-		-m		
111.	millet				m-	m-
117.	name	-n-	-n	-m	-ŋ	-m
118.	navel			-m		-m-
124.	oil	m-	m-	mw-	m-	m-

	**m (Cont'd)	H	S	A	K	D
126.	old				m-	m-
138.	rabbit	-m-	-m-		-m-	
140.	rat	-Ø		-m	-ŋ	-m
151.	seed		-n			-m-
162.	skin			-m		-m-
167.	speak		-n		-m-	
183.	ten	-m-				-m
203.	water		-m	-m	-m	-Ø
205.	what	m-	m-	m-	m-	m-
210.	woman	m-	+-m-	m-	m-	

	**n					
21.	bow	-Ø	-n			
31.	call			n-		n-
				-ŋ		-Ø
32.	charcoal				-n-	-n-
37.	cook		-n-		-n-	-n-
46.	dream			-n	-n-	-n
66.	fly (n.)				-Ø	-n
99.	know	-n-	-n			
109.	meat	n-		n-		
110.	medicine				-n	-n
122.	nose	-Ø	-n		-n	-ŋ
126.	old				-n-	-n-
134.	pull		-n	-n		
137.	quiver			-ŋ		-r-

	**n (Cont'd)	H	S	A	K	D
146.	rope		-n	-ŋ		
148.	saliva	-ø	-ø	-ø	-n	-ø
150.	see			n-	n-	
154.	shadow			-n	-n-	
155.	sheep	-n-			-n-	-ŋ-
161.	sit	-n-	-n	-ŋ	-ŋ-	
165.	sleep		ny-			n-
			-ø			-n
184.	thigh				-n-	-n-
185.	three	-ø	-n	-n	-n-	-n-
197.	urine				-ŋ	-n
202.	wash	-n-		-ŋ		
	**l					
12.	give birth			l-	l-	l-
26.	burn	-y-		-l		-l-
38.	cooking pot			-l-		-l-
67.	forge	-r-		-l-		
87.	horn				-l-	-l-
109.	meat		l-		l-	l-
113.	monkey			-l-		-l
119.	neck	-y-			-l-	
137.	quiver			-l-		-r-
148.	saliva	y-	l-	l-	l-	l-
159.	sickle	l-			l-	
170.	stand up			-l		-r-

	**l (Cont'd)	H	S	A	K	D
177.	swallow	-y-	-l	-l	-l-	-l-
189.	tongue	+-r-	+-l-	l-		l-
195.	two	-y-			-l-	
207.	white	-r-	-l-			
	**r					
1.	arm			-r-	-r-	
21.	bow			r-		r-
32.	charcoal	-y-		-r-		
43.	divide	r-		r-	r-	
63.	fish	ø/-i			-r-	-r-
70.	gather	-r-	-ŋ		-r-	-ø-
71.	give	-ø-			-r-	-ø-
77.	groundnuts				-r-	-n-
92.	hunt				-r-	-r-
97.	knee			-r-		-r-
106.	liver				r-	r-
110.	medicine				-r̃	-r-
114.	moon			-r	-r-	-r-
124.	oil	ø/-i	-ẖ	-r̃	-r-	-t
138.	rabbit	-ø-	-ẖ-		-r-	
146.	rope				-r-	-r-
152.	seize				-w-	-r-
154.	shadow			r-	r̃-	
163.	sky		+-r-		r-	
171.	steal				-r-	-r-

	**r (Cont'd)	H	S	A	K	D
190.	tooth	-r-	-ḥ-			
194.	turtle	-r-	-r	-r		
	**w					
62.	fire	w-				w-
				w-	y-	
119.	neck	w-			w-	
123.	obtain				w-	w-
145.	roast			w-		w-
190.	tooth				w-	w-
202.	wash	w-		v^w-		
208.	who	w-		w-		
	**y					
9.	beard				-j-	-y-
11.	bird			y-		y-
24.	(woman's) breast			w-	y-	w-
66.	fly				-y-	-w-/-ɓ-
112.	moisten	j-				y-
170.	stand up			y-		y-
182.	tear (v.)	y-			y-	
197.	urine				'y-	y-

Vowels

Initial Vowels

	**i	H	S	A	K	D
44.	do	yi-			'i-	yi-
54.	eye	i-	ya-	yi-	'i-	ye-
	**y					
52.	egg			e-	'i-	
	**a					
13.	bite			a-	'ya-	
94.	intestines	ha-+			a-+	
120.	open			'a-	a-	
122.	nose	ha-+	'a-+		wa-+	wa-+
172.	stomach		'a-+		'a-+	a-+
189.	tongue	ha-+	'a-+	Ø-+	Ø-+	Ø-+
190.	tooth	ha-+	'a-+			
203.	water		ha-	a-	a-	gwa-
	**v					
45.	dog				'a-	ye-
65.	flour			e-	a-	
75.	goat	a-			o-	

Medial Vowels

	**i	H	S	A	K	D
63.	fish	-i-			-a-	-i-
66.	fly (n.)				-i-	-i-
122.	nose	-i	-o-		-ə-	-i-
	**e					
77.	groundnuts				-e-	-e-
139.	ram			-e-	-e-	-a-
146.	rope		-e-	-e-		
	**y					
11.	bird			-e-		-i-
20.	bone	-a-	-i-	-i-	-ə-	-e-
87.	horn				-e-	-i-
108.	man	-i-		-i-	-ə-	
112.	moisten	-i-				-e-
195.	two	-i-			-e-	
	**V +hi					
18.	blow	-u-	-u-		-u-	-i-
91.	hunger				-u-	-i-
110.	medicine				-u-	-i-
117.	name	-u-	-i-	-i-	-u-	-i-
154.	shadow			-i-	-u-	

	**V +hi (Cont'd)	H	S	A	K	D
162.	skin			-~~i~~-		-i-
171.	steal				-u-	-i-
	**u					
7.	baobab tree	-u-			-u-	
16.	blind man			-u-		-u-
32.	charcoal				-u-	-u-
					-u-	-u
					-u	ø
41.	die	-u-	-o-	-u-	-e-	-u-
46.	dream			-u-	-u-	-uwa-
50.	ear	-u-	-u-	-o-	-u-	-u-
79.	guinea-fowl				-u-	-u-
85.	hit	-u-			-u-	
95.	kill				-u-	-u-
98.	knife		-u-	-u-		
118.	navel			-u-		-u-
119.	neck	-u-			-u-	
140.	rat	-u-		-u-	-a-	-u-
		-u		-u-	-ə-	ø
142.	refuse				-u-	-u-
145.	roast			-u-		-u-
185.	three	-u	-u-	-a-	-u-	-u-
190.	tooth				-u-	-u-
194.	turtle	-u-	-u-	-u-		

	**o	H	S	A	K	D
1.	blood	-i-	-o-	-o-	-o-	-o-
88.	horse	-o-			-o-	-o-
110.	medicine				-o-	-o-
137.	quiver			-o-		-o
138.	rabbit	-o	-o-		-e-	
146.	rope				-o-	-o-
	**W					
24.	breast			-u-	-ə-	-o-
159.	sickle	-au-			-w-	
163.	sky			-o-		-u-
183.	ten	-o-				-u-
	**a					
1.	arm			-a-	-a-	
2.	arrow			-a-	-a-	-e-
3.	ashes			-a-	-ə-	
9.	beard				-a-	-ø-
21.	bow	-a-	-a-			
23.	break into pieces				-a-	-a-
25.	build				-a-	-ə-
31.	call			-a-		-a-
43.	divide	-a-		-i-	-ə-	
60.	fill			-a-		-ə-
70.	gather	-a-	-a-		-a-	
80.	hair				-ə-	-a-

	**a (Cont'd)	H	S	A	K	D
92.	hunt				-a-	-a-
109.	meat	-a-		-a-		
114.	moon			-a-	-a-	-e-
124.	oil	-a-	-a-	-i-	-a-	-o-
126.	old				-a-	-a-
152.	seize				-a-	-a-
153.	sew				-a-	-a-
161.	sit	-au-	-a-			
175.	sun		-a-		-a-	-o-
177.	swallow	-i-	-u-	-a-	-a-	-ə-
182.	tear (v.)	-a-			-a-	
202.	wash	-a-		-a-		
204.	weave	-a-		-a-	-a-	
207.	white	-a-	-a-			
	**V					
8.	beans			-i-	-i-	-o-
				-ø-	-ə-	-o-
9.	beard				-a-	-o-
					-a-	-u-
21.	bow				-i-	-ə-
26.	burn	-o-		-a-		-i-
32.	charcoal	-a-		-e-		
37.	cook		-e-		-u-	-i-
38.	cooking pot			-o-		-i-
56.	faeces	-a-		-e-	-i-	-u-

	**V (Cont'd)	H	S	A	K	D
57.	fall	-a-	-u-			
62.	fire	-u-				-a-
				-u-	-a-	
63.	fish	-ø-			-a-	-u-
64.	five	-iya-		-e-	-a-	-a-
66.	fly (n.)				-o	-i-
67.	forge	-e-		-o-		
68.	four	-u-	-u-	-i-	-e-	-a-
74.	go out	-i-		-u-	-a-	-o-
77.	groundnuts				-ə-	-e-
79.	guinea-fowl				-a-	-u-
84.	hen	-a-			-e-	
87.	horn				-ə-	-i
97.	knee			-u-		-ə-
99.	know	-a-	-e-			
103.	lie down			-e-	-u-	
106.	liver				-ə-	-u-
111.	millet				-a-	-o-
113.	monkey			-o-		-a-
121.	night			-a-	-e-	-i-
128.	open	-u-		-e-		
134.	pull		-ə-	-e-		
137.	quiver			-a-		-ou-
138.	rabbit	-o-	-a-		-ə-	
151.	seed			-e-		-a-
155.	sheep	-u-			-a-	-i-

	**V (Cont'd)	H	S	A	K	D
156.	shoot		-a-	-u-	-a-	-o-
161.	sit			-o-	-i-	
162.	skin	-a-	-u-			
163.	sky			-i-		-o
165.	sleep (n.)			-a		-o-
167.	speak		-o-		-a-	
170.	stand up			-a-		-i-
184.	thigh				-ə-	-u-
187.	tie	-au-		-a-		-o-
189.	tongue	-ø-	-ə-	-i-	-u-	-i-
		-e	-ø-	-ø-	-ə-	-i-
190.	tooth	-o-	-a-			
197.	urine				-a-	-e-
					-ə-	-i-

Final Vowels

	**i					
19.	body	-i-+	-ə+	-i-+	-u	-i
24.	(woman's) breast			-ø	-i	-i
75.	goat	-iya			-i	
94.	intestines	-i			-i	
108.	man	-i		-ø	-i	-i
121.	night				-i	-i
132.	place			-i	-i	-oi
146.	rope				-i	-i

	**i (Cont'd)	H	S	A	K	D
155.	sheep	-iya			-i	-a
175.	sun		-Ø		-i	-i
	**e					
38.	cooking pot			-e	-e	
114.	moon				-e	-e
	**y					
120.	new				-i	-e
159.	sickle	-e			-i	
163.	sky		-e		-i	
205.	what	-e	-a	-e	-iya	-i
	**u					
68.	four	-u	-Ø	-Ø	-u	-au
109.	meat		-uw		-o	-u
195.	two	-u			-u	
	**o					
9.	beard				-o	-o
50.	ear	-e	-Ø	-Ø	-o	-o
54.	eye	-o	-ay		-o	-o
77.	groundnut				-o	-o
79.	guinea-fowl				-au	-o
111.	millet				-o	-o
116.	mouth	-a-+		-o	-o	-u

	**o (Cont'd)	H	S	A	K	D
172.	stomach		-i	-o	-o	
184.	thigh				-au	-o
	**W					
190.	tooth				-u	-o
	**V					
7.	baobab tree	-a			-i	
45.	dog				-a	-e
56.	faeces	-i		-Ø	-e	-u
62.	fire	-a				-i
63.	fish	-i			-u	-o
80.	hair				-u	-ai
81.	head	-ai		-e	-a	-oi
84.	hen	-a				-i
106.	liver				-a	-o
119.	neck	-a			-w	
126.	old				-i	-o
130.	person			-o	-a	
163.	sky		-e		-ə-+	
190.	tooth	-i	-aw			
207.	white	-i	-a			
208.	who	-a		-e		
	**(-V)					
all verbs						

Discussion of 'Regular' Sound Correspondences

Depending on the criteria used to determine the 'regularity' of sound correspondences, the sound correspondences illustrated for each reconstructed phoneme may or may not be considered regular. The minimal requirement ascribed for the term 'regular' determines what is considered as a regular sound correspondence; in this study a regular sound correspondence is one which occurs at least twice. The sound correspondences illustrated comply to this criterion with varying degrees.

Consonants

1. **ɓ

Correspondences upon which the phoneme **ɓ is reconstructed comply minimally; there exists only one cognate set which demonstrates a sound correspondence between initial /ɓ/'s in Karekare and Dera, (#87 'horn') and one medial sound correspondence, u ~ b ~ ɓ in Hausa, Angas, and Dera, respectively (#187 'tie'). Because of this, the reconstruction of the phoneme **ɓ for either set may appear dubious, especially given the fact that the first cognate set includes only two of the five languages investigated, and the other includes three. However, the second consonant in the first cognate set (#87 'horn') under the given definition is a regular sound correspondence between

the two languages involved, and the corresponding /ɓ/'s are phonemically identical. Therefore, /ɓ/ is reconstructed as a proto-phoneme. This cognate set may represent a loan word, one language borrowing from the other. On the other hand, perhaps initial /ɓ/'s do regularly correspond across the two languages, but by chance, evidence of this is not incorporated in the data. There are no other examples in the data of medial /ɓ/ correspondences.

2. **$\underline{K}$

Correspondences for the reconstructed symbol **$\underline{K}$ are few and inconsistent; the only correspondence which does occur more than once is /ƙ/ ~ /g/ ~ /ɠ/ in Hausa, Sha, and Angas, respectively, occurring in both initial and medial position. There is not enough data in this study to determine whether or not there exist specific environments for the various reflexes in the languages.

3. **$\underline{C}_x$

As mentioned above, $\underline{C}_x$ is a symbol which represents phonetic onset of otherwise word-initial vowels. It manifests itself as various sounds in the languages. The reflexes in Hausa include [y], [h], and ['] : the alternate reflexes may be accounted for by the scheme for phonetic onset preceding word-initial vowels explained in Chapter Two, where **$\underline{C}_x$ corresponds to Newman's *Ø for Hausa. In the other languages in this study (e.g. Angas) Ø may also be a reflex of this phonetic symbol.

[h] occurs preceding word-initial short /a/ resulting in the phonetic realization [ha] in Hausa. Short /a/ or [ha] happens to occur initially in some body part terms in Hausa.[1] This alleged prefix in Hausa, according to the definition set forth, regularly corresponds with initial ['a] in Sha. However, since ['a] occurs as a prefix designating nouns in general in Sha, it is not clear what morphological function initial [ha] in Hausa corresponds to in Sha. Does it correspond to a phonologically similar morpheme with the same function as a body part prefix as in Hausa, or is it corresponding to a phonologically similar morpheme with a different function- that of designating nouns in general? Perhaps there are two functionally distinct prefix morphemes that are phonetically similar in Sha, $['a]_1$- indicating body part terms, and $['a]_2$- indicating nouns in general.

Hausa [h] in body part terms corresponds to [kw] and ['/ø] in Karekare. There is only one example of a correspondence between Hausa and Dera for body part terms in which initial Hausa [h] corresponds to initial [w] occurring before /a/. There are no examples of Angas cognates which occur for body part terms included in the data.

Elsewhere (other than with body part terms) concerning $**\underline{C}_x$, the only correspondences which can be said to occur 'regularly' are ['] and [y] between Karekare and Dera respectively. Other reflex correspondences occur

sporadically, or inconsistently. However, as in the case for **/ɓ/, **$\underline{C}_x$ is reconstructed for these items because other evidence identifies them as cognates, though there is not enough evidence in the data to say that the **$\underline{C}_x$ reflexes represent regular sound correspondences.

It is this sporadic and inconsistent nature which characterizes the correspondences of other cognate sets upon which the reconstructed phonemes in this study are based. For example, while Hausa initial /b/ regularly corresponds with /b/ in Sha, Karekare, and Dera, and with /p/ in Angas, the data does not indicate that Sha initial /b/ 'regularly' corresponds to the said phonemes for Angas, Karekare, and Dera.

Some of the inconsistencies in the sound correspondences can be accounted for by phonological explanations outlined for the various languages in Chapter Two. For instance, in #106 'liver', Karekare medial /ɓ/ corresponds with Dera /w/ instead of Dera /b/. This can be accounted for by the phonological process explained above, whereby intervocalic bilabial obstruents are weakened to [w] in Dera; i.e. *P → $\underline{w}$ intervocalically. Thus [w] is presumably the surface representation of the underlying phoneme /b/. Other phonological processes not mentioned in Chapter Two can account for some other irregular correspondences, e.g. in Angas the initial [f] in #97 'knee', may occur instead of the expected [p] due to the environment in which it occurs, namely preceding /u/, as might be the case for

Karekare [f] in #132 'open'. The [f] in Angas for #3 'ashes', may be due to the following /a/. Based on these data [v] cannot properly be accounted for; perhaps it was an [f] resulting from the environment in which underlying [p] occurred, and it somehow became voiced.

Other phonological processes such as epenthesis may be operating. /b/ in the cognate items for Dera in #118 'navel' and #162 'skin' is not considered reconstructable. It is treated as an epenthetic consonant in the following examples:

	A	K	D	**
118. 'navel'	kum		kumbi	kum
162. 'skin'		sim	dimbi	dV_{+hi} m

4. **t

Hausa and Sha [c] correspondences are due to the palatalization of /t/ in the environment preceding a front vowel.

The corresponding Dera [r] which occurs may be accounted for by the sound shift noted by Newman, discussed in Chapter Two, whereby *T → r, intervocalically.

The medial [d] in Karekare in #210 'woman', and for Dera in #184 'thigh', cannot be accounted for based on the available data. They are however phonetically similar with the phonemes in their cognate sets.

5. **d

The correspondence for **/d/ in medial position occurs as [r] in #54 'eye' and #8 'beans' in accordance with the

same sound shift *t → r, intervocalically.

The [r] in #8 'beans' for Angas cannot be accounted for from the data. It is a phonetically similar correspondence though it does not occur regularly. There is the possibility that this is not a cognate item.

Hausa [j] in #17 'blood' and #159 'sickle' may be due to palatalization in the environment of a front vowel.

Sha [ḥ] is noted by Jungraithmayr (1966) as corresponding to [r] and other alveolars in related languages. The justification for this is not apparent; see #54 'eye' and #197 'tooth'.

While [z] is phonetically similar to the other sound correspondences for Sha in #17 'blood', its environment is not conducive to the palatalization of **/d/.

6. **d̠ʃ

Hausa intervocalic [r] can be accounted for by the sound shift noted by Newman, *d̠ʃ → r following a long vowel in intervocalic position. The final Hausa [r] in #64 'five', exemplifies the sound shift *T → r in syllable or word-final position.

The reflexes of **d̠ʃ for Sha include [d], [ʃ], [d̠], and [ḥ].

Angas reflexes include [ʃ] initially, and [r] and [t] in final position.

Karekare reflexes are almost consistently [ʃ] except in #18 'blow' for which the reflex is [t], and #45 'dog' for which the reflex is [d].

Dera [r] can be accounted for by the shift *T → r, intervocalically. Dera final [t] may be accounted for by the final position hardening shift, r → t, in final position.

7. **č

The Dera reflex of **/č/, [sh], is accounted for by the sound shift noted by Newman, c → š.

8. **k

Palatalization of **k can account for the occurrence of [c] in Sha and Karekare in items #7 'baobab tree', #21 'bow', #75 'goat' and #158 'sheep' whereas the underlying c in Angas and Karekare for items #38 'cooking pot' and #63 'fish', respectively, is phonemic.

Dera [sh] in item #63 'fish' can be accounted for by the sound shift mentioned above, c → s. Besides [k], Dera reflexes include [h] and ∅, both of which result from the sound shift *K → h, intervocalically; the latter reflex is due to a secondary sound shift which takes place, namely, [h] → ∅ / V_1___V_1 (i.e., [h] is deleted when it occurs between two identical vowels). [g] occurs twice as a reflex for Dera [w] also occurs as a reflex in the environment of back vowels.

Hausa ejective [ƙ] occurs three times in the data and corresponds to [k] most of the time in the other languages.

9. **f

As noted in Chapter Two, Hausa /f/ → [h] /___V +back, i.e., /f/ → [h] when followed by a back vowel.

Reflexes for Angas vary; they include [p], [f], [mp].

Reflexes for Dera include [p] and [w], the latter being the realization of the sound shift in Dera *P → w, intervocalically.

10. **s

Dera reflexes include [y], [j], [w], and [sh]. [y] and possibly [j] can be accounted for by the sound shift *S → y where *S includes all sibilants. It is realized as ∅ in #2 'arrow', perhaps where [y] assimilated with the front vowels in its environment. The reflex is realized as [w] in #110 'medicine' where a secondary shift takes place; y → w / ___V +back, i.e. [y] is realized as [w] when followed by a back vowel.

11. **z

The same conditions hold true for this sibilant as for the above sibilant **s for Dera; *S → y accounting for the occurrence of [y] and [j] in Dera. /y/ is realized as [w] in accordance with the secondary sound shift.

Hausa reflex /j/ is due to the palatalization of /z/ in the environment of a front vowel.

In Angas, devoicing takes place both word initially and finally.

12. **m

The sound correspondences which exemplify the protophoneme **m are numerous across the languages and they are quite regular. It is sometimes realized as [n] in Hausa, Karekare, and Sha. It also occurs word finally in these

languages, and occurs medially in Hausa. This may be due to the weakening of /m/ in these positions. /m/ has been deleted in a few examples in Hausa, Karekare, and Dera in final position. [ŋ] also occurs in final position in Karekare, and occurs once in medial position in Dera.

13. **n

The sound correspondences for this proto-phoneme are more sporadic and inconsistent than the correspondences which occur for **m.

Hausa initial reflexes include /n/, final reflexes, ø, and medial reflexes [n] and [ŋ] where the latter represents nasal assimilation with a following velar consonant. *N > ø /___#, i.e. nasals, /m/ and /n/, are deleted word finally. This phenomenon occurs in a few examples in the other languages also.

Angas reflexes include both [n] and [ŋ] word finally.

Karekare reflexes include ø, [n] and [ŋ] in various positions.

Nasals followed by other consonants in the reconstructed form in medial position are interpreted as two consecutive consonants as opposed to a single unit. Some nasals in the citation forms are considered here to be epenthetic nasals as opposed to being reconstructable nasals. Cognate items for which the phoneme **/n/ is reconstructed where /n/ is followed by another consonant include the following:

		H	S	A	K	D	**
32.	charcoal				kuŋkusu	kuŋgum	kunkusum
37.	cook		dyen		ʃunku	ʃinge	ʃVnk(-V)
126.	old				manshi	manjo	manšV
155.	sheep	tunkiya			tanci	tiŋa	tVnki
161.	sit			toŋ	tiŋgu		tVng(-V)
184.	thigh				fəntau	pundo	fVnto
197.	urine				'yandəŋ	yendin	yVndVn
202.	wash	wanke		vwaŋ			wank(-V)

Items for which the reconstructed form does not include a nasal appear below. The nasals which appear in the citation forms are considered to be epenthetic phonemes. As shown below, epenthetic n tends to occur in Karekare items.

		H	S	A	K	D	**
21.	bow				rinka	rəha	rVka
52.	egg			es	'insa		Ys
122.	nose	hanci	'aton		wantən	wariŋ	atin
153.	sew				dandu	daʃe	dad(-V)
210.	woman	mace		mat	mendo		mat

14. **l

The [y] reflexes in Hausa result from the shift *l → y, which according to Newman is not considered a regular phonological shift; see #26 'burn', #119 'neck',

#148 'saliva', #177 'swallow' and #195 'two'. Also in Hausa, the sound shift #l → r is exemplified; #67 'forge', #189 'tongue', and #207 'white'.

15. **r

The correspondence -i-/Ø in #63 'fish' and #124 'oil' in Hausa is accounted for by the regular phonological sound shift postulated by Newman *r → y and the secondary sound shift, y → i /___ $, i.e. y → i in syllable final position. In #71 'give', the correspondence Ø may be due to these sound shifts and vowel coalescence, where the [i] is absorbed by the preceding vowel.

An epenthetic [r] occurs in the cognate item for Karekare in #111 'millet' as shown below:

	H	S	A	K	D	**
111. millet				mardo	modo	mVdo

Dera final [t] is another example of the hardening rule, r → t in final position.

16. **y

The reflex [w] for Angas and Dera is due to the environment in which it occurs, i.e. before a back vowel.

17. **w

An epenthetic [w] occurs in the cognate item for Dera in #163 'sky':

		H	S	A	K	D	**
163.	sky		'are			rəwi	rV

Other phenomena occurring in the cognate sets include vowel deletion, use of masculine markers, and metathesis:

Forms with a deleted vowel include the following:

		H	S	A	K	D	**
8.	beans			girm	'idəm	worom	KVdVm
189.	tongue	harshe	'ales	lis	lusən	yilik	lVs

The use of k as a gender marker for masculine nouns in Chadic languages may explain the Angas form #2 'arrow':

		H	S	A	K	D	**
2.	arrow			pas	fasku	peek	fask

The process of metathesis which commonly occurs in Chadic languages is demonstrated in the following examples:

		H	S	A	K	D	**
32.	charcoal	gawayi		gerp			gVrb
162.	skin	fata	fukut				fVtk
187.	tie	ɗaure		ɓat		ɗoɓe	ɗVɓ(-V)

Vowels

The vowel correspondences occur even more sporadically and inconsistently than do the consonants. It is impossible to determine the quality of the reconstructed vowel for most of the vowel correspondences. Few of the reconstructed vowels occur word initially:

Initial Vowels

1. **i

Only two cognate sets occur upon which this **i is reconstructed, the verb #44 'do' and the noun #54 'eye'. The initial vowel given for Karekare in both words is 'i-. Dera and Hausa show what is interpreted here, a glide [y] as phonetic onset for #44 'do', and no phonetic onset is indicated in the citation form for #54 'eye' for these languages. These phonetic sounds preceding the vowels are interpreted here as legacies of the reconstructed phonetic manifestation, **C_x.

2. **y

Only one cognate set occurs initially supporting this reconstruction, namely, #52. 'egg'.

3. **a

This reconstructed phoneme has the most cognate sets for initial vowels. However, the correspondences are still sporadic in nature. There being few consistent regular

correspondences for these vowel initial reconstructions for the verbs, the process for arriving at these reconstructions (and others) is somewhat arbitrary guesswork.

4. **V̲

The reconstructed initial unspecified vowel is a catch-all phoneme. There exists some vowel but because of its different reflexes in the various languages and the lack of regularity between the correspondences (due in part to the scarcity of cognates found in the data) it is impossible to say what the quality of the proto-form may have been.

All of the initial vowels are realized with the reconstructed non-phonemic **$\underline{C}_x$ preceding them, be the reflex ['], [h], [y], [w], [gw], or Ø. The examples which occur with reconstructed **V initially occur with nouns in the data.

Medial Vowels

Guesswork is also involved in reconstructing the medial vowels. Most of the cognate sets show no consistent regular correspondences for the vowels. Therefore, the reconstructed vowels are based on the majority of the vowel qualities which occur in the correspondences. The sound correspondences which occur for the reconstructed medial vowels, **i̲, e̲, Y̲, V̲ +hi, o̲, W̲, are few.

5. V +hi

Perhaps this vowel is actually **i, but is realized as u in various examples due to the environment of a labial or velar consonant in which it occurs.

6. **u and **a

These are the two most frequently reconstructed medial vowels for which an actual vowel quality can be identified from the data.

7. **V

As with the reconstructed initial vowels, most of the reconstructed vowels in medial position have been reconstructed as **V. Most of the medial vowels have varying non-recurring correspondences across the languages.

Final Vowels

Verbs

The final vowels have been analyzed in two groups, verbs and non-verbs, i.e. the nouns, and the few adjectives which are included in the data. For both categories it is difficult to identify vowel qualities for reconstructions or to even ascertain that a final vowel is reconstructable. For the non-verbs, various vowel qualities have been reconstructed as final vowels, while only **(-V) has been reconstructed for the final vowel of verbs.

Most of the verbs for Sha and Angas are monosyllabic having the structures CV, CVC, or VC. The most prevalent structure in the corpus of the data for both languages is the CVC pattern. The corresponding cognate forms in Hausa, Karekare, and Dera, have the pattern CVCV, with the final vowel signifying the class in which each verb belongs. Depending upon the meaning being conveyed and the context in which it is used, the final vowel of the verb in Hausa may have a range of differing qualities, e.g. [a, i, e, o, u, or ∅.] Also in the citation forms given, there does not seem to be any consistent correspondence between the first vowel (the root vowel) of the verb and the final vowel. Among the cognate items the correspondences between the vowels in the root and the ending vowel for Hausa include the following:

root	ending
-u-	-u, -e, -a
-i-	-a
-a-	-a, -i
-au-	-a

Also found in the corpus of the data, in non-cognate sets, are the following correspondences:

root	ending
-o-, -e-, -ai-	-a
-i-, -a-, -au-	-e

In Karekare the majority of the final vowels of CVCV patterned verbs have the qualities -u and -a, which do not

seem to convey any specific meaning. However, Schuh (1978) states that their presence or absence is dependent upon the context in which they are used. There does not seem to be consistent vowel correspondences between the root vowel and the final vowel in Karekare either. Most of the cognate verbs with final -u have a in the root. However, there are examples where the root vowel is -u- with -u final vowel. Also examples occur where the final vowel is -a and the root vowel is either -a-, or -u-. There are a few examples where root vowels -ee and -i- correspond with final vowel -u, summarized:

root	ending
-e-, -a-, -u-, -i-	-u
-a-, -u-	-a

Moreover, in the corpus of the data the following correspondences can be found:

root	ending
-ə-	-a, -u
-o-	-u, -o
-e-	-u

Most of the verbs with the CVCV canonical structure in Dera, have -i and -e as final vowels. Among the cognate items most of the examples have -u- and -ə- as root vowels with -i final vowel. Also occurring with -i final vowel are root vowels -o-, -i-, -a-. Most of the root vowels which correspond with the final vowel -e, are -o-, -i-, and -a-. -e- and -u- also occur as root vowels with the final

vowel -e. Elsewhere in the corpus of the data (other than cognate items) the root vowel -e- is found with -i final vowel. -ə- and -o- root vowels are found with -e final vowel. Also a few examples of -a- and -u- root vowels are found corresponding with -o and -a final vowels, respectively, summarized:

root	ending
-e-, -u-, -ə-, -o-, -i-, -a-	-i, -e
-a-, -u-	-o, -a

The Dera final vowels are also present or absent depending on the context in which they are used.

Because the presence or absence of the final vowel with the verb structure CVCV is dependent upon the context in which the verb is used for Hausa, Karekare, and Dera, and due to the inconsistent pattern of vowel correspondences between root and final vowels, there cannot be said to be a consistent pattern of vowel harmony. Also because the function of the final vowels in Karekare and Dera is not clear, and in any case does not seem to parallel the function of the final vowel in Hausa verbs whose quality depends on the intended meaning as well as the context in which it is used, it is impossible based on the data presented here to reconstruct the quality of the final vowel of the CVCV verb structure for Hausa, Karekare, and Angas. Moreover, because the corresponding pattern for Sha and Angas is CVC, the possibility of the proto-forms for

verbs in Chadic-West-A having a final vowel is therefore questionable. Thus, the final vowel for verbs with the CVC pattern for Sha and Angas, and the CVCV pattern for Hausa, Karekare, and Dera is reconstructed as (-V), with V indicating no vowel specified, the hyphen indicating that it is an affixed element, and the parentheses indicating the uncertainty of its existence in the proto-form. Perhaps its presence in Hausa, Karekare, and Dera is due to an innovation and its presence cannot be reconstructed in the proto-form. Or, perhaps its presence is reconstructable and is deleted in Sha and Angas. If its presence is reconstructable, its quality based on the data presented here, in any case, is impossible to identify.

Of the five languages presented here, it is only Hausa which has a complex and intricate system of the function of the final vowel. This might indicate that this system and the presence of the final vowel is a Hausa innovation. Karekare and Dera perhaps developed final vowels independently with a system of vowel harmony based on and indicated by the majority of the root and final vowel correspondences, but through processes of analogy and borrowing in the separate languages the systems have become opaque.

The vowel in the CV pattern of verbs seems to indicate the same verb endings for Hausa and Karekare that were represented in the final vowel of the CVCV pattern for Hausa, Karekare, and Dera. It is not known if the final

vowel of the CV pattern for Sha and Angas serve a grammatical or semantic function, or if it is etymologically part of the CV verb. In Dera the final V of the CV pattern seems to be part of the root because the endings -i and -e are suffixed to the CV pattern. In Karekare, it is not clear whether the final V in the CV pattern represents an etymological vowel or an absorbed vowel ending with the root vowel, because all CV verbs in the data end with -u- or -a. It may very well be that the vowel represents assimilation of a root vowel and a vowel ending which may be the same indicating vowel harmony. In #12 'give birth' lawu represents a CV pattern la with -u ending, a case for which vowel harmony may be skewed between the root vowel and vowel ending, so that vowel assimilation is not allowed to take place, and thus is accommodated by a semi-vowel making the would be CV-V pattern into a CVCV pattern. This may be evidence that the CV pattern is actually a CV-V pattern in Hausa, Karekare, and Dera. For the same reasons that it is impossible to reconstruct the quality for the final vowels of the CVCV pattern, it is also impossible to reconstruct the final vowel for CV patterned verbs, whether the V is considered etymologically a part of the word, or if it is merely added for vocalization, or it is an ending with grammatical and semantic implications.

With CV or V pattern verbs, reconstructed (C)V(-V), it is unsure whether the final vowel represents vowel coalescence of the verb root and the verb ending, or the

vowel ending itself. Karekare lawu, #12 'give birth' indicates that perhaps others must have a root vowel and a vowel ending, -u or -a, which coalesce, vs the supposition that the CV or V verbs have no vowel ending as they do in the CVCV pattern.

Some CV/V patterned verbs include the following:

	H	S	A	K	D	**
12. give birth			le	la-wu	lo-i	lV(-V)
34. close		vu	pe	fa		fV(-V)
36. come	zo		ji	ndu	do-i	dV(-V)
44. do	yi			'i	yi-e	i(-V)
47. drink	sha		šwe	sa		sa(-V)
51. eat	ci	ci		tu	tu-i	tV(-V)
123. obtain				wa	wa-i	wa(-V)
136. put down				za	wu-i	zV(-V)
150. see			ni	na		nV(-V)

Nouns

The final vowel in Hausa nouns marks gender: final -a indicates feminine nouns as does the suffix -iya used with some of the nouns, e.g. #'s 75 'goat' and 155 'sheep'. There are a few exceptions for the feminine final -a rule of thumb- some masculine nouns end with -a. All other nouns with other final vowels are grammatically considered masculine. Other than the fact that Hausa masculine nouns

seem to have mostly final -i, there is no apparent system for predicting the final vowel, nor is there any evidence, other than the gender distinction, of the various vowels in the masculine forms carrying any other sort of grammatical or semantic meaning. Most of the Hausa nouns in the data end with -i and -a.

Grammatical gender is not morphologically marked in Karekare as it is to some extent in Hausa. Most of the final vowels of nouns are -u and -i. There is no apparent way of determining what the final vowel will be.

Grammatical gender in Dera is not marked either. The vowels occurring most frequently in word final position are -i and -o. There also does not seem to be any way to predict the final vowel in Dera nouns.

There is no consistent evidence of vowel harmony between the root vowel of the nouns and the final vowel in Hausa, Karekare, or Dera. A few regular vowel correspondences for the final vowels across Hausa, Karekare, and Dera occur, but for the majority of them no specified vowel quality can be reconstructed. Also, as with the final vowels for the verbs, Angas and Sha nouns generally do not end in vowels, thus having the pattern CVC (with a few exceptions). Because of this the existence of final vowels for nouns in the proto-forms is questionable. Since Hausa is known to add the final vowel -i for vocalization, perhaps a similar innovation took place in Karekare and Dera whereby final vowels were added for phonological purposes.

The problem is knowing which nouns have affixed vowels and which ones have vowels as etymologically a part of the word. The decision is made according to the information contained in each cognate set, thus the inventory for reconstructed vowels in final position for nouns.

See Appendix A for cognate sets and the reconstructed lexical forms according to each gloss. A total of one hundred and thirty-three reconstructions are given. Thirteen of the reconstructed items are based on sound correspondences from all five languages; thirteen across four languages; thirty across three, and seventy-seven across two languages.

NOTES

[1]Though Newman (1976) suggests that a is a prefix for body part terms in Hausa, he suggests that short initial a was etymologically a part of the words in which it occurs in proto-Chadic. Likewise, in the provisional reconstructions posited for this study this a is not designated as a prefix. Initial a or ha in the Hausa verb 'to swallow' is treated as an anomalous prefix. It does not correspond to anything in the cognate set for the gloss, and it does not occur with any other verb in the data.

CHAPTER IV

WEST-A PROVISIONAL RECONSTRUCTIONS VS. NEWMAN'S 1977 PROTO-CHADIC RECONSTRUCTIONS

Discussion of Similarities

PR's posited for the West-A branch in this study are compared with Newman's 1977 reconstructions representing the entire Chadic language family. Seventy-two of the one hundred and thirty-three PR's posited in this study correspond with proto-forms posited by Newman (1977).

Of these seventy-two hypothetical forms, more than half, i.e. forty-five, show similarities with each other, with varying degrees. The remaining twenty-seven do not show any similar characteristics. Those proto-forms considered to show similarities are indicated with a juxtaposed X for each set in the following list.

Of those PR's which show similarities with Newman's reconstructions, twenty-nine of them are based on less than four languages; twelve are based on data from three languages and seventeen are based on data from two languages. Only six of the PR's are based on data from four languages and only ten are based on the data from five languages.

Because metathesis is a common process in Chadic languages, the reconstructed forms for #11 'bird' are considered similar. The reconstructed forms for #101 'leg' are considered similar; the initial /a/ in Newman's reconstruction may represent the so-called body-part prefix. #13 'bite' and #45 'dog' indicate a possible regular correspondence between proto-Lax /Ø/ and proto-Newman /k/ in initial position. However, Newman suggests that the reconstruction for #45 'dog' *kər, may represent a widespread loan word in Chadic languages, replacing *ada, "the true proto-Chadic word for dog" (1977:25).

Comparison of Provisional Reconstructions for Chadic West-A with Newman's 1977 Proto-Chadic Reconstructions

	**	*	
3. ashes	bat	bətu	X
7. baobab tree	kukV	kuka	X
11. bird	yYdʃ	dʃey	X
12. give birth	lV(-V)	wa	
13. bite	ad(-V)	kəde	
17. blood	dom	bar	
18. blow	fVdʃ(-V)	fi	
19. body	zi-k	zi	X
20. bone	KYs	Jaʂu	X
21. bow	rVka	rəga	X
24. (woman's) breast	yWdʃi	wədʃi	X

	**	*	
31. call	na(-V)	wa	
34. close	fV(-V)	fu	X
36. come	dV(-V)	(-)sə	
37. cook	dʃVnk(-V)	da	
41. die	mut(-V)	mətə	X
44. do	i(-V)	ye/cə	X
45. dog	VdV	kər	
46. dream	sun	səwnə	X
47. drink	sa(-V)	sa	X
50. ear	kumo	ʂəmi	
51. eat	tV(-V)	ti	X
52. egg	Ys	aʂi	X
54. eye	ido	idə	X
60. fill	gam(-V)	n-(y-)	
62. fire	wVtV		
	wVs	aku/ak^{w}a	
63. fish	kVrVfV	kərfi	X
64. five	bVdʃ	bad	X
66. fly	diwVn	diwa	X
68. four	fVdʃu	f^{w}adʃe	X
71. give	bar(-V)	barə	X
72. go	taf(-V)	d-j	
74. go out	fWt(-V)	pəta	X
75. goat	Vki	a(w)ku	X
79. guinea-fowl	dVkumo	zaban	
80. hair	sakV	gasi	

		**	*	
81.	head	kV	ka	X
85.	hit	duk(-V)	hlə$\widehat{\text{ʃ}}$ba	
91.	hunger	kV zV m +hi +hi	maya	
97.	knee	bVrVm	gəfu	
98.	knife	čuk	ʂuk-	X
99.	know	sVn(-V)	sənə	X
101.	leg	sio	asə	X
103.	lie down	tV$\widehat{\text{dʃ}}$(-V)	x^{w}ən-	
109.	meat	lu	hləw	X
		nam		
113.	monkey	čVl	bədi	
114.	moon	tare	təra	X
116.	mouth	bo-k	ba	X
117.	name	sV m +hi	səm	X
119.	neck	wulV	wəra	X
121.	night	bV$\widehat{\text{dʃ}}$i	be$\widehat{\text{dʃ}}$i	X
122.	nose	atin	atən	X
124.	oil	mar	mar	X
130.	person	gV	mətu	
139.	ram	gem	gam	X
142.	refuse	ku$\widehat{\text{dʃ}}$(-V)	kurə	X
145.	roast	wus(-V)	b-kə	
146.	rope	ten		
		zori	zawi	X
150.	see	nV(-V)	na	X
165.	sleep (n.)	nVn	s-n(-)	

		**	*	
170.	stand up	yVl(-V)	ʃarə	
171.	steal	čV$_{+hi}$r(-V)	xərə	
175.	sun	fati	fati	X
183.	ten	gWm	g^{w}am	X
185.	three	kun	k$^{(w)}$ən	X
189.	tongue	lVs	ahləsi	X
190.	tooth	aKVrV wutW	ʒan(-)	
195.	two	bYlu	sər(-)	
202.	wash	wank(-V)	c-ʃbə	
203.	water	am	am	X
205.	what	mY	mi/mə	X
208.	who	wV	wa	X

CHAPTER V

CONCLUSION

This thesis was based on the hypothesis that Newman's reconstructions for the Chadic language family may not adequately reflect the lower level structures of the classification because of his method of comparison employed (i.e. using a limited number of citations from sometimes as few as two of the major branches in the Chadic family). It was further hypothesized that positing proto-lexical forms for each branch or subbranch first, then comparing these proto-lexica would result in reconstructions which would better reflect the branches and subbranches of the Chadic classification as it stands, as well as represent the Chadic language family as a whole.

A comparative study of five languages from the West-A branch of the Chadic family was presented to test this hypothesis by comparing the reconstructions posited in this study with Newman's 1977 lexical reconstructions. The languages used in the study, Hausa, Sha, Angas, Karekare, and Dera were taken to be representative of their respective groups in the West-A branch. The vocabulary items used in the word list were selected to include vocabulary

items which Newman used in his 1977 publication, and to include basic vocabulary words to maximize the chance of finding cognates across the languages and to minimize the chance occurrences of loan words. The reconstructed phonemes and the sound correspondences upon which they are based were illustrated in Chapter Three. The lexical reconstructions and cognate sets upon which they are based appear in Appendix A. In Chapter Four the PR's posited in this study for the West-A branch were compared with Newman's 1977 lexical reconstructions for Chadic in an attempt to prove or disprove the hypothesis set forth in this study.

The results of the comparison of the five languages, and of the comparison of the PR's with Newman's 1977 reconstructions can be summarized in the organizational chart shown in Figure 5.

Of the two hundred and ten vocabulary items included in the word list, 40% (84) of them correspond to items used by Newman (1977), while the remaining 60% (126) are comprised of other basic vocabulary items. For 37% (77) of these items, the data was such that no PR's could be posited for them. However, PR's were posited for 63% (133) of the items. Of these PR's, 10% (13) are based on data across all five languages, 10% (13) are based on data across four of the five languages, 22% (30) across three languages, and 58% (77) of them are based on data from two languages.

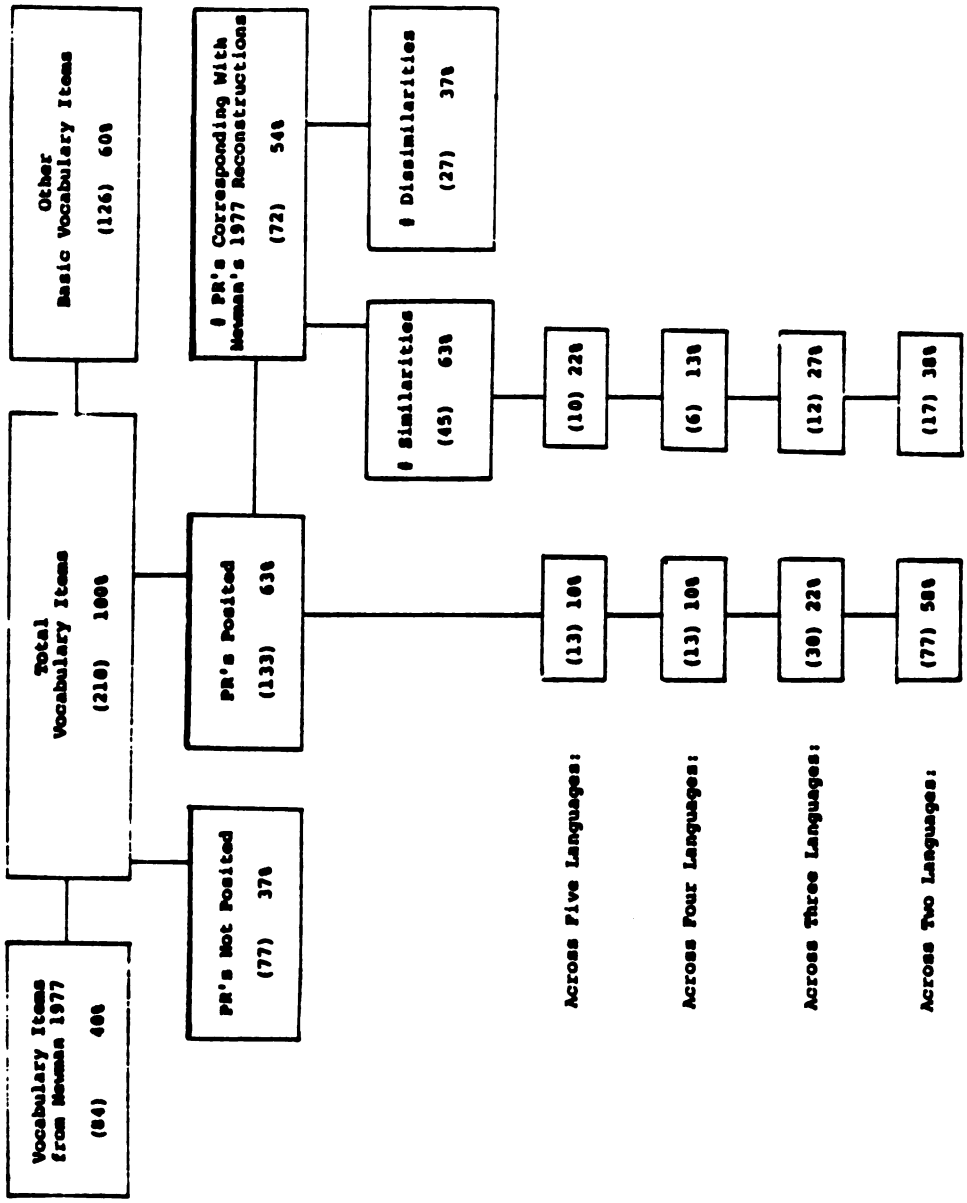

Figure 5
ORGANIZATIONAL CHART OF RESULTS

Fifty-four percent (72) of the one hundred and thirty-three PR's correspond to the proto-forms posited by Newman (1977) for the Chadic family. A comparison of the two sets of corresponding hypothetical forms showed that 63% (45) of these are similar, while the remaining 37% (27) are not. Most of the corresponding forms which show similarity (65% of the 45) occur across less than four languages; 27% (12) across three languages; and 38% (17) across two languages. Only 22% (10) of the corresponding proto-forms are based on data across five languages and only 13% (6) are based on four languages.

It has been shown in this study that it was impossible to posit PR's for many items, i.e. 37% (77) of the total word list. Of the one hundred and thirty-three PR's posited for the West-A branch, over half of them, 58%, were based on cognate items which occur across only two of the five languages. These results represent a scarcity or lack of cognates found across the five closely related languages.

The question remains, why were so few cognates found across the five languages, which according to the classification, are very closely related? There seem to be three possible answers to this question: 1) The vocabulary items included in the word list are not appropriate items upon which to base a Chadic comparative study; 2) The languages or language groups are not as closely related to each other as might be assumed based on their positions in

the classification; or 3) The time-separation among the five languages obscures the recognition of cognates, e.g. through semantic shift.

While almost all of the vocabulary items included in the word list are items which are considered to be 'Chadic' items for comparative purposes, the vocabulary items used in this study are most likely appropriate. The problem of dubious semantics may contribute some to the scarcity or lack of cognates found across the languages. However, the Angas and Karekare citation forms were purposely elicited in Hausa in Kraft (1981) in an attempt to eliminate confusion over particular referents. While a lot of data was not found for Sha, more cognates still should have been revealed over at least four of the five languages. More cognate sets occur across Karekare and Dera which are classified in the same group (being more closely related), than between any of the other languages. This may be to suggest that the second possible answer to the question may be the more plausible, i.e. perhaps a re-working of the classification at the lower levels of Chadic is in order, to better represent the relative position of relationship between the languages. However, the most plausible response is that of the third choice; although all five of the languages in this study are closely related, they are greatly separated in time, thus rendering it difficult to reveal cognates.

Due to the scarcity or lack of cognates, the PR's posited in this study cannot be said to represent the entire West-A branch. They represent those languages or language groups upon which the PR's are based. Hence, the term 'provisional reconstructions.' As the PR's represent only the language groups from which data are taken, so do Newman's 1977 reconstructions. Sixty-three percent (45) of the seventy-two PR's which correspond to Newman's 1977 reconstructions are similar, but because of the scarcity of cognates evidenced by the fact that the majority of these PR's are based on data from only two or three languages, this similarity shown does not necessarily mean that Newman's 1977 reconstructions can be said to adequately reflect the West-A branch. Too few data support either set of lexical reconstructions, regardless of the method of comparison used, to say that they represent the entire West-A branch or the entire Chadic language family.

The ultimate problem with this comparative exercise of the five Chadic languages investigated lies with the unavailability of data, or the inconsistency of data which are available. The only way to remedy this is for more data to be made available by researchers and linguists analyzing these Chadic languages in depth over adequate periods of time. One way to ease the burden on the few linguists interested in the study of Chadic languages would be to encourage speakers of the languages to become linguistically critical of, and interested in, the study of

their languages.

All of the Chadic languages, Hausa aside, are minor languages, spoken by a few thousand speakers to a few hundred thousand speakers. The status of a minor language often conjures up negative connotations in multilingual settings among the speakers themselves and speakers of the so-called major language(s). Involving more of the speakers themselves in the study of the minor languages would result in more manpower, more data, and less time spent before adequate analyses could be made. More data in general, for synchronic and diachronic studies would be generated. In the process, perhaps the status of the minor languages would be raised such that attitudes toward them become more positive. Such a change in attitude could lead to an interest in the standardization of the languages for purposes used by the communities which speak the respective languages. Instead of promoting negative connotations of ethnic rivalry, which is traditionally assumed when an attempt is made to raise the status of a particular language in many multilingual societies, perhaps it would conversely promote ethnic appreciation.

From the data presented in this study, it has been shown that reconstructing proto-forms which represent the West-A branch as a unit, using the languages Hausa, Sha, Angas, Karekare, and Dera, is possible, but difficult due to the lack of cognates which exist between the languages, or to the lack of recognition of the cognates which exist.

The results of this study do not by any means disprove the claim that positing reconstructions at the lower levels first would be a more suitable method to posit proto-forms for Chadic. It may even be more plausible to posit more than one proto-form for particular glosses as in Jungraithmayr and Shimizu's Chadic Lexical Roots (1981), or it may be the case that rearranging the lower levels of the Chadic classification is in order. But the most likely interpretation for difficulty of positing proto-forms for Chadic West-A is that even some of the lowest branches in the Chadic tree represent very old time separations.

APPENDICES

APPENDIX A

APPENDIX A

COGNATES AND PROVISIONAL-RECONSTRUCTIONS FOR CHADIC WEST-A

Cognates Across Five Languages

		H	S	A	K	D	**
17.	blood	jini	zom	tom	doon	dom	dom
19.	body	ji-ki	zə-k	ši-k	zu	yi-k	zi-k
20.	bone	ʃkashi	gish	ʤyis	kwəsu	ween	KYs
41.	die	mut-u	mot	mut	met-u	mur-i	mut(-V)
50.	ear	kunne	kum	kwom	kumo	kumo	kumo
54.	eye	ido	yaḥay	yit	'ido	yero	ido
68.	four	huʃu	fuʃ	fir	feʃu	parau	fVʃu
117.	name	suna	'a-yin	sim	suŋ	yim	$sV_{+hi}{}^{m}$
124.	oil	mai	maḥ	mwĩr	maru	mot	mar
148.	saliva	yau	ləlla	li	luŋ	yilek	lV
177.	swallow	ha-ʤiya	dul	ʃal	ʃal-u	ʤəl-i	ʃal(-V)
185.	three	uku	kun	kwan	kunu	kunuŋ	kun
205.	what	me	ma	me	miya	mi	mY

Cognates Across Four Languages

		H	S	A	K	D	**
18.	blow	hur-a	fuʃ		funt-u	pind-e	fV$_{+hi}$ʃ(-V)
36.	come	zo		ji	ndu	do-i	dV(-V)
51.	eat	ci	ci		tu	tu-i	tV(-V)
56.	faeces	kashi		ɡes	'iše	kuyuk	KVsV
64.	five	biyaɾ̃		pet	baʃu	bat	bVʃ
74.	go out	fit-a		put	fat-a	por-i	fWt(-V)
81.	head	kai		ke	ka	koi	kV
116.	mouth	ba-ki		po	bo	bo-k	bo-k
122.	nose	ha-nci	'a-ton		wa-ntən	wa-riŋ	atin
140.	rat	kusu		guzum	casəŋ	kom	kusum
156.	shoot		bac	pus	bas-a	bo-i	bVs(-V)
189.	tongue	ha-rshe	'a-les	lis	lusən		lVs
203.	water		ham	am	amu	gwa	am

Cognates Across Three Languages

8.	beans			girm	'idəm	worom	KVdVm
12.	give birth			le	la-wu	lo-i	lV(-V)
24.	(woman's) breast			wur	yəʃi	wori	yWʃi
26.	burn	toy-		tal		til-e	tVl(-V)
34.	close		vu	pe	fa		fV(-V)
37.	cook		dyen̰		ʃunk-u	ʃing-e	ʃVnk(-V)
43.	divide	rab-a		rip	rəbətu		rab(-V)

Cognates Across Three Languages (Cont'd)

		H	S	A	K	D	**
44.	do	yi			'i	yi-e	i(-V)
46.	dream			sun	suna	juwan	sun
47.	drink	sha		šwe	sa		ša(-V)
63.	fish	kifi			carafu	shiruwo	kVrVfV
70.	gather	tar-a	tan		tar-u		tar(-V)
71.	give	ba			bar-u	bo-i	bar(-V)
88.	horse	doki			doku	dok	dok
101.	leg			ši	siyo	yo	sio
108.	man	miji		~~t-mis~~	məzi		mYzi
109.	meat		luw		lo	lu	lu
114.	moon			tar	tare	tere	tare
121.	night			mpar	bedi	biri	bVdi
132.	place			pi	bi	boi	bi
138.	rabbit	zomo	samoḥ		səmeri		sVmor
139.	ram			ngem	gemu	gam	gem
142.	refuse	ki			kud-u	kur-i	kud(-V)
155.	sheep	tunk-iya			tanci	tiŋa	tVnki
172.	stomach		'a-ji		'a-ko	a-wo	ako
175.	sun		fat		fati	pori	fati
187.	tie (v.)	daure		bat		dobe	dVb(-V)
194.	turtle	kunkuru	'a-kur	kur			kur
204.	weave	sak-a		sak	cak-u		sak(-V)
210.	woman	mace		mat	mendo		mat

Cognates Across Two Languages

	H	S	A	K	D	**
1. arm			sar	sara		sar
3. ashes			fwat	bəto		bat
7. baobab tree	kuka			kuci		kukV
9. beard				bagwajo	bouyo	bVgVyo
11. bird			yer		yiʃiyo	yYʃ
13. bite			at	'yad-u		ad(-V)
16. blind man			+-vum		bum	bum
21. bow	baka	bacen				bakVn
				rinka	rəha	rVka
23. break into pieces				taʃ-u	taʃ-e	taʃ(-V)
25. build				ʃak-u	ʃəh-i	ʃak(-V)
31. call			nan		na-i	na(-V)
32. charcoal				kuŋkusu	kuŋgum	kunkusum
	gawayi		gerp			gVrb
38. cooking pot			cole		kile	kVle
45. dog				'ada	yeʃe	VʃV
52. egg			es	'insa		Ys
57. fall	faʃ-i	fuḥ				fVʃ(-V)
60. fill			gam		gəm-i	gam(-V)
62. fire	wuta				wati	wVtV
			wus	yasi		wVs
65. flour			es		ashi	Vs

Cognates Across Two Languages (Cont'd)

		H	S	A	K	D	**
66.	fly				diyo	dibin	diwVn
67.	forge	ker-a		kolom			kVl(-V)
72.	go	taf-i				ta-i	taf(-V)
75.	goat	akwi-ya			oci		Vki
77.	ground-nuts				dəbero	deeno	dVbero
79.	guinea-fowl				dakumau	duuŋo	dVkumo
80.	hair				səku	wakai	sakV
84.	hen	kaza			kezi		kVzV
85.	hit		duk		dukwa		duk(-V)
87.	horn				beləm	bili	bYlVm
91.	hunger				kuzum	kiyim	kV zV m +hi +hi
92.	hunt				bar-a	bar-a	bar(-V)
94.	intes-tines	ha-nji			a-zi		azi
95.	kill				dukw-a	duw-i	duk(-V)
97.	knee			furum		bərəm	bVrVm
98.	knife		shuk	cuk			čuk
99.	know	san-i	syen				sVn(-V)
103.	lie down			ter	tud-u		tVd(-V)
106.	liver				rəbsa	ruwo	rVbsV
109.	meat	nama		nam			nam
110.	medicine				sõrun	worin	sorV n +hi
111.	millet				mardo	modo	mVdo
112.	moisten	jik-a				yek-e	zYk(-V)

Cognates Across Two Languages (Cont'd)

	H	S	A	K	D	**
113. monkey			joli		shal	čVl
118. navel			kum		kumbi	kum
119. neck	wuya			wuləw		wulV
120. new			mpwi		pe	fY
123. obtain				wa	wa-i	wa(-V)
126. old				manshi	manjo	manšV
128. open	bud͡ʃ-e		bet			bud͡ʃ(-V)
				'af-u	ab-i	ab(-V)
130. person			go	nga		gV
134. pull		dən	den			dVn(-V)
136. put down				za	wu-i	zV(-V)
137. quiver			dalo͡ŋ		douro	dVlon
145. roast			wus		wush-e	wus(-V)
146. rope		'a-cyen	te͡ŋ			ten
				zori	wori	zori
150. see			ni	na		nV(-V)
151. seed			ken		kamo	kVm
152. seize				caw-u	shar-e	čar(-V)
153. sew				dand͡ʃ-u	dad͡ʃ-e	dad͡ʃ(-V)
154. shadow			rin	runi		rV$_{+hi}$n
159. sickle	lauje			ləwdi		lWdY
161. sit	zauna	zan				zan(-V)
			to͡ŋ	ti͡ŋg-u		tVng(-V)
162. skin	fata	fukut				fVtk
			~~šim~~		dimbi	dV$_{+hi}$m

Cognates Across Two Languages (Cont'd)

	H	S	A	K	D	**
163. sky		'a-re		rəwi		rV
			potin		puro	pWtVn
165. sleep		nya			non	nVn
167. speak		ton		tama		tVm(-V)
170. stand up			yal		yir-i	yVl(-V)
171. steal				cur-u	shir-i	čV +hi r(-V)
182. tear	yag-e			yag-u		yag(-V)
183. ten	goma				gum	gWm
184. thigh				fəntau	pundo	fVnto
190. tooth	ha-ʃkori	'a-gaḥaw				aKVrV
				wutu	wuro	wutW
195. two	biyu			belu		bYlu
197. urine				'yandəŋ	yendin	yVndVn
202. wash	wank-e		vwaŋ			wank(-V)
207. white	fari	fyala				falV
208. who	wa		we			wV

APPENDIX B

APPENDIX B

COMPARATIVE WORD LIST

H	S	A	K	D	**	*
1. arm						
hannū	gaan	sar	sàrâ	árèk	sar	
2. arrow						
kibīyà	bácàw	pas	fàskú (Sc 84)	péek (Sc 84)	fask	
3. ashes						
tōkā	maʃuk	fwat	bàtó (Sc 84)	dúʃá	bat	bətu
4. ask						
tàmbayà	yìl	naŋ	tèʃi	bíʃè		
5. axe						
gàtarī		sep	dàyàku	shína		
6. baboon						
gwaggò	ʿakû	nker	yifkì	gòm		
7. baobab tree						
kūkà		tòri	kùcí (Sc 84)	kúrnjé	kukV	kuka

H	S	A	K	D	**	*
8. beans						
wākē		girm	ídám (Sc 84)	wóròm	KVdVm	
9. beard						
gēmù		mpàp	bágwájó (Sc 84)	bóuyò	bVgVyo	
10. begin						
sōmà	fwáʿây	ʃòm	ca	lùe góró		
11. bird						
tsuntsū	'awùsh	yer	ràayí (Sc 84)	yídíyò	yYʃ	ʃey
12. give birth						
hàifa		lè	làawú (Sc 84)	lòi	lV(-V)	wa
13. bite						
cìzā	gòḥ	àt	ʼyàdu	àkəré	ad(-V)	kəde
14. bitter						
ʃācī		git	ɬàɬàni	kérèk		
15. black						
baʃī		tip	bèdì	júŋ		
16. blind man						
màkāfò		ngò-vùm	mbùgùm (Sc 84)	búùm	bum	
17. blood						
jinī	zòm	tòom (J 63)	dóonù (Sc 84)	ʼdòm	dom	bar

H	S	A	K	D	**	*
18. blow						
hūrà	fuʃ	fi	fùntu	pìndé	fV$_{+hi}$ʃ(-V)	fi
19. body						
jìkī	zə̀k	~~šɨk~~	zù (Sc 84)	´yìk	zi-k	zi
20. bone						
ʃàshī	gísh	ʤyís (J 63)	kwəsu	wéen	KYs	Jaŋu
21. bow						
bàkā	bàcèn	rì	rìnká (Sc 84)	rə́hà	rVka bakVn	rəga
22. brains						
ʃwaʃwalwā		tàbùr	ndulaka	púlí-púlí		
23. break into pieces						
fashè		pyin	tàʃu	tàʤé	taʃ(-V)	
24. (woman's) breast						
~~màmā~~	fwóf	wur	yàʤí (Sc 84)	wórì	yWʤi	wəʤi
25. build						
ginà	ta$^{\text{ʔ}}$	~~gɨk~~	ʤàkú (Sc 84)	ʤəhí	ʤak(-V)	
26. burn						
tooy- (N 70)	hwoḥ	tal	gə̀ya	tìlé	tVl(-V)	
27. bury						
bínnè	bur	wùm	mbuləmu	are	bur	

H	S	A	K	D	**	*
28. bush						
dājì	cín	šit	rìya	lúshú		
29. buttocks						
gìndī		bwin	mbulà	gumà		
30. buy						
sàyā	hyù	sit	jàna	ʃìbəré		masə
31. call						
kirā	hâl	naŋ	dèga	náí	na(-V)	wa
32. charcoal						
gawàyī		gerp	kùŋkùsu	kúŋgúm	kunkusum gVrb	
33. cheeks						
kumātū	gǒm	càl	jəgàli	gáŋgá		
34. close						
rufè	vu	pè	fáa- (Sc 84)	númè	fV(-V)	fu
35. coldness						
sanyī		ʃwap	ləyləy	ʃwál		
36. come						
zō	bol	jì	ndú- (Sc 84)	dòi	dV(-V)	(-)sə
37. cook						
dafà	dyèn	cèt	ʃùnkú- (Sc 84)	ʃìngé	ʃVnk(-V)	da

H	S	A	K	D	**	*
38. cooking pot						
tukunyā	mushét	colè	gáabì (Sc 84)	kílé	kVle	
39. cow						
sānìyā	ràḍoŋ	nin	kwâm	láà		hla
40. cut						
yànkā	gaḥ	cen	kìyusù	kàshé		hla
41. die						
mutù	môt	mùut (J 63)	mèetú- (Sc 84)	múrì	mut(-V)	mətə
42. dig						
hakà		fòk	àfáa- (Sc 84)	dólè		
43. divide						
rábà	kâr	ríp	rəbətusu	tìké	rab(-)	
44. do						
yī	masây	cìn	'i	yíe	i(-V)	ye/cə
45. dog						
kàrē	fifí	às	'àdà	yédé	VdV	kər
46. dream (n.)						
mafarkī	mafwodod	sun	sunà	júwàn	sun	səwnə
47. drink						
shā	dyel	šwē	sáa-	náí	ša(-V)	sa

H	S	A	K	D	**	*
48. drive away						
kɔ̀rā		cin	rà̀ku- (Sc 84)	gáshè		
49. dry up						
būsà		fi	sə̀wrù	nà̀aré		
50. ear						
kûnnē	kûm	kwom	kùmó (Sc 84)	kúmó	kumo	səmi
51. eat						
cī	ci	sè	tú- (Sc 84)	túi	tV(-V)	ti
52. egg						
ʃkwai	ʾahóʃbò	ès	ʾinsà	ʃbíyá-yáàbè	Ys	aʒi
53. elephant						
gīwā	dìdàm	ɲi	ʾùwán (Sc 84)	láará		gʸəwan
54. eye						
idò	yaḥáy	yɨt	ʾìdo	yérò	ido	idə
55. face						
fuskà		pò-yɨt	dùmfəw	bó-gán		
56. faeces						
kāshī	pyan	ʃès	ʾišě	kúyùk	KVsV	
57. fall						
fādì	fuḥ	te	ŋgàta	yùkurè	fVʃn(-V)	

H	S	A	K	D	**	*
58. fatigue						
gàjīyà	mukàs	nyìn	lùbe	léhì		
59. fatness						
ʃkibà	kúdaʃ	waran	'ikàzò	gémék		
60. fill						
cikà	sisyây	gām	njàmú- (Sc 84)	gémì	gam(-V)	n-(y-)
61. finish						
gámà	máḥ	dim	waya	dèe		
62. fire						
wutā	mwan	wùs	yàsí (Sc 84)	wati	wVtV	
					wVs	aku/ak^{w}a
63. fish						
kīfī	gwàshé	mbup	càràfú (Sc 84)	shírúwó	kVrVfV	kərfi
64. five						
bìyar̃	há'á	pèt	bàadù (Sc 84)	báàt	bVd	bad
65. flour						
gàrī		es	'àpti	áshí	Vs	
66. fly						
kudā	ʾakukush	nšì	dìyəw	díbín	diwVn	diwa
67. forge						
kērà	duk-á-mwan	kolom	kòdusu	gúwì	kVl(-V)	

H	S	A	K	D	**	*
68. four						
hudū	fúd	fíir (J 63)	fèedu (Sc 84)	páráu	fVdu	f^{w}ade
69. frog						
kwado	ga$^{\acute{a}}$	lumwat	dìndì	yúmbwál		
70. gather						
tārà	taŋ	kwòk	tàru	dápè	tar(-V)	
71. give						
bā	di	~~pin~~ ny~~ī~~	bàrú- (Sc 84)	bói	bar(-V)	barə
72. go						
tàfí	du	met	wàl	tái	taf(-V)	d-j
73. go in						
shìga	hóh	sìt	ra	gài		
74. go out						
fìta		pùt	fàtaa- (Sc 84)	pòrí	fWt(-V)	pəta
75. goat						
àkwīyà	ha	g~~ī~~	òocí (Sc 84)	kwáarà	Vki	a(w)ku
76. good						
kyâu		rit	yəwəw	gwáŋ		
77. groundnuts						
gyàdā	jukùr	màlar	dəbero	déenò	dVbero	

H	S	A	K	D	**	*
78. guinea-corn						
dāwà		šwe	wàte	kúrè		
79. guinea-fowl						
zàbō		tòm	dákùmáu (Sc 84)	dúuŋò	dVkumo	zaban
80. hair						
gāshì	kulûf	fip	sakû	wákái	sakV	gasi
81. head						
kâi	háy	kée (J 63)	kàa (Sc 84)	kói	kV	ka
82. hear						
jī	salây	fwōt	kàláa- (Sc 84)	kàŋí		
83. heart						
zūcìyā	ʾabúy	dur	zùmbùlum	bó-góngò		
84. hen						
kàzā	matèl	kì	kezì	yáaɓè	kVzV	
85. hit						
bùgā	duk	mwàt	dùkwa	wáarè	duk(-V)	hləɓa
86. hoe						
fartanyà		céen (J 63)	kàlà	díil		
87. horn						
ɓàhō	gyílu	som	ɓèeləm (Sc 84)	ɓílí	ɓYlVm	

H	S	A	K	D	**	*
88. horse						
dōkì	pírìsh	bírn	dòokú (Sc 84)	dók	dok	
89. hotness						
zāfī		wòŋ	fwaw	gə́rgə̀t		
90. house						
ɗākì	ḍurúm		lu	bènù	mə́ná	
91. hunger						
yunwà		nyín	kúzùm (Sc 84)	kíyím	kV_{+hi} zV_{+hi} m	maya
92. hunt						
fàrautà	wàḥ	kwàt	bàrà	bárà	bar(-V)	
93. hyena						
kūrā	mùrûm	nkarɓak	zànje	shíkə́náŋnà		
94. intestines						
hanjī		mbùšàŋ	ázì (Sc 84)	ŋái	azi	
95. kill						
kashè	dukáy-hayí	tù	dùkwa	dúwì	duk(-V)	
96. king						
sarkī	sàf	ngò-loŋ	'ìdùfu	ámná		
97. knee						
gwīwà	sidyu	fùrùm	gùməw	bə́rə̀m	bVrVm	gəfu

H	S	A	K	D	**	*
98. knife						
wuʃā	shúk	cùk	ʃàdi	wáarí	čuk	ʂuk-
99. know						
sanì	syen	man	mèntú- (Sc 84)	bánì	sVn(-V)	sənə
100. learn						
kɔ̀yā	tòn	sit	ciwətusù	kùké		
101. leg						
ʃafà	səka'ù	shíi (J 63)	sìyo	yóo	sio	asə
102. leopard						
dàmisà	ʿàn	mùlut	mèyiwà- mə'awèyì	gúŋgù		
103. lie down						
kwânta	tès	ter	tuʃu	ʃúk	tVʃ(-V)	x^wən-
104. lift						
ʃaukā	tək	ʃàp	'àsu	gárè		
105. lion						
zāki	kúkùm	mbwàr	cagaðyəw	nəmáŋgò		
106. liver						
hantà		nkì	rəbsà (Sc 84)	rúwò	rVbsV	
107. long						
dōgō		šòn	'yaɲ̃nèw	gábè		

H	S	A	K	D	**	*
108. man						
mijì	ʃafálàw	gwo-mis	məzì (Sc 84)	máamí	mYzi	
109. meat						
nāmà	luw	nam	lò	lúu	nam	
					lu	hləw
110. medicine						
māgànī		yin	soro̰ùn	wórín	sorV n +hi	
111. millet						
maiwā	kushuk	màŋgùn	màrdó (Sc 84)	módò (Sc 84)	mVdo	
112. moisten						
jikà		nyon	càbàtu	yèké	zYk(-V)	
113. monkey						
birì	wagày	jolì	bùdàw	shál	cVl	
					bVdV	bədi
114. moon						
watà	fèn	tar	tàrê	téré	tare	təra
115. mount						
hau	ᶜâg	kè	da	yébì		
116. mouth						
bàkī	haagi	pò	bô	'bòk	bo-k	ba

H	S	A	K	D	**	*
117. name						
sūnā	'ayin	~~sim~~	sunŋ	yím	sV m +hi	səm
118. navel						
cībìyā	macuk	kum	tìmbí (Sc 84)	kúmbí	kum	
119. neck						
wuyà	woḥ	cok	wùlə̂w	dúrì	wulV	wəra
120. new						
sābō		mpwì	bə̀lə̂m	pée	fY	
121. night						
darē	màfò'	mpar	ɓèeɗì	bírì	bVɗi	beɗi
122. nose						
hancì	'atôn	~~gizin~~	wàntə̀n	wárìŋ	atin	atən
123. obtain						
sāmà	mus	kàt	wáa- (Sc 84)	wai	wa(-V)	
124. oil						
mâi	maḥ	mwĩ̀r	màrù	mòt	mar	mar
125. okra						
kuɓèwā		tok	gəmbərəm	gáarak		
126. old						
tsōhō		ns~~i~~r	mànshí	mánjè	manšV	

H	S	A	K	D	**	*
127. one						
ʃayā	ham	gàk	wàdí	ʃúmói		
128. open						
būdè	bwây	bèt	'àfu	àbí	buʃ(-V)	
					ab(-V)	
129. penis						
bǜrā	ʃiŋ	dɨp	'ilà	gwáarè		
130. person						
mùtûm	taf	go	ŋga	mú	gV	mətu
131. pierce						
hūdà	cul	ʃɛl	bùntusù	tìʃé		
132. place						
wurī	mun	pɨ(nyè)	bî	bóì	bi	
133. pour						
ʃūrà	kús	lè	nzàlú (Sc 84)	álè		pə
134. pull						
jā	dèŋ	deŋ	nza	ámè	dVn	
135. push						
tūrà	byaḥ	tus	ǹzùkwa	dəlè		
136. put down						
àjīyà	lue da	ʃen	záa- (Sc 84)	wúi (Sc 84)	zV(-V)	

H	S	A	K	D	**	*
137. quiver						
kwàrī		dàlonʒ	łìkəw	dóurò	dVlon	
138. rabbit						
zōmō	samoḳ	nkafwan	səmèerí (Sc 84)	púrkì	sVmor	
139. ram						
rə̄̀gō	ḍúr	ngem	gəmu	gám	gem	gam
140. rat						
kūsù̄		gùzùm	càsəŋ	kóm	kusum	
141. red						
jā	ʿóg	net	màdè	´dwài		
142. refuse						
ʃī		ta	kùdú- (Sc 84)	kùrí	kudʃ(-V)	kurə
143. return						
kōmà		bè	tàu	mái		ma
144. river						
kò̄gī	ʾabaḥ	for	'əwcî	púwá		
145. roast						
gasà	fwôt	wus	kàarú- (Sc 84)	wúshè	wus(-V)	b-kə
146. rope						
igīyà	'acyèn	teŋ	zòorí (Sc 84)	wóorì	ten	
					zori	zawi

H	S	A	K	D	**	*
147. run						
gudù	gal	sù	jóojó (Sc 84)	káyó		
148. saliva						
yáu	ləlla	li	lùŋ	yílèk	lVn	
149. salt						
gishirī	wùj	kìn	kəkàndà	búrò		
150. see						
ganī	mây	ni	náa- (Sc 84)	àlí	nV(-V)	na
151. seed						
irì		ken	cìdàm	káamò	kVm	
152. seize						
kāmà		yie	càwu	shàaré	čar(-V)	
153. sew						
ʃínkà	dumoˀ	tèn	dàndú- (Sc 84)	dáde	daʃ(-V)	
154. shadow						
inūwà	calâ	rin	ɾ̃ùni	nóonì	rV n +hi	
155. sheep						
tunkìyā	sukuf	mà	tànci	tíŋá	tVnki	
156. shoot						
hàrbā	bac	pùs	bàsáa- (Sc 84)	boi	bVs(-V)	

H	S	A	K	D	**	*
157. shoulder						
kàfadà	vèvàr	cok	kàtəbəka	bálám		
158. show						
nūnà	dul..tí		tàmu	àpé		
159. sickle						
làujē		žim	ləwdi	shíná	lWdy	
160. sickness						
cīwò		mbì-le	màŋgwəy	pur		
161. sit						
zaunà	zàn	tòŋ	tìngú- (Sc 84)	dùwó	zan(-V)	
					tVng(-V)	
162. skin						
fātā	fukût	šim	'irgì	dímbì	fVtk	zəm
					dV m +hi	
163. sky						
samà	'arè	pòtin	rəwì	púró	pWtVn	
					rV	
164. slave						
bāwà	moh	nfwàn	ǹjàrùm	jébè		
165. sleep (n.)						
barcī	nyà	sèm	tədù	ńòn	nVn	s-n(-)

H	S	A	K	D	**	*
166. smoke						
hayāʃī		gil	'ùlìyau (Sc 84)	jóló		'Jan
167. speak						
fàdā	tòn	lɨ	tàma	ʃálè	tVm(-V)	
168. spear						
māshì	dwǎnd	kwòp		gái		gas
169. spider						
gizò	yûw	nēn	sowànà	láalà		
170. stand up						
tāshì	lúgó	yàl	šìndu	yìrí	yVl(-V)	ʃarə
171. steal						
sàtā	ɟaḥ	ʃàp-n-wat	cùrusù	shìrí	čV r(-V) +hi	xərə
172. stomach						
cikì	'àjì	bwut	àkó	áwó	ako	
173. stone						
dūtsè	'àyà	gɨk	bàtə gəwcəw	gúwát		
174. strength						
karfī		kam	'yàkàrà	gátdəŋ		
175. sun						
rānā	fat	pus	fàtí (Sc 84)	pórí	fati	fati

H	S	A	K	D	**	*
176. surpass						
fī		ʃēl	girân	tái		
177. swallow						
hàdīyà	dûl	ʃal	ʃàlú- (Sc 84)	ʃèlí	ʃal(-V)	
178. sweep						
shârā	wàs	fet	dərasù	dámè		
179. sweetness						
zākī		šaŋ	tèm	nəmnəm		
180. tail						
wutsīyà		daŋ	cèturˇ	yíwà		
181. taste						
ʃandànā	líkây	cam [1]	lètu	tèmné		
182. tear (v.)						
yāgè	zyèt	yel	yàgusù	pàpyè	yag(-V)	
183. ten						
gōmà	ḥáy'	sàr	m̀bət	gúm	gWm	$g^{W}am$
184. thigh						
cinyà	fwòḥ	žwar	fèntáu (Sc 84)	púndó	fVnto	
185. three						
ukù	kún	kwáan (J 63)	kúunù (Sc 84)	kúnúŋ	kun	$k^{(w)}$ən

186. thunder

tsāwā		yàndàt	'aduř	rérèu		

187. tie

ʃaurè	no'ây	ʃat	yèndusu	ʃòʃé	ʃVʃ(-V)	g-n

188. today

yâu		cɨnī	'əŋkwùni	gàŋgárè		

189. tongue

harshè	'alə́s	lɨs	lúusən (Sc 84)	yílík	lVs	ahləsi

190. tooth

haʃōrī	'agáḥàw	ààs	wùtù	wúró	wutW	
					aKVrV	ʂan(-)

191. touch

taʃà		càm	šafənu	déyì		

192. town

gàrī	ràm	yɨl	jègəw	álí		

193. tree

ɨtà̄cē	yícàw	tɨn	ʃa	shóoʃí		ɨt-

194. turtle

kùnkurū	'akùr	kur	gwədagorì	guwa	kur	

195. two

bīyū		bap	bèelú (Sc 84)	ráp	bYlu	sər(-)

H	S	A	K	D	**	*
196. untie						
kwancè		fwin	bədusù	lákè		
197. urine						
fitsārī	zòh	ngìzìn	'yandəŋ	yéndín	yVndVn	
198. vagina						
dūrì	bòkòl	nyir	tsele	ʃímén		
199. vulture						
ùngùlū		dìgaši	sakətì	bírnjè		
200. wait for						
jirā	zyah	kaŋ nyī	ǹgàna	mòi		
201. war						
yāʃì	bur	lek	tùwa	sháà	lVk	
202. wash						
wankè	jâh	vwaŋ	bùdú- (Sc 84)	jóbè	wank(-V)	c-bə
203. water						
rūwā	ham	àm	àmù (Sc 84)	gwá	am	am
204. weave						
sāʃà		sak	càakú- (Sc 84)	wólè	sak(-V)	
205. what						
mè	ma	mè	mìyà	mi	mY	mi/mə

H	S	A	K	D	**	*
206. where						
ìna		nɨ̄n-nē	nayì	tí(ndai)		ina
207. white						
farī	fyalá	pyē	màfe	pópólók	falV	
208. who						
wà̄	fà	wè	là	má(ndai)	wV	wa
209. wind						
iskà		kwòm	fufùla	yíbèt		
210. woman						
màcè̄	'amûy	màt (J 63)	mèndò	támmó	mat	

NOTES

[1]This lexical item for Angas is the same as the lexical item for #191 'touch'.

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