

# A CHADIC CORNUCOPIA

Russell G. Schuh

# A Chadic Cornucopia

by

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edited by

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## Editor's Preface

Russell Schuh passed away on November 8, 2016. At the time of his death he was deeply involved in a comprehensive study of the Chadic language family, a massive work that in book form could easily have exceeded a thousand pages. How long had he been working on it? The answer, along the lines of what I had indicated when I was asked a similar question some time back when I was completing my Hausa reference grammar, was either 5 years or 50 years, depending on how one looked at it. Schuh had formally undertaken to do a comparative Chadic book for a major publisher some 5 years earlier, but his involvement with languages of the family went back some 50 years when he first went to Niger as a Peace Corps volunteer. This book represents the accumulation of knowledge gained in that half century since. In fact one of the reasons Schuh was having so much trouble finishing the book was that he knew too much! Even when dealing with Chadic languages about which he supposedly knew nothing, his first-hand experience with a wide array of Chadic languages allowed him to view the materials in a new and insightful way. Another factor holding the book back was that he had a large amount of unpublished materials from fieldwork trips he had carried out at different periods and, being the conscientious person that he was, he felt he had a professional obligation to make those materials available by incorporating them in this volume.

Schuh left behind a wealth of materials related to the comparative Chadic project. There were draft chapters in near-final form; there were fully worked-out sections but with references missing; there were detailed tables rich with data but lacking identifying titles; there were example sentences in Hausa without glosses provided; there were extensive lists of examples, well organized but without explanatory text; and there were bare outlines of chapters and sections intended to be written later. Even the essentially finished chapters hadn't been proofed or had the references checked.

One problematic aspect of the manuscript as it existed was the extensive — one could say excessive — cross referencing to other sections and other chapters, some of which hadn't had numbers assigned or in some cases hadn't been written yet. Where cross-references were totally gratuitous, I have taken the editorial prerogative of removing



them; but generally speaking I have left them as is, doing my best to fill in precise designations where these were missing. On the whole, I think that the cross-references now in the book are accurate, but I did not have the time nor the resources to double-check and verify each and every one, so unfortunately some errors undoubtedly remain.

My job as editor, which has been a labor of love, has been to turn all of the drafts and notes into a coherent whole. This has involved judicious reorganization, some additions (mainly references), and a lot of formatting; but the book is very much a Schuh product. It represents Schuh's thinking, his conception, his analyses, his choice of materials, his presentation style (which includes numerous footnotes), and his overall orientation. Despite the "sweat of the brow" put in by the editor, this is Schuh's book: it is his magnum opus, a major contribution to Chadic linguistics that will constitute his legacy.

On the whole the manuscript presented here constitutes a finished book. There are two main exceptions. First some unfinished chapters and sections are included as such. Where Schuh had outline notes to himself, indicating what he intended to delve into later, these have been retained. Taking advantage of the color possibilities of an electronic work, these are written using a green font. My first inclination was to remove these; however, composers and artists often have sketch books, which are invaluable when preserved, and so I decided that the same would hold for Schuh's notes. Second, there are places where I as editor felt that substantive additions or comments were needed. These are explicitly marked as "Editor's notes" and typed using a blue font.

Although Schuh's original intention was to have a print book, publishing this as an online, open-access book in a UCLA collection is very much in keeping with his academic philosophy, namely that scholarship is a cooperative enterprise that depends on openness and sharing. As with the *Festschrift* published in his honor a decade ago, this volume, which represents a lifetime of work, is covered by a creative commons license so that it is free of copyright shackles and available for use by all.

This obviously isn't the book that would have been if Schuh himself had been able to finish it; but I am confident that it remains true to his spirit and style, and that it is a major accomplishment of which he would have been justifiably proud.

*Paul Newman*

# Acknowledgments

*Editor's Note:* Acknowledgments are written after a book is finished and the author has time to catch his or her breath and think about the various people who were important in the preparation of the book or who supported the author in some significant manner or other. Acknowledgments are very personal in nature: they reflect feelings the author wants to express about people who were helpful in the specific case of the work in question and/or who were meaningful to the author throughout his or her professional life. In this instance, Russ Schuh passed away (in November 2016) before completing the book and without having written such a section. An editor, even one with longstanding ties to the author, cannot fill this in. On the other hand, Russ Schuh was so self assuming and generous in spirit that he definitely would not have wanted this work to appear with the Acknowledgments page vacant. Therefore, based on conversations we had, memos left behind, and the names of a few people he had jotted down here and there whom he didn't want to overlook, I am going to go beyond a normal Editor's role and insert brief acknowledgments, recognizing that I shall surely overlook numerous people who should have been mentioned, for which I apologize. Here is what I view as a rough outline of what Schuh would have written, expressed in the first person.

I begin my acknowledgement of indebtedness and appreciation with important figures in Chadic linguistics whom I had the good fortune to have known personally and to have interacted with over the years. These are the late Johannes Lukas (the father of modern Chadic linguistics); Herrmann Jungraithmayr (senior scholar and the most prolific living specialist in Chadic—the doyen of Chadic linguistics), Ekkehard Wolff (the most important descriptive linguist and sociolinguist focusing on Chadic in the generation after Jungraithmayr); and Zygmunt Frajzyngier (the most active Chadic scholar in the U.S.). Professor Alhaji Maina Gimba, now of the University of Maiduguri, must be singled out: he was a very special former Ph.D. student of mine, then research assistant, then co-investigator and co-author, and ultimately a member of my extended family.

Special acknowledgments, both professional and personal, are due to Paul Newman, Distinguished Professor Emeritus at Indiana University: the first American Chadicist, my mentor and colleague throughout my professional life, author of the definitive reference work on Hausa, and an invaluable consultant on this book project.

Chadic language informants participating in the in Yobe Languages Research Project, were incredibly hard working and enthusiastic. These were (with apologies for oversights): Malam Dan Boyi Kwana, Malam Adamu Helman Sale, Musa Gana Amshi, Muhammadu Mai Gari, Ba'askare Gangawa, Aliyu Maina, Elisha Shalanguwa, Vaziya Ciroma, Abdullahi Idi.

I have been fortunate in having my research supported over the years by a number of grants, mostly from NSF. These include the following, which I acknowledge with thanks: •NSF BCS-0553222 (DEL program, 2006-2010); •NSF BCS-0111289 (2001-2004); •NSF BCS-9905180 (1999-2001); •NSF BNS79-10366 (1979–80); •Wenner-Gren Society for Anthropological Research (1982-83). Funds to enable me to travel to Bloomington in the summer of 2015 to work with Paul Newman on the book project were provided by a grant from the UCLA Academic Senate with additional research funding from a UCLA Fiat Lux seminar grant. Funds to enable Newman to travel to Los Angeles in the fall of 2016 for follow-up work on the Chadic book were provided by a grant from the Indiana University Distinguished Faculty Emeritus Research Fund.

UCLA was my academic home throughout my professional career. That position made my work possible. I tried to pay my dues, so to speak, by teaching large introductory classes and by serving for a term as Chair of Department; but on the whole I felt that I was being paid to pursue what I loved to do, namely African linguistics. I truly appreciate the many colleagues in the department with whom I had the opportunity to exchange ideas over the years, some of whom, initially, were former professors of mine.

Personal thanks for long-lasting and valued friendships go to the late Neil Skinner, a true gentleman who set a model for openness in sharing research materials, Will Leben, Larry Hyman, Phil Jaggar, Ian Maddieson, and Roxana Ma Newman. They are mentioned here by name alone since they all know how much they have meant to me and even simple descriptions would have required a minimum of a couple of pages each.

Finally, and most importantly, I must express appreciation and love to my steadfast wife, Maxine, and my daughters Gretchen and Elizabeth. They supported my creative activities and put up with my excessive work habits and linguistic obsession, not only during this last period when I have been ill, but throughout my long and demanding life.

# 1 | Introduction

## 1. The Chadic Languages

The languages of the Chadic family extend from northern Nigeria, across northern Cameroon and into central Chad Republic. The largest and best known Chadic language is Hausa, which, according to *Ethnologue*, has about 25 million native speakers in Nigeria and Niger—probably a low figure—but which is also a lingua franca for millions more throughout northern Nigeria, all of Niger, and in other communities across west and central Africa. Hausa, however, is only one of about 150 Chadic languages. These languages are diverse in terms of lexicon and grammatical structure, suggesting a considerable time depth; but it is clear that they represent a unitary family, i.e. any two Chadic languages are more closely related to each other than either is to any language outside the Chadic family. There is general agreement, at least among those who have given the matter serious consideration, that the Chadic family is a branch of the Afroasiatic phylum (Greenberg 1966), which, in addition to Chadic, includes the Semitic, Berber, and Cushitic families as well as Egyptian (the language of Ancient Egypt in its various historical stages, culminating in Coptic, which died out around the 17<sup>th</sup> Century).<sup>1</sup>

Aside from Hausa, which has been the object of continuous scholarly study since the mid-19<sup>th</sup> century, detailed and reliable documentation of Chadic languages began only in the mid-20<sup>th</sup> century with the work of Johannes Lukas.<sup>2</sup> The last five or six decades have seen a ballooning of Chadic studies. Newman (2015) lists some 1,500 items on Chadic languages other than Hausa, all but a handful published after 1960. Although the Chadic family as a group remains less well-studied than, say, the Bantu languages, there is now enough good documentation that we are in a position to characterize the family in terms

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<sup>1</sup> Most classifications of Afroasiatic also include the Omotic languages, a group of about 30 languages of Ethiopia, but evidence for the affiliation of Omotic is less clear-cut than that of the other five families.

<sup>2</sup> There are a few earlier works, most notably Foulkes's grammar of Angas (1915).

of historical connections and typological features that tie the family together as well as see the diversity within the family that has come about through divergence that has spanned several millennia at least.

I describe the internal classification of Chadic in greater detail in Chapter 2. Here I present a broad picture to orient the organization of this book. There is agreement among Chadicists that the family is divided into at least three, and possibly four, major groups. There is complete agreement on the genetic unity of two of those groups: West Chadic, all of whose members are spoken in northern Nigeria and, in the case of Hausa, in Niger as well, and East Chadic, nearly all of whose members are spoken in west and central Chad Republic. The remaining Chadic languages are spoken primarily in northeastern Nigeria and northern Cameroon. Jungraithmayr and Ibriszimow (1994) group these languages into a single unit, Central Chadic, with three subgroups. Newman (1977, 2013a) proposes a Biu-Mandara<sup>3</sup> group with two subgroups that do not fully coincide with the subgrouping of Jungraithmayr and Ibriszimow. Biu-Mandara includes all the languages in Jungraithmayr and Ibriszimow's Central Chadic except one of their sub-subgroups, the Masa languages, which Newman classifies as a fourth branch of Chadic coordinate with West, East, and Biu-Mandara.

## **2. Organization of the Book**

The chapters of this volume are broken down into fairly standard topics of structural linguistics. Internally, each chapter will be organized in a similar way. The first part of each chapter will present a survey of notable features found across the family, with examples taken from languages of each of the major groups. For example, Chapter 10 “Nominal gender, number, and determiners” discusses features of gender and number morphology that can probably be reconstructed for Proto-Chadic and how those show up in selected languages from each Chadic subgroup, particularly in the morphology of determiner systems. This chapter also notes apparent innovations and shifts of morphological distinctions in nouns and noun modifiers. Following the introductory

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<sup>3</sup> The name refers to the Biu Plateau in northeastern Nigeria and the Mandara Mountains, which run along the Nigeria-Cameroon border. Since the term “Central” is shorter than “Biu-Mandara” and matches the West and East branch designations, I have taken the practical step of adopting it for use in this book.

survey, each chapter will then describe that chapter's linguistic subsystem in three languages, Ngamo (West Chadic), Gude (Central Chadic), and Hausa (West Chadic), sometimes with a description of Kera (East Chadic) as well.

One of my own frustrations in using survey books of this type on language groups about which I have no personal knowledge is that the typical book illustrates a point with one or two selected examples from this or that language, the result being that the language group is presented as a piecemeal collection of examples and one ends up not having a sense of what any specific language from that group is "really" like. My goal is therefore to give a fairly complete description of the three (or four) languages mentioned for each topic. Obviously, even detailed knowledge of one language cannot serve as a canonical representation of a family, but it should be of interest as a linguistic document in its own right and can serve as a touchstone when looking at descriptions of related languages. It is my hope that when the sections on the respective languages are taken together, they will comprise small descriptive grammars of each language.

For West Chadic, I have selected Ngamo because data that I have collected on it through fieldwork is sufficient for a modest descriptive grammar. There is currently no published descriptive work on it at all, and it is unlikely that I will have the opportunity to work on it to the point where I would be able to write a book-length comprehensive descriptive grammar.

For Central Chadic, I have selected Gude, again, because I have done fieldwork on it myself. In this case, Hoskison's (1983) unpublished dissertation also provides a fairly extensive description. Combining Hoskison's and my work will allow for substantial coverage of each of the topics in this book.

Finally, each chapter will have a section on Hausa. Like Ngamo, Hausa is a West Chadic language. Like all languages, Chadic or otherwise, Hausa has its idiosyncrasies, but from a comparative point of view it is just another West Chadic language. On the other hand, Hausa occupies a special place in Chadic studies. It is probably the most thoroughly documented language of sub-Saharan Africa. For scholars working in areas outside Chadic, it is typically taken as representing "Chadic". For virtually all scholars working within Chadic, it is the touchstone language, yet, ironically, it is somehow taken to be "atypical". As I see it, the view that Hausa is an atypical Chadic language stems in

large part from the very fact that it has been so well studied. As often happens where extensive research focuses over a long period on one language or a group of closely related languages, the field develops its own specialized terminology and analytical biases. In order to understand work from such a field from more general typological and/or historical perspectives, one often has to “translate” and reanalyze the received knowledge of the field. As a case in point, all Hausa specialists describe Hausa verbs in terms of the “Grade System” (Parsons 1960b). No other Chadic language has a system comparable to this Hausa system, and conversely, the Hausa verbal system as described in the Grade System framework apparently lacks anything like the widespread West Chadic system of verb classes A1, A2, B, C, D set out by Lukas (1970-72). This disconnect arises from viewing the Hausa Grade System as somehow being a fundamental property that is to be compared to sister languages. From a historical point of view the regularities that the Grade System describes represent an innovation internal to Hausa. When one looks comprehensively at Hausa verbs, including all the “irregularities” that fail to fit into the canonical grades, the innovative overlay becomes evident and the remnants of the original system emerge. Chapter 6 provides a discussion of verbs and verb classes in Chadic.

The purpose of including a section on Hausa in each chapter is not to provide a description of Hausa per se—that has been done in several excellent descriptive grammars. It is rather to provide a historically oriented “alternative description” that shows how Hausa fits into the bigger Chadic picture.

### **3. Some Disclaimers**

This book will be organized around the three generally agreed-on large branches within Chadic, but there will admittedly be a West Chadic bias. Nearly all my own field work has been on West Chadic languages, so this is the group I know best. Moreover, in this one Chadic branch, the number of languages, the time depth since the divergence from the ancestral language, and the linguistic diversity, both lexical and structural, are enormous.

A second point is that I will sometimes (maybe often!) take analytical positions that may not be shared by all Chadic specialists. Compared to work in some language groups

that have a long descriptive tradition, such as Bantu, Semitic, Turkic, or Indo-European subfields (Romance, Germanic, Slavic), comparative Chadic studies are at an early stage. Aside from some broad areas of agreement, such as the genetic unity of West Chadic or the reconstructability of grammatical gender, there is no “received knowledge” that everyone agrees on, e.g. what was the Proto-Chadic vowel system like? how many liquids were there in Proto-Chadic? what verbal tenses can be reconstructed for Proto-Chadic and what was their morphology like? what was the morphology of Proto-Chadic gender marking? and what was the original unmarked constituent order in declarative sentences? I will unapologetically advance my own views where I have any.

Finally, I will not attempt to present a comprehensive discussion of the literature on Chadic languages. The intention of this book is to present a broad picture of some of the better represented features of languages in the Chadic family. In limiting the number of languages I discuss and the amount of detail I present, there is the risk that I will fail to include some crucial facts and slight important work by some of my colleagues. I hope they will respond and bring this to public attention.

#### **4. Original Book Outline**

*Editor's Note:* In Schuh's original plan, the book was to be comprised of some 22 chapters covering a range of important topics in Chadic, some of which he was never able to tackle, much less finish. The following is a working version of the plan. It is included here as an indication of his thinking and goals.

## **THE CHADIC LANGUAGES**

### **1. Introduction**

- The Chadic Languages
  - geography and external classification
- Organization of the book
  - chapters divided by standard descriptive headings
  - structure of chapters
    - survey of notable features, drawing on languages from the major groups
    - description of Ngamo (West), Gude (Central), Kera (East), Hausa (West)
  - purpose of including Hausa
- Some Disclaimers
  - West Chadic bias
  - personal analyses
  - non-comprehensiveness
- Acknowledgments



## 2. Background and Classification

- Brief History of Chadic Language Studies
  - earlier and current state of Chadic studies
- Classification
  - sketch of Chadic classification: West, East, Central/Biu-Mandara, Masa
  - geography
- External Influences: Niger-Congo, Kanuri, Fulfulde, Hausa, Arabic, English, French
  - Dominance of Hausa and consequent endangerment of small languages

## 3. Segmental Phonology

- consonants: implosives, lateral fricatives, liquid inventory
  - weakening and strengthening rules
- vowels: length, small inventory (large inventories are innovative)
  - conditioning of vowel quality by consonants, syncope and epenthesis rules

## 4. Vowels, Syllables, and Syllable Weight

- canonical word shapes and phonotactics (innovativeness of initial clusters)
- syllable weight (see “vowels“ and “metrics”)
- metrics
  - brief discussion of formalism in metrics; quantitative metrics
  - metrical equivalents
    - heavy = two lights
    - hemiola
  - native vs. adapted Arabic meters

## 5. Tones and Intonation

- stress: no Chadic language has stress as a prosodic parameter
- tones
  - Proto-Chadic as a tone language
  - two tones with downdrift most common
  - terrace-level systems: H, Downstepped-H, L
  - three tones by tone-splitting through influence of depressors
  - the status of contour tones
  - lexical vs. templatic and grammatical tone
  - tone spreading and other tonal alternations
- interaction of consonant types and tones
- intonation
  - overall clausal function
  - non-use of pragmatic intonation to mark focus

## 6. Verb Classes and Verbal Tense/Aspect/Mood (TAM)

- basic perfective vs. imperfective
- subjunctive: multifunctionality (complements, purpose, sequence)
- “non-basic” TAMs: future, progressive, habitual
- negation - marking of negation: \*ba negative, placement, and scope
  - effects on basic TAMs and relation to non-basic TAMs
  - negative imperatives and subjunctives

- negation in sequences

## 7. Verbal Derivation and Extensions

- causative
- middle/intransitivization (including ABSENCE of passive)
- totality/aux focus
- directional extensions
- “remnant” affixes: consonantal extensions of uncertain function

## 8. Verbal Pluractionality

(originally included in chapter on Derivation & Extensions → a topic on its own)

## 9. Pronouns, Agreement, and Anaphora

- pronominal distinctions (gender in 2<sup>nd</sup> & 3<sup>rd</sup> person; excl. ~ incl. 1<sup>st</sup> plural)
- subject agreement (clitics rather than affixes, none in 3<sup>rd</sup> person, plural agreement)
- indirect objects: incorporation into “IO stems”
- direct objects: morphological differences from IO
- anaphoric types
  - reflexive and reciprocal
  - ICP
  - anaphoric “thing”
- logophorics:

## 10. Nominal Gender, Number, and Determiners

## 11. Nominal Plurals

## 12. Nominal Attributive Modifiers

- attributive adjectives
- relative clauses

## 13. Quantification

- numbers
- “all”
- indefinites: a, a certain, some, another, others
- universal quantification (‘everyone’, ‘anyone’, ‘whoever’, ‘no one’, etc.)

## 14. Genitive and Related Constructions

- summary of types: functional types, gender marking
- linkers: historical source, gender association, functional association
- “alienable” vs. “inalienable”
  - lexical associations: kin, body parts, cultural
  - productive vs. lexicalized
- nominalizations
- N+N compounding

### 15. Category Changing Derivation and Other Lexical Derivation

- N, A → V (e.g. Hausa -t- suffix)
- V → N (VN, ma-agentives)
- V → A (participles, statives)
- Ideophonic adjectives, augmentative and diminutive adjectives
- Ethnonyms
- ish formations

### 16. Simple Verbal Clauses

- basic word orders: SVO, VSO, VOS (can we reconstruct Proto-Chadic order?)
- function marking (essentially only by word order for nouns; see Pronoun chapter)
  - subjects
  - direct objects
  - indirect objects
  - locative goals
  - cognate objects/cognate accusative

#### Adjuncts and Adjunct Phrases

- basic prepositions: ‘with’ (instrument, comitative), ‘at’, ‘to’ (location), ‘from’
- derived “prepositions”
- simple temporal adverbs
- manner adverbs and “special” adverbs (ideophones and related)
- TRANSITIVITY
  - neutrality, middle voice
  - causatives
  - ICPs

### 17. Sentences without Verbs

- copular sentences: nominal and adjectival predicates
- locative sentences
- “have” sentences
- existential sentences
- presentative sentences

### 18. Questions, Focus, and Negation

- yes/no questions
- WH-questions and answers
  - order: in situ, fronting, post-posing
  - special TAM marking
  - non-role for intonation
- contrastive focus: not distinct syntactically or intonationally from pragmatic focus
- negation
  - negation as a type of focus
  - placement of negative marking
  - TAMs in negatives

## 19. Conjunction

- Nominal conjunction
  - By proposition ‘with’—no general coordinating conjunction
  - Asymmetric coordination
- Clausal conjunction
  - By hypotaxis

## 20. Complement Clauses and Phrases

- direct and indirect speech
- clause types taking tensed complements
- clause types taking subjunctive complements
- nominalizations as complements

## 21. Subordinate Adverbial Clauses

- conditional clauses
  - regular conditional
  - concessive conditionals
  - counterfactual sentences
  - recapitulative clauses
- determiners > conditional clause markers
- purpose and reason clauses and phrases
- temporal clauses
  - “when” clauses referring to specific time
  - “before” clauses
  - “after” clause

## 22. Chadic History

- sound changes: Klingenberg’s Law ( $T > r$ ,  $K/P > w$ ),  $N > \emptyset$ ,  $hl > l \sim s$ , etc.
- 100 well-established etymons
- 100 items toward expanding the Proto-Chadic lexicon
  - “bases” found in word families (b’ “break”, d’ “rise”, b/m-r “turn”, etc.)
  - remnant affixes
  - reduplication
  - metathesis

## List of References

## 2 | Background and Classification

There are about 150 languages in the Chadic family extending across northern Nigeria into southern Niger, northern Cameroon, and western and central Chad. The Chadic family comprises one of the five major branches of the Afroasiatic phylum (Greenberg 1966), viz. Berber, Chadic, Cushitic, Egyptian, and Semitic. Some scholars include an Omotic family, though unlike with the five other branches, where the evidence for grouping into a single genetic unit is convincing, evidence for including Omotic is equivocal at best. There have been various proposals for Afroasiatic subclassification and for the position of Chadic within the phylum (Greenberg 1950, 1966; Newman 1980a; Fleming 1983, among others); however, such higher level grouping goes beyond the scope of this book, and I will not pursue it further. Overviews of Chadic encompassing the entire family are not numerous, but some important studies do exist. These include Barreteau and Newman (1978), Jungraithmayr (1981), Wolff (1981), Schuh (2003a), Newman (2006), Frajzyngier and Shay (2012), and Newman (2013a).

### 1. Brief History of Chadic Language Studies

As a consistent way to identify genetic affiliations, I use the classification system of Newman (2013a),<sup>1</sup> which has the form I = branch; A = subbranch; 1 = group; a, b, c = subgroups or individual languages (this level often omitted). For example, Bole is I.A.2.a, Bade is I.B.1, Gude is II.A.8, Kera is III.A.3, etc.

#### 1.1. Early studies focusing on Hausa

Brief wordlists of Hausa can be found in travelers' accounts going back to the late 18th century (see Hair 1967). The first really substantive study of Hausa is that of Schön (1843). Based on this work, the Semiticist F. W. Newman (1844) postulated a "Hebraeo-African" family, similar to Afroasiatic as we now know it, including Hausa, Berber, Coptic, and Hebrew (Semitic).

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<sup>1</sup> *Editor's Note:* To aid the reader, the Newman (2013a) classification is included as an appendix to the volume.

## 1.2. Koelle (1854) and Barth (1862-1866)

The earliest work to present significant data from Chadic languages in addition to Hausa was Koelle (1854). Koelle, who collected wordlists from repatriated slaves in what is now Sierra Leone, provides data from seven languages now known to be Chadic, all spoken in what is now Yobe State, Nigeria. These can be identified as Buduma, Bole, Karekare, Bade, Ngizim, Duwai, and Hausa (2 dialects).

Writing about the same time as Koelle, but working independently, Barth (1862–1866) produced an extensive study of Hausa and also of the Central Chadic languages Logone and Mandara/Wandala. Barth, like Newman (1844), was struck by similarities between Hausa and other languages now grouped as Afroasiatic: “There is evidently some relation between the Hausa, the Berber, and the Coptic languages. . .” (Barth, vol. 1, p. 470)

## 1.3. Chadic studies from Lukas to the present

- works of Johannes Lukas
- works of Carl Hoffmann
- works of Herrmann Jungraithmayr
- works of Paul Newman
- works of Russell Schuh
- works of Ekkehard Wolff
- works of Neil Skinner
- works of Zygmunt Frajzyngier

## 2. Classification

### 2.1. The beginnings

The first comprehensive classifications and listings of Chadic languages are those produced independently by Greenberg (1950) and Lukas (included in Westermann and Bryan (1952). As acknowledged in the Foreword, page 3, the relevant chapters (Chapter IX, “Chadic Languages” and

Chapter X, “Chado-Hamitic Languages”) were written by Lukas, although he is not listed as author on the chapters themselves.

The seminal studies that served as the foundation for all subsequent work on Chadic classification were Newman and Ma (1966) and Hoffmann (1971). For works from the mid 20<sup>th</sup> century to the present focusing on reconstruction and etymology, the following particularly need to be cited:

- Jungraithmayr and Shimizu (1981), Jungraithmayr and Ibrizimow (1994)
- Newman (1977, 2013a)
- Skinner (1996)

## 2.2. The Classification of Hausa within Chadic

In a work dating from the beginning of the 20th century, Foulkes (1915:5) makes a prescient observation regarding similarities between Hausa and Angas, a geographically separate and culturally distant language: “Being struck with the many similarities between Angass [sic] and Hausa, I write this book in its present form to circulate amongst students of Hausa in order to obtain an opinion as to whether they should be regarded as cognate languages.” We now know that these languages are in fact members of the same (Chadic) family. The question is, where exactly does Hausa fit in relation to its sister or cousin languages? Newman (1977a:8) says,

“Within W[E]ST, the Hausa, Bole, Angas, and Ron groups constitute a subbranch (W[E]ST-A) as opposed to the Bade, Warji, and Zaar groups (W[E]ST-B). Within W[E]ST-A, the Bole and Angas groups bear an especially close relationship, which is indicated by referring to the two groups together as a ‘major group’. The relationship between Hausa and this ‘major group’ is also very close.”

Paul Newman, in personal communication, has said that he no longer remembers exactly what criteria he used for this assessment of the placement of Hausa. One likely criterion was the fact that both Hausa and the other languages in his West-A group have innovated by losing lateral fricatives, which are still found throughout his West-B. After having worked on West Chadic languages for over four decades, I am sure that this classificatory placement of Hausa is wrong. In rather gross typological terms, Hausa does seem to look more like a West-A language than a West-B. Consider the numbers 1-10 in Hausa, Bole (West-A), and Western Bade (West-B).

	Hausa	Bole	Western Bade
one	<b>ɗaya</b>	<b>mōɗi</b>	<b>gàɗe</b>
two	<b>biyu</b>	<b>bòlou</b>	<b>sərən</b>
three	<b>ukù</b>	<b>kunnùm</b>	<b>kwan</b>
four	<b>huɗu</b>	<b>pòɗɗo</b>	<b>fəɗu</b>
five	<b>bìyaɾ</b>	<b>bàɗi</b>	<b>vàɗi</b>
six	<b>shidà</b>	<b>bàccimōɗi</b>	<b>əzdù</b>
seven	<b>bakwai</b>	<b>bāwulo</b>	<b>gatkasà</b>
eight	<b>takwàs</b>	<b>pōrɗo</b>	<b>tlədàkwà</b>
nine	<b>taɾà</b>	<b>fònùm</b>	<b>wurayà</b>
ten	<b>gōmà</b>	<b>bìmbaɗi</b>	<b>gumà</b>

A cursory glance suggests that Hausa does look more like Bole than like Bade: the vowel inventory is from a five vowel system (no “ə”), neither has lateral fricatives (cf. Bade ‘eight’), and both have the Niger-Congo loan **\*b-l-** for ‘two’ rather than the native **\*s-r-**. On the other hand, none of the numbers 6-10 are cognate in Hausa and Bole, whereas both 6 and 10 are cognate in Hausa and Bade, and indeed, 6 looks to be inherited from Afroasiatic (cf. Tamazhaq (Berber) **sadis**, Arabic (Semitic) **saddasa** ‘multiply by six’).

This bit of evidence for subgrouping is equivocal, but there are both geographical and linguistic reasons for doubting a close relationship between Hausa and West-A. In terms of geography, even today West-B languages fall between the area native to Hausa and the West-A languages, which lie along the eastern and southeastern periphery of West Chadic. Records of now extinct languages closely related to Bade (Auyo, Teshena, Shira) show that West-B languages extended well to the west of their current domain. If there had been a contiguous West-A homeland encompassing pre-Hausa and pre-Bole-Tangale/Angas/Ron, there would have had to have been a northward incursion of West-B languages splitting that homeland, but there is no evidence favoring that.

Linguistic evidence makes a West-A affiliation for Hausa even more doubtful. There are two standard types of criteria that are usually considered for doing subgrouping: percentages of shared lexical items, which cross-linguistically has proven to be unreliable, and shared structural innovations. Attached is the Swadesh 100 word list for Hausa, Bole (West-A), Western Bade (West-B), and Miya (West-B). The first thing that stands out is that the percentages are rather low between



*all* the pairings of languages.<sup>2</sup> The counts do show Hausa and Bole to have the highest percentage of cognation (31.5%), but this is within 5% of the Hausa/Miya figure and within 4% of Bole/Bade, which is across the West-A/West-B line. Moreover, the figure of only 28.5% between Bade and Miya is striking, since on other criteria, these languages do seem relatively close. In short, basing a subclassification on these figures is not justified.

Shared innovations are the best criteria for subgrouping among genetically related languages. Such innovations, particularly specific and idiosyncratic ones, show that the languages must have a shared history after branching off from their cousins. In fact, the only apparent candidates for such innovations that I have found that might group Hausa with West-A are those mentioned in discussion the numbers 1-10. The first (vowel inventory), however, is weak since it is purely typological and could be used to group Hausa with Spanish! Moreover, I contend that the vowel system of Hausa is actually more like that of Bade than that of Bole. Loss of lateral fricatives is a candidate for shared innovation between Hausa and West-A, though innovative loss is not as strong as innovative addition or replacement. In this case, however, the loss of lateral fricatives turns out not to be a shared innovation at all, since Proto-Chadic lateral fricatives have had different outcomes in Hausa and West-A: in Hausa, \*hl > s, whereas in West-A, \*hl > l. This leaves only the number '2' as real candidate for shared innovation. Given the pervasive influence that Niger-Congo languages must have at one time had on Chadic, independent borrowing of this item seems as likely as borrowing during a period of shared history.

In many ways, Hausa looks more like West-B than it does like West-A. However, all cases that I have been able to identify that group Hausa with West-B are shared retentions. The innovations are all within West-A. These serve as evidence for the genetic unity of West-A, but the shared retentions between Hausa and West-B show only that they are descendants of proto-(West) Chadic. The table below summarizes the cases that I have been able to identify. I illustrate West-A only with the Bole, but these are representative for the Bole-Tangale group. Obviously, to make the comparisons stronger, one would have to look at other putative West-A subgroups to make sure that these innovations are shared in groups beyond the Bole-Tangale group.

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<sup>2</sup> Contrast the Chadic figures with a tree showing percentage of cognation between various sub-groups of Indo-European at [http://indo-european.migrations.scienceontheweb.net/lexicostatistical\\_comparison\\_of\\_indo\\_european\\_languages.html](http://indo-european.migrations.scienceontheweb.net/lexicostatistical_comparison_of_indo_european_languages.html).

This tree shows, for example, 65% for Russian and Lithuanian, 45% for Greek and Italian, and 35% across Indo-European as a whole.

**Table 1:** Comparisons of Hausa, West-A, and West-B

Retentions shared by Hausa and West-B	Innovations in Bole-Tangale
PHONOLOGY	
No contrast between medial short high vowels Hausa <b>jimà</b> = <b>jumà</b> ‘spend time’ Ngizim <b>dàbi</b> ‘hoe’, <b>dàbè bai</b> ‘not a hoe’	Contrast between /i/, /u/ in all positions Bole <b>bidà</b> ‘thatching needle’ vs. <b>bùdà</b> ‘servant’
Mid vowels always long in open syllables <sup>3</sup> Hausa <b>yàbō-n-ā</b> ‘praising me’ but <b>yàba-n-kà</b> ‘praising you (m)’	Long ~ short contrast in mid vowels Bole <b>sōni</b> ‘honey’ vs. <b>sòni</b> ‘year’
Retention of ejectives Hausa <b>kàshī</b> ‘bone’ Warji <b>kāsu-na</b> ‘bone’	Loss of ejectives in all languages Bole <b>òsoki</b> ‘bone’
Retention of roll/trill /r̄/ ~ /r̥/ contrast Hausa <b>r̄r̄à</b> ‘sing’, Ngizim <b>ruwâ</b> ‘song’ Hausa <b>r̄aka’â</b> , Ngizim <b>r̄akka’â</b> ‘genuflection’	Loss of rhotic contrast Bole <b>ârũ</b> ‘song’ Bole <b>r̄akkà</b> ‘genuflection’
Tendency to palatalize coronals before /i/ Hausa <b>tuwō</b> ‘food’ but <b>ci</b> ‘eat’ Ngizim <b>tau</b> ‘ate’ but <b>dà ci</b> ‘that he eat’ cf. Hausa <b>ki</b> ‘you (sg.f.)’	Tendency to palatalize velars before /i/ Bole <b>shī</b> ‘you (sg.f.)’ cf. <b>ottò</b> ‘food’, <b>tīnà</b> ‘eating’
MORPHOLOGY	
Retention of <b>ma-</b> agentives Hausa <b>maginī</b> ‘mason’ < <b>ginà</b> ‘build’ Ngizim <b>mabari</b> ‘one who gives’ < <b>bàru</b> ‘give’	Loss of morphological agentives cf. <b>an solu</b> ‘mason’, <b>ànìn sòlu</b> ‘masons’ (< <b>sòlu</b> ‘masonry’)

<sup>3</sup> Hausa does have a contrast between long and short mid vowels in phrase-final position.

Retention of <b>-d</b> transitizing suffix Hauſa <b>tsai-dà</b> ‘bring to a ſtop’ < <b>tsayà</b> ‘ſtop’ Ngizim <b>řđà-dù</b> ‘bring to a ſtop’ < <b>řđu</b> ‘ſtop’	Replacement of <b>*d</b> transitizer with <b>-t</b> (probably from original verbalizer) Bole <b>’yòr-tu</b> ‘bring to a ſtop’ < <b>’yòru</b> ‘ſtop’
Retention of 2 <sup>nd</sup> feminine pronoun <b>*kVm</b> Hauſa <b>kin</b> (perfective ſubject pronoun) Ngizim <b>k□m</b> independent pronoun	Loss of <b>*-m</b> on all 2 <sup>nd</sup> f. pronouns Bole <b>shi</b> in all functions, differing only in tone and vowel length
Retention of determiner baſes <b>*n</b> (m), <b>*t</b> (f), <b>*k</b> (neutral for gender) Hauſa <b>wa-ni</b> (m), <b>wa-ta</b> (f) ‘someone’; <b>wâ-n-ga</b> , <b>wâ-g-ga</b> ‘this one (m./f.)’ Miya <b>ná-kən mbərgu</b> ‘this ram’, <b>ta-kən</b> <b>təmáku</b> ‘this ewe’; <b>mbərgu ká</b> ‘the ram’, <b>təmáku ka</b> ‘the ewe’	Innovation of <b>m-</b> masculine, loss of <b>*k</b> Bole <b>gam emè</b> ‘this ram’
Base 10 numeral ſyſtem See number table.	Base 5 ſyſtem from 6-10 See number table.

Lexicon is a potentially rich ſource of material for identifying ſhared retentions vs. innovations. However, our current knowledge of reſtructable lexicon at any level is ſo rudimentary that we often cannot yet be ſure whether we are dealing with retentions or innovations. Here is a ſmall liſt of words that reſent clear innovations in Bole-Tangale. I have argued above that **\*s-d-** ‘ſix’ is a retention from Afroaſiatic. ‘Guinea fowl’ and ‘cow’ are widespread enough in Chadic that they muſt be retentions in Hauſa and Weſt-B. For the others, it is not poſſible to ſay whether they are retentions or innovations, though in the caſe of ‘oſtrich’ and ‘*Acacia nilotica*’, which are indigenous to this region and which have three root conſonants, innovation ſeems unlikely.

**Table 2:** Lexical Comparisons of Hausa, Ngizim, and Bole

Hausa	Ngizim	Bole	
<b>shidà</b>	<b>zèdù</b>	<b>bàccimōđi</b> (< “five & one”)	‘six’
<b>gōmà</b>	<b>gūmà</b>	<b>bìmbadī</b> (< “two fives”)	‘ten’
<b>zàbō</b>	<b>zābànu</b>	<b>dũmo</b> (< * <b>dùkùmo</b> )	‘guinea fowl’
<b>sâ</b>	<b>tlà</b>	<b>kòm</b> (< “bull” elsewhere)	‘cow’
<b>jìminā</b>	<b>zèmànu</b>	<b>nonti yāwi</b> “mother of chicken”	‘ostrich’
<b>gàbàruwā</b>	<b>gùvāru</b>	<b>jidimi</b>	‘ <i>Acacia nilotica</i> ’

These criteria from phonology, morphology, and lexicon do indicate that Bole-Tangale (and perhaps West-A) is a genetic group since they must have taken place *within* that group after it branched from its cousins. They do not show Hausa to be part of a sub-group together with West-B, however. They show, at most, that these languages have been conservative in not changing from the ancestral situation.

My conclusion is that Hausa is not a particularly close relative of the languages of West-A. Hausa either forms a group separate from both West-A and West-B, or it may belong to a group composed of Hausa + West-B, or it does still belong within West-A, but, if so, is a very early offshoot, i.e. (a) Hausa, (b) Bole-Angas-Ron.

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### Geography

- provide map of Chadic within Africa and map showing locations of Chadic languages

### External Influences

- Niger-Congo, Kanuri, Fulfulde, Hausa, Arabic, English, French

**Table 3:** Swadesh 100 Word List for Four West Chadic Languages

1 = cognate; 0 = not cognate; 0.5 = possible cognate

Meaning	Hausa	Bole	Bade (W)	Miya	HBo	HBa	HMi	BoBa	BoMi	BaMi
I	nī	inà	ayù	món	1	0	0	0	0	0
thou	kai/kē	kai/shī	agì/agèṃ	fīy/mácə	1	1	1	1	1	1
we	mū	mimmù	ajà/awà	míy	1	0	1	0	1	0
this	-nan	emè/esè	m̄sō	nákən/tákən	0	0	0.5	0.5	0	0
that	-can	amā/asā	m̄sī	náka/táta	0	0	0.5	0.5	0	0
what	mè	lè	-m	mà	0	1	1	0	0	1
who	wà	lò	-y	wà	0	1	1	0	0	1
not	ba	sa	-m < *bai	mà	0	1	1	0	0	1
all	duka	shap	tala	ndyām	0	0	0	0	0	0
many	yawà	gòdoṅ	gàwa	càsə	0	0.5	0	0	0	0
one	ɗaya	mōdī	gàdē	wútə	1	1	0	1	0	0
two	biyu	bòlou	sərən	tsər	1	0	0	0	0	1
big	bàbba	shīrī	gāgarè	gārna/gàrya	0	0	0	0.5	0.5	1
long	ɗōgō	gàraṅ	əvgər	kàrakara	0	0	0	0.5	0.5	0.5
small	kàramī	ɗòle	ɗīndīla	gàbəna / gyàbiya	0	0	0	1	0	0
woman	màcè	mòndù	amán	ʼám	1	1	1	1	1	1
man	mijì	mòjì	m̄sən	jìfana	1	1	0	1	0	0
person	mùtúm	mēmù	m̄dən	səm	1	1	0	1	0	0
fish	kīfī	kerwo	vənàkon	ghèdə	1	0	0	0	0	0
bird	tsuntsū	yàro	ɗīton	wùtlə zhamí	0	0.5	0	0	0	0
dog	kārē	àdà	jan	ʼíy	0	0	0	1	1	1
louse	kwàrkwatà	jànkər	càngàrən	?	0	0	0	1	0	0
tree	bishiyà	rèwe	wakán	dəm	0	0	0	0	0	0
seed	irì	àrè	sadán	vàray	1	0	0	0	0	0

leaf	<b>ganyē</b>	<b>kùmi rewe</b>	<b>aməg dēmān</b>	<b>tlópiy</b>	0	0	0	0	0	0
root	<b>sáiwā</b>	<b>sōrùm</b>	<b>haron</b>	<b>tlèrwan</b>	1	0	1	0	1	1
bark	<b>ḡawō</b>	<b>boi rewe</b>	<b>ətlkwàkwàrān</b>	<b>gədlambáy</b>	0.5	0	0	0	0	0
skin	<b>fātà</b>	<b>ḡishi</b>	<b>almán</b>	<b>pèler</b>	0	0	0	0	0	0
flesh	<b>nāmà</b>	<b>lò</b>	<b>sàsān</b>	<b>tlìwi</b>	0	0	0	0	1	0
blood	<b>jinī</b>	<b>dòm</b>	<b>tədəmən</b>	<b>pəram</b>	0.5	0.5	0	1	0	0
bone	<b>kāshī</b>	<b>òsoki</b>	<b>sīlān</b>	<b>kúsíy</b>	1	0	1	0	1	0
egg	<b>kʷai</b>	<b>ḡinsa</b>	<b>àgwen</b>	<b>átúw</b>	0	1	0	0	0.5	0
oil	<b>mái</b>	<b>mòr</b>	<b>məlān</b>	<b>shùw</b>	1	1	0	1	0	0
horn	<b>kāhō</b>	<b>ḡolum</b>	<b>fùwān</b>	<b>ápar</b>	0	0.5	0	0	0	0
tail	<b>wútsiyà</b>	<b>pàtā</b>	<b>ùktərən</b>	<b>sàw</b>	0	0	0	0	0	0
(feather)										
wing	<b>fiffikè</b>	<b>mǎ</b>	<b>gaptón</b>	<b>pàkə</b>	0	0	1	0	0	0
hair	<b>gāshī</b>	<b>sòwwò</b>	<b>ḡacən</b>	<b>ágəzhi</b>	0	0	1	0	0	0
head	<b>kái</b>	<b>kòyi</b>	<b>adán</b>	<b>ghàm</b>	1	0	0.5	0	0.5	0
ear	<b>kúnnē</b>	<b>kùmo</b>	<b>gútān</b>	<b>kúmáy</b>	1	0	1	0	1	0
eye	<b>idò</b>	<b>ìdo</b>	<b>dan</b>	<b>átíy</b>	1	1	1	1	1	1
nose	<b>hancì</b>	<b>wùnti</b>	<b>ətlkənən</b>	<b>átím</b>	1	0	1	0	1	0
mouth	<b>bàki</b>	<b>bò</b>	<b>mnyān</b>	<b>vən</b>	1	0.5	1	0.5	0.5	0.5
tooth	<b>haḡōrī</b>	<b>ùdo</b>	<b>nyānyin</b>	<b>tíyin</b>	0	0	0	0	0	0
tongue	<b>halshè</b>	<b>lisim</b>	<b>mərənnyən</b>	<b>shínákə</b>	1	0	0	0	0	0
(claw) nail	<b>farcè</b>	<b>kùrùm</b>	<b>tləbàrən</b>	<b>kwángwíy</b>	0	0.5	0	0	0	0
foot	<b>kafà</b>	<b>shèkè</b>	<b>əzgərən</b>	<b>tsəmáy</b>	0	0	0	0	0	0
knee	<b>gwíwà</b>	<b>bùrùm</b>	<b>adákfān</b>	<b>wùrum</b>	0.5	0	0.5	0	1	0
hand	<b>hannū</b>	<b>sàra</b>	<b>amón</b>	<b>kóm</b>	0	1	0	0	0	0
belly	<b>cikì</b>	<b>àwo</b>	<b>kùnān</b>	<b>vùw</b>	0	0	0	0	0.5	0
neck	<b>wuyà</b>	<b>ḡidò</b>	<b>ūrān</b>	<b>wìr</b>	0	1	1	0	0	1
breast	<b>nōnò</b>	<b>wòḡi</b>	<b>fəfon</b>	<b>ápíy</b>	0	0	0	0	0	1
heart	<b>zūciyā</b>	<b>tìlo</b>	<b>kazān</b>	<b>cánhə</b>	0	0.5	0	0	0	0
liver	<b>hantà</b>	<b>rùbùso</b>	<b>ànàvùwān</b>	<b>sày</b>	0	0	0	0	0	0

drink	shā	sa-	so	sa	1	1	1	1	1	1
eat	ci	tī-	to	ta	1	1	1	1	1	1
bite	cìzâ	odu-	hàdu	kiy	0	0	0	1	0	1
see	ganī	innā-	ìko	nay	0.5	0	0.5	0	1	0
hear	ji	kùmā-	dùkwu	dəkay	0	0	0	0	0	1
know	sanì	monu-	əzgo	sən	0	0	1	0	0	0
sleep	barcī	njèlè	ìwànən	sónáw	0	0	0	0	0	0
die	mutù	motu-	mətu	miy	1	1	1	1	1	1
kill	kashè	duwu-	ətku	tiy	0	0	0	1	0.5	0.5
sub-merge	nitsè	nzonu-	ɔ̀amu	nətsay	0	0.5	1	0	0	0
(fly) descend	sàuka	yàwwu-	əzdàvu	daw	0	0	0	0	0	0
walk	tàfi	mècece	ràkənu	átívi	0	0	1	0	0	0
come/go	zō/jē	ndī-	ju/dàwo	ba/buw	1	1	0	1	0	0
lie	kwântā	gàndu-	vàdu	piya	0.5	0	0	0	0	0.5
sit	zaunà	ɔ̀owu-	jlàwu	tsəga	0	0	0	0	1	0
stand	tāshì	ìndu-	tlo	tla	0	0	0	0	0	1
give	bayař	onu-	bàru	tša	0	1	0	0	0	0
say	fàɔ̀a	poru-	əlhu	ɔ̀ənga	0.5	0	0	0	0	0
sun	rānā	pòti	afán	mùku	0	0	0	1	0	0
moon	watā	tère	təlān	tìr	0	0	0	1	1	1
star	tàurārò	jānjā	səsakon	ášúwashúw	0	0	0	0	0	1
water	ruwā	àmma	āmón	ábíy	0	0	0	1	1	1
rainy season	ɔ̀aminā	puzò	dəmànən	wàshasham	0	1	0	0	0	0
stone	ɔ̀utsè	gùsho	bənyin	zəkíy	0	0	0	0	0	0
sand	yāshì	yàyà	aíson	wəhə	0.5	1	0	0.5	0	0
earth	kasā	òli	ɔ̀əhan	mədzay	0.5	0	0	0	0	0
cloud	gīrgijè	kèbe	gàràwan	áləpən	0	0	0	0	0	0
smoke	hayakī	òlloki	zàkwān	kyánúw	1	0	0	0	0	0
fire	wutā	wòsi	akán	ákúw	0	0	0	1	1	1

ash	tòkā	bùto	pəbətən	pəliy	0	0	0	1	0	0
burn	kōnè	bòkku-	əstu	tsiy	0	0	0	0	0	0.5
path	hanyà	gòggò	əbdàmən	dàrhə	0	0	0	0	0	0
hill	tudù	guzàra	əḏgwàrən	ḏàʔ	0	0	0	0	0	0.5
red	jā	dài	buwa	mbìyna / mbìyya	1	0	0	0	0	1
green	kōrè	bìbiyè kùshi	tlarta	?	0	0	0	0	0	0
yellow	ràwayà	bulbùl	?	?	0	0	0	0	0	0
white	farī	pètilà	hēta	pyòna/pyḏya	1	1	1	1	1	1
black	bakī	bù'ùm	pəlka	rìinna/rìynya	0.5	0	0	0	0	0
night	darē	bòḏfī	əgvìḏən	cámázə	0	0	0	1	0	0
hot	zāfī	kumēshi	bìtla	zāfiy	0	0	1	0	0	0
cold	sanyī	njùrùl	layán	ràḏyadī	0	0	0	0	0	0
old	tsōhō	mànshi	gagàra	ghar 'grow old'	0	0	0	0	0	1
good	kyāu	goḡ	ḏàva	ámbán	0	0	0	0	0	0
new	sābō	pōyo	hərà	sābō	0	0	1	0	0	0
wet	jìka	mòkitu-	gwàḑu	rafə	0	0	0	0	0	0
dry	būshè	pò''u-	həḏàwu	tsəfə	0	0	0	0.5	0.5	0.5
name	sūnā	sun	mḏən	ngən	1	0	0	0	0	0
% shared					31.5	25	26.5	27.5	24	28.5
					<b>HBo</b>	<b>HBa</b>	<b>HMi</b>	<b>BoBa</b>	<b>BoMi</b>	<b>BaMi</b>



### 3 | Segmental Phonology

#### 1. Consonants

Here is a schematic table of consonants widely found in Chadic languages. Many, but by no means all, are reconstructable for Proto-Chadic. No Chadic language has all these consonants, but every language has a large subset of these. The symbols, which for the most part represent the transcriptions that I will use in this book, are an amalgam of symbols standardly used for Chadic languages with some (IPA) symbols.

**Table 1:** Consonants in Chadic languages

	BILABIAL	LABIODENTAL	ALVEOLAR	LATERAL	(ALVEO) PALATAL	VELAR	PALATALIZED VELAR	LABIALIZED VELAR	GLOTTAL
PLAIN STOP	p b		t d			k g	k <sup>y</sup> g <sup>y</sup>	k <sup>w</sup> g <sup>w</sup>	' [ʔ]
IMPLOSIVE STOP	ɓ		ɗ		ɗ <sup>y</sup> ~ 'y	ɡ			
EJECTIVE STOP					ts'	k̰	k̰ <sup>y</sup>	k̰ <sup>w</sup>	
AFFRICATE			ts dz		c j				
FRICATIVE	[ɸ]	f v	s z	ɬ ɮ	sh zh	x ɣ	x <sup>y</sup> ɣ <sup>y</sup>	x <sup>w</sup> ɣ <sup>w</sup>	h
NASAL	m		n		ny	ŋ			
PRENASALIZED	mb		nd nz		nj	ŋg			
SONORANT			r ɾ	l					
GLIDE	w				y			(w)	

### 1.1. Labial and labiodental non-implosive obstruents

Table 1 above shows five surface forms: [p, b,  $\phi$ , f, v]. There are basically two kinds of languages:

**Table 2:** Labial contrasts

Two labial obstruents: p ~ f/ $\phi$ , b	Four labial obstruents: p, b, f, v
West: – Hausa – Bole-Tangale	West: – all West-B (including S. Bauchi)
East: – most (?) East-A – East-B	– Ron – Angas-Goemai
	Central: – all Central-A – most (all ?) Central-B
	Masa: – all Masa languages

In West languages with two labial obstruents, the voiceless is either [p] or [ $\phi$ ], the latter usually written “f” in orthographies and writings on the languages. The same may be true for East languages, but I have never heard these languages spoken to verify this. On the other hand, languages that have both /f/ and /v/ in their phonological inventories seem always to realize these as true labiodentals. Thus, orthographic **f** in Hausa (a two-labial language) and **f** in Ngizim (a four-labial language) represent distinct sounds.

The obvious question is which of these systems, or perhaps a different system, is reconstructable for Proto-Chadic. Newman (1977:9, 10) suggests that “\*p and \*f were probably distinct phonemes in PC [Proto-Chadic]” whereas “PC probably did not distinguish \*b from \*v”. On the other hand, Jungraithmayr and Ibriszimow (1994:xx) reconstruct only \*p and \*b in their correspondence table. A broad picture within and outside Chadic suggests reconstructing a system of two labial obstruents: a voiceless \*p (which could be pronounced [f] or [ $\phi$ ]) and a voiced \*b. The two-obstruent system is found in both West and East Chadic. These languages are the most distantly related in the family, and they are geographically remote from each other, ruling out areal spread. It would be a remarkable convergence for a four obstruent system to completely lose the

voiced fricative and to merge the voiceless labials such that the descendant languages have either [p] or [ɸ], but not both.<sup>1</sup> Moreover, Berber and Semitic languages have a two-obstruent system for labials, suggesting that Chadic probably inherited this system from proto-Afroasiatic.<sup>2</sup>

Reconstructing this system, however, imposes the burden of accounting for the four-obstruent system, presumably through conditioned splits. This is not easy to do. Languages with four obstruent systems have minimal sets contrasting the voiced and voiceless obstruents in apparently native words.

Ngizim (West):	<b>pɛ̃ɗu</b> ‘conceal oneself’	<b>fɛ̃ɗu</b> ‘four’
	<b>bǎu</b> ‘get, receive’	<b>vǎu</b> ‘shoot’
Gude (Central):	<b>pan</b> ‘fight’	<b>fan</b> ‘listen’
	<b>bàna</b> ‘tell’	<b>vàna</b> ‘catch in the air’

Examples such as these make a conditioned split hard to support, at least with current knowledge of the languages and their histories. Consider also the following comparative data:

	BOLE (West, /p, b/)	DUWAI (West, /p, f, b, v/)	BURA (Central, /p, f, b, v/)	MUSEY (Masa, /p, f, b, v/)
white	<b>pètilà</b>	<b>pēt</b>	<b>mwa-pù</b>	
four	<b>pòɗɗo</b>	<b>fɛ̃ɗù</b>	<b>m-fwar</b>	
ashes	<b>bùto</b>	<b>bə̃but</b>		<b>bùt-nà</b>
five	<b>bàɗî</b>	<b>vàɗ</b>		<b>vàtl</b>

<sup>1</sup> Some languages have both in complementary distribution, e.g. [ɸ] prevocally and [p] in syllable codas. Some languages, e.g. Hausa, vary between [ɸ], [h<sup>w</sup>], or even [h] depending on the following vowel.

<sup>2</sup> Kanuri, which is not Afroasiatic, also has a /ɸ/ ~ /b/ system, suggesting that this may be an ancient and very broad areal feature.

In these correspondence sets, there is a one-to-many correspondence between Bole and the compared languages (**p** to **p** ~ **f** and **b** to **b** ~ **v**). Applying standard historical linguistic methodology, the correspondences would have to be accounted for by mergers of **\*p** and **\*f** to **p** and **\*b** and **\*v** to **b** in Bole.

Having presented this evidence that, in principle, would support a reconstruction with four labial obstruents, I do not believe that the ancestors of Bole and Hausa spoke such a language. I am confident that Proto-Chadic is reconstructable with a system of two labial obstruents, inherited from its Afroasiatic ancestor and still found in Bole, Hausa, Mubi, and many others.<sup>3</sup> This Proto-Chadic reconstruction, however, is essentially irrelevant in accounting for the large number of genetically diverse languages that have a system of four labial obstruents. Four-obstruent systems are not a recent overlay. They date back many centuries if not millennia and have been inherited as such in the modern languages. They developed over eons through repeated weakenings (stop > fricative), strengthenings (fricative > stop), devoicings (**\*b** > **p**), and voicings (**\*f** > **v**), as regular conditioned sound changes or sporadic changes in individual items. These types of changes continue to this day. This tangled evolution makes it futile—probably impossible—to reconstruct anything but a system of four labial obstruents for any of the Chadic subgroups that have them.

## 1.2. Back fricatives

The fricatives **x**, **ɣ**, **h**, **ħ** and their palatalized and labialized counterparts are absent in many languages. In languages that have them, they tend to be lightly fricativized. There may be no languages that have both velars (**x**, **ɣ**) and laryngeals (**h**, **ħ**) since the

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<sup>3</sup> Greenberg (1958) used Chadic data to propose at least an **\*/f/** vs. **\*/p/** distinction in proto-Afroasiatic. Egyptian was known to have this contrast, but it was a matter of dispute as to whether this was the result of a split of **\*p** > **f** ~ **p** in Egyptian, or a merger of **\*f** & **\*p** > **f/p** in Semitic. Greenberg cited data from the Angas-Goemai group in Chadic (discussed below) to argue for the merger hypothesis. He did not mention the fact that the same language group would provide evidence for a contrast of **\*b** vs. **\*v**, a merger in voiced labials in Semitic and other Afroasiatic languages as well!

laryngeals derive historically from weakening of the velars.<sup>4</sup> True velars are exclusively found in Central Branch languages, e.g. Margi **xəm** ‘crocodile’, **ɣəm** ‘wife’s brother’, Tera **xəri** ‘philander’, **ɣəri** ‘spill accidentally’, Logone **xule** ‘child’, **ɣuli** ‘dum palm’. Most West Chadic languages have lost a back fricative distinction completely. Some West-B languages that retain it have **h** vs. **ɦ** or a very lightly fricativized **ɣ**, e.g. Western Bade **hàayàkon** ‘jujube’ (< \***xw/y**, cf. Bole **aawe**), **ərbàɦu** ‘cave in’ (< \***rg-**, with metathesis in Bade, cf. Bole **rùgùzu**, Hausa **ruushèe** < \***rugshe**).<sup>5</sup> These have further weakened to glides in Duwai (**wiyo** ‘jujube’, **ərbwiyo** ‘cave in’); but reversing the historical trend, Gashua Bade has strengthened most native laryngeals to stops (**kàayàkon** ‘jujube’, **əlbàgu** ‘cave in’).

### 1.3. Implosives and ejectives

All Chadic languages have the implosives **ɓ**, **ɗ** as part of their consonant inventory. Many languages have a third glottalized sound in the palatal region, whose pronunciation varies from language to language, e.g. **ɗy** or **’y** or **c’**. Correspondence sets such as the following show minimally the need to reconstruct a set of glottalized sounds at three places of articulation. Hausa “**ts**”, which is typically pronounced as an ejective alveolar, either fricative [s’] or affricate [ts’], or dialectally in some words as an alveopalatal affricate [c’], e.g. **c’àdā** ‘expensive’, occupies the palatal position.<sup>6</sup>

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<sup>4</sup> The phoneme /**h**/ is fairly common throughout Chadic, but a majority of the tokens of /**h**/ across languages are in loanwords, typically from Arabic (directly or via another language), e.g. Hausa **halii**, Bole **halì**, Ngizim **hâl**, Podoko **hala**, Logone **hal**, Dangaleat **hale**, all ultimately from Arabic meaning something like ‘character, temperament’. The historical development of /**h**/ in native Hausa words by internal phonological processes is described in Newman (1976).

<sup>5</sup> [Editor’s Note: In Chadic studies vowel length is sometimes indicated by a macron, e.g. **ā**, sometimes by double letters, e.g. **aa**. In his working draft of the book, Schuh has used both conventions, one system, sometimes being employed, other times the other. Since the intention is always obvious, examples have been left as is with no attempt to standardize the transcriptions.]

<sup>6</sup> Hausa also has a glottalized palatal **’y**, which can be ignored for our purposes here. This resulted from a recent contraction of the root **ɗiy-** ‘offspring’ and is found only in words based on this root, such as **’yā**

**Table 3:** Glottalized consonants in West Chadic

	LABIAL		ALVEOLAR		PALATAL	
Hausa	<b>habà</b>	chin	<b>dācī</b>	bitter	<b>ts'intsiyā</b>	broom
Ngizim	<b>bām</b>	mandible	<b>dəgwāgwāk</b>		<b>'yuwā</b>	
Hausa	<b>bārè</b>	break off	<b>dākì</b>	hut	<b>ts'ayà</b>	stop
Bole	<b>bolu</b>	break	<b>dīkku</b>	thatch	<b>'yuru</b>	

A few Chadic languages also have a glottalized consonant in velar position, i.e. have glottalized sounds at four places of articulation. Tera has four implosives: **ɓ** as in **boxom** 'beard', **ɗ** as in **diki** 'bird', **ɗy/'y** as in **ɗyim** 'water', and **ɠ** as in **ɠəl** 'bone'. Aside from Tera, languages with a glottalized velar have an ejective **k** rather than an implosive,<sup>7</sup> e.g. the West Branch languages Hausa **kàshī** 'bone', Warji **kāsùna** 'bone'— the Tera word **ɠəl** being cognate! — and the Central Branch language Logone **kalage** 'catfish'.

Whereas all Chadic languages have implosive consonants,<sup>8</sup> ejectives are found only in Hausa, in some of the languages of the North Bauchi group of West-B, in Goemai of the Angas-Goemai group of West-A, and in a few languages, e.g. Kotoko, in Central-B. For Hausa we have seen examples of the alveolar affricate **ts** (often realized as a fricative [s']) and, also dialectally, in some words as an alveopalatal affricate [c'], e.g. **c'ādā** 'expensive') and the velar **k**. Warji and some other North Bauchi languages have a full set of ejectives: /p'/ (**p'əlīna** 'ashes'), /t'/ (**t'əghai** 'body'), /ts'/ (**ts'əpərai** 'urine' (cf. Hausa **fitsārī**, where one of the languages has metathesized)), a lateral affricate /l'/

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'daughter' < **dīyā** (still extant in some dialects), **'yāntā** 'liberate' (changing the status of a slave to the equivalent of a son), and a few others.

<sup>7</sup> Greenberg (1970) documents a tendency among languages with glottalized consonants for those formed in the front of the oral cavity to be implosives, those in the back to be ejectives.

<sup>8</sup> Gwandara, a creolized offshoot of Hausa, is an exception: it has no glottalized consonants.

(**ɩ'aparai** ‘bark (of a tree)'), and /k/ (**kāsùna** ‘bone’). The sounds **p'** and **t'** must be innovative. Like all other Chadic languages, Warji has **ɓ** and **ɗ**, and it is highly unusual, but not unheard of, for languages to have both ejectives and implosives at the same place of articulation.

Logone, a member of the Kotoko group in Central-B, has **k** as in **kɔla** ‘calabash’ (which would appear to be cognate with Hausa **kwaryā**), ejective **s'** as in **s'ɔfu** ‘suck’, and lateral ejective **ɬ'** as in **ɬ'əm** ‘send’. Logone also has implosive **ɓ** and **ɗ**. Like Hausa, but unlike Warji, the Logone implosives and ejectives are in complementary distribution by place of articulation. The fact that three otherwise genetically distant languages (or better, language groups) have almost identical systems of glottalized consonants suggests that a system something like this should be reconstructed, but this has not been confirmed with good correspondence sets.

As noted above, one further language has a series of ejectives, viz. Goemai of the Angas-Goemai group. The most thorough documentation of comparative phonology involving this group is Hoffmann (1975), an important paper that, unfortunately, was never published. The Angas-Goemai languages, a fairly closely related group, have all devoiced original voiced obstruents, resulting in neutralization of an original voiceless vs. voiced distinction in most of the languages, as in Sura **pas** ‘rainy season’ (cf. Bole **puzò**), **pàt** ‘five’ (cf. Bole **bàɗi**). However, in Goemai, neutralization has not taken place. Original voiceless obstruents, both stops and fricatives, are ejective (as reported in Greenberg (1958) and Hoffmann (1975)) or unaspirated voiceless (as described in Hellwig (2011)), whereas original voiced obstruents are aspirated voiceless.<sup>9</sup> The Goemai situation can be described in a two-stage scenario whereby, first, the original voiceless sounds became ejectives, and second, the original voiced sounds were devoiced,

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<sup>9</sup> Since Greenberg (1958) and Hoffmann (1975) independently described the sounds as ejectives, we can assume that at the time they studied these languages in the mid-20<sup>th</sup> century, they were phonetic ejectives. Hellwig (2011), working about two generations later describes them as voiceless unaspirated, suggesting that de-ejectivization is a recent change, and indeed, Hellwig described the velar as being realized as [k̚] or [k] in free variation. Greenberg and Hoffmann do not mention aspiration in the series deriving from original voiced sounds, but since across Chadic, stops are aspirated much as in English or German, this probably seemed insignificant.

with aspiration typical of Chadic languages in general for voiceless obstruents (at least the stops). In the examples below, representing the presumed historical changes in Goemai, “P” stands for any voiceless obstruent, “B” for any voiced obstruent.

- (1) \*P > P'    \***pas** > **p'às** > **pàs** ‘rainy season’    cf. Bole **puzò**, Sura **pas**  
                   \***fər** > **f'ár** > **fár** ‘four’                    cf. Bole **pòdfo**, Sura **fér**  
                   \***taar** > **t'áar** > **táar** ‘moon’                cf. Bole **tère**, Sura **tár**  
                   \***səm** > **s'ám** > **sám** ‘name’                    cf. Bole **sun**, Sura **súm**  
                   \***kun** > **k'ún**    **kún** ‘three’                    cf. Bole **kunnùm**, Sura **kún**
- (2) \*B > P<sup>h</sup>    \***bat** > **pat** [p<sup>h</sup>at] ‘five’                cf. Bole **bàdī**, Sura **pàt**  
                   \***vin** > **fín** [f<sup>h</sup>ín] ‘grinding stone’            cf. Bole **bìni**, Sura **fin**  
                   \***du** > **tu** [t<sup>h</sup>u] ‘pound’                        cf. Bole **duwu**, Sura **tu**  
                   \***zək** > **sák** [s<sup>h</sup>ák] ‘body’                    cf. Bole **zìwò**, Angas **shək**  
                   \***guŋ** > **kuŋ** [k<sup>h</sup>uŋ] ‘leopard’                cf. Bole **gùngu**, Kofyar **kung**

Normal historical methodology would say that the change in (2) is a single shared sound change across all the Angas-Goemai languages, but in order for this change to have not resulted in a merger of \*P and \*B across the group, the ejectives of voiceless sounds would have had to take place earlier, i.e. the entire Angas-Goemai group would have had a period with ejectives contrasting with voiceless. Subsequently all these languages except Goemai would have lost ejectives (with the merger observed today in languages like Sura), but the languages that putatively de-ejectives do not form a genetic subgroup nor are they geographically contiguous. Ejectives in Goemai must be a low-level innovation, confined to the Angas-Goemai group, but the historical puzzle just laid out remains unsolved.

#### 1.4. Glottal stop

It is unlikely that glottal stop (indicated by /ʔ/) was in the Proto-Chadic phoneme inventory. Medial glottal stops are not common in Chadic languages. Languages of the Bade/Ngizim group (I.B.1) have no medial glottal stops. Many languages of the Central Branch also seem to lack them, e.g. Mofu, Podoko, and others. In Hausa (I.A.1),



virtually all medial glottal stops are in loanwords from Arabic, e.g. **àddu'aa** 'prayer', **mà'anaa** 'meaning'. The same is true in Mubi (III.B.1.b), where Jungraithmayr (2013) identifies nearly all words with medial glottal stops as likely Arabic loans, e.g. **ki'éèp** 'sickle', **ràbà'iyè** 'young woman'.

Bole (I.A.2.a) has numerous words with medial glottal stops, but with only a couple of exceptions, the glottal stop is geminate and is either a loan from Hausa containing **k** (**ò''ori** 'effort' < Hausa **kòokarii**, **sa''à** 'weaving' < Hausa **saakàa**)<sup>10</sup> or is a reduction of /'y/ before a front vowel, often with a variant preserving the original sound (**sò''e** 'fool', **be''i** 'without fail'). On the other hand, most Arabic loanwords that have been borrowed into Hausa with glottal stops do not have glottal stops in Bole, e.g. **àduwà** 'prayer', **màana** 'meaning'.<sup>11</sup> Phonetic glottal stops are fairly common in Margi (II.A.2), but according to Hoffmann (1963:22), they all come from /'w/ before **u** or /'y/ before **i**, e.g. **u'ù** /**u'wù**/ 'fire', **vi'ì** /**vi'yì**/ 'night'. Similar reduction/contraction of glottalized sounds may account for medial glottal stops in Miya (I.B.2.a), which are fairly common, but the historical source of the glottal stop is not always known: **hà'ar** 'fat on meat' (cf. Bole **shìdfor**), **nà'ə** 'bush duiker' (source unknown).

Most sources do not mark or comment on final glottal stop. In Hausa, words with final short vowels are automatically terminated with a glottal stop, e.g. **daama** [daama'] 'right hand' vs. **daamaa** [daamaa] 'opportunity' (R. M. Newman and van Heuven 1981). Similarly, in Bole, where all nouns end in short vowels, citation forms are terminated with a glottal stop. Medial in phrases, however, this glottal stop is absent. Ron-Bokkos, which does not seem to have root-medial glottal stops, has word final glottal stops in contrast with their absence, e.g. **fo** 'mouth' vs. **fò** 'fonio'.

It is safe to say that no Chadic language contrasts initial glottal stop with its absence. However, languages differ as to whether they pronounce glottal stops at the beginnings of words that would otherwise be vowel initial. Some writers on Chadic languages routinely write all such words with an initial glottal stop, but this is misleading, if not outright wrong. Lukas (1970-72, 1971) transcribes Bole with initial glottal stops before

<sup>10</sup> In the Guddiri dialect of Hausa, which is the main dialect used in the area where Bole is spoken, standard Hausa **k** has been changed to a glottal stop.

<sup>11</sup> It is likely that such words came into Bole through Kanuri, which does not have glottal stops.

vowels, and indeed, phrase medially, these glottal stops are pronounced, e.g. **an aaru** [aŋ ʼaaru] ‘singer’. Lukas (1974/75) transcribes glottal stops similarly in Bade, but in this case it is phonologically and phonetically incorrect. Phrase medially, when vowels would be in hiatus, the result is a single vowel nucleus, i.e. one of the vowels is elided or the vowels coalesce, e.g. /**aci gâfa âgwren**/ → [aci gâfâgwren] ‘he caught a hare’, /**dâ masi ûgdaan**/ → [dâ masûgdaan] ‘that he buy a gourd’. Another drawback in transcribing all words with initial glottal stops in the absence of another consonant is the implication that glottal stop has the same phonological status as all other consonants. As discussed above, however, there are probably no Chadic languages where this is the case. In non-initial environments, some languages have no glottal stops at all (Bade/Ngizim and many Central Branch languages); glottal stops may be predictable variants of other phonemes (Margi); or glottal stops may be largely restricted to loanwords (Hausa, Mubi). In this latter case, we must say that glottal stop is, indeed, contrastive with other consonants, but to transcribe *all* otherwise vowel initial words, native and non-native, with initial glottal stops masks the rather special status of medial glottal stops.

### 1.5. Rhotics

The presence in Hausa of two rhotics ([ɽ] and [r]) is well-known. The standard orthography represents both by “r”, but careful linguistic studies usually mark the distinction in some way or other. The sound [ɽ] is a retroflex flap, the sound [r] is a trill or roll, which can be pronounced as a single tap. Bargery (1934:xxi-xxiii) describes the sounds vividly and accurately:

“There are two quite distinct sounds of **r** in Hausa. There is the ordinary rolled or trilled **r** so easily pronounced by Scots and Irish people. The other **r** is a one-tap or flapped **r** which has a very l-like sound, being produced by raising the tip of the tongue and curling it back until it has reached a point considerably farther back than is the case when the letter **l** is to be pronounced. The tongue is then brought down sharply without vibration against the teeth-ridge.”<sup>12</sup>

<sup>12</sup> Not mentioned by Bargery is a distinction between the two in gemination. In [fâhârarrē] ‘famous’, the geminate [r] is produced with a strong trill. In [fâɽaɽē] ‘swept’, the tongue is held several milliseconds in a retroflex position, producing a vowel-like sonorant, before completing the flap.

Bargery transcribed the retroflex flap as **ɾ** and the tap/trill as **r**. Standard practice in modern studies is to transcribe [ɾ] as unmarked **r**, since it is the one found in syllable-initial position in native words, and to transcribe [r] as **ɾ̄**. I will follow this practice.

The definitive work on Hausa rhotics is Newman (1980b), who demonstrates that, contrary to claims by numerous previous writers, the two sounds comprise a contrastive pair with (a) complementarity limited to specific syllable final contexts and (b) little variation as to which rhotic is used, either across vocabulary items or across speakers. Comparative information not available to Newman at the time demonstrates that Hausa inherited its system of two rhotics, certainly from its proto-West Chadic ancestor and probably from its Proto-Chadic ancestor.

Briefly summarizing Newman’s description for Hausa, (1) both rhotics can occur before vowels, both word-initially and intervocalic; (2) both rhotics can occur before all consonants except **t, d, ɗ, n**, where only **ɾ̄** is found;<sup>13</sup> (3) only **ɾ̄** is found word final. Most tokens of **ɾ̄** in environment (1) are in known or suspected loanwords or in phonaestemes such as ideophones and interjections. Tokens of rolled **ɾ̄** in environment (2) also occur commonly in loanwords, etc., but many of them are native words where the syllable-final rolled **ɾ̄** is due to rhotacization of an alveolar obstruent in accordance with “Klingenheben’s Law” or Newman’s “Law of Codas in Reduplication” (see Newman 2004). This description applies in all but a couple of details to Duwai and Ngizim, languages of the West-B branch that are genetically distant from Hausa and geographically distant from the original Hausa homeland. The tables below compare Ngizim and Hausa.

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<sup>13</sup> In terms of standard features used in generative phonology, this is just the class of [+coronal, +anterior, -continuant] phonemes. Newman notes that for some speakers flap **r** may be retained before /t/ if a morpheme break intervenes, e.g. , **kuturū** ‘leper’, **kuturtā** ‘leprosy’, not the expected \***kutur̄tā**.

**Table 4:** Environments for /r/

	NGIZIM		HAUSA	
/ __ V	<b>r̀ə̀ptu</b>	open	<b>ruf̀è</b>	close
	<b>k̀ə̀ru</b>	steal	<b>bar̀à</b>	servant
/ __ C	<b>tarwà</b>	termites	<b>k̀urwà</b>	soul, ghost
	<b>t̀arku</b>	orphan	<b>sark̀i</b>	emir, king
/ __ #	<b>z̀ə̀gər</b>	foot	-----	
	<b>sh̀ar</b>	plain <i>tuwo</i> <sup>14</sup>		

**Table 5:** Environments for /r̃/

	NGIZIM		HAUSA	
/ __ V	<b>r̃ə̀ptu</b>	fold (< Kanuri)	<b>r̃ub̀ut̀a</b>	write (< Kanuri)
	<b>k̀ə̀r̃u</b>	moreover (< Kanuri)	<b>bar̀ã</b>	alms-seeking
/ __ C	<b>dər̃wà</b>	black & white dog (widespread loan)	<b>d̀ur̃wà</b>	black & white dog (cf. Ngizim)
	<b>tar̃wà</b>	obstacle (< Kanuri)	<b>ãr̃b̀a'ın</b>	forty (< Arabic)
	<b>bər̃k̀u</b>	complaint (< Kanuri)	<b>bar̃k̀a</b>	blessing (< Arabic)
/ __ #	<b>z̀ə̀gãr̃</b>	north	<b>b̀iyãr̃</b>	five
/ __ t, d, ḍ, n	<b>l̃aẁur̃tu</b> <sup>15</sup>	become angry	<b>g̀aẁur̃t̀a</b>	become great
*r / __ t, d, ḍ, n	<b>mar̃d̀u</b>	millet	<b>mur̃d̀è</b>	twist
tə, də __	<b>tər̃a</b>	moon	cf. <b>tir̀ã</b>	dye (non-indigo)
*tər, dər	<b>dər̃au</b>	wait for	cf. <b>dur̀um̃i</b>	type of <i>Ficus</i>
	<b>dər̃g̀ə̀zu</b>	squash (insect, etc.)	cf. <b>d̀ur̃k̀us̀o</b>	kneeling

<sup>14</sup> *Tuwo* is the Hausa term for the the staple food dish, typically eaten with *miya* ‘sauce’.

<sup>15</sup> This word is derived from a noun **l̃awura** ‘anger’, with a flapped r. The trill is conditioned by the t suffix.

Phonaesthemes	<b>řel</b>	very sweet	<b>řuf</b>	well-closed <sup>16</sup>
	<b>kuřus</b>	burned up	<b>fařat</b>	all at once

Essentially the only differences between the distribution of rhotics in these languages are in word final position (environment (3) in the summary from Newman above) and in **tə, də**\_\_\_, where Ngizim allows only **ř**. Ngizim has both rhotics word finally; Hausa has only **ř**. The historical reasons for this are the following. In Hausa, **\*r > y / \_\_\_#**, as in **\*mar > mair** ‘oil’ (cf. Bole **mòr**), **\*kitsar > \*kitsai > kitsè** ‘suet’ (cf. Bole **shìdor**). All instances of word final **ř** in modern Hausa are in loans or phonaesthemes, or they are the result of that element of Klingenberg’s Law effecting the change **\*T > ř / \_\_\_]SYLLABLE** (“T” = any [+coronal] obstruent), e.g. **\*biyad > biyař** ‘five’ (cf. Ngizim **vàd**). As for the Ngizim restriction against **r** in **tə, də**\_\_\_, this may be an innovation in Ngizim because of the articulatory difficulty of moving from an alveolar stop to the retroflex tongue position across the “light” ə vowel. One might expect this constraint to hold in **də**\_\_\_ and **nə**\_\_\_ as well, but there are no words in current Ngizim data with these configurations. The constraint holds for most words in Ngizim, both where the rhotic is intervocalic and preconsonantal, but there are a few exceptions, e.g. **tərku** ‘orphan’ seen in the table above and its derivatives, such as **təràkùna** ‘orphanhood’. Hausa also has some apparently native words with **ř** in this environment that do not conform to the general distributional properties for this sound, e.g. **diřa** ‘swoop down’ (for which Bargery gives **dira** as an alternative), **duřwa** ‘drawing cloth between the legs’, **duřgū** ‘short-legged person’, and a few others.

In my opinion, there is no question that two rhotics must be reconstructed for West Chadic. This distinction is found in Hausa, Bade/Ngizim, and Ron (Jungraithmayr 1970b), which represent three of the most genetically distant groups in West Chadic and languages that have not had intensive contact with each other until recently. Moreover, it would defy credibility to believe that the identical set of distributional properties of the rhotics seen in Hausa and Ngizim could have arisen through convergence.

<sup>16</sup> The related verb **rufè** has the flap /r/.

I would further propose that a system of two rhotics can be reconstructed for Proto-Chadic. Outside of West Chadic, Jungrauthmayr (1992) documents a rhotic distinction for Migama (III.B.1.a) (**ròoyò** ‘be in a spat’ vs. **ròocò** ‘whip’), and Ebobissé (1979:16) documents a roll/flap distinction for East Dangaleat, giving minimal pairs such as **éré** ‘wait’ vs. **éřé** ‘burn’ and pointing out that the distinction is not found in West Dangaleat. Jungrauthmayr (1978b) distinguishes two rhotics for Sibine/Somrai (III.A.1), and though he does not provide an articulatory distinction, a suffix with variants represented **-l̥/-řl̥** ‘in’ suggests a phonetic similarity between “l̥” and “ř” (see discussion below).

No Central Chadic language has the distinction as far as I know, but there is good evidence that it can be reconstructed for that branch as well as the Masa Branch. Many Central and Masa languages have **l** in items that are cognate with West Chadic items that have a rhotic. On the other hand, languages of the Tera (II.A.1) and Bata (II.A.8) groups of the Central Chadic languages have /**r**/ in all such words. It is clear that there have been historical sound changes **\*r [ř] > r** in Tera and Bata, but **\*r [ř] > l** in others. What is noteworthy is that in the classification of Newman (2013a), the languages reflecting the **\*r [ř] > l** change do not constitute a genetic group. Roughly speaking they comprise languages of northern and eastern parts of the Central Branch and some of the languages of the Masa Branch.<sup>17</sup> Table 6 below shows a few examples. Blank cells mean that a cognate item has not been identified. Bo = Bole, Bu = Bura, Bw = Buwal, Du = Duwai, Gu = Gude, Ha = Hausa, Mi = Miya, Mu = Munjuk, Ms = Musey, Ng = Ngizim, Po = Podoko, Te = Tera, Za = Zaar.

**Table 6:** Sound changes involving rhotics

	<b>*ř &gt; ř or r</b>						<b>*ř &gt; l</b>	
	WEST			CENTRAL				MASA
	W-A	W-B		TERA	BATA	other C-A		C-B
bow	ràwò	řàk	áróhə	rī		liká	lágwàw	
*rk	(Bo)	(Du)	(Mi)	(Te)		(Po)	(Bw)	

<sup>17</sup> In my notes for Zime (Schuh 1982), I have **kir** ‘steal’, **mbúr** ‘oil’, matching the transcriptions in Kraft (1981), which likewise has **hora** ‘steal’, **mur** ‘oil’ for Lame. On the other hand, Musey, a language closely related to Zime, has /l/.

steal *kr	shìri (Bo)	kə̀ɾu (Ng)	ákír (Mi)		hərən (Gu)	hə̀la (Bu)	nxèl (Bw)	hili (Mu)	ghul (Ms)
give *br	baɾĩ (Ha)	bàɾu (Ng)	vər (Za)	vəri (Te)		vəl (Mo)	vəl (Bw)		
fish *krf	kerwo (Bo)			yurvù (Te)	hərfin (Gu)	kələfe (Po)	nklèf (Bw)	hilif (Mu)	kulùfnà (Ms)
oil *mr	mòr (Bo)	mə̀ɾək (Ng)	mír (Za)	mar (Te)	māra (Gu)	mala (Po)	mèl (Bw)	amel (Mu)	mbulna (Ms)

This widespread \*ɾ > l change stems from the oft-noticed “l-like” quality of [ɾ], as in the quote from Bargery above. The other direction of change is \*ɾ > r, which has taken place in all the languages in the “\*ɾ > ɾ or r” column in the table above other than Duwai, Ngizim, and Hausa. The Bade/Ngizim group presents a microcosm of what has taken place more widely in Chadic. Duwai and Ngizim preserve the original situation, with r and ř distributed as in the tables above.<sup>18</sup> Gashua Bade has changed the flap, but not the trill to l; Western Bade has changed all rhotics to the trill. Compare the following data with the table above. All trills are marked ř, though this is redundant for Western Bade.

Ngizim	Gashua Bade	Western Bade	
<b>rə̀ptu</b>	<b>ə̀lbə̀tu</b>	<b>ə̀řbə̀cu</b>	‘open’
<b>shàr</b>	<b>sàl</b>	<b>sàř</b>	‘plain <i>tuwo</i> ’
<b>řə̀ptu</b>	<b>řə̀ptu</b>	<b>řə̀ptu</b>	‘fold, join’
<b>də̀řau</b>	<b>də̀řu</b>	<b>də̀řu</b>	‘wait for’

Significant is the fact that, in Bade/Ngizim and more broadly in Chadic, it is always \*ɾ that changes into some other sonorant rather than some other sonorant changing into ɾ. (The change of word-final \*n > r in the Bura-Margi group constitutes an exception to the

<sup>18</sup> Diagnostics for Bade dialectology are described in Schuh (1981b). The three main dialect areas are Western Bade, Southern Bade, and Gashua Bade. I believe that Southern Bade has the same distribution of rhotics as do Duwai and Ngizim, but I worked only briefly on this dialect in the 1970’s and didn’t have a clear picture of the significance of rhotics at the time, so I was not careful in marking the distinction in my data.

general rule.) Newman (1970b) described the sound change  $*ɾ > y$  in Hausa, mentioned above, as applying to any non-initial  $*ɾ$  in Hausa, and accounted for the many tokens of [ɾ] in Hausa as coming, in large part, from a putative sound change  $*ɪ > ɾ$ , citing comparisons such as Hausa **rak-** and Kanakuru **loi** ‘accompany’ (within the Bole-Tangale group, a true cognate with the Hausa item is Bole **ròkku** ‘chase’), Hausa **jir-** and Hona **kòla** ‘wait’ (a real cognate with the Hausa word is Ngizim **dǎ̀rau**, cited just above). In fact, there has been no  $*ɪ > ɾ$  change in Hausa. Where Hausa words with rhotics have attested cognates in other Chadic languages, they correspond to rhotics. In addition to the examples just mentioned, one can cite Hausa **gàrì**, Bole **gòru**, Duwai **gər** ‘town’, Hausa **rèrà** ‘sing’, Bole **àru** ‘song’, Ngizim **ruwâ** ‘song’, and numerous others. The Hausa change that affected rhotics was actually a *syllable-final rule*  $*ɾ > y / \_\_\_ ]_{\text{SYLLABLE}}$ , as in  $*kɪrfi > kiyfi$  [ki:fi:] ‘fish’,  $*mar > mày$  (orthographically “**mai**”) ‘oil’. The few apparent tokens of intervocalic  $*ɾ > y$  in modern Hausa, such as **sūyà** ‘fried meat’ (cf. Bole **sùrra**) are the result of subsequent changes, such as addition of suffixes, that have obscured the syllable-final condition on the change.<sup>19</sup>

### 1.6. Laterals /ɬ, ɮ, l/

There is no question that the Proto-Chadic consonant inventory possessed lateral fricatives, inherited from Afroasiatic,<sup>20</sup> see Steiner (1977) for evidence from Semitic. Of the major branches of Chadic, only the East Branch entirely lacks lateral fricatives. Indeed, an important diagnostic in identifying East as a separate branch from the remainder of Chadic is the shift of lateral fricatives to other sounds, notably  $*ɬ > s$ , as in

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<sup>19</sup> Bole-Tangale correspondences with Hausa rhotics are somewhat puzzling. Most involve either a rhotic in B-T corresponding to **y** ( $< *ɾ$ ) in Hausa or B-T **r** corresponding to Hausa [ɾ], as in the examples cited here. There are, however, a few cases where Hausa **r** corresponds to B-T **l**, e.g. Hausa **wurì** ‘place’, Bole **wòli** ‘land’ (cf. Duwai **ɔ̀ràì** ‘place’). I assume that these represent sporadic  $*ɾ > l$  changes in B-T, since, where there are known cognates outside these languages, the correspondence is to **r** (a flap or a trill depending on the language).

<sup>20</sup> There are two main transcription conventions for lateral fricatives in Chadic studies. One, adopted by Hoffmann (1963) and following him by linguists in Nigeria, is **ɬ** and **ɮ** for the voiceless and voiced respectively. The other, used primarily by francophone scholars working in Cameroon, is **sl** and **zl**. To avoid confusion, I will use the IPA symbols **ɬ** and **ɮ** throughout this book, regardless of the data source.



the word for ‘meat’: Ngizim (West-B) **lùwai**, Gidar (Central-A) **lùwa**, Musey (Masa), **liw-na** vs. Kera (East-A) **ku-su-ki**, Mokilko (East-B) **séy**. In the West Branch, Hausa and all the West-A languages have lost lateral fricatives,<sup>21</sup> but they are retained in all subbranches of West-B. In Central, lateral fricatives are retained in all subbranches, having been lost in a few cases only at the level of individual languages. Newman (1977d:117-118), who proposed the term “hlaterals” for “lateral fricatives”, a proposal that never caught on, summarizes the details.

The number of lateral sounds that various researchers have reconstructed for Chadic ranges from one to four. Newman (1977d), which remains the most thorough historical discussion of Chadic laterals, reconstructs a single lateral: “The most likely explanation [for the comparative facts] is that PC had only one (h)lateral phoneme and that it did not distinguish **\*hl** from **\*l**,” and, later in the paper, Newman cites lack of comparative evidence for reconstructing distinct lateral fricative phonemes **\*/l/** and **\*/ɬ/**. Stolbova (2005, 2007), the most comprehensive published assemblage of Chadic words containing laterals, reconstructs four: **\*l**, **\*ɬ**, **\*ɬ̥**, **\*l̥**, the latter being a laterally released voiceless affricate. Jungrauthmayr and Ibriszimow (1994) reconstruct four: **\*l**, **\*l<sub>1</sub>**, **\*l<sub>2</sub>**, **\*ɬ**, where the subscripted items are differentiated on the basis of different correspondence patterns, but no phonetic characterization is attempted. Partly on the basis of correspondence patterns, partly on the basis of cross-language typology, I would reconstruct three laterals: **\*l**, **\*ɬ**, **\*ɬ̥**.

Though lateral fricatives are lexically quite common in languages that have them, it turns out to be remarkably difficult to find convincing sets of correspondences involving them. This difficulty is confined primarily to the West Branch, where Hausa and West-A languages do not have lateral fricatives, but all West-B languages do. Newman (1977d) asserted a change **\*ɬ > l** as an innovation shared by Hausa and languages in the Ron, Bole-Tangale, and Angas-Goemai groups. Indeed, this was an important diagnostic for grouping all these languages into the West-A Subbranch. The **\*ɬ > l** change is, without question, shared by the latter three groups, but there is little if any evidence for it in

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<sup>21</sup> A few West-A languages, e.g. Karekare and Maka, do in fact have lateral fricatives, but these probably represent a subsequent re-introduction from neighboring languages.

Hausa. Newman (1970b) proposed a change  $*\mathbf{l} > \mathbf{r}$  in Hausa, meaning that one should look for etymons matching Hausa  $\mathbf{r}$  with  $\mathbf{l}$  in other languages, but as discussed above, Hausa has not undergone such a change—tokens of  $\mathbf{r}$  in Hausa are reflexes of  $*\mathbf{r}$ , not  $*\mathbf{l}$ . The rather skimpy data suggests, rather, that  $*\mathbf{l} > \mathbf{s}$  in Hausa. The table below shows some correspondence sets from two languages that have lateral fricatives (a West-B language and a Central or Masa Branch language) and three West Branch languages that do not have lateral fricatives (two West-A languages and Hausa). Bo = Bole, Bu = Bura, Ki = Kirfi, Kn = Kanakuru, Mi = Miya, Mn = Munjuk, Mo = Mofu, Mu = Musey, Ng = Ngizim, Pe = Pero, Ron = Ron-Bokkos, Su = Sura.

**Table 7:** Correspondence sets involving laterals

	WEST-B	CENTRAL/MASA <sup>22</sup>	WEST-A	WEST-A	HAUSA
cow	<b>l̥à</b> (Ng)	<b>lay</b> (Mn)	<b>laà</b> (Kn)	<b>kilo</b> (Ki)	<b>sâ</b> ox
cut	<b>lyaw</b> etch (Mi)	<b>li</b> (Mn)	<b>la</b> cut grass (Pe)	<b>láa</b> cause pain (Su)	<b>shâsshâwà</b> tribal marks
belch	<b>gəla</b> (Mi)	<b>gil</b> (Mu)	<b>zille</b> (Bo)	<b>jaal</b> (Su)	<b>gyàtsā</b> <sup>23</sup>
stand up	<b>la</b> (Mi)	<b>l̥àta</b> (Bu)	<b>laa</b> (Ki)	<b>luk</b> (Ron)	<b>isa</b> reach, arrive
meat	<b>l̥uwai</b> (Ng)	<b>álàw</b> (Mo)	<b>lo</b> (Bo)	<b>ló</b> (Ron)	?

In addition to  $*\mathbf{l}$ , Newman (1977d) reconstructs a sound that he symbolizes  $*\mathbf{s}$  that has voiceless laterals as reflexes:

<sup>22</sup> [Editor's Note: The grouping here of the Central Masa branches into a single column in the Table could only have been for formatting (space) considerations. Schuh was absolutely clear that he viewed the Masa languages as a 4th independent branch of Chadic and not as a member of the Central branch.]

<sup>23</sup> For the ejective **ts'**, cf. an ejective lateral affricate in some of the North Bauchi languages, such as Diri **gəɽ'a**. The Ngizim etymon is **gãɽ'ɽi**, with **ɽ** (or perhaps 'y) preceding the lateral.

**Table 8:** Lateral fricative reflexes of a supposed sibilant \*ʃ

	Kilba II.A	Podoko II.A	Logone II.B	Zime IV	Bole I.B	Warji I.B	Kera III.A	Migama III.B
bone	ɗíhyì	ɫala	'a ɫə	ĩséw	òsoki	ƙāsùna	káskón	'àssú
egg	hyíhyî	ɫile	nɫə	sē	ɗinsa	tsûuna	kácákí	ɗèèsè

Languages from both the A and B subbranches of the Central Branch have lateral fricatives whereas languages from all the other branches have **s** (or ejective **ts** in Warji, and also Hausa **ts'uwè** 'testicle', the reflex from 'egg'). The \*ʃ > **ɫ** change is an innovation in the Central Branch and is a diagnostic for grouping all these languages into a single branch. While we cannot be sure what the actual pronunciation of \*ʃ was, I would suggest palatalized \*sʲ or \*ʃ. Languages of the Bura-Margi group usually have **hy** or **h**, suggesting that an original palatalized fricative weakened to **h**, with or without palatalization.

Turning to **ɫ**, Newman (1977d:119) says, "In the absence of distinct correspondence sets involving **hl** [ɫ] and **ɦl** [ɫ̥] or any other relevant evidence of an indirect nature, there seems little basis upon which to posit a \***hl**/\***ɦl** contrast (in whatever form) for Proto-Chadic." Indeed all the correspondences above involve reflexes of voiceless \***ɫ**, and I cannot provide any unequivocal sets for \***ɫ**, though one possibility in the West Branch is 'gourd ladle': Ngizim (West-B) **ɫagwdàru**, Bole (West-A) **lekidè**, Hausa **lūdàyī**,<sup>24</sup> which, if valid, has \***ɫ** > **l** in both West-A and Hausa. Another with the same correspondence is 'red-eyed pigeon': Ngizim **bəgdɫà**, Bole **bùkùlò**, though obvious cognates are not forthcoming in other languages. Absence of good correspondence sets aside, on purely typological grounds, a reconstruction with paired voiceless and voiced lateral obstruents seems reasonable. All Chadic languages that have obstruent laterals

<sup>24</sup> The ancient status of this root in Hausa is shown by the \***K** > w / \_\_\_ ]<sub>SYLLABLE</sub> sound change and probably the \***ɫ** > y change (\***ɫugdaɾ** > **luwday** > **lūdàyī**). A \***ɫ** > **l** change would account for initial /l/, which is not common in native Hausa roots, see below.

have voiceless and voiced counterparts, paralleling voiceless/voiced pairs for other obstruents. Various sound changes may have muddied the waters to such an extent that correspondence sets are hard to identify, as is also the case for the more certain \*ɭ.

Newman (1977d) also questions whether a sonorant lateral \*ɭ can be reconstructed for Proto-Chadic. All Chadic languages have a sonorant /l/ in their phoneme inventory. Many of these come from the \*ɽ > l and \*ɭ > l changes discussed above, and some are in loanwords, but others are in apparently native words. As with the lateral fricatives, it is difficult to assemble convincing correspondence sets that justify reconstruction of a Proto-Chadic sonorant \*ɭ, but there is one set that has no other explanation. That is the word for ‘tongue’:

Ron	Hausa	Bole	Sura	Munjuk	Bidiya	Mubi	Mokilko
I.A.4.a	I.A.1	I.A.2	I.A.3.A	II.B.2	III.B.1.a	III.B.1.b	III.B.2
<b>alis</b>	<b>harshè</b>	<b>lisim</b>	<b>lís</b>	<b>aləs</b>	<b>líse</b>	<b>lìsí</b>	<b>ìlzé</b>
	<b>lāsà</b>						

**lāsà** lick

Essentially all the Chadic groups that have lateral fricatives in their phoneme inventories (West-B, Central-A, most of Central-B, Masa) have replaced the \*ɭ-s- root, so we cannot establish a correspondence set including etymons from these languages (among the languages above only Munjuk from the Central Branch has lateral fricatives). However, we can confidently reconstruct Proto-Chadic \*ɭ-s- for this root. First, the geographically and genetically most distant subbranches have the correspondence ɭ ~ l. In the East Branch, \*ɭ > s, as seen above, which yields the correspondence ɭ ~ s, as in Bole **lo**, Mokilko **séy** ‘meat’. Second, we know that Proto-Chadic had to have inherited this root as \*ɭ-s- from its Afroasiatic parent. This is the shape of the root in Berber (Tamazhaq **iləs**) and Semitic, including Semitic languages that have lateral fricatives (Soqotri **léšin**).

Hausa needs further discussion. The reflex of the \*ɭ-s- root is seen in the root ‘lick’ (also in **lallāshī** ‘persuasion’). However, the word ‘tongue’ itself is pronounced [haɾʃè:] in the standard dialect, with [ɽ] rather than [l]. Above, I have argued that Hausa has *not*

undergone a  $*\mathfrak{r} > \mathfrak{l}$  change, so the  $\mathfrak{r}$  in ‘tongue’ cannot be accounted for in that way. Rather, the  $[\mathfrak{r}]$  in **harshè** is simply a sporadic replacement of either  $\mathfrak{l}$  or  $\mathfrak{r}$  by  $\mathfrak{r}$ , not a “sound change” in the normal sense of the term. In northern Hausa dialects, ‘tongue’ is pronounced **halshè**. In the same dialects,  $*T > \mathfrak{l} / \_\_\_\_\_\_ ]_{\text{SYLLABLE}}$  rather than  $*T > \mathfrak{r} / \_\_\_\_\_\_ ]_{\text{SYLLABLE}}$  seen in most Hausa dialects (cf. Kano **faṙkà** ‘wake up’, Northern **hwalkà**, < **\*fadka**). The  $\mathfrak{l}$  in **halshè** could be the original  $*\mathfrak{l}$ , unchanged, but more likely  $*\mathfrak{l}$  was one of the alveolar sounds affected by the  $*T > \mathfrak{l}/\mathfrak{r} / \_\_\_\_\_\_ ]_{\text{SYLLABLE}}$  change. In Northern dialects  $*\mathfrak{l} > \mathfrak{l}$  (the sound changed into itself!), but in other dialects,  $*\mathfrak{l} > \mathfrak{r}$ , such that at one time ‘tongue’ would have been pronounced  $*\mathfrak{r}$ **harshè**. Subsequently,  $\mathfrak{r}$  was simply substituted for  $\mathfrak{r}$ .<sup>25</sup>

To conclude the discussion of  $*\mathfrak{l}$ , one would like more than one etymon as the basis for a reconstruction, but this one is solid enough to leave little doubt that sonorant  $*\mathfrak{l}$  was part of the Proto-Chadic phoneme inventory. Many languages have unequivocal phonemes with low frequency of occurrence. Sonorant  $*\mathfrak{l}$  in Chadic seems to be one of them.

### 1.7. Prenasalized consonants

There are languages in all subbranches of Chadic that have words that begin with prenasalized consonants. For typographical simplicity, I will represent them as **mb**, **nd**, **nz**, **nj**, **nɟ**, and **ŋg**, with no implication as to whether a particular language treats them as units or as sequences of separate phonemes. These all consist of a nasal component homorganic to a following voiced obstruent. No Chadic language, to my knowledge, has prenasalized units where the obstruent portion is voiceless or glottalized.

Newman (1977a:11) and Jungraithmayr and Ibriszimow (1994:xix) address the question of whether a prenasalized series can be established for Proto-Chadic, but neither has a definitive answer. Newman mentions the hypothesis in Greenberg (1965) of an Afroasiatic  $*\mathfrak{mb}$ , but finds an  $*\mathfrak{mb}$  reconstruction, much less other prenasalized

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<sup>25</sup> This substitution has taken place in at least one other word,  $*\mathfrak{k}idgà > * \mathfrak{k}iṙgà > \mathfrak{k}iṙgà$  ‘count up’. The original  $*\mathfrak{d}$  is seen in the reduplicated form **kididdigà** ‘calculate’.

phonemes, unconvincing and does not include a prenasalized series in his Proto-Chadic phoneme inventory. Jungraithmayr and Ibrizimow propose two series of voiced stops (**\*b** vs. **\*b<sub>2</sub>**, etc.) reflecting different correspondence sets and say, “The original phonetic quality of these consonants cannot be definitively defined, although the fact that many modern reflexes display a prenasalized feature seems to hint at a participation of a nasal element in the coming into being of these consonants.” Perusing their lists of correspondences (pp. xx-xxix), those related to this distinction seem to be at a low historical level, e.g. Angas (I.A.3) **\*b** > **p** (**pèt** ‘five’, cf. Bole (I.A.2) **bàḏi**) vs. Angas **\*b<sub>2</sub>** > **b** (**bul** ‘dove’, cf. Bole **mbole**),<sup>26</sup> certainly not even to a branch level, much less Proto-Chadic.

Of more interest is whether a given language treats NC as a phonological unit or as a sequence. Here I will consider only two West Chadic languages where I have data informing this question. In Bole, there is a difference between NC in word initial position, which behaves as a unit by several criteria, vs. NC in medial position, which behaves phonologically as a sequence.

### 1.7.1. Bole initial NC as a phonological unit

(1) Reduplication: Bole has two processes involving reduplication of initial syllables:

“like” reduplication: **ndàya** ‘stool’      **nda-ndaya** ‘stool-like’

Pluractional verbs: **ngoruwòyi** ‘he tied’      **ngo-ngoruwòyi** ‘he tied repeated’

In both types, the full NCV is reduplicated, not just the CV.

(2) High Tone Spreading: H tone spreads to replace a following L, as in

/ló **tèmshí**/ → [ló **témshí**]      ‘meat of a sheep’

/móltí **nònú**/ → [móltí **nónú**]      ‘mother’s younger brother’

/shòwí **ndáyá**/ → [shòwí **ndáyá**]      ‘wood for a stool’

/pímó **dàwún**/ → [pímó **dàwún**] (\*[pímó **dáwún**])      ‘fronds for a mat’

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<sup>26</sup> The Angas citation, taken from Hoffmann (1975), is a mistake. The correct form, as given by Burquest (n.d.) and others, is **mbul**.

H is blocked from spreading by a simple voiced obstruent, but spreads across all other segment types, including prenasalized, indicating that the prenasalized are not simply a nasal followed by a voiced obstruent.

### 1.7.2. *Bole medial NC as an N.C sequence*

(1) Medial long vowels: Bole has a contrast between long and short vowels, as in **sōni** ‘honey’ vs. **sòni** ‘year’, but there are no long vowels preceding NC, e.g. **monde** ‘women’, but no \***mōnde**.

(2) Verb classes: Bole verb morphology is sensitive in part to the syllable weight of the root syllable. Verbs with a light first syllable take SUBJUNCTIVE suffix **-i**, those with a heavy first syllable have SUBJUNCTIVE suffix **-e**. Roots with medial NC are in the heavy root syllable class.

<b>gàmî</b>	‘prune tree’
<b>gârê</b>	‘pull out, extract’
<b>kàltê</b>	‘press on’
<b>gàndê</b>	‘lie down’

(3) Phrasal resyllabification: Within a phrase, when a word ends in a vowel and the next word begins in a prenasal, the nasal becomes a coda to the preceding syllable. This is seen in song metrics, which is quantity based (Schuh 2013). When the metrics require a heavy syllable, V#NCV → VN.CV, as in the line below from a Bole girl’s song, where **nj-** of **njònni** ‘twin’ is resyllabified with the preceding word to give [**gàn**]:

**Lèlò gà njònnini** ‘Everyone has his twin’

- - - /-

Each line in this song begins with this rhythmic pattern, e.g., from the same song, **Gòggò bò bòmmu ye** ‘As for the road at the doorway of our father’.

Like Bole, Miya has words with phonetic NC sequences both word initial and word medial where C is a voiced obstruent, but unlike Bole, these are phonological units in all environments.

(1) LOW TONE RAISING: L → H /L \_\_\_ as in

/tə̀vàm tsə̀r/ → [tə̀vàm tsə̀r] ‘two women’

/sə̀bə̀ m̀atsə̀r/ → [sə̀bə̀ m̀atsə̀r] ‘seven people’

/zə̀kìy nd̀and̀anyà/ → [zə̀kìy nd̀and̀anyà] ‘heavy stone’

/wù̀nà b̀ad̀ày/ → [wù̀nà b̀ad̀ày] (\*[wù̀nà b̀ad̀ày]) ‘small basket’

The target L is blocked from raising by a simple voiced obstruent, but raises with all other segment types, including prenasalized, indicating that the prenasalized are not simply a nasal followed by a voiced obstruent.

(2) Medial long vowels: Unlike Bole, Miya does have medial long vowels before NC, e.g. **cángu** ‘Abdim’s stork’, but not before other medial CC, e.g. **málvó** ‘leader’ but no \***málvó**.

(3) Internal reduplication: Miya has a productive noun pluralization process that adds a reduplicative suffix **-aC<sub>n</sub>aw** where C<sub>n</sub> = the last root consonant. NC is treated as a unitary C<sub>n</sub> where the C component is a voiced obstruent (see ‘round gourd’, though not when it is some other consonant (see ‘lion’).

**dəm**      **dəmamáw**      ‘tree’

**dùwakə**   **dùwakákàw**   ‘horse’

**gùmbə**    **gùmbambáw**   ‘round gourd’

**dléntó**    **dléntátàw**    ‘lion’

Though these languages are both members of the West Branch, NC sequences differ in their phonological status. It is therefore not possible to make a pan-Chadic generalization about how prenasals fit into the phonology of a language. Each language must be taken on its own terms, using diagnostics of the types applied here.



### 1.8. Affricates: c, j, ts, dz, ts'

Most Chadic languages—perhaps all—have alveopalatal affricates **c** [IPA tʃ] and **j** [IPA dʒ]. In some languages, they contrast with the corresponding alveolar stops (Ngizim **cam** ‘all’ vs. **tàm** ‘what?’, **jǎ** ‘dog’ vs. **dà** ‘eye’), whereas in some languages they are in allophonic variation with their stop alveolar counterparts, usually with **c/j** before **i**, and the alveolar before other vowels (Ngizim **kàtau** ‘he returned’ vs. **a kaci!** ‘return!’, **gèdu** ‘he plucked’ vs. **gèji** ‘plucking’). In some languages, there is free or idiolectal variation between affricates and alveolar phonemes. In Bole, many words apparently randomly vary between alveopalatal affricates and corresponding alveolar fricatives (Bole **sakkà** = **shakkà** ‘doubt’, **ajin** = **azin** ‘intestines’). In Miya, which has morphological palatalization, **c/j** alternate with the corresponding alveolar affricates **ts/dz**.

### 1.9. Labialized and palatalized velars

Newman (1977a:11) says, “PC almost certainly had palatalized and labialized velars (**ky**, **gw**, etc.)” He also mentions the possibility of there having been labialized and palatalized segments at other points of articulation since they exist in modern languages, e.g. Bura **fyâ** ‘blow’, **fwari** ‘forget’, dialectal Hausa **fyāḏē** ‘hit with a flexible object’, **swāhē** ‘morning’. Jungrathmayr and Ibrizimow (1994 [J&I]) do not explicitly mention palatalized or labialized consonants in their discussion of the Proto-Chadic phoneme inventory, but both they and Newman offer (tentatively) reconstructed roots with palatalized and labialized velars. In at least some cases their reconstructions coincide:

Newman \***g<sup>y</sup>əwan**, J&I \***g<sup>y</sup>wn** ‘elephant’, as in

West-A: Hausa **gīwā**, Bole **yàuno**; West-B Duwai **gīwən**, Ngizim **jàunàk**, Miya **yàwun**; Central-A Tera **jùwàn**, Bura **cuwar**; East-B: Mubi **gaywan**

Newman \***g<sup>w</sup>am**, J&I \***g<sup>w</sup>m** ‘ten’, as in

West-A: Hausa **gōmà**, Kanakuru **gūm**; West-B Duwai **gùmà**; Central-A Tera **gwàŋ**, Bura **kuma**, Buwal **wám**; East-B Mokilko **kòma(t)**<sup>27</sup>

As these examples show, it is difficult to use correspondence sets to unequivocally demonstrate the reconstruction of palatalized and labialized velars as phonemes distinct from their “plain” counterparts. However, languages in most major groups arguably have at least a series of labialized velars, and many also have a palatalized series. As I will argue here and elsewhere, what is often interpreted as a distinction in vowels is actually a distinction in consonants that influences the pronunciation of vowels. Consider the following data from Miya (West-B):

<b>gàhuw</b>	‘cornstalks’	<b>gəgal</b>	/gəgal/	‘jujube tree’
<b>gyàm</b>	‘friend’	<b>gìti</b>	/g <sup>y</sup> ət <sup>y</sup> ə/	‘axe’
<b>gwágúm</b>	‘dove’	<b>gùzəm</b>	/g <sup>w</sup> əzəm/	‘Nile monitor’

The left column shows that Miya has a three-way velar contrast before /a/, which is the environment usually cited when illustrating palatalized and labialized consonants. The words in the right column make it appear that Miya has a three-way high vowel distinction: ə [ɨ], i, u. However, this distinction in high vowels shows up only after velars.<sup>28</sup> The correct underlying representation of the words in the right column is that shown between angle brackets. An analysis proposing a three-way velar distinction before low vowels in complementary distribution with a three-way distinction in high vowels is obviously incoherent. Miya presents a particularly clear case of this, since (in native words) Miya can be shown to have only three phonemic vowels: /ə/, /a/, /ā/

<sup>27</sup> Jungrathmayr & Ibrisimow (1994) include this as an etymon, but it is questionable on two grounds. First is the voiceless **k**: East languages have not undergone a devoicing change. Second, this word is out of step with both East-A and East-B, which support a reconstruction \***k<sup>w</sup>r-** for East, as in Kera (A) **hòr**, Mubi (B) **kúrúk**, Dangaleat (B) **ɔrðk**.

<sup>28</sup> In phonetic terms this is not entirely true since following glides **y** and **w** also affect vowels, as in **píyám** ‘pumpkin’, **puwa** ‘hide’. Miya also has morphological palatalization, which can cause fronting of all the vowels in a word (Schuh 1998).

(Schuh 1998). Many languages, however, can be shown to have similar complementarity of a velar contrast before some vowels vs. an apparent contrast in short high vowels that shows up only when they follow velars.

### 1.10. Geminate

Modern Chadic languages vary as to whether they (1) have a lexical distinction between singleton and geminate consonants, (2) allow surface geminates resulting from assimilations and the like but have few if any lexical geminates, or (3) essentially disallow geminates. Even closely related languages can differ in this respect. For example, the name of the traditional Bole capital city is pronounced **Pikkà** in Bole but **Hikà** in closely related Ngamo, which disallows geminates and gemination in native vocabulary. In Central Chadic languages, geminates seem to be dispreferred in general, but Gude geminate consonants in certain environments, apparently subphonemically. Geminates are common in East-B languages. Although there are apparent underived lexical geminates, e.g. Mubi **díssó** ‘egg’, the majority of tokens are derived through morphological processes, e.g. noun pluralization as in Mubi **gùdùr** (pl.) **gòddòr** ‘large pot’, or assimilations, e.g. Mubi **hàt** ‘stomach’, **hàccò** < /hàt-jò/ ‘my stomach’, **hèttít** < /hàt-dít/ ‘his stomach’, etc.

A comparative perspective both within Chadic and in a broader Afroasiatic context suggests that Chadic probably inherited morphological and phonological processes that produced geminate consonants. In some languages, forms with derived geminates have been lexicalized (see Schuh (2001) for a case study of Bole). In some languages gemination remains largely restricted to derived forms with few if any lexical geminates, and in yet other languages, gemination has been eschewed altogether.

## 2. Vowels

Most vowel symbols represent something similar to the values assigned to the comparable IPA symbols. The main exceptions are short **a** and **ə**. Short **a** is rather variable depending on context. It is typically a low-ish central unrounded vowel [ɐ], but

could be pulled forward to something like [ɛ] or back to something like [ʌ]. The symbol **ɨ** represents a high central vowel [ɨ].<sup>29</sup>

With consonants, one can list an inventory of discrete segments and select the segments from that inventory that a particular language uses. With vowels, it seems preferable to list an inventory of idealized systems and specify the system that a particular language comes close to, with the adjustments needed to fit the language. Here are three such idealized systems that cover most Chadic languages, with some adjustments required for probably all languages. Note that the inventory of vowels often depends on positions in the word.

**Table 9:** Chadic vowel systems

	MINIMAL	INTERMEDIATE			MAXIMAL		
	CENTRAL	FRONT	CENTRAL	BACK	FRONT	CENTRAL	BACK
HIGH	/ə/ [ɨ, ɨ̄, u]	Final i	Medial /ə/ [ɨ, ɨ̄, u]	Final u	i, ii		u, uu
MID (tense)		ee		oo	e, ee		o, oo
MID (lax)					ɛ, ɛɛ		ɔ, ɔɔ
LOW	a, aa		a, aa			a, aa	

## 2.1. Vowel length

Many Chadic languages have a contrast between long and short vowels. In this chapter, I will generally write long vowels as double letters, e.g. **aa**, though elsewhere in this book I usually use a macrons to mark length. Proto-Chadic must have had distinctive

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<sup>29</sup> The symbol **ɨ** has been used in this way for decades in Chadic studies and has been part of the standard Kanuri orthography since at least the 1950s. An unfortunate and gratuitous practice has developed in recent years, particularly in works on Cameroonian languages, to use the symbol **i**. Not only does this replace a long recognized standard that is perfectly understood by both the linguistic and speaker communities, but it is also difficult to distinguish visually from the vowel **i**. In this book, I replace **i** with **ɨ** in all citations from works that use the former.

vowel length, though probably only between short \*a and long \*aa. There are languages in every subgroup of West Chadic with distinctive vowel length, and all the languages of the East-B subbranch have it. A phonemic vowel length distinction<sup>30</sup> seems to be absent in Masa languages (?) and in most of the Central Branch except for some Central-B languages.

If a language has distinctive vowel length, it will always be realized in the low vowels /a/ vs. /aa/.

Hausa (I.A.1):	<b>gàrii</b>	‘town’	<b>gàarii</b>	‘flour’
Bole (I.A.2):	<b>zàrà</b>	type of small pot	<b>zàarà</b>	‘long gourd’
Sura (I.A.3)	<b>táp</b>	‘be meticulous’	<b>táap</b>	species of antelope
Ron-Bokkos (I.A.4)	<b>bas</b>	‘dry something’	<b>bàas</b>	‘disperse’
Ngizim (I.B.1)	<b>gàdu</b>	‘snap in two’	<b>gàadu</b>	‘bite’
Miya (I.B.2)	<b>càngu</b>	‘billy-goat’	<b>cáangú</b>	‘Abdim’s stork’
Zaar (I.C.1)	<b>mâm</b>	type of snake	<b>mâam</b>	‘breast’
Mbara (II.B.2)	<b>ngá</b>	‘nice’	<b>ngàa</b>	‘show’
Kera (III.A.3)	<b>dàr</b>	‘poison’	<b>dàar-</b>	‘friend’
Dangaleat (III.B.1)	<b>lámè</b>	‘fermer à demi’	<b>láamè</b>	‘gomme (végétale)’
Mokilko (III.B.2)	<b>màlà</b>	‘knowledge’	<b>máàlà</b>	‘wealth’

One sometimes gets a phonetic length distinction in high vowels in languages with a MINIMAL system. This invariably will be analyzable as /ə/ [i, u] vs. /əy, əw/ [ii, uw]. This is usually the case in languages with an INTERMEDIATE system as well. In a MAXIMAL system, it will probably always be a true phonemic length distinction.

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<sup>30</sup> I am here focusing on vowel length that is distinctive in creating a root’s lexical form. Some languages without lexical vowel length admittedly have phonological or morphological processes that lengthen vowels.

MIMIMAL: Miya (I.B.2.a)	<b>káy</b> (pl. <b>káyayáw</b> )		‘a fight’
	<b>sàw</b> (pl. <b>sàwawawáw</b> )		‘tail’
	<b>vìy</b> [vii] (pl. <b>vìyayáw</b> )		‘doorway’
	<b>tùw</b> [tùu] (pl. <b>tùwawáw</b> )		‘arrow’
INTERMEDIATE: Ngizim (I.B.1)	<b>ɓàgdu</b> (v. noun <b>ɓàgat</b> )		‘move aside’
	<b>zìydu</b> [zìidu] (v. noun <b>zàyat</b> )		‘slaughter’
	<b>rùwyu</b> [rùuyyu] (v. noun <b>rùway</b> )		‘cultivate’
MAXIMAL: Dangaleat (III.B.1) <sup>31</sup>	<b>pìsè</b> ‘hands’	<b>p̄ìsè</b>	‘remain over’
	<b>mùtù</b> ‘wound’	<b>m̄ùtù</b>	‘die’

A length distinction in mid vowels in open syllables is found only in a MAXIMAL system. In an INTERMEDIATE system with a length distinction, mid vowels are always long in open syllables. Some INTERMEDIATE systems allow short mid vowels in closed syllables, usually in loanwords where speakers are familiar with the donor language.

INTERMEDIATE: Ngizim (I.B.1)	<b>jeelee</b> ‘potsherd’	<b>*jele</b>
	cf. <b>hèrma</b> ‘close friend’ < Kanuri	
	<b>soonò</b> ‘shoe’	<b>*sono</b>

MAXIMAL: Dangaleat (III.B.1) See §2.4 below for a full set of short–long contrasts.

## 2.2. Minimal systems

Gravina (2014:95) says that what I am referring to as the MINIMAL system “is the most common system amongst Central Chadic languages and is found in around 35 languages.<sup>32</sup> It predominates amongst the languages from Mafa southwards and

<sup>31</sup> I don’t know of any diagnostics in Dangaleat to demonstrate that [ii, uu] are not /iy, uw/. Shortening of long vowels in closed syllables might be such a diagnostic, but Dangaleat retains long vowels even when syllables containing them become closed (Fédry 1971:8). The fact, however, that all vowels in Dangaleat show a length contrast in open syllables (Fédry 1971:7) suggests that the long high vowels should not form a special VC (/iy, uw/) category separate from the other vowels.

<sup>32</sup> Gravina (2014:95) lists 22 languages with such a system. They do not comprise a genetic unit. Among the languages that he lists are Mafa (II.A.5.a), Daba (II.A.7), and Gidar (II.C). Gravina includes in the list

eastwards.” These languages are all located in northern Cameroon. The essential feature is that there are only two underlying vowels: [+high] /ə/ and [-high] /a/.<sup>33</sup> These Central Chadic languages are even more “minimal” than is shown in the chart above in that they lack a vowel length distinction. Gravina refers to these as “Vowel Prosody” languages, a concept to which I return. Briefly, a *prosody* applies to a whole word and can result in fronting and/or rounding of all the vowels in a word.

As a case study of a Central language with a MINIMAL system one can look at data from Bow (1999) on Moloko (II.A.5.b), a language closely related to Mofu. This language has morphological palatalization and labialization that induce fronting and backing+rounding respectively, giving a total of six vowel colors.

	NO PROSODY	PALATALIZATION	LABIALIZATION
/ə/	[ə̣]	[ɪ]	[ɔ]
/a/	[a]	[ɛ]	[ɔ̣]

Moreover, the high vowel is present only where a vowel is required to break up impermissible consonant clusters, meaning that the system could be reduced to one phonemic vowel, /a/, with the presence of all high vowels predictable on the basis of phonotactics. In fact, this is probably the case for nearly all, if not all languages with a MINIMAL system. Bow (1999) proposes underlying and surface forms such as the following:

Prosodically neutral roots:	/mdga/	[mədəga]	‘older sibling’
	/matabaɫ/	[matabaɫ]	‘cloud’
Palatalized roots:	/mabamak/	[mɛbɛbɛk]	‘bat’
	/gva/	[gɪvɛ]	‘game’

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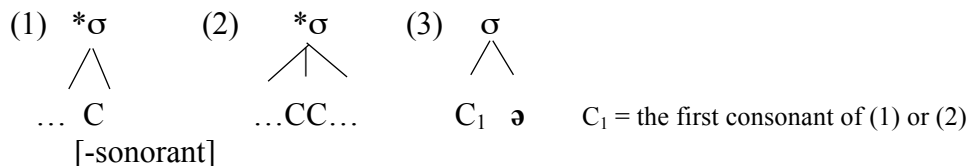
Central-B languages of the Musgum group. The description of Mbara by Tourneux, Seignobos, & Lafarge (1986) does not support inclusion in this list.

<sup>33</sup> Mirt (1969) was one of the earliest studies (if not *the* earliest) to propose a Chadic vowel system consisting of 2 contrastive vowels only.

Labialized roots:	/gza/	[gozɔ]	‘kidney’
	/talalan/	[tɔlɔlɔŋ]	‘chest’

In addition the PALATALIZATION and LABIALIZATION, which apply to full roots, Moloko also has local conditioning: /ə/ → [i, u] in the environment of /y, w/ respectively, e.g. /kya/ → [kiya]; /ə/ → [ɔ] and /a/ → [ɔ] in the environment of labialized consonants, e.g. /tk<sup>w</sup>rak/ → [tɔkɔrak] ‘partridge’, /h<sup>w</sup>adfa/ → [hɔdɔfɔ] ‘dregs’.

There are no East Chadic languages with MINIMAL systems, and they are less common in West Chadic than in Central, but Miya (I.B.2) has such a system.<sup>34</sup> Miya is much like Moloko in that (1) there are two vowels (high and low), (2) the presence of the high vowel is predictable on the basis of phonotactics, and (3) vowel quality is predictable on the basis of environment. The main differences between Moloko and Miya are (1) Miya distinguishes /a/ vs. /aa/, and (2) Miya does not have morphological labialization. It does have morphological palatalization and labialized consonants. Schuh (1998:29) proposes the following constraints as predicting the presence of /ə/, where  $\sigma$  = syllable and C = consonant:



(1) = a syllable may not end in an obstruent consonant: \***tas** but **təl** ‘beer’

(2) = a syllable may not contain a consonant sequence: \***bərm**, cf. **bər.may** ‘cave in’

(3) = ə will follow an obstruent that would otherwise end a syllable: **təsə** Acacia sp.

ə will break up a consonant sequence that would otherwise be internal to a syllable: **bəram** ‘remainder’

Though an analysis with only underlying /a, aa/ is possible, Miya has a rather larger repertoire phonetic vowels, derived as follows:

<sup>34</sup> Miya is the only West Chadic language so far described as having a MINIMAL vowel system (Schuh 1998), but there must surely be others, esp. in the North Bauchi group to which Miya belongs.



- [i] = /ə/ in “neutral” context: /**kəm**/ [k**im**] ‘hand’
- [a] = /a/ in “neutral” context: /**kam**/ [k**am**] ‘house, compound’
- [a:] = /aa/ in “neutral” context: /**baahə**/ [b**a:hə**] ‘father’
- [i] = /ə/ assimilated to /y/ or palatalized: /**pəya**/ [p**iya**] ‘return’, /**gətə**/<sub>PALAT</sub> [g**iti**] ‘axe’
- [u] = /u/ assimilated to [+round] segment: /**mək<sup>w</sup>ə**/ [m**uku**] ‘sun’
- [i:] = /əy/: /**anəyhə**/ [a**ni:hə**] ‘medicine’
- [u:] = /əw/: /**dzəwkə**/ [d**zu:kə**] ‘kapok tree’
- [ɛ] = /a/ palatalized: /**tambər**/<sub>PALAT</sub> [t**embir**] ‘roan antelope’
- [æ:] = /aa/ palatalized: /**mbaalʒə**/<sub>PALAT</sub> [m**b<sup>y</sup>æ:ʒi**] ‘cucumber’
- [e:] = /ay/ monophthongized:\* /**varay zəw**/ [v**are: zu:**] ‘corn seed’--cf. **varay** ‘seed’
- [o:] = /aw/ monophthongized:\* /**tsawdā**/ [t**so:dā**] ‘carve’--cf. **tsawadə** ‘carving’
- [ɣ:] = contraction of /aghə/: /**na-ghəm**/ [n**ɣ:m**] ‘yours (f.sg.)’
- [ɛ:] = palatalization of [ɣ:]: /**kwəmay-a-ghəm**/ [k**umayɛ:n**] ‘your (f.sg.) ear’
- [ɔ:] = labialization of [ɣ:]: /**vəw-a-ghəm**/ [v**uwɔ:n**] ‘your (f.sg.) stomach’

\*Monophthongization applies to /əy, əw/ when they are followed by a consonant.

### 2.3. Intermediate systems

This system has variants, but it is possible to list a number of features that hold across most languages of this type:

- (1) No phonemic contrast between medial short high vowels: Many languages have the phonetic high vowels [i, ə, u], but medial in a word, these are conditioned allophones of a single [+high, -long] vowel. For example, Duwai [k**əm**] ‘you (f.sg.)’, [w**ūn**] ‘son’, [ci**yà**] ‘just now’ could be represented /k**əm**, w**ǎn**, c**əyà**/ respectively (using “ə” as a cover symbol for any short high vowel), with neighboring consonants affecting their pronunciation.
- (2) Word final high vowel contrasts: Many languages that do not have a medial short high vowel contrast DO have a two-way word final contrast between /i/ vs. /u/, but no word final [ə]. For example, Duwai **əgvɪ** ‘outside’ vs. **əgvù** ‘corpse’, but no \***əgvə** (both **əgvɪ** and **əgvù** would become [ə**vgə**] if not at the end of a phonological phrase).

- (3) Mid vowels: Most mid vowels are in loanwords or are derived, for example, through monophthongization of diphthongs. For example, Duwai **řèetà** ‘division’, **koõroo** ‘donkey’, both from Kanuri; Duwai **nàabai** but Bade **nàabee** ‘there isn’t any’. If the language has distinctive vowel length, the mid vowels will be long (as in the Duwai examples here). Languages without distinctive vowel length do borrow words with mid vowels as well, e.g. Margi **reta** ‘half’ (< Kanuri), **sòso** ‘sponge’ (< Hausa).
- (4) Contrastive short and long vowels: If a language has a vowel length contrast, it will apply only to /a/ vs. /aa/. Mid vowels are always long—see (3)—and phonetic [i:, u:] are usually underlying /əy, əw/ respectively.
- (5) Word final vowel length: Word final vowels other than mid vowels are short, even in languages with a length contrast.

Ngizim (I.B.1) has what could be called a “canonical” INTERMEDIATE vowel system. The phonemic vowels are /i, u, ee, oo, a, aa/, with a frequently occurring medial [ə]. Placement and coloring of medial high vowels are similar to those described for Miya in the previous section, aside from the fact that Ngizim does not have morphological palatalization. Neither language allows syllable internal consonant clusters (Ngizim **sərmu** ‘sit with legs extended’, **səřəm** verbal noun of **sərmu**, but \***səřm**). Ngizim is freer than Miya in the consonants that it allows in syllable codas. Miya disallows obstruents as codas, but in Ngizim, pretty much any obstruent is possible at the end of a word or before another obstruent, (**àbak** ‘bow’, **kàklu** ‘measure’, /àg<sup>w</sup>əd/ [àgud] ‘ear’, **gabshu** ‘ugly’). Obstruents may not form a coda when followed by a sonorant consonant (**kakəřà** ‘burden’ but \***kakrâ**, **tàsənak** ‘grain head with no kernels’ but \***tasnak**, /gərəfəyà/ [gərəfiyà] ‘hartebeest’ but \***gərafya**). This is a fairly widespread constraint on consonant sequences in Chadic.

A fundamental difference between the INTERMEDIATE system of Ngizim and the MINIMAL system of Miya is that Ngizim does have a lexical contrast between the short high vowels /i/ and /u/ at the end of a word. The final vowels in words such as in the following pairs are not required by phonotactics and their qualities are not predictable.

<b>gazabì</b>	‘black kite’	<b>gàbaabù</b>	‘billy goat’
<b>kʷàbshi</b>	‘head pad’	<b>gabshu</b>	‘ugly’
<b>/gàdaagʷəri/ [gàdaaguri]</b>	‘syphilis’	<b>/dægʷəru/ [dugùru]</b>	‘barren woman’
<b>/màdɛnkʷi/ [màdunkʷi]</b>	‘drinking cup’	<b>/ɬəgʷankʷu/ [ɬùgwanku]</b>	‘baobab sauce’
<b>zàyi</b>	‘rope’	<b>kʷàyu</b>	‘jujube tree’

A systematic contrast between these vowels is in verbs, where most verbs end in **-u** in the PERFECTIVE but **-i** in the SUBJUNCTIVE, e.g. PERFECTIVE **na-tfú** ‘I entered’, SUBJUNCTIVE **na-tfi** ‘that I enter’.

Ngizim distinguishes short /a/ and long /aa/ (**kàwà** ‘fondness’, **kàawà** ‘playing’). In open syllables, mid vowels are all long (**nèemi** type of tightly woven bag, but \***nemi**, **goodèe** ‘ignoramus’, but \***godfe**). Long high vowels are arguably underlying /əy, əw/, as shown by verbal nouns of the type C<sub>1</sub>VC<sub>2</sub>VC<sub>3</sub> formed from C<sub>1</sub>VC<sub>2</sub>C<sub>3</sub>- roots:

**zìydu [ziidu]** (v. noun **zàyat**) ‘slaughter’—cf. **ɬàgdu** (v. noun **ɬàgat**) ‘move aside’  
**rùwyu [rùuyu]** (v. noun **rùway**) ‘cultivate’

From existing descriptions, it is sometimes difficult to know whether a language has a MINIMAL system or an INTERMEDIATE system. This is the case with languages in the Bura-Margi group of Central Chadic (II.A.2), which are spoken west of Central languages such as Moloko discussed above. These languages seem to be moving toward INTERMEDIATE systems but still have characteristics of those with MINIMAL systems. Bura-Margi languages do not have contrastive vowel length, nor do they have morphological palatalization or labialization, but they do have consonantal systems with series of palatalized and labialized velars and labials and, arguably, coronals (assuming that alveopalatals represent the palatalized coronal series). Thus, in Bura one finds consonantal contrasts like the following before /a/:

<b>gàŋ</b>	‘log’	<b>gyàli</b>	‘playing’	<b>gwàtələ</b>	‘kindling’
<b>bàkà</b>	‘tilapia’	<b>byàfi</b>	‘argument’	<b>bwàlà</b>	‘gutta percha tree’
<b>takù</b>	‘horse’	<b>càrà</b>	‘choose’	<b>twàŋtwaŋ</b>	‘deaf’

Discussing Margi data from Hoffmann (1963), Maddieson (1987) argues that Margi can be analyzed as having just two vowels, /ə, a/ and that all apparent contrasts between [i] and [u] are a result the influence of preceding (or sometimes following) palatalized or labialized consonants respectively. In other words, Margi, under Maddieson's analysis, has a MINIMAL system. In my Bura data, it would be hard to justify a MINIMAL analysis for the vowel system, at least without proposing abstract underlying consonants with considerable phonetic neutralization. One finds pairs such as the following with no obvious consonantal coarticulations that would account for the vowel distinctions.

<b>vì</b>	‘place’	<b>vù</b>	‘spring (of water)’
<b>kə̀li</b>	‘swell up’	<b>ʔyàlù</b>	‘bone’

As in Ngizim, [ə] is quite frequent medially in words (a couple of examples are seen above), but there are no words with final [ə]. On the other hand there are words with internal /i/ and /u/, e.g. **tìtìli** ‘disperse’, **tunvwà** ‘leopard’. Considerably more data and analysis would be required to determine whether presence and quality of medial vowels is predictable for Bura as has been claimed above for Moloko, Miya, and Ngizim.

#### 2.4. Maximal systems

Fédry (1971:7) gives the following set of pairs for Dangaleat (III.B.1.a) illustrating all the vowels, long and short.

<b>i, ii</b>	<b>pìsè</b>	‘hands’	<b>pîisè</b>	‘remain over’
<b>u, uu</b>	<b>mùtù</b>	‘wound’	<b>mùutù</b>	‘die’
<b>e, ee</b>	<b>mèrè</b>	‘lick’	<b>mèerè</b>	‘miss in shooting’
<b>o, oo</b>	<b>òyè</b>	‘be suitable’	<b>òoyè</b>	‘annoint’
<b>ɛ, ɛɛ</b>	<b>céré</b>	‘row’	<b>céeré</b>	‘vegetable gum’
<b>ɔ, ɔɔ</b>	<b>tónè</b>	‘transgress’	<b>tòorè</b>	‘cough (of a horse)’
<b>a, aa</b>	<b>àrè</b>	‘grow’	<b>àarè</b>	‘lie’

All the East Chadic of the B subbranch have MAXIMAL systems, but Dangaleat seems to be the only one that distinguishes upper and lower mid vowels.

In West Chadic, only languages of the Bole-Tangale (I.A.2), Angas (I.A.3), and Ron (I.A.4) have MAXIMAL systems. These groups form a genetic unit (which I would call “core West-A”, and development of a MAXIMAL vowel system seems to be an innovation inherited throughout this group. Bole (I.A.2.a) has a five vowel system with length for all vowels. Bole has no ə, phonetic or phonemic. The following pairs illustrate the Bole vowel system:

<b>i, ii</b>	<b>dīlo</b>	‘voice’	<b>dīilo</b>	‘winding’
<b>u, uu</b>	<b>buyo</b>	‘blowing’	<b>buuyò</b>	‘beard’
<b>e, ee</b>	<b>lele</b>	‘smearing’	<b>leele</b>	‘rock outcropping’
<b>o, oo</b>	<b>sòni</b>	‘year’	<b>sooni</b>	‘honey’
<b>a, aa</b>	<b>dàbà</b>	‘ <i>Combretum sp.</i> ’	<b>daaba</b>	‘peanut sauce’

There seem to be no Central or Masa Branch languages with a MAXIMAL system.

## 2.5. Initial, medial, and final vowels

Word final vowels have special properties of various kinds. The main distinguishing feature between MINIMAL and INTERMEDIATE vowel systems is that there is a word final high vowel contrast in the latter but not the former. Another special property of final vowels is that many languages with MAXIMAL systems have only short vowels in word final position of citation forms. This is the case for Dangaleat and Bole, discussed elsewhere.

A number of processes affect word final vowels depending on whether they are phrase final (as in citation forms) or phrase medial. In some cases, such alternations can be viewed as purely phonological. In Ngizim, which distinguishes /i/ and /u/ in word final position but not medial in words, the word final /i ~ u/ distinction is neutralized to [ə, i, u] under the same conditions that govern word-medial short high vowel qualities. For example, we find **gazabì** ‘black kite’, **gazabè bai** ‘not a black kite’, **gàbaabù** ‘billy goat’, **gàbaabè bai** ‘not a billy goat’.

Hoffmann (1963:37) says, for Margi, “Words which in their final form end in **-u** change **-u** to **-ə** in their non-final form, provided the previous consonant is not a palatal or alveopalatal. After palatals and alveopalatals **-u** is changed into **-i**.” Examples: **sù** ‘thing’, non-final form **sə...**; **ghàfù** ‘arrow’, non-final form **ghàfǎ...**, but **cù** ‘speak’, non-final form **cí...**. A better way to capture the facts Hoffmann describes is to say that Margi has a phoneme /ə/, which *phonetically* is realized as [u] in pre-pausal position and [i] in the environment of a preceding palatal. When citing Margi words, I ignore Hoffmann’s unnecessary word-final **u** symbol and cite the words with phonemic /ə/.

A widespread phenomenon in Central Chadic languages is a distinction between final and non-final vowels that is lexical, not purely phonological. Newman (1968), citing data such as the following for Tera, proposes such a distinction between /i/ vs. /ə/. Both are distinct from C-final words:

**Table 10:** Tera /i/ vs. /ə/

		FINAL	BEFORE C	BEFORE V
/i/	milk	<b>na wudi</b>	<b>na wudi ba</b>	<b>wudya</b>
	bamboo	<b>na muǰdi</b>	<b>na muǰdi ba</b>	<b>muǰdya</b>
/ə/	snake	<b>na sədi</b>	<b>na səd ba</b>	<b>(səta)</b> <sup>35</sup>
	horse	<b>na pərsi</b>	<b>na pərsə ba</b>	<b>pərsa</b>
final C	baboon	<b>na ruf</b>	<b>na ruf ba</b>	<b>rufa</b>

Glosses:                                    ‘This is ...’                    ‘This is not ...’                    ‘the ...’

The /i/ ~ /ə/ contrast is neutralized phrase finally, the /ə/ ~ C# contrast is neutralized non-finally, but all three configurations are needed to account for the data.<sup>36</sup>

Hoffmann (1981) has described a similar lexically governed alternation for languages of the Bura-Margi group (II.A.2). In Bura, some words ending in /a/ retain [a] in all environments, whereas others reduce the vowel to [ə] (or drop the vowel if not

<sup>35</sup> This word belongs to what Newman (1964) calls the **-ta** class, which suffixes the definite suffix /ta/ rather than /a/. The form here is derived as follows: /sədǎ-ta/ → **sədta** → [səta]. Newman (1968) does not include this word in his pre-V list since it is actually a pre-C form. I include it here for completeness.

<sup>36</sup> Newman (1968) uses a couple of further diagnostics for the three-way distinction as well.

disallowed by phonotactics) when not phrase final. As in Tera, both vowel alternants contrast with words that have no final vowel in any environment.<sup>37</sup>

**Table 11:** Bura vowel alternations

	CITATION		MEDIAL	
/a/ ~ /a/	<b>là</b>	bovine	<b>là sal</b>	bull (male bovine)
	<b>mwàlà</b>	wife	<b>mwàlà-r Muusa</b>	Musa's wife
	<b>kula</b>	lack	<b>Hamàn kula dzà</b>	Haman is thin (lacks body)
/a/ ~ /ə, Ø/	<b>ntà</b>	payment	<b>yà na ntə mbwa nì</b>	I am renting this room
	<b>cəbà</b>	herd	<b>cəbà-r là</b>	herd of cattle
	<b>wùlà</b>	watch over	<b>yì wul là ni</b>	I took care of his cow
Ø everywhere	<b>màl</b>	oil		

Lexically governed final vowel alternation is widespread—perhaps universal—in Central-A languages. In addition to Tera and Bura, it has been explicitly described and illustrated for Podoko (Jarvis 1989:51), Gidar (Schuh 1984:17), and Gude. These five languages represent the full geographic and genetic range of Central-A languages. The source of this phenomenon is implied in Jarvis's (1989:51) description of Podoko: "En contexte, la voyelle finale est **-a**, **-ə** ou **-i**, jamais **-u**. Cette voyelle se transforme systématiquement en **-a** lorsque le nom se trouve devant pause." There is an understandable tendency in linguistic descriptions to work from citation forms as base forms, but Jarvis correctly takes what she refers to as the *forme contextuelle* as the base. Newman's (1968) description of Tera, in the terminology that he used, does essentially the same thing applying rules to *morphophonemes*—essentially Jarvis's *formes contextuelles*—to derive phonetic forms. The historical change, then, has been to innovate uniform citation forms, not to develop vowel alternations. It is hard to know

<sup>37</sup> In my Bura data there is a handful of words cited with final /i/ but drop the vowel medially, e.g. **virì** 'day (period of 24 hours)', **vir sudà** 'two days'. However, most words cited with final /i/ retain the /i/ everywhere, e.g. **kùrì** 'finish, be done with', **kùrì kàlèr** 'end of work'. This may be a separate phenomenon from alternations involving /a/ in citation forms (though notice the similarity to Tera, discussed above). Hoffmann (1981) illustrates different behaviors only with words cited with final /a/.

whether this is an areal phenomenon or an innovation at the level of Central-A, though were it purely areal, one would have expected it to leak into neighboring languages and/or to have skipped some Central-A languages. Data from more languages would be needed to resolve this question.

I know of one West Chadic language that has a comparable lexically governed alternation, viz. Duwai, a West-B language of the Bade/Ngizim group that represents the first language to branch off within Bade/Ngizim. At one time it extended much further West than it does now and probably was in contact with Central-A Chadic languages.<sup>38</sup>

**Table 12:** Duwai vowel alternations

	CITATION		MEDIAL	
/a/ ~ /a/	<b>ə̀dbà</b>	‘tuft, comb’	<b>ə̀dbà</b> <b>gùvgum</b>	‘rooster’s comb’
	<b>sàwa</b>	‘ceremony’	<b>sàwàk</b> <b>bə̀làamà</b>	‘chief’s installation’
	<b>vǎ</b>	‘co-wife’	<b>vàátì</b>	‘my co-wife’
/a/ ~ /ə, Ø/	<b>baagà</b>	‘wall’	<b>bàagə́ gár</b>	‘wall of a town’
	<b>mà</b>	‘woman, wife’	<b>mək lə̀rà</b>	‘married woman’
	<b>mà</b>	‘woman, wife’	<b>mə̀ótì</b>	‘my wife’

Another phenomenon affecting final vowels in some languages is complete elision. This is described for Tangale by Kidda (1993) and Kenstowicz (1987) and for Dangaleat by Fédry (1971). In West-A this phenomenon could have been a factor in the shift to CVC root shape in languages of the Angas-Goemai subgroup, which is closely related to the Bole-Tangale group.

<sup>38</sup> In 1975, I traveled to Dadigur, perhaps 30-40 kilometers east of Gashua, and at that time claimed to be the easternmost Duwai speaking town. Even then, Kanuri had largely replaced Duwai. Greenberg’s (1966) “Mober”, a district fully Kanuri-ized by the mid-20<sup>th</sup> century, may have been a variety of Duwai. This area, before Kanuri-ization, would probably have been inhabited by speakers of languages closely related to Bura-Margi.



In Tangale, any final vowel, regardless of height or frontness-backness is elided before a suffix and in close syntactic phrases (data from Kenstowicz (1987) and Jungraithmayr (1991)). Elision of CVCC- roots results in epenthesis between the root final consonants to avoid a syllable-internal cluster:

**Table 13:** Tangale vowel loss and elision

	PHRASE FINAL		MEDIAL	
POSS. SUFF.	<b>ayaba</b>	‘banana’	<b>ayab-nó</b>	‘my banana’
	<b>basrɛ</b>	‘work’	<b>basur-mú</b>	‘our work’
	<b>tɔɔm</b> <sup>39</sup>	‘strength’	<b>tɔɔm-nɔ</b>	‘my strength’
PERF. SUFF.	<b>padé</b>	‘buys’	<b>pad-gɔ</b>	‘bought’
	<b>pɛŋrɛ</b>	‘turn around’	<b>pɛŋur-gɔ</b>	‘turned around’
	<b>kaazɛ</b>	‘fell’	<b>kaaz-gɔ</b>	‘felled’
GENITIVE	<b>baana</b>	‘beads’	<b>baan Kay</b>	‘Kay’s beads’
VERB + DO	<b>padé</b>	‘buys’	<b>padɛ lútu</b>	‘buys a bag’

Elision is blocked across large syntactic boundaries. These include a subject noun + verb, verb + adjunct phrase, and verb + questioned or focused post-verbal subject or object (Tangale, an SVO, language postposes questioned subjects and has *in situ* question and focus for other constituents).

Subject + verb:	<b>Kwala (*Kwal) wa padé</b>	‘Kwala will buy (it)’
	<b>soglo yúblúd-gó</b>	‘fish dove down’ <sup>40</sup>
Verb + adjunct:	<b>Kay múdúygó (*muduyug) sórum kobgó</b>	‘Kay died last week’
Verb + post-V Q-object:	<b>Malay wa padé (*pad) náŋ?</b>	‘What will Malay buy?’
	cf. <b>Malay wa padé</b>	‘Malay will buy (it)’
	<b>Malay wa pad (*padé) yálam</b>	‘Malay will buy oil’

<sup>39</sup> This word does not have a final vowel in citation form. It is meant to show that the long vowel is retained even in the closed syllable. I could find no examples CVVCV roots with a possessive suffix.

<sup>40</sup> In the PERFECTIVE, but not other TAMs, elision of the final vowel of a subject is optionally allowed. Thus **sogul yúblúd-gó** ‘fish dove down’ is felicitous.

Verb + post-V Q-subject: **múdúdgó (\*múdúdíg) nóŋ?** ‘who died?’  
 cf. **Malay múdúdgó** ‘Malay died’

Final vowel elision in Dangaleat (III.B.1.a) is similar to that of Tangale. All word final vowels are elided before suffixes and in phrases without large syntactic boundaries. Like Tangale, long root vowels are retained in Dangaleat even when the syllable becomes closed but CCC clusters that would result are repaired by epenthesis giving CCiC or CCuC.<sup>41</sup>

**Table 14:** Dangaleat vowel loss and elision

<b>dīdī</b>	‘birds’	<b>dīdī ká bèrkíydi</b>	‘oxpeckers’ (birds of cattle)
<b>bèrkì</b>	‘bull’	<b>bèrik gòyà</b>	‘there is a bull’
<b>dùuyù</b>	‘hyena sp.’	<b>dúuy-nà</b>	‘hyenas’
<b>gùrkùdú</b>	type of creeping plant	<b>gùrkid ká tìwìr</b>	‘ <i>Amaranthus</i> ’
<b>pìsè</b>	‘hand’	<b>pìs-t’ò</b>	‘their hand’
<b>dāŋlè</b>	‘Dangla person’	<b>dāŋil gòjà</b>	‘there is a Dangla’
<b>màakó</b>	‘evening’	<b>màák di</b>	‘just the evening’
<b>gém só</b>	‘girl’	<b>gémis-t’ò</b>	‘their girl’
<b>kólè</b>	‘marula tree’	<b>kól-t’ó</b>	‘their marula tree’
<b>méerè</b>	‘cold <i>tuwo</i> ’	<b>méer-kò</b>	‘your cold <i>tuwo</i> ’
<b>kóòrò</b>	‘measuring bowl’	<b>kóòr-nà</b>	‘measuring bowls’
<b>mèrnò</b>	‘two-strand rope’	<b>mèrin-kò</b>	‘your 2-strand rope’
<b>zúgá</b>	‘thatched roof’	<b>zúg ká bàd’àr</b>	‘marriage hut’
<b>gêmsà</b>	‘girls’	<b>gémis-tyó</b>	‘their girls’

## 2.6. Vowel harmony

An unfortunate terminological practice among many Africanist linguists is to use the term “vowel harmony” to refer to any sort of vowel assimilation, vowel copying, or

<sup>41</sup> Fédry (1971b:10-14) provides contextual details that condition [i] vs. [u], and even [ə].

vowel agreement. If this term is to have any value as a way characterize language typology, it should be limited to systems with rather specific characteristics: (1) The vowels all fall into at least two distinct articulatory classes, for example, [ $\pm$ round], [ $\pm$ back], [ $\pm$ ATR] (where “ATR” = ‘advanced tongue root’). (2) Roots are lexically specified for only one of the classes, that is, all the vowels of a particular root will always be [+feature  $x$ ] or [-feature  $x$ ]. (3) Most true vowel harmony languages will have a set of bound morphemes that are specified [ $\alpha$ feature  $x$ ], where  $\alpha$  matches the “+” or “-” value of feature  $x$  of the host. Some languages with well-known and well-documented vowel harmony systems that meet these criteria are Turkish with both rounding and backing harmony, Finnish with front/back harmony, and Igbo, Akan, Wolof, and many other African languages with ATR harmony.

I know of only two Chadic languages with phonological systems that meet these criteria: Tangale (I.A.2.b) and, to a lesser extent, Dangaleat (III.B.1.a). Tangale has a nine-vowel system with [ATR] harmony<sup>42</sup> and length: **i, e, u, o, i̇, ė, u̇, ȯ, a** where the vowels with dots are [-ATR] and the other non-low vowels are [+ATR]; the vowel **a** in a root conditions [-ATR] harmony, but in an affix it may cooccur with [+ATR] vowels. Pronominal and other inflectional affixes must harmonize with the [ATR] value of the root, e.g. **tuge** ‘pound (AORIST)’, **tuk-ko** ‘pound (PERFECT)’, **tuke** ‘brew (AORIST)’, **tuk-ko** ‘brew (PERFECT)’, **sake** ‘descend (AORIST)’, **sak-ko** ‘descend (PERFECT)’, **peere** ‘compel (AORIST)’, **peer-na-n-gó** ‘compelled me’, **pede** ‘untie (AORIST)’, **ped-na-n-gó** ‘untied me’. See Kida (1993), Jungraithmayr (1991), and several other works by Jungraithmayr for details.

Dangaleat has a seven-vowel system with length. Vowel harmony in Dangaleat applies only to the mid vowels, which fall into two classes, which Fédry (1971) calls “closed mid vowels” (*aperture moyenne fermée*) (**e, ee, o, oo**) and “open mid vowels” (*aperture moyenne ouverte*) (**ɛ, ɛɛ, ɔ, ɔɔ**). The latter class cannot cooccur in a word with any other vowels. Thus, **ṭʰɛ̄ṭɛ̄** ‘pepper’, **ḳɔ̄ṛɔ̄** ‘measuring bowl’, **ṃɛ̄rṇɔ̄** ‘two strand rope’, **ḳɔ̄ṛɛ̄** (a type of crow) are all well-formed, but **\*ṭʰɛ̄ṭɛ̄**, **\*kaarɔ̄**, **\*ṃɛ̄rni**, **\*kurɛ̄**, etc.

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<sup>42</sup> Jungraithmayr (1991) refers to the distinction as [ $\pm$ ATR]. Kida (1993) refers to the [+ATR] set as “tense” and the [-ATR] set as “lax”.

would be ill-formed. Affixes containing mid vowels must harmonize with root vowels, e.g. **mèer-kó** ‘your (m.sg.) uncle’, **yáa-kò** ‘your (m.sg.) mother’ (used in abuse), **kól-t’ó** ‘their knife’, **gér-t’ó** ‘their home’, **ɲá déè-kè** ‘he has killed you (f.sg.)’, **ɲá tèe-kè** ‘he eats (“wrongs”) you (f.sg.)’, **bòò-tè** ‘our (incl.) father’, **ròy-té** ‘our (incl.) friend’. A feature worth mentioning is that harmony applies only with respect to UNDERLYING root vowels. Dangaleat breaks up impermissible consonant sequences with epenthetic **i** or **u**. These epenthetic vowels are ignored for the purposes of vowel harmony: **dòkìnè** ‘interfere’, **sòkùmè** ‘nibble’, **mèrin-kò** ‘your two-strand rope’, **dèèdī-t’ó** ‘their little finger’.

Real vowel harmony systems of the types illustrated here are isolated and relatively recent innovations. The impetus for these innovations is uncertain, but vowel harmony of any type was absent in Proto-Chadic.

### 3. Palatal and Labial Prosodies

Many languages in the Central Branch have been described as having morphophonological systems with *palatal* prosodies, and to a lesser extent, *labial* prosodies. [Need to incorporate the considerable literature dealing with this matter, starting with the overview in Gravina (2014)]

### 4. Ngamo

Ngamo has two major dialects, Yaya and Gudi. Most of the descriptive statements in this section apply to both dialects unless differences are explicitly mentioned. Examples where dialect source is not mentioned are from Gudi.

#### 4.1. Consonants

Ngamo is a two-labial modal obstruent language, with just /f/ and /b/. The pronunciation of /f/ ranges across [ɸ, p, h]. I have data from two dialects: Yaya and Gudi. Yaya realization of /f/ is fairly consistent: [h] before round back vowels (**hùndo** ‘thigh’, **dāahu’ù** ‘he followed’, **hòdfo** ‘four’, **shòhò** ‘wood’, **ɲgarhò** ‘visitor’), [p] syllable final and after **m** (**lapkò** ‘he answered’, **hòpyuk ’insà** ‘he broke eggs’, **dùmpo** ‘forehead’), and [ɸ] elsewhere (**ɸàali** ‘lake’, **tuuɸà** ‘day after tomorrow’, **ɸetirè** ‘white’, **arɸitò** ‘fingernail’). Turning to Gudi, the distribution of [p] is like that for Yaya (see

examples above, which are homophonous in the two dialects). Data that I collected on /f/ before /a/ is inconsistent, sometimes being [ɸ] (**ɸatko bò gàabi** ‘he covered the pot’, **ɸàɸà** ‘following’), sometimes [h] (**hàali** ‘lake’, **tùuhâ** ‘day after tomorrow’). Gudi has [h] before all non-low vowels (**hìndinnî** ‘he arose’, **hetrè** ‘white’, **hùndo** ‘thigh’, **hòdò** ‘four’, **ngàrhô** ‘visitor’). The sound [h] < \*/f/ has fallen together with /h/ in loanwords (**hànkali** ‘intelligence’ < Arabic via Hausa, **hàptâ** ‘lift’ < Kanuri, **hùutâ** ‘rest’ < Hausa).

Ngamo has

- added **h**: borrowed /h/ and has [h] < /p/; -; no back fricatives from velars
- three implosives; **ɗ** occurs in coda
- glottal stop: **’ùrtâ**, **’ù’ùrtâ** ‘unload’
- only one rhotic
- only one lateral (no lateral fricatives)
- prenasalized: just like Bole in redup,
- no labialized/palatalized velars
- dislikes geminates (see degemination paper, Schuh (2005a))
- vowels MAXIMAL system like Bole: five vowels plus length
- no vowel harmony, though tendency for mid-vowels to match (e–e, o–o)
- no long V in closed syllables
- final V’s all short; no elision

## 5. Gude

This section makes repeated reference to Hoskison (1975, 1983), which are the only previously available descriptions of Gude phonology. The analysis and examples here, however, are drawn almost entirely from my own work (Schuh 1981-82). Hoskison made what I view as some unfortunate decisions in his conventional transcription, which obscures actual Gude pronunciation and as a consequence misses crucial points of analysis, particularly in the distribution of ə and the description of geminates.

### 5.1. Consonants

Gude has a four way labial modal obstruent contrast: **p** (**pan** ‘war, fighting’), **b** (**baan** ‘lie down’), **f** (**fan** ‘hear, listen’), **v** (**vàna** ‘catch in the air’). There is one rhotic (the tap/trill IPA [r]) that corresponds to Proto-Chadic \*r and to l in those Central and Masa languages that have undergone an \*r > l change, e.g. **ràga** ‘bow’, cf. Bole (West) **riya**, Buwal (Central) **lagwàw**); **hərən** ‘to steal’, cf. Bole **shiru**, Buwal **nxèl**. Every consonant has labialized and palatalized counterparts, to which I return below.

Gude has alveolar affricates **ts** and **dz**, these being well attested in a number of other Central Chadic languages and also in languages of the North and South Bauchi groups of West-B. These affricates are in contrast with the corresponding stops and fricatives: **tsan** ‘thorn fence’, **san** ‘drinking’, **tan** ‘excrement’, **dzàn** ‘beat drum, weave mat’, **zan** ‘get lost’, **dàna** ‘cook’. Although I included alveolar affricates in the consonant chart in Table 1 at the beginning of this chapter, I think that it is unlikely that they were in the Proto-Chadic consonant inventory. They probably have different historical sources from language to language.<sup>43</sup> In Gude, there are hints that at least some may come from depalatalization of /j/, e.g. **dzakən** ‘to adorn’ with PERFECTIVE **jak** alongside **jakin** ‘adornment’, all from Kanuri (Manga dialect **njaye**). Another example may be **dz** in **dzən** ‘to go’ paired with palatalized /d/ in the PERFECTIVE **gyi** (< palatalized /di/). This **dz** (?< \*j) pairing with /d/ is similar to the Ngizim pairing of **j** with **d** in **ju** ‘go’ **dew** ‘come’, Hausa **jee** ‘go’, **daawoo** ‘come back’.

Implosive **ɓ** and **ɗ** are well-represented in Gude, e.g. **ɓàanan** ‘to count’, **kubən** ‘to wash’, **ɗan** ‘to do, to happen’, **məɗa** ‘wind’. Gude also has glottalized ’y and ’w. Many tokens of ’y are palatalized realizations of /ɗ/, as in **ɗərən** ‘to buy’ with PERFECTIVE ’yir, **faaɗən** ‘to sharpen to a point’ with PERFECTIVE **faa’y**. Some Chadic languages, such as Hausa and Warji (West) and Tera, and Logone (Central), have a fourth glottalized

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<sup>43</sup> Jungrathmayr & Ibrizimow (1994:xxiii) do not include \*ts or \*dz in their Proto-Chadic inventory and aside from medial \*-t- > -ts- in some languages (though not Gude), they propose few cases of **ts** or **dz** as reflexes of Proto-Chadic consonants. Similarly, Newman (1977:9) omits **ts** and **dz** from his Chadic consonant chart, although, in personal communication, he indicates that he is now receptive to the idea.

phoneme at the velar position. At least some tokens of glottalized **'w** in Gude seem structurally to be a velar glottal, e.g. **'wan** ‘to call’ (cf. Tera **ǵá**).

Aside from these cases that fit into a general Chadic picture of four places for glottalized sounds, there may be another source for at least some tokens of **'y** and **'w**. Gude has glottal stop **' [ʔ]** as a real phonemic consonant. In §1.4 I suggested that glottal stop cannot be reconstructed as a Proto-Chadic phoneme and that glottal stops in most languages are either automatically added at the beginnings of otherwise vowel-initial words to avoid onsetless syllables, or they appear in loanwords (typically from Arabic). Phonemic glottal stop in Gude, on the other hand, contrasts with its absence in otherwise vowel initial words. Phonemic glottal stop shows up in all contexts whereas vowels in hiatus without an intervening glottal stop are elided or undergo fusion:

/ɲgà 'ənzì/	→ [ɲgà 'ənzì]	‘(that one) of now’
/kə 'àli-ny ùuzən/	→ [kə 'àliny ùuzən]	‘I (-ny) looked for a child (ùuzən)’
/rəgwà 'idna/	→ [rəgwà 'idna]	‘vein’ (“path-of blood”)
/ɲgà uuzən/	→ [ɲgoozən]	‘(that one) of a child’
/kùvə əggìna/	→ [kùvəggìna]	‘nest’ (“house-of bird”)
/kə əjji ma'in/	→ [kəjji ma'in]	‘water ( <b>ma'in</b> ) spilled’

At least some phonemic glottal stops in Gude apparently have their historical origin in a velar consonant, e.g. **'àva** ‘arrow’ (cf. Tera **ghafa**), **'alən** ‘swell up’ (cf. Tera **xəli**). Gude has full sets of palatalized and labialized consonants, and since it seems that Proto-Chadic can be reconstructed with palatalized and labialized velars, it may be that at least some tokens of **'y** and **'w** are reflexes of palatalized and labialized velars that have become glottal stops that retain the original secondary articulations.

Gude has two laterals: a voiceless fricative /ɬ/ and a voiced sonorant /l/. There is no voiced lateral fricative [ɮ]. Newman (1977:18) says, “In most of the Bata group [to which Gude belongs—RGS], the former hlaterals, both voiced and voiceless, have become frictionless l... Gude does have ɬ in a small number of words, but this seems to be a re-introduction rather than a retention.” Availability of extensive Gude data not available to Newman in 1977 shows that this scenario cannot be maintained. More than a

“small number” of Gude words contain **ɮ**, and a number of these are in roots reconstructable with **\*ɮ**. It is hard to imagine how **ɮ** could have been “re-introduced” into such words once it had been lost. A comparison between Tera and Gude gives us a likely answer.

**Table 15:** Lateral fricatives in Gude and Tera

		TERA	GUDE
ɮ ~ ɮ	meat	ɮù	lùwa
	tooth	ɮìn	lèŋin
	ear; name	ɮəm	ləmin
	cow	ɮà	la
	egg	ŋgarɮì	’àlin
ɮ ~ ɮ	work, send	ləna	ləna
	swell	xəli	’alən
	sew	tali	tələn
ɮ ~ ɮ	root	ɮəɮà	lərgin
	chop	càɮì	cələn
	break	wùɮì	nləna
ɮ ~ ɮ	bone	ɣəl	’ila

In five of the eight examples where Tera has **ɮ**, Gude has **ɮ**; in three of the four examples where Tera has **ɮ**, Gude has **ɮ** as well. Although a small number of contradictory examples exist, a plausible hypothesis is that the Gude sound change was **\*ɮ > ɮ**, while **\*ɮ** remained unchanged. Of comparative interest is the fact that in most of the examples where a Proto-Chadic reconstruction has been proposed, both Tera **ɮ** and Gude **ɮ** correspond to *voiceless* laterals, e.g. ‘meat’ (Ngizim **lùwai**), ‘cow’ (Ngizim **là**). Newman (1977:16) has pointed out that in Tera, most original voiceless fricatives have become voiced, especially in initial position. The table above would suggest that both Tera and Gude underwent this voicing change, then Gude further changed **\*ɮ > ɮ**. Since



Tera and Gude (or, more precisely, the II.A.1 and II.A.8 subbranches) are not closely related and do not share a history during which the voicing innovation might have taken place, we appear to have an example of independent parallel change.

Both Hoskison and I transcribe many words with initial NC, where C is a voiced stop and N is a homorganic nasal component: **mbə̀ɗ** ‘yesterday’, **nduudā** ‘white’, **ndzaŋən** ‘to weld together’,<sup>44</sup> **njalhə** ‘smash or mash something moist’ [Hoskison],<sup>45</sup> **ŋgà’an** ‘good, nice’. Presumably these are phonological units in word initial position. There is modest evidence that they are units across the board. Consider the following words:

<b>hə̀rmbə̀ɗa</b>	‘mousetrap’	<b>’ùmb</b>	‘cover, hide PERFECTIVE’
<b>’ùrŋgələn</b>	‘sprain’	/ə̀nd/ <sup>PAL</sup> → [ə̀ŋg <sup>y</sup> ]	‘dye PERFECTIVE’
<b>dàŋgəlŋgələn</b>	type of poisonous snake	<b>nìŋg</b>	‘care for PERFECTIVE’

Assuming that Gude is like every other Chadic language in not allowing complex syllable onsets or codas, the medial sequences of the words on the left would have to be syllabified C.NC, where NC begins a new syllable. The words on the right are pronounced as monosyllables, meaning that the NC sequences must be unitary syllable codas, not CC sequences.<sup>46</sup>

The word-initial NC sequences of the type discussed above form a simple syllable onset. There are also NC sequences where the C is a voiceless obstruent or a voiced fricative and the nasal is syllabic, forming a syllable with its own tone, e.g. **ñfwad** ‘four’, **ñshin** ‘today’, **ñtə̀na** ‘to die’, **ñlə̀na** ‘break a rope’, **ñjvwa** ‘beer’, **ñzadfa** ‘thatch grass’ (cf. **zadən** ‘to thatch’). There are some words where I have transcribed “ə̀NC” rather

<sup>44</sup> In a couple of words, I have transcribed **nz** where Hoskison has **ndz**, e.g. **nzaɓa** ‘pottery clay’, Hoskison **ndzaɓa**. I believe Hoskison’s transcription is phonologically accurate since NC prenasalized consonants seem to be restricted to cases where C is a voiced STOP or affricate.

<sup>45</sup> I have no examples of **nj** in my data, and Hoskison has very few.

<sup>46</sup> Hoskison’s transcription convention is to write ə̀ after every consonant that is actually pronounced as a syllable coda. This gives a false impression of Gude phonotactics, which freely allow sonorant consonants as codas. For example, his dictionary entry **hə̀rə̀finə̀** ‘fish’ is actually pronounced [hə̀rfin]. The words in the table here are as pronounced, though Hoskison transcribes them all with ə̀ following the codas.

than a syllabic nasal, e.g. **əmfwa** ‘tree’, **ənshàra** ‘son of a chief’, **əntəfaka** ‘ashes’. Hoskison transcribes both my **ŋC...** and my **əNC...** words as **ənC...**. I suspect that Hoskison’s transcriptions are right from a phonological point of view, with an optional rule /əNC/ → [ŋC] / [WORD\_\_\_\_\_]. This underlying form with optional syllabification of the nasal applies only to words where C is voiceless or a voiced fricative, with one notable exception: /ənda/ → [nda] ‘person’, plural /ənja/ → [nja].<sup>47</sup> This word historically derives from \***məda** rather than from a root with an initial prenasalized consonant (cf. Njanye **məde**, Bura **mđâ**, Podoko **mənda**, Hausa **mùtùm**). It is important to distinguish words where the initial ə is a deletable prothetic vowel from words that begin in /’əN.../ with initial glottal stop. In the latter case /’əN/ cannot be reduced to syllabic [n] and ə cannot be elided. Thus, /ŋgà ’ənzì/ → [ŋgà ’ənzì] ‘(that one) of now’ but /cii əmfwa/ → [ciimfwa] ‘branch of a tree’, /ənvwa ənda/ → [n̄vwànda] ‘human excrement’.

Gude has many words with phonetic geminate consonants: Hoskison (1983:21) says,

“Consonant length in Gude is not phonemic in the classical sense.... In native vocabulary, phonetic geminate (long) consonants occur automatically—and only—after short vowels. This phonetic gemination is strongest in short, two syllable words, such as /əda/ [ədda] ‘dog’, but is much less pronounced as the number of syllables in the word increases.”

This description is misleading if not wrong. The correct generalizations are as follows:

- ə comes at the beginning of a word only (1) before a geminate (**əbbùŋa** ‘small of back’, **ədda** ‘dog’, **əddza** ‘zana mat’, **ərra** ‘cold weather’, and many others), or (2) before an NC cluster as an alternative to [ŋC], with a syllabic nasal (**əmfwa** ‘four’ ~ **əmfwədə** in Hoskison’s transcription). These environments form a natural class in that the two C’s share place of articulation and involve constriction in the oral cavity.

- Medial in a word, geminates and singletons are in contrast: **mabbəra** ‘termites’ vs. **mabu’un** ‘winnowing calabash’, **gùddəra** ‘cat’ vs. **gùdùlən** ‘to shake off dirt’, **livvəra** ‘lion’ vs. **’ivənyin** ‘charcoal’, **ləddzàŋa** ‘circumcision’ vs. **gadza** ‘scabies’, **fəddan** ‘to begin’ vs. **fədən** ‘to collect and remove’, and numerous others. In all these cases, the consonant of interest, whether geminate or singleton, follows a short vowel.

<sup>47</sup> One further exception is **əngina** ‘fonio’ (transcribed as such by both Hoskison and me). This word may actually be underlying /’əngina/, with an initial glottal stop—see immediately below.

In short, contrary to Hoskison’s claim, Gude does have a contrast between geminates and singletons. One might argue that this underlying contrast extends to root initial consonants, with a PROTHESIS rule,  $\emptyset \rightarrow [ə] / [_{\text{PHRASE}} \_\_ \text{CC}]$ , where CC = a geminate or an NC cluster. From the Gude descriptive perspective, this works, but from a historical Chadic perspective the source of these putative “root initial” geminates is a mystery waiting to be solved!

## 5.2. Vowels

The Gude vowel system, historically, can be stripped down to what I refer to as a MINIMAL system (§2.2), that is, a contrast only between high and low. Gude now has a four way phonetic distinction with length between  $ə/əə$ ,  $i/ii$ ,  $u/uu$ ,  $a/aa$ , which, in terms of purely surface contrasts, could be considered phonemic, but at a deeper level (synchronic or historical) these distinctions can be understood in terms of assimilations, morphological palatal prosody, morphologically conditioned lengthening processes, or a combination of these. Gude also has phonetic [ee] and [oo], but leaving loanwords aside, these are the result of coalescence of /**a+ii**/ and /**a+uu**/ respectively.

Referring particularly to the high vowel(s), Hoskison (1983:14) says, “Short vowels tend to be labiovelarized—back and round—contiguous to labiovelarized consonants, palatalized—front and unrounded—contiguous to palatalized consonants, and central and unrounded elsewhere.”

Labiovelarization: / $\dot{\text{ə}}\text{nf}^{\text{w}}\text{ə rən}$ /  $\rightarrow$  [n̄fu rən] ‘locust bean tree’ (“tree-of dry season”), cf.

$\text{n̄f}^{\text{w}}\text{a}$  ‘tree’ (citation form); / $\text{g}^{\text{w}}\text{ən}$ /  $\rightarrow$  [gun] ‘fire’

Palatalized: / $\text{'}\dot{\text{ə}}\text{n}^{\text{y}}\text{an}$ /  $\rightarrow$  [’ijnan] ‘peanuts’ (transcribed  $\text{ənyanə}$  by Hoskison), / $\text{k}^{\text{y}}\dot{\text{ə}}\text{la}$ /  $\rightarrow$

[kila] ‘forked pole’

Gude has distinctive vowel length for all four of its vowels, the three high vowels **i/ii**, **u/uu**, **ə/əə** and the low vowel **a/aa**.

**Table 16:** Gude vowel length

<b>kiran</b>	/kʷəran/	‘to bring’	<b>kiirán</b>	‘gap between front teeth’
<b>’ùva</b>	/’wəva/	‘tamarind’	<b>ùuva</b>	‘Kanuri person’
<b>gə̀ra</b>		‘large water pot’	<b>gə̀əra</b>	‘river’
<b>mavá</b>		‘slave’	<b>màava</b>	‘fat’

Development of the length distinction for these vowels must be a relatively recent innovation in Gude (and possibly other closely related languages), at least for high vowels. One might propose underlying /əy/ and /əw/ respectively for [ii] and [uu],<sup>48</sup> as is the case for many languages, but there is no plausible parallel source for [əə]. Certain morphemes and morphological processes condition vowel length. These include demonstrative suffixes, e.g. **’àgin** ‘eggplant’, **’àgii-ta** ‘that eggplant’, **ùuzən** ‘child’, **ùuzə̀ə-ta** ‘that child’, and pluractional verb formation, e.g. **dzə̀bə-** ‘stab’, **dzə̀əbə-** ‘stab repeatedly’. It seems likely that once *vowel lengthening* was introduced, this opened the door for *vowel length* to be interpreted as being phonologically distinctive, both for native Gude words (e.g. erstwhile pluractional verbs that no longer have a simple counterpart) and for loanwords in which vowels were perceived as being long or short.

Like many Central Chadic languages, Gude neutralizes the distinction between phrase final **-a** and phrase final Ø. Nouns that are cited with final **-a** fall into two classes: those that retain final **-a** everywhere and those that end in **-a** only phrase finally. This distinction emerges, for example, with demonstrative suffixes and plural possessive pronouns:

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<sup>48</sup> Hoskison (1983:20) derives these vowels from /əyə/ and /əwə/. This disyllabic source is gratuitous inasmuch as there are no environments where, for example, [ii] alternates with [iyi].

**Table 17:** Alternations with /a/

	CITATION		‘that ...’	‘our (incl.) ...’
-a only	<b>raha</b>	‘axe’	<b>raha-ta</b>	<b>raha-gáam</b>
	<b>ha</b>	‘place’	<b>ha-ta</b>	<b>ha-gáam</b>
-a ~ Ø <sup>49</sup>	<b>kùva</b>	‘hut’	<b>kùv-ta</b>	<b>kùvə-gáam</b>
	<b>na</b>	‘head’	<b>nə-ta</b>	<b>nə ηgà kùva</b> ‘roof’ (head of hut)

### 5.3. Morphological palatalization

Like many of the Central Chadic languages of northern Cameroon and northeastern Nigeria along the Cameroon border, Gude palatalizes entire words as a morphological process. Specifically, palatalization comprises part of the marking of verbs in the PERFECTIVE, in VENTIVE stems, and in one class of nominal plurals. There are also numerous roots that are best viewed as lexically palatalized rather than comprising individually palatalized consonants and vowels.

The following routine for palatalizing roots is adapted from Hoskison (1975:41), with some additions based on my observations. There is considerable variation, and only (1) and (2) seem close to exceptionless

- (1) Monoconsonantal roots add postthetic **-i** and the consonant is unpalatalized.<sup>50</sup>

Otherwise:

- (2) Obligatorily change /**ɗ, n, s, z, ts, dz**/ to their palatal counterparts [**’y, ny, sh, zh c, j**].

<sup>49</sup> Hoskison (1983:23) proposes underlying forms ending in short **-a** and short **-ə** respectively, with both replaced by long [**aa**] phrase finally. A [**ə**] is present, however, only when a vowel is required by the phonotactics, so an epenthesis analysis seems preferable to deletion. As for the final **-a** being long, there is no phonological evidence for this. It is never long phrase medial, and I never heard it as distinctively long, though there may be a non-significant pre-pausal lengthening effect.

<sup>50</sup> Roots with heavy syllables usually add postthetic **-i** as well. My data is inconsistent as to whether these palatalize consonants. Here are some VERBAL NOUN ~ PERFECTIVE pairs (see the table below): (with palatalization) **əssəna** ~ **əsshì** ‘catch’, **ùuɗəna** ~ **ùu’yi** ‘want’; (without palatalization) **əttšana** ~ **əttsi** ‘roast’, **dzàanan** ~ **dzàani** ‘insult, abuse’.

- (3) If the root has none of the consonants above but it does contain one or more other coronals, then palatalize at least one of those. Palatalized /t/ is usually realized as [kʲ], and palatalized /d/ is usually realized as [gʲ], though with coronals other than those in (1), palatalization is often shown by fronting of vowels in the root rather than clear palatalization of the consonant—see (6).
- (4) If the root contains no coronals, then palatalize at least one other consonant other than /gh/. (/gh/ is not palatalizable, but no words have only /gh/ as a root consonant.)
- (5) Optionally palatalize any consonant in addition to the obligatory palatalizations above.
- (6) /ə/ tends to be realized as [i], though there is variability between [ə, i, u] depending on environment. /a/ may be somewhat fronted, but if so, I did not consistently mark this.

I illustrate with verbal nouns, which are not palatalized, paired with their PERFECTIVE stems, which are palatalized. These are presented as VERBAL NOUN ~ PERFECTIVE. The data is as I transcribed it, but there is probably some variation in pronunciation in normal speech.

**Table 18:** Gude morphological palatalization

(1)	<b>ɗan ~ ɗi</b>	‘do’	(4)	<b>pa’an ~ pya’</b>	‘close, lock’
	<b>zan ~ zi</b>	‘get lost’		<b>vahən ~ vyah</b>	‘form ridgerows’
	<b>tsan ~ tsi</b>	‘tear’		<b>gàpna ~ gyap</b>	‘embrace’
(2)	<b>ɗərən ~ ’yir</b>	‘buy’	(5)	<b>vəgədən ~ vəgìgy</b>	‘throw’
	<b>nu’un ~ nyu’</b> /nə’w’ən/	‘follow’		<b>həna ~ hyi</b>	‘shoot’
	<b>səərna ~ shiir</b>	‘fry’		<b>ɓəzna ~ ɓizh</b>	‘wipe’
	<b>zadən ~ zha’y</b>	‘thatch’		<b>dzəgəna ~ jìgy</b>	‘?’
	<b>tsakən ~ cak</b>	‘increase’			
	<b>dzəgunən ~ jəgwiny</b>	learn’			

(3)	<b>pàrtàn ~ pàrky</b>	‘break free’
	<b>tàfàn ~ tif</b>	‘flay’
	<b>’àdàn ~ ’àgy</b>	‘eat’
	<b>dàna ~ di</b>	‘cook’
	<b>lèban ~ lib</b>	‘sweep’
	<b>’àlàn ~ ’àly</b>	‘look for’
	<b>ran ~ ri</b>	‘dig’

There is no question that palatalization in Gude is a *morphological* process that applies globally to words rather than a *phonological* process of “consonant harmony” or “vowel harmony”. First, the conditioning is morphological: palatalization is associated with specific morphological categories, not with local assimilations and the like. Second, there is considerable variation in the way palatalization is ultimately realized from token to token of any particular root. The basic rule seems to be something like “if the verb is PERFECTIVE, palatalize something”, where “palatalize something” follows rather loose guidelines.

## 6. Hausa

Hausa phonology has been well described in reference grammars, pedagogical grammars, and articles examining details. For a succinct general description of Hausa phonology, see Newman (1997). More detailed descriptions are in Newman (2000) and Jaggar (2001). This section focuses on comparative issues.

### 6.1. Consonants

Hausa has no lateral fricatives or prenasalized consonants. See §1.6 for discussion of Hausa reflexes of reconstructable Chadic lateral sounds; §1.7 discusses the difficulty of establishing correspondence sets for prenasalized consonants.

Hausa is a two-labial modal obstruent language, with just /f/ and /b/. As in other such Chadic languages, the voiceless phoneme is phonetically bilabial, not labiodental as the “f” symbol might imply. Its realization varies contextually and dialectally across [p, f, h<sup>w</sup>, h]. The most common realization in “standard” Kano Hausa and much of northern

Nigeria is [ɸ], as in [ɸaadi] ‘fall’, [ɸiilii] ‘field’, whereas in Western and northern dialects, [h<sup>w</sup>] appears before **a/aa** and [h] elsewhere, as in [h<sup>w</sup>aadi] ‘fall’, [hiilii] ‘field’, the latter having fallen together with original /h/ before vowels other than **a/aa**, cf. **hikimàa** ‘wisdom’ in all dialects.

Hausa has four glottalized consonants: **ɓ**, **ɗ**, **s**’ (orthographically **ts**), and **k**, as in **habàa** ‘chin’, **hadàa** ‘join’, **hatsii** ‘guinea corn’, **hakàa** ‘dig’. A fifth glottalized consonant, **’y**, found in only one root and its derivatives. It is a historical contraction of **ɗiy-** ‘(offspring’, still heard dialectally in **ɗiyaa** ‘daughter’ (**’yaa** in Kano Hausa) and **ɗiyaa** ‘(one’s) children’ (**’yaa’yaa** in Kano Hausa). The ejective **ts** fills the palatal phonological spot and generally corresponds to **’y** or **ɗy** in other languages, e.g. **tsayàa** ‘come to a stop’, Bole **’yuru**.

Glottal stop is of frequent occurrence in Arabic loans such as **mà’ànnaa** ‘meaning’, **sàbà’in** ‘seventy’, where it contrasts with other consonants, e.g. **màganàa** ‘talking’, **sàabaràa** ‘*Guiera senegalensis*’. Glottal stop also serves as a syllable onset for words that would otherwise begin with a vowel, e.g. **auree** [’auʔee] ‘marriage’, **igiyàa** [’igiyàa] ‘rope’ (see Newman 1976). Hausa treats initial glottal stop like any other consonant for morphological purposes. Pluractional verbs are formed by reduplicating C<sub>1</sub>VC<sub>2</sub>, and C<sub>2</sub> usually assimilates completely to root C<sub>1</sub>: **dafàa** ‘cook’, pluractional /**daf-dàfaa**/ → **dad-dàfaa**. Initial glottal stops participate in this process: **’azàa** ‘place on’, pluractional **’a’-’àzaa**. Nonetheless, despite these linguistic arguments, it seems anomalous, to give initial glottal stop, which is present purely for phonetic/phonotactic reasons, the same phonological status as medial glottal stop, which is an unpredictable part of a word’s lexical specification and moreover is found almost exclusively in loanwords whereas initial glottal stop is an automatic onset in all words, native as well as loans.

Hausa has two rhotics, retroflex flap /ɽ/ (written **r**) and alveolar tap/trill /r/ (written **ṛ**). These rhotics are in contrast in Hausa and are reconstructable for West Chadic and probably Proto-Chadic as well.

Hausa has a full set of plain, labialized, and palatalized velars: **kaarèe** ‘hide, screen off’, **gaara** ‘it would be better’, **kaarèe** ‘finish’, **kwaarèe** ‘uncover’, **gwaari** a kind of grasshopper, **kwaarèe** ‘choke’, **kyaarèe** ‘become upset’, **gyaaràa** ‘repair’, **kyaalèe** ‘ignore’. This three-way distinction for velars is probably a reconstructable feature of



Proto-Chadic. There are a few examples of labialized and palatalized consonants at other places of articulation, but not enough to make any claims relevant to comparative Chadic.

Newman (2000:397) states, “Geminates in Hausa ... are extremely prevalent,” citing a number of sources including numerous historical or synchronic assimilations and loans: pluractional **rab-ràbaa** → /rarràbaa/, derived adjective **zàk-zaakaa** → /zàzzaakaa/ ‘very sweet’ < **zaakii** ‘sweet’, syncope between like consonants \***zoobàbaa** > **zàbbaa** ‘rings’ < **zoobèe** ‘ring’, synchronic assimilation /**gidaa-n-mù**/ → [gidammù] ‘our house’, and loanwords, e.g. **dabbàa** ‘animal’ < Arabic. Newman concludes,

This suggests that at an earlier period there were probably no geminates in monomorphemic words [in Hausa]. All geminates now in the language would thus have come from internal morphological or phonological (assimilatory) processes or from loanwords .... If this is so, it would set Hausa apart from its sister Chadic languages, like Bole, where gemination is quite common.

As it turns out, however, Bole is very much like Hausa. Schuh (2001) shows that nearly all cases of gemination in Bole can be attributed to processes similar to those in Hausa. Bole’s close sister languages like Karekare and Ngamo *avoid* geminate consonants (see Schuh 2005a for Ngamo). In short, Newman is right about Hausa: the presence of geminate consonants in Hausa is the result of low level historical developments, not inheritance from a higher level ancestral language, but this is probably the case for all Chadic languages where geminate consonants are common.

## 6.2. Vowels

### 6.2.1. Short vowels

If one were to consider only short vowels, Hausa has what I refer to as an INTERMEDIATE system. The only contrast in medial short vowels is high vs. low; word final there is at least a 3-way vowel contrast (in Hausa, now a five-way contrast—see below). It is well-known that non-high vowels neutralize to [a] when non-final. This can be illustrated by suffixing the PREVIOUS REFERENCE MARKER **-n** to words, which closes the final syllable, automatically shortening the root-final vowel: **karaa`-n** → [karâŋ] ‘the stalks’, **kàree`-n** → [kârâŋ] ‘the dog’, **karòo`-n** → [karàŋ] ‘the collision’, resulting in a

minimal triplet differentiated by tone rather than by vowels. Thus, the only medial short non-low vowel is [a].

Short high vowels contrast in word *final* position. This can be seen, for example, in verb morphology, such as IMPERATIVE “Grade 2” **sàyi** ‘buy (it)!’ vs. “Grade 7” **sàyu** ‘be bought up’. More controversial is whether Hausa has now or has ever had a contrast in *medial* short high vowels. Parsons (1970),<sup>51</sup> working only from Hausa-internal data, proposed that Hausa has a single short medial high vowel phoneme, which he symbolizes “I/U”. Coloration toward [i] or [u] is conditioned by neighboring consonants and/or vowels. Newman (1979b) argues against Parsons’ analysis, citing coronal consonants that seem to have become palatalized because of a following underlying /i/ rather than the “i-coloration” of the vowel resulting from the preceding palatal, as would be necessary in Parsons’ analysis. Thus, there are lexical variants such as **sanii** ~ **shinàa** ‘know’ and otherwise unexplained palatalizations of reconstructable alveolars such as **jikii** < \***zikii** ‘body’, cf. Ngamo **zùk**, Mupun **sìk**.<sup>52</sup>

This evidence is circumstantial, i.e. it does not demonstrate that medial short /i/ and /u/ are in contrast. The gold standard for demonstrating contrast between phonological segments is sets of words (generally, though not necessarily, minimal pairs) whose significant difference is the lexically specified difference in the target segments. There are no such sets in Hausa. An apparent contrast in pairs such as **gidaa** ‘house, home’ vs. **gùdaa** ‘a unit’, **kisàa** ‘murder’ vs. **kusa** ‘near’ are best accounted for, as in many other Chadic languages, by a distinction in consonants, not vowels. We know, independently, that Hausa has a distinction between plain vs. labialized velars. If we take /i/ as the “neutral” short high vowel of Hausa (see discussion below), the respective underlying forms for these words are /**gidaa**/, /**g<sup>w</sup>idaa**/, /**kisàa**/, /**k<sup>w</sup>isa**/). Pairs like this that are

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<sup>51</sup> Parsons’ (1970) account is a distillation of a theory laid out in a massive +/-600 page study that was never published, entitled “The vowel system of the radical in Hausa: an essay in metaphonemic analysis”.

<sup>52</sup> Newman ignores palatalizations that cannot be explained as being conditioned by vowels, such as **shaa** ‘drink’ < \***saa**, **jaa** ‘red’ < \***daa** (cf. Bole **dài**), and all the many apparently native words with **sh**, **c**, **j** preceding **a(a)**, e.g. **shaafèe** ‘wipe’, **cafèe** ‘catch in the air’, **jaabaa** ‘musk shrew’, etc. The source of palatal consonants in Hausa is a complex one that cannot be attributed solely to palatalization of alveolar consonants before front vowels.

consistent in pronunciation of [i] vs. [u] throughout Hausa are found only when the vowels follow velars. Otherwise short high vowels are more “i-like” or more “u-like” depending on environment and dialect or even idiolect. For example, one finds both **bikii** and **bùkii** ‘celebration’, where the vowel may be pulled forward by the following [kʰii] or back and rounded by the preceding labial. Effects in the opposite directions are heard in the variants **jimàa** vs. **jumàa** ‘spend time’. All examples of a putative /i/ vs. /u/ contrast that I have seen are equivocal if not completely spurious.<sup>53</sup>

This leaves unaddressed the source of the palatalizations that Newman (1979b) cites. A difference between Hausa and its cousins with MINIMAL and INTERMEDIATE vowel systems is that Hausa medial short high vowels in open syllables tend to gravitate toward [i] or [u]<sup>54</sup> whereas languages like Miya, Ngizim, Bura, Gude, etc. have ə (phonetic [ɨ]) as their “neutral” short high vowel. In Hausa, the “neutral” short high vowel is [i], appearing, for example, as the epenthetic vowel in loanwords such as **kilif** ‘clip’, **firjii** ‘refrigerator’, **sikeelii** ‘scales’, etc. In native words where a short high vowel is required by morphology or phonotactics, this vowel would, historically at least, have been [ɨ]. Palatalization of coronals before **i** is now automatic only in certain morphological environments, such as plural marking (**kàazaa** ‘hen’, plural **kàajii**) or “Grade 2” verbs before objects, (**ciizòo** ‘biting’ but **yaa ciijee ni** ‘he bit me’). Coronal consonants in modern loanwords such as **sikeelii** ‘scales’ or **tikitì** ‘ticket’ do not undergo palatalization,

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<sup>53</sup> Putative pairs all come from dictionaries, esp. Bargery (1934), who collected words from across the Hausa dialect spectrum and does not always identify source. Thus, **budà** ‘bespatter’ from Bargery is cited in Newman (1979b) as contrasting with **bidaa** ‘seek’. Abraham (1962) labels the former as a Sokoto dialect variant of **badàa**. Newman (2000:399) cites **bisà** ‘on’ vs. **busàa** ‘haft’. Even accepting the validity of the vowel transcriptions, this is not a minimal pair. The implosive **ɓ** very likely has an effect on a following vowel that differs from the effect of modal **b**. Another example from Bargery is **rugaa** ‘Fulani encampment’, said to contrast with **rigaa** ‘precede’. As noted in Schuh (2002), I have heard the former pronounced on separate occasions by different speakers as **rigaa**.

<sup>54</sup> By and large this seems to be the case in open syllables, but in closed syllables, spelled “i” and “u” in normal speech are usually pronounced as a rather indistinct [ɨ], e.g. **gurbii** ‘hollow’ but [gurbɨn] ‘the hollow’, **hannuu** ‘hand’, but [hannɨn] ‘the hand’. I suspect that the fact that Hausa has a well-established writing system that has only five vowel symbols has an effect on the way people who know the language well perceive pronunciation, a phenomenon that applies to English as well!

but at an earlier time, the Hausa “neutral” high vowel [i] did condition palatalization in lexical items such as **jìkii** ‘body’ < \***ziki** and in words where morphology introduced [i], as in many words with paired  $C_1aC_2i \sim C_1iC_2a$  patterns (**kadfi/kidfàa** ‘spinning/drumming’, **fadfi/hidfàa** ‘say’ (dialectal variant), **barii/buràa** ‘leave’, **sanii/shinàa** ‘know’, **zama/jimàa** ‘remain/spend time’, etc.). Such data says nothing about whether medial short /i/ and /u/ are in contrast, but only that medial short [i] at one time conditioned palatalization of coronals.

Comparative evidence is also on Parsons’ side. MINIMAL and INTERMEDIATE vowel systems, with only a high vs. low distinction in medial short vowels, are clearly the norm for both West and Central Chadic. Contrary to Newman’s (2000:414) assumed “ongoing shift of short /u/ to /i/ in various environments”, Hausa today and throughout its history shows the environmentally conditioned variation of medial short high vowel coloration described for many West and Central Chadic languages. Other things being equal in Hausa, a medial short high vowel will be a front(ish) vowel tending toward [i] in the same way that this vowel tends toward [i] in languages like Ngizim or Bura, but given the range of effects from neighboring consonants and vowels, things are rarely “equal”!

### 6.2.2. Long vowels

Though, as argued in the previous section, Hausa has only a two way medial contrast in short vowels (high vs. low), it has a five way medial contrast in medial long vowels and a ten-way word-final contrast between five vowels long and short. The following table is from Schuh (2002), showing the full range of contrasts after a rhotic.

**Table 19:** Hausa long vowel contrasts

FINAL		MEDIAL	
<b>taarii</b>	‘a collection, a pile’	<b>riimii</b>	‘kapok tree’
<b>faari</b>	‘beginning’		
<b>(taa) taarèe</b>	‘(she) moved to new house’	<b>reemaa</b>	‘hyrax’
<b>tàare</b>	‘together’		
<b>(yaa) taaràa</b>	‘(he) collected’	<b>raamii</b>	‘hole’
<b>taṙà</b>	‘nine’		

<b>taaruu</b>	‘fishing net’	<b>ruubèe</b>	‘spoil’
<b>(sun) tàaru</b>	‘(they) gathered’		
<b>tàaroo</b>	‘gathering’	<b>roomoo</b>	‘broth’
<b>Màirō</b>	a woman’s name		

Hausa is unusual among its Chadic cousins in having a length contrast in word final position. The norm in Chadic languages is for all final vowels to be short. Hausa has innovated by lengthening final vowels. The most likely source of this lengthening was the gender/number sensitive deictic *\*na/ta/na*, which shows up in truncated form as the Previous Reference Marker (PRM) *˘-n/˘-r̃/˘-n*, as the genitive linker *-n/-t ~ -r̃/-n*, and as a formative in various other deictics such as **nan** ‘here’, **can** < *\*tan* ‘there’.<sup>55</sup> The fact that this enclitic deictic conditioned length is still seen in modern Hausa pronominal genitive constructions. Consider the following phrases with **hannuu** ‘hand’, which has a lexically long final vowel, and, **àku** ‘parrot’, which has a lexically short final vowel:

<b>hannuu-n-aa</b>	‘my hand’	<b>àkuu-n-aa</b>	‘my parrot’
<b>hannu-n-kà</b>	‘your (m.s.) hand’	<b>àku-n-kà</b>	‘your (m.s.) parrot’
<b>hannu-n-sà</b> (Kano)	‘his hand’	<b>àku-n-sà</b>	‘his parrot’
<b>hannuu-na-i</b> (Sokoto)	‘his hand’	<b>àkuu-na-i</b>	‘his parrot’

The 2<sup>nd</sup> person and the 3<sup>rd</sup> person (Kano) forms are uninformative: addition of the linker *-n-* before the CV pronominal suffixes closes the final syllable of the noun, automatically shortening the vowel. However, in the 1<sup>st</sup> person, the pronoun is the vowel *-aa* and the linker *-n-* forms an onset of the syllable *-n-aa*, leaving the final syllable of the noun open. The crucial point is that the final vowel of **àku** has been lengthened, an effect attributable to the presence of *-n-* < *\*na*. In the Sokoto dialect, where the 3<sup>rd</sup> person pronoun is *-i* rather than a CV form like Kano *-sà*, the same lengthening effect takes place, and in this case the full historical **na** remains intact.

<sup>55</sup> In Schuh (1978a) I proposed that the lengthening was the result of an article *\*-i*, which merged with the preceding vowel to produce length. The source of lengthening presented here, first proposed as far as I know by Newman (1979b), is more plausible.

At an earlier historical period, constructions with the full \*Ca deictic with its lengthening effect must have been of high frequency, for example, in all genitive constructions<sup>56</sup> and with a cliticized PRM. Hausa speakers interpreted the root ending with a long vowel as basic and, for the most part, have extended this norm to all nouns and adjectives, including loanwords, in some cases even where the source language did not have a final vowel at all, e.g. **keejii** ‘cage’, **fentii** ‘paint’.<sup>57</sup>

Another reason for attributing final long vowels to lengthening before the deictic **na/ta/na** is that there are classes of words that canonically end in short vowels and that would have rarely, if ever, been used with a determiner. These include numbers (**huɗu** ‘4’, **shidà** ‘6’), adverbs (**gòobe** ‘tomorrow’, **hakà** ‘thus, like that’), stative adverbs derived from verbs (**à zàune** ‘seated’), nouns used adverbially (**à ruwa** ‘in the water’), and proper names (**Gàmbo** name of a child born after twins, **Kyàuta** ‘Gift’, **Dèelu** nickname for woman named Hadiza), though many proper names, esp. from Arabic, do have final long vowels. In a historical reversal, vowel *shortening* has acquired derivational status, allowing, for example, derivation of proper names from common nouns. **Kyàuta** < **kyàutaa** ‘gift’ is an example, and such derivation can be done on the fly. I once saw a woman with a black donkey and asked what its name was. She said, “**baki**,” with a clear short final vowel terminated by glottal stop < **bakii** ‘black’. Statives derived from verbs, such as **à zàune** ‘seated’ may have been derived by vowel shortening from a verbal noun type with the template **-ee<sup>LH</sup>**, e.g. **dàshee** ‘transplanting’ < **dasàa** with stative form **à dàshe** ‘transplanted’. Deriving locative adverbs from nouns through shortening, as in **à ruwa** ‘in the water’ seems to be another productive process.

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<sup>56</sup> The full CV deictic is still heard as an alternative to the bound linker, e.g. **wani àbù na mùgùntaa** ‘a thing of evil’, **gwamnati ta Ingilà** ‘the government of England’ (Newman 2000:302-303), but it no longer conditions lengthening in such constructions.

<sup>57</sup> Not all loanwords are provided with long final vowels, though determinants for a long vowel vs. a short vowel are not clear. One seems to be that nouns borrowed as trisyllabic with the tones HHL have short final **-i**, e.g. **tikitì** ‘ticket’, **kwalbatì** ‘culvert’, **maaleejì** ‘speedometer’ (‘mileage’), etc.

Historically speaking, mid vowels in Hausa were all long. This is still the case medially.<sup>58</sup> Short final mid-vowels have been introduced by the innovative derivation through shortening mentioned in the preceding paragraph. Mid vowels in general in Chadic languages tend to have a marginal status, often being restricted to loanwords, being derived by monophthongization of diphthongs, and the like. Newman (1979b:176) does reconstruct a full set of five word final vowels, but for medial mid vowels, he goes so far as to say, “I would suggest ... that [medial] **ee** and **oo** did not exist as separate phonemes in proto-Hausa, but were simply allophones of **ii** and **uu** respectively.” Setting aside loanwords, Newman proposes three major sources for mid vowels in Hausa: (1) assimilation of **\*ii**, **\*uu** to final mid vowels (**\*zuubèe** > **zoobèe** ‘ring’), (2) assimilation of **\*aa** to preceding palatal or labialized consonants (**daajii** = **jeejii** ‘the bush’, **goonaa** = **gwaanaa** ‘farm’, where both variants exist for both words), (3) monophthongization of diphthongs (**dainàa** = **deenàa** ‘cease doing’, **laumàa** = **loomàa** ‘mouthful’, where both variants exist). An important source of medial mid vowels related to (1) but whose source is now hidden is seen in VERB/VERBAL NOUN pairs such as **feedàa/fiidàa** ‘flay’ **dòokaa/duukàa** ‘beat, drub’. Newman proposes that the **ii** and **uu** seen in the verbal nouns with the template **aa**<sup>HL</sup> show the historically original vowel and the **ee** and **oo** in the corresponding verbs results from assimilation to a final mid vowel, such as the final **-ee** of Grade 4 verbs or the pre-pronoun object form of “Grade 2” verbs.<sup>59</sup> In short, though mid vowels seem more frequent and more integrated into the native vocabulary of Hausa than in some of its cousins, this appears to be the result of innovations that have increase the number of mid vowels at the expense of other vowels, primarily long **ii** and **uu**.

Turning to the status of long high vowels, **ii** and **uu** in many Chadic languages with MINIMAL and INTERMEDIATE vowel systems are plausibly underlying /əy/ and /əw/ respectively. This may well have been the case at one time in Hausa, as shown by plurals such as **kiishiyaa** ‘co-wife’, plural **kiyooshii**, **duutsèe** ‘stone’, plural **duwàatsuu**, where if the long vowels were underlying /əy/ and /əw/, the plurals would be of the common

<sup>58</sup> Recent loanwords with a mid vowel in a closed syllable retain a mid vowel pronunciation for some speakers, e.g. **bencii** ‘bench’.

<sup>59</sup> Another possibility not mentioned by Newman is the final **-oo** of Grade 6 verbs.

types that infix vowels between the second and third consonants. In modern Hausa, however, [ii] and [uu] behave in all ways like other long vowels, in particular in being automatically shortened in closed syllables and in being lengthened variants of the short counterparts in lengthening environments (see examples above with **àku** ‘parrot’, but **àkuu-n-aa** ‘my parrot’). If long high vowels were underlying V+Glide sequences, vowel shortening and lengthening for these vowels would have to be accounted for by rules that delete or add glides as opposed to shortening and lengthening as for non-high vowels.



## 04 | Phonotactics, Syllables, and Syllable Weight

[not yet done]

\*In some respects, remarkable similarities across the family; in other respects, incredible variation and individual differences.

- syllable inventory: V, CV, CVV, CVC; less common CVVC; no CVCC
- onsetless V only word initial; whether phonetically onsetless depends on language (see section on glottal stop)
- ...VCCV... always syllabified ...VC.CV...
- CCC arising from some process repaired by epenthesis: Tangale and Dangaleat final V elision; Bade/Ngizim verbal nouns
- Codas: type of restrictions such as no palatals, prenasals, or glottalized sounds-
- SONORITY SEQUENCING PRINCIPLE; disfavors syllable-final OBSTRUENTS
  - only sonorants (Miya, Bole) > equal or greater sonority (Ngizim) > no restrictions (Ngamo)
- #CCV ... a phenomenon essentially limited to a few Central Chadic languages, e.g. Podoko, Gidar, Logone. Bura-Margi a special case where the 2 onset C's fuse.
- vowel shortening in closed syllables, far from ubiquitous
- long vowels in closed syllables, uncommon but occur:
  - Angas-Goemai, Ron, SB; Dangaleat, Tangale, Kanakuru?
- canonical word shapes and phontactics (innovativeness of initial clusters)
- metrics
  - brief discussion of formalism in metrics; quantitative metrics
  - metrical equivalents
    - heavy = two lights
    - hemiola
  - native vs. adapted Arabic meters

## Number of consonants in a word

Language	Category	1 C	% 1C	2C	% 2C	3C	% 3C	4C+	% 4C+
Bura (1628)	Nouns (845)	49	7.6%	286	44.3%	199	30.9%	111	17.2%
Bura	Verbs (520)	78	15.2%	225	43.8%	137	26.7%	74	14.4%
Gude	Nouns (1123)	28	3.0%	340	36.6%	369	39.7%	193	20.8%
Gude	Verbs (613)	50	8.2%	354	57.7%	166	27.1%	43	7.0%
Tera (1495)	Nouns (883)	31	3.9%	321	40.7%	285	36.2%	151	19.2%
Tera	Verbs (379)	73	19.5%	252	67.4%	45	12.0%	4	1.1%
Bole	Nouns	28	1.0%	1124	38.6%	1217	41.8%	542	18.6%
Bole	Verbs	25	2.9%	497	56.7%	289	33.0%	65	7.4%
Miya	Nouns	4	0.6%	247	35.0%	328	46.5%	126	17.9%
Miya	Verbs	34	9.8%	212	61.1%	95	27.4%	6	1.7%
Ngizim	Nouns	38	1.4%	580	21.9%	957	36.2%	1069	40.4%
Ngizim	Verbs	64	7.7%	251	30.1%	371	44.5%	148	17.7%

**Ngamo**

- no restrictions on CC abutting consonants (cf. Bole) but dislike of geminates (compensatory lengthening)
- syllable weight polarity

**Hausa**

- geminates now common, but historically absent
- morphological effects of syllable weight
  - -(a)aCee and a(a)Caa plurals, reduplicated plurals
  - syllable weight polarity: plurals, -a(a)ta verb suffix
  - metrics and syllable weight

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*Editor's Note:* Syllable structure and syllable weight are fundamental factors in the phonologies of Chadic languages spoken throughout the family. They play an essential role in the definition of the minimal and acceptable word, in vowel and consonant length, in the analysis of prenasalized consonants, in tone restrictions and realizations, in morphophonemic alternations, and in metrical and poetic matters, metrics being an aspect of language on which Schuh had a particular interest.

Because of Schuh's expertise in and deep understanding of phonology, this would have been an especially insightful and informative chapter. In lieu of the chapter, here are a number of selected references on the subject:

- Frajzyngier, Zygmunt. 2003. Tone and vowel deletion, insertion, and syllable structure. In *Stress and Tone: The African Experience*, ed. by Rose-Juliet Anyanwu, pp. 83–98. Cologne: Rüdiger Köppe.
- Kidda, Mairo. 1985. Morpheme alternation in Tangale: A syllable structure approach. In *Précis from the Fifteenth Conference on African Linguistics*, ed. by Russell G. Schuh, pp. 173–180. Los Angeles: Department of Linguistics, UCLA.
- Kurzyca, Bartosz. 2009. Iambic templates in Hausa morphology. *Studies of the Department of African Languages and Cultures* 43: 21-97
- Leben, William R. 1977. Length and syllable structure in Hausa. In *Papers from the Eighth Conference on African Linguistics*, ed. by Martin Mould and Thomas J. Hinnebusch, pp. 137–143. Los Angeles: Department of Linguistics, UCLA.
- Maddieson, Ian. 1983. The analysis of complex phonetic elements in Bura and the syllable. *Studies in African Linguistics* 14: 285–310.
- Newman, Paul. 1972. Syllable weight as a phonological variable. *Studies in African Linguistics* 3: 301–323.
- Newman, Paul. 1992. The drift from the coda into the syllable nucleus in Hausa. *Diachronica* 9: 227–238.
- Pearce, Mary. 2006. The interaction between metrical structure and tone in Kera. *Phonology* 23(2): 259-286. (Special journal issue: *Between Stress and Tone*, ed. by Bert Remijsen and Vincent J. van Heuven).
- Schuh, Russell G. 1978. Bade/Ngizim vowels and syllable structure. *Studies in African Linguistics* 9: 247–283.
- Schuh, Russell G. 2011. Quantitative metrics in Chadic and other Afroasiatic languages. *Brill's Annual of Afroasiatic Languages and Linguistics* 3: 202–235.

## 5 | TONE

### 1. Introduction

Chadic languages make use of three prosodic properties: *tone*, *intonation*, and *syllable weight*. All Chadic languages are *tone* languages, i.e. relative voice pitch on individual syllables is part of the lexical representation of words and has the potential for making morphosyntactic distinctions. *Intonation*, being largely a phenomenon of voice pitch, may be a function of tonal patterns, but characteristic intonational patterns as an overlay on tonal patterns may signal sentential structure and pragmatic distinctions. Aside from Meyers (1976) and the relative brief section in Newman (2000) on Hausa, and the study of Bole by Schuh, Gimba, & Ritchart (2010), there are no systematic studies of intonation in Chadic languages, and I will not discuss this topic in this book. *Syllable weight*, usually typified by a contrast between long and short vowels, is an important prosodic property of many—probably a large majority—of Chadic languages. *Stress* as distinctive prosodic property has been discussed in Hunter (1980) for Hausa and Wolff (1983, 2015b) for Lamang (and perhaps in a few other Chadic language studies), but prosodic amplitude in Chadic phonological systems generally is a function of the interaction of tone, syllable weight, and intonation and plays no role that is not attributable to those properties.

This chapter focuses on tones and tone systems. It seems unlikely that proto-Afroasiatic was a tone language. Semitic and Berber languages are all non-tonal, and Cushitic languages as a group are only marginally tonal (Mous 2012). Although all Chadic languages are tone languages, we cannot, with certainty, reconstruct Proto-Chadic as having been tonal. If the earliest ancestral Chadic language or languages were non-tonal, the typological development of voice pitch as being phonologically distinctive probably arose as a result of widespread bilingualism among speakers of Chadic and Benue-Congo languages, all of which are tonal. We can further speculate that the earliest

system (or systems, if phonological tone developed independently in different Chadic language speaking populations) was a two-tone system.

### 1.1. Functional load of tone in the lexicon

All Chadic languages are tonal, and a quick look at almost any language in the family reveals tone playing a significant role in TAM marking or some other grammatical function. The question is the extent to which Chadic language rely on tone for *lexical* distinctions. I made rough counts in a few languages where I have databases that make such counts relatively easy, with the following results, limited to nouns:

- Bole (West): about 2,000 nouns; 68 sets of nouns contrasting only in tone (including three 3-way sets)
- Ngizim (West): over 1,900 nouns; 38 pairs contrasting only in tone (no 3-way sets)
- Miya (West): about 670 nouns; 3 pairs contrasting only in tone<sup>1</sup>
- Gude (Central): over 800 nouns; only 2 pairs contrasting only in tone
- Bura (Central): over 600 nouns; 15 pairs contrasting only in tone

Hausa (West), for which we have lexical data comprising thousands of nouns, has around four dozen pairs of singular nouns distinguished only by tone. I have no figures for Dangaleat (East), but the examples in Table 1 in §2, which is just a selection from a larger list in Fédry (1971b), exhibit a number of nouns distinguished by tone alone.

At first blush, it may seem that tone plays a limited role in making lexical distinctions in Chadic, at least compared to East and Southeast Asian languages such as Cantonese or Vietnamese and some Niger-Congo languages of West Africa, such as Yoruba or Igbo, where one can find large numbers of word sets minimally distinguished by tone. However, if one discards the notion of counting minimal pairs for evaluating the relevance of a phonological distinction, the numerical data are consistent with the fact of

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<sup>1</sup> The Miya count of nouns revealed seven homophonous pairs (e.g. **ágam** ‘chin’ ~ ‘desert date’, **vèn** ‘mouth’ ~ ‘grindstone’), more than twice the number of tone pairs! The other languages also have homophonous pairs of words that appear to be etymologically and semantically unrelated, though my impression is that tone pairs usually outnumber homophones.

tone being a robust phonological phenomenon in Chadic languages. For example, in the Bole vowel system the contrast between short vowels and long vowels is indisputable (compare, for example, **zàrà** type of long gourd vs. **zàrà** type of small pot), yet in the Bole lexicon of over 2,000 nouns, I found only 23 word pairs with contrastive vowel length, and most of these also differ in tone (e.g. **sóní** ‘honey’, **sóní** ‘year’). In the consonantal system, the contrast between /b/ and /b̥/ is indisputable, yet among nouns, there are no minimal pairs whose contrast relies solely on these consonants. There are only three near minimal pairs, and these also differ in tone and/or vowel length (e.g. **bàsá** ‘intention’ vs. **bàsá** ‘fallow farm’, **bòlà** ‘brown and white horse’ vs. **bòlà** ‘clearing a farm’). In short, the fact that tone has to be overtly specified for each and every noun in the lexicon shows it to be an important, phonological component of the lexicon even though in many Chadic languages, exact minimal pairs are uncommon.

The above counts are limited to nouns. Tone patterns for nouns are relatively unrestricted in most Chadic languages,<sup>2</sup> setting aside certain disfavored patterns, such as ascending patterns as noted for Dangaleat or the final LL pattern in Hausa, which is permitted only if the final vowel is short. By contrast, although in some languages, tone patterns for verbs are also unrestricted, as seems to be the case, for example, in Margi Tera (Central) and in Dangaleat (East), in most languages, tones of verbs are a concomitant of lexical class and/or TAM and hence do not vary as a purely lexical feature.

## 1.2. Types of tone systems

Chadic tone systems fall into three gross typological groups defined in terms of level tones: (1) two level tones, low (L) and high (H); (2) three level tones, L, mid (M), and H; and (3) “*terraced level*” systems (Welmers 1973:82), with L, H, and downstepped high (D), where D is relevant only after a preceding H. A few other tone systems have been

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<sup>2</sup> Monomorphemic underived adjectives and adverbs also generally have unrestricted tone patterns. These word classes in Chadic languages are small and essentially closed, so I have not discussed them as separate categories.

reported in individual languages: three level tones plus downstep in Ga'anda (Central) (R. M. Newman 1971b); four tone levels in Tobanga (East) (Caprile 1978), and five tone levels in Mushere (West) (Jungraithmayr & Diyakal 2013).

By far the most common system is type (1), which is found in every Chadic subgroup. Moreover, though type (2) is quite common and is found among languages in all the major Chadic subgroups, many of the languages with three-tone systems transparently derive from systems of type (1) at a relatively shallow historical level. Systems of type (3) are the least common, having been described only for a few West Chadic languages. These likewise must have come from type (1) systems, but how the evolution of type (1) > type (3) is not entirely evident.

Section 2 discusses typical features of type 1 (two-tone) systems; §3 discusses type 2 (three-tone) systems, including historical developments from type 1; and §4 outlines type 3 (terraced level) systems. These sections will focus on some general properties of these systems and on lexical and grammatical distinctions that rely on pitch distinctions. A common feature of many Chadic languages is interaction between segmental phonology and tone. This is taken up along with other aspects of tonal phonology in Section 5. The remaining sections give sketches of the tone systems of Ngamo, Gude, and Hausa.

Note on tone marking: Since this chapter is about tone, all syllables are marked for tone to avoid ambiguities: grave accent = low tone (**à**), macron = mid tone (**ā**), acute accent = high tone (**á**), circumflex = falling tone (**â**), haček = rising tone (**ǎ**). Terraced level languages use a somewhat different convention, to be described in §4. In this chapter, vowel length will be marked by doubled vowels rather than a macron in order to avoid mixing diacritics for tone and those for length marking. Tone is marked over the first vowel only, being understood to apply to the full syllable.

## 2. Systems with Two Level Tones

Systems with two level tones are by far the most common. (The two-tone systems are usually accompanied by intonational downdrift. Ngamo (West), Gude (Central), and Hausa (West), to be discussed individually, have systems of this type. Other languages of this type are, in West Chadic: Bole, Karekare, Goemai, Bade, Guruntum; in Central

Chadic: Margi, Podoko, Mofu, Mafa, Lamang, Gidar, Logone, Mbara; in East Chadic: West Dangaleat, Mubi, Mokulu. Such languages typically have sets of words distinguished only by tone, such as the following from Bole (West) and Margi (Central):

(1)	BOLE		MARGI	
	<b>shìm</b>	‘coughing’	<b>fà</b>	‘farm’
	<b>shím</b>	‘a little’	<b>fá</b>	‘year’
	<b>bèl</b>	‘planting hoe’	<b>pàm</b>	‘different’
	<b>bêl</b>	‘cuspid’	<b>pâm</b>	‘pound’ (currency)
	<b>máa</b>	‘indeed’	<b>mbèl</b>	‘liver’
	<b>măa</b>	‘you (plural)’	<b>mbǎl</b>	‘shine’
	<b>kùrùm</b>	‘fingernail’	<b>nè</b>	‘say’
	<b>kùrúm</b>	‘hartebeeste’	<b>nǎ</b>	‘mould’
	<b>mbòlè</b>	‘sexual intercourse’	<b>tsə̀là</b>	‘basket’
	<b>mbólé</b>	‘dove’	<b>tsə́lá</b>	‘whet’
	<b>úzùr</b>	‘activity’	<b>shíshì</b>	‘sixpence’
	<b>ùzúr</b>	‘dust’	<b>shíshí</b>	‘hair’
	<b>súusúwá</b>	‘myrrh tree’	<b>fàrì</b>	‘take many’
	<b>sùusùwà</b>	‘whispering’	<b>fàrí</b>	‘forget’
	<b>bìdfíkí</b>	‘flour’	<b>ázógè</b>	‘come!’
	<b>bídfíkì</b>	‘chicken cage’	<b>àzógó</b>	‘tomorrow’

The Bole pairs **bèl/bêl** and **máa/măa** and the Margi pairs **pàm/pâm**, **mbèl/mbǎl**, and **nè/nǎ** illustrate a feature found in most Chadic languages, viz. accommodation of two tones on a single syllable. The second word in each pair has a phonetic falling (F) or rising (R) tone. While in principle one could add F and R contour tones to the inventory of contrastive tones, the distribution and behavior of such contours virtually always point to a more suitable analysis in which F = H+L and R = L+H collapsed onto a single



syllable. First, many languages allow contour tones only on heavy syllables (CVC or CVV, VV = long vowel), i.e. bimoraic syllables where each mora can bear a tone. Margi is unusual in accommodating a contour tone on a light syllable (**nə/ně**), but this seems to be restricted to some verbs of the shape CV. Margi is also very unusual in that R is more common than F. It is more common by far in Chadic for R to be entirely absent (as is the case in Ngamo and Hausa) or to have a strongly limited distribution. For example, in Bole, most R tones are found in proper names (mostly women's names, such as **Ǻmmà**, **KǺakà**), plus a few other "special" words such as **mǺa** 'you (pl.)', interjections (**yǺu** 'is that so?!'), or words that appear to be contractions (**něem** 'hippopotamus', which appears to come from \***něemú**).

A second reason for viewing contour tones as consisting of two tones collapsed on one syllable is that contours often alternate with corresponding level tones distributed over two syllables. Such alternations may arise from several sources:

(i) Addition of a syllable that allows the contour to be spread as level tones distributed over two syllables: Margi, like many Central languages, has a number of verbal extensions (Chapter 7) that extend the meaning of a verb. Some of the Margi extensions are toneless, in the sense that they get their tone from the verb to which they are suffixed. One such suffix is **-na**, which, among other uses, transitivizes intransitive verbs (Hoffman 1963:§224). The suffix is H when added to a H verb, L when added to a L verb, but for a R verb, the tones of the extended verb are LH, i.e. the R is realized as L on the verb root + H on the suffix:

(2) H verb:	<b>sá</b>	'get lost'	<b>sáná</b>	'lose, waste'
L verb:	<b>hyì</b>	'tear (intr.)'	<b>hyìnà</b>	'tear (tr.)'
R verb:	<b>njǐ</b>	'pass urine'	<b>njiná</b>	'urinate'

(ii) Contraction of two syllables with different tones resulting in a single syllable with a contour: Margi has a definite suffix **-ári** with HL tones when added to nouns ending in a consonant (Hoffmann 1963:§§71-79). With nouns ending in vowels, the vowels in hiatus contract to a single vowel, and when the noun-final vowel is L, the result is a vowel with R tone.

(3) Noun-final C:	<b>sál</b>	‘man’	<b>sálàrì</b>	‘the man’
	<b>yàl</b>	‘sacred grove’	<b>yàlárì</b>	‘the sacred grove’
Noun-final H:	<b>fá</b>	‘year’	<b>fáàrì</b>	‘the year’
	<b>kú</b>	‘goat’	<b>kwáàrì</b>	‘the goat’
	<b>shèré</b>	‘court’	<b>shèrèrì</b>	‘the court’
Noun-final L:	<b>fà</b>	‘farm’	<b>fǎàrì</b>	‘the farm’
	<b>hù</b>	‘grave’	<b>hwǎàrì</b>	‘the grave’
	<b>cédè</b>	‘money’	<b>céděàrì</b>	‘the money’

Bole has a linking element **̀n** used between a noun and a following attributive adjective. If the noun ends in a consonant, this linker is realized as a syllabic nasal, but if the noun ends in a vowel, the linker attaches as a syllable coda. If the final tone of the noun is H, the resulting syllable bears F.

(4) <b>dàwún</b>	‘mat’	+	<b>póoyó</b>	‘new’	→	<b>dàwún ̀n póoyó</b>	‘new mat’
<b>móotà</b>	‘car’	+	<b>póoyó</b>	‘new’	→	<b>móotà̀m póoyó</b>	‘new car’
<b>’yá</b>	‘thing’	+	<b>póoyó</b>	‘new’	→	<b>’yám póoyó</b>	‘new thing’

(iii) Spreading of a tone from a preceding syllable to the first mora of a following syllable, creating a contour if the spreading tone is different from the tone of the affected syllable: Bole has a tone spreading process that spreads a H to a following syllable in certain constructions, including N+N genitives (Schuh and Gimba 2005). The extended H replaces the tone of the syllable to which it is spread unless that syllable is a bimoraic monosyllable, in which case, the H spreads only to the first mora, yielding a F.

(5) <b>ló</b>	‘meat’	+	<b>tùrùm</b>	‘lion’	→	<b>ló túrùm</b>	‘lion meat’
<b>ló</b>	‘meat’	+	<b>tèms hí</b>	‘sheep’	→	<b>ló tэмshí</b>	‘mutton’
<b>ló</b>	‘meat’	+	<b>kòm</b>	‘cow’	→	<b>ló kôm</b>	‘beef’

Dangaleat (= Dangla) is an East Chadic language with two level tones that shares many of the characteristics described above for Bole (West) and Margi (Central). As in

those languages, Dangaleat has sets of words distinguished only by tone (data from Fédry (1971b), with some items checked in Fédry (1971a):

**Table 1:** Dangaleat tones

ALL LEVEL TONES		CONTOUR (F OR R) VS. LEVEL TONES	
<b>mákè</b>	‘exchange’	<b>âarò</b>	‘back’
<b>màkè</b>	‘pound’	<b>àarò</b>	‘millet stalk’
<b>gúdìnyà</b>	‘vervet monkey’	<b>kârmè</b>	‘point with finger’
<b>gùdìnyà</b>	‘monkey’	<b>kàrmè</b>	‘migrate’
<b>gúbá</b>	‘keeping watch’	<b>mâawà</b>	‘dry season’
<b>gùbà</b>	‘conical roof’	<b>máawà</b>	‘bird of prey’
<b>bárdilà</b>	‘large pot’	<b>kôrnò</b>	unidentified tree
<b>bárdilà</b>	‘a certain place’	<b>kórnò</b>	type of mollusk
<b>gódì</b>	name for a twin	<b>dyûunù</b>	‘bile’
<b>gòdí</b>	name for other twin	<b>dyũunù</b>	female proper name
<b>máskày</b>	proper name	<b>dyǎalà</b>	masc. proper name
<b>màskáy</b>	proper name	<b>dyàalà</b>	masc. proper name

Of particular interest is the distribution of contour tones in general and of ascending tone patterns in particular. Fédry points out the contour tones (F and R) are found only on heavy syllables (CVV or CVC), a distribution noted as being typical of Chadic languages in general. Dangaleat does have both F and R, but Fédry shows that R is limited in ways very much like those noted for Bole. Most monomorphemic cases of R are in proper names, as in the two examples in the table. Some animal names contain rising tones, e.g. **dǔttòk** ‘red-headed male lizard (French *margouillat*)’. Fédry (1971b:110) suggests that these are probably “appellations familières et expressives” and hence are akin to proper names. Other examples of R are from contractions, some of which seem to be lexicalized, e.g. **gǎllò** ‘bad’ < **gàlá** ‘good’ + **dò** ‘not’.

In fact, ascending tone patterns (seen in examples below the heavy line), whether R on one syllable or LH over more than one syllable, are disfavored in Dangaleat, and it appears that, like monomorphemic words containing R, many words with ascending patterns are also proper names (as in the case of the examples in the table). Fédry (1971b:121) gives the following figures for all nouns:<sup>3</sup> descending patterns 47%; all L 30%; all H 10%; ascending patterns 4%. While I cannot say how general such a skewing is across Chadic, a similar tendency is evident in Miya (West) and Gude (Central), to be discussed below.

Dangaleat also displays characteristic (ii) above, viz. alternations between F and R on one syllable vs. HL and LH respectively, distributed over two syllables. Dangaleat has a regular process of eliding word-final vowels when words are medial in a phrase. If the tone of the elided vowel and the preceding tone are the same, the tone of the elided vowel, in effect, disappears with the vowel, but if the tone of the elided vowel and the preceding tone are different, the tone of the elided vowel shows up as the second half of a contour on the (final) stem syllable.<sup>4</sup>

(6) /pìsè + kè/	→ pìs-kè	‘your hand’
/pâarà + tântò/	→ pâar tântò	‘my companion’
/písè + kè/	→ pîs-kè	‘your hands’
/màakó + òdi/	→ mǎak òdi	‘just the evening’

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<sup>3</sup> I cannot find raw numbers for the items counted, but the figures must represent counts from (a significant portion of) the items in Fédry (1971a), which is one of the largest existing Chadic language dictionaries. The percentages listed here total up to 91% —Fédry mistakenly says 93%. The remaining items consist of “une poussière de schèmes marginaux” (Fédry 1971b:121), such as ideophonic words, long words that are probably frozen compounds, and the like.

<sup>4</sup> Data on whether or not contraction results in a contour are somewhat contradictory. Fédry (1971b:112) gives /písò + kè/ → pìs-kè ‘your stallion’ with H on the root, whereas one would expect \*pîs-kè, homophonous with ‘your hands’. We will also see immediately below, in cases of epenthesis, that the tone of the elided vowel disappears.

Dangaleat, like all Chadic languages, disallows CC sequences at syllable margins. When a CVCCV word undergoes elision, a CC+C sequence is avoided by epenthesis [i] between the two root consonants.

- (7) /bèrkì + gòyà/ → bèrik gòyà ‘a bull is there’  
 /bêrkà + gòyà/ → bèrik gòyà ‘a cow is there’  
 /árgá + gòyà/ → árig gòyà ‘a mat is there’  
 /dâñlè + gòyà/ → dáñil gòyà ‘a Dangla person is there’  
 /dâñlò + gòyà/ → dáñil gòyà ‘a bedpost is there’

These examples show that the tone of the first root syllable is spread to the epenthetic vowel. If that tone is L, the epenthetic vowel is L; if that tone is H, the epenthetic vowel is H; if the tone is F, a HL pattern is distributed over the two syllables. Note that in the first four examples above, we cannot be sure whether the tone of the elided vowel is preserved or not—the tone on the epenthetic vowel is the same as that of the elided vowel. However, in the last example, we can see that the final vowel *as well as its tone* is elided. Otherwise the syllable containing the epenthetic vowel would bear either F or L tone.<sup>5</sup>

### 3. Three-tone Systems (H, M, L)

Though systems with two level tones are the most common across the Chadic family, every major group includes at least some languages with three level tones, H, M, and L. Some languages of this type are, for West Chadic: Gwandara, Zaar (Sayanci), Angas, Ron-Fyer; for Central: Tera, Daba, Muyaŋ, Zulgo; for East Chadic: Kera, Lele, East Dangaleat.<sup>6</sup> All the languages of the Masa group apparently have three tones. The three-tone systems of all these languages can be historically derived two-tone precursors, but

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<sup>5</sup> One would predict that R would be spread over two syllables under elision, e.g. [construct] /tõornà + gòyà/ → tòorín gòyà ‘Torna (man’s name) is there’. Fédry does not give any such examples, and in fact most of the illustrative words with R, which has a limited distribution in any case, have the root shape CVVCV and would thus not be subject to epenthesis.

<sup>6</sup> The variety of Dangaleat described in §2 is West Dangaleat.

not always by the same paths, and in some cases the paths are difficult, if not impossible to recover.

### 3.1. “Reinterpretation” of a two-tone system as a three-tone system

Hausa has a typical two-tone system, but its close relative, Gwandara has three tones.<sup>7</sup> Comparative evidence makes it clear that Hausa represents the original system and Gwandara has innovated. Newman (1985) gives the following tonal correspondences in cognate words between Hausa and Gwandara:

**Table 2:** Hausa-Gwandara tone correspondences

	HA. > GW.	HAUSA	GWANDARA	
(1)	L > L	<b>mèè</b>	<b>mì</b>	‘what?’
(2)	LL > LL	<b>màcè</b>	<b>màcè</b>	‘woman’
(3)	H > H	<b>dúu</b>	<b>dú</b>	‘all’
(4)	HH > MM	<b>húdú</b>	<b>hūrū</b>	four
(5)	HH > M	<b>tsáwóo</b>	<b>cō</b>	length
(6)	HL > HL	<b>mútù</b>	<b>mútù</b>	die
(7)	HL: > HM	<b>káfàa</b>	<b>kápā</b>	‘foot’
(8)	LHL > LHM	<b>ɓàráawòo</b>	<b>bòrówā</b>	‘thief’
(9)	LH > LM	<b>kàhoo</b>	<b>kòhō</b>	‘horn’
(10)	HLH > HLM	<b>mútàanéé</b>	<b>ńtànī</b>	‘people’

<sup>7</sup> Gwandara is a creolized offshoot of Hausa. Newman's hypothesis (1985), based on oral tradition, historical studies, and comparative linguistic evidence, is that the Gwandaras, today surrounded by Benue-Congo languages, descend from Hausas who migrated from Kano, perhaps for religious reasons, as much as a half-millennium ago. The large linguistic differences between Gwandara and Hausa result from intensive interaction of Gwandaras with Benue-Congo language speakers combined with natural linguistic changes that affected 16<sup>th</sup> century Kano Hausa in different ways in the Gwandara area and in Kano.

Newman (1985:235) says,

“The mechanism by which Gwandara has increased its number of tones does not match the generally known processes of tone splitting (Maddieson 1974). Rather, the Gwandara tonal system seems to have resulted from the reinterpretation of Hausa surface tones in terms of the tone spacing grid of a language or languages already having three tones.”

Original monosyllabic words and words with all L retain the original tones (1-3). HH words and \*HH > H words have become M(M) (4-5), perhaps because of downgliding of pitch in a multisyllabic word. HL words remain HL if they end in a short vowel (6) but become HM if they end in long vowel in Hausa. Gwandara does not retain length, but in pre-Gwandara, it seems that final long vowels retained a higher pitch than final short vowels (7-8).<sup>8</sup> Reinterpretation of phonemic ...LH in (9-10) as ...LM is simply a case of phonemicizing downdrifted H following a L as M. Newman further notes that Gwandara has a H floating genitive tone, heard in phrases such as /**nānā** ´ **bijē**/ → **nāná** **bijē** ‘market day’, /**wóntā** ´ **jíyà**/ → **wóntá** **jíyà** ‘last month’ (“month of yesterday”), showing that the mid tones of the citation forms really are distinct from H.

### 3.2. Three contrastive tones whose development has become obscured

There are languages with three contrastive tones where comparative and/or internal evidence indicates a two-tone precursor but where the path from two to three tones has been obscured over time.

In West Chadic, the languages of the Angas-Goemai (I.A.3) group are close relatives of the languages of the Bole-Tangale (I.A.2) group. The Bole-Tangale languages preserve the canonical Chadic root structure CV(C)CV for disyllabic words, and all of them have two-tone systems. Languages of the Angas-Goemai group, spoken to the south and west of Bole-Tangale, have shifted to a canonical CVC root structure with three-tone systems, presumably as a result of contact with Benue-Congo languages spoken in the vicinity.

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<sup>8</sup> Virtually all LHL nouns in Hausa end in long vowels, so there would be few, if any trisyllabic counterparts to (6) with a short final vowel.

The three-way distinction surely arose as a result of truncating disyllabic roots, with the loss of a tone-bearing syllable affecting the tone of the resultant monosyllable. However, working out regularities is not as straightforward as the tonal correspondences between Hausa and Gwandara illustrated in Table 2. Compare the following tonal correspondences between Bole and Angas:

**Table 3:** Bole-Angas tonal correspondences

BOLE		ANGAS		
<b>sún</b>	H	<b>sóm</b>	H	‘name’
<b>mbólé</b>	HH	<b>mbūl</b>	M	‘dove’
<b>zillé</b>	HH	<b>jèl</b>	L	‘belch’
<b>bàdī</b>	LL	<b>pèt</b>	L	‘five’
<b>jiwò</b>	LL	<b>shōk</b>	M	‘body’
<b>mòndù</b>	LL	<b>mát</b>	H	‘woman’
<b>kúnnùm</b>	HL	<b>kwán</b>	H	‘three’
<b>shóorìn</b>	HL	<b>sīn</b>	M	‘root’
<b>púzò</b>	HL	<b>pàs</b>	L	‘rainy season’
<b>pòdđó</b>	LH	<b>fír</b>	H	‘four’
<b>kùmó</b>	LH	<b>kōm</b>	M	‘ear’
<b>dùumó</b>	LH	<b>tòm</b>	L	‘guinea fowl’

Whatever the exact changes that have taken place, Angas and other languages of the Angas-Goemai group today are true three-tone languages with contrastive sets such as the following in Angas:<sup>9</sup>

- (8) **ḍər** ‘carry on the head’    **ḍər** ‘point our faults’    **ḍər** ‘repair’  
**fəl** ‘boil’    **fəl tɛŋ** ‘make rope’    **fəl** ‘peel’  
**kàm** ‘narrow’    **kām** ‘to crowd’    **kám** ‘strength’

<sup>9</sup> According to Hellwig (2011) Goemai is now a two-tone language. This must have resulted from merger of tones from an earlier three-tone system.



In Central Chadic, languages of the Tera group (II.A.1), the Daba group (II.A.7), and a few other individual languages such as Zulgo (II.A.5) have three tones. The H-M-L contrast can be demonstrated in Tera in a number of ways. In counting from ‘one’ to ‘three’, **dà – rāp – kúnúŋ**, the tones are L – M – H, whereas in a phrase like **á vān ghà** ‘she is bathing’, the tones are H – M – L. Though I have not found a perfect minimal set for tone, there are sets such as L **kàŋ** ‘large basket’, M **būŋ** ‘gourd’, H **kóŋ** ‘dead tree’ for monosyllabic nouns and LL **còxnà** ‘anger’, MM **kwāxrā** a type of root, HH **zháxdé** ‘chair’ for disyllables. However, the distribution of tones and of tone patterns on multisyllabic words is not random as one might expect if tones of syllables were simply lexical L, M, or H. The table below shows the distribution of tone patterns for a sample of 85 monosyllabic and 497 disyllabic nouns:

**Table 4:** Tone distribution patterns in Tera

TONE	NUMBER	% OF TOTAL	EXAMPLE	GLOSS
L	26	30.59%	<b>bù</b>	‘measure’
M	45	52.94%	<b>bō</b>	‘cooking pot’
H	14	16.47%	<b>bó</b>	‘headpad’
LL	84	16.90%	<b>kùlǝà</b>	‘cough’
MM	201	40.44%	<b>nyāxā</b>	‘saliva’
HH	29	5.84%	<b>kwáxá</b>	‘crab shell’
LM	59	11.87%	<b>dàxlā</b>	‘quarrel’
MH	47	9.46%	<b>wānxá</b>	‘young woman’
ML	21	4.23%	<b>nyīxlā</b>	‘nonsense’
HM	50	10.06%	<b>xúskā</b>	‘puff adder’
LH	1	0.20%	<b>dyìvì</b>	‘castrated goat’
HL	5	1.01%	<b>díghì</b>	‘honey; bee’

Three facts, in particular, stand out: level M tone is favored by a wide margin; level H tone is strongly disfavored; and there are almost no LH or HL words, i.e. words whose tones are the maximum distance from each other. (The ones found may be transcription

errors.) I frankly have no account for these facts, but they suggest that the Tera three-tone system probably developed from a two tone system.

One might compare the Tera tone profile to that for Angas. Most nouns in Angas are monosyllabic, so I present figures only for monosyllables, and the sample is small—only 40 nouns—but the figures are suggestive. They are as follows: L 16/40 (40%), M 7/40 (17.5%), H 17/40 (42.5%), i.e. H and L are favored quite strongly over M. Though we cannot be sure of the exact changes that Angas (and other Angas-Goemai languages) underwent, we know that the three-tone system is the result of squeezing tone patterns of mainly disyllabic words onto monosyllables. It seems likely that the original H and L have tended to be retained intact, and M has arisen from some kind of tonal merger, such as contours being leveled. This is clearly not what happened in Tera, since Tera retains original disyllables as such. The Tera three-tone system thus probably developed from reinterpretation of a two-tone system somewhat like Gwandara, not tone merger as in Angas-Goemai or tone splitting, to be discussed in the next section.

### 3.3. Tone splitting by pitch perturbation caused by consonants

The pitch-lowering effect of “depressor” consonants (usually the class of modal voiced obstruents) is well-known and well-documented for languages of the world (see Bradshaw (1999) and references cited there). This pitch-lowering effect has been phonologized in a number of Chadic languages, resulting in the developing of three-tone languages or “semi-three-tone” languages through tone-splitting. This has taken place independently in at least two language groups and possibly three. One is in Zaar (I.C.1.a) in West Chadic, to be discussed in detail in this section; a second is in Kera (III.A.3) in East Chadic; a third is in Musey (IV.A.1) and other languages of the Masa group. Here I will describe tone splitting in Zaar (I.C.1.a),<sup>10</sup> a West Chadic language of the South Bauchi group, whose phonological system is well described and documented in Schneeberg (1974) and Caron (2005). The following is my own organization of data and interpretation of the system.

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<sup>10</sup> This language is more widely known as Sayanci, which is the Hausa linguonym. Because the major reference work on the language is that by Caron (2005), who refers to the language as Zaar, I will use that term. Zaar is the autonym of speakers of the language.

Schneeberg (1974:137) gives the examples **mbū́tí** ‘navel’, with MH tones, contrasting in pitch levels with **bū́tí** ‘okra’ with LH. Having shown this distinction between three phonetic pitch levels, she goes on to say, “Only the distinction between [+H] and [-H] is phonemic, however. Low tone is conditioned by both grammatical and phonological factors. The latter include segmental environment, tonal environment, and position within the utterance.” We can see the fundamental two-way tonal distinction by the fact that, for monosyllabic and disyllabic nouns, there are only four distinctive tone configurations.<sup>11</sup> In the table below, I have interpreted these as the four sequences /H(H)/, /L(L)/, /HL/, and /LH/ that would be possible in a language with a system having two level tones. The table shows how each of these patterns plays out in terms of the three pitch levels. Crucial to deriving the phonetic tones is the distinction between modally voiced obstruents on the one hand (**b, d, dz, g, j, v, z, ɓ**) and all other consonants on the other.<sup>12</sup> The rows of the table classify the examples as to whether syllables begin in voiced obstruents [+VO] or some other segment type [-VO].

**Table 5:** Consonant-tone interaction in Zaar

	/H(H)/	/L(L)/	/HL/	/LH/
[-VO]	[H] <b>kúur</b> (C) skin	[M] <b>mīir</b> oil	[F] <b>lúū</b> meat	[R] <b>yāár</b> grass
[+VO]	[M] <b>zhīin</b> placenta	[L] <b>zhīin</b> type of tree	[F] <b>zhīi</b> leopard	[R] <b>dǎár</b> Bosc’s monitor

<sup>11</sup> There are additional configurations for disyllabic nouns where one of the syllables bears a contour tone, e.g. **kōmbâl** ‘depression in a rock where water gathers’, **kóm̄tsāl** ‘*Ficus capensis*’. I will not discuss such configurations, but I am fairly confident that they can be accommodated along the same lines as trisyllabic nouns, some of which will be discussed below.

<sup>12</sup> The prenasalized consonants (**mb, nd, ndz, nj, ng**) behave as nasals, not as obstruents. They therefore do not condition the lowering effects seen with voiced obstruents.

[-VO][-VO]	[MM] <b>kūsūŋ</b> hunger		[HM] <b>nyérām</b> monkey	[MH] <b>kārí</b> vervet monkey
[-VO][+VO]	I could find no examples of monotonal nouns with this segmental configuration.		[HL ~ HM] <b>kúrvi</b> (S, C) tortoise <b>kávīt</b> (S) night <b>kávīt</b> (C)	[MH] <b>kāmdó</b> friendship
[+VO][+VO]	[MM] <b>dwāandē</b> poverty	[LL] <b>ɬòngà</b> brains	[ML] <b>būbzəŋ</b> beard	[LM] <b>gəbzə</b> ladder
[+VO][-VO]	[MM] <b>vōlāŋ</b> peanuts	[LL] <b>vwàràŋ</b> blood	[HM] <b>gyóptī</b> woman's wrapper	[LH ~ LM] <b>gèrí</b> (S) chicken <b>gèrí</b> (C)

The fundamental rule is Schneeberg's (1974:145) morpheme-structure condition (35a), slightly reworded by me:<sup>13</sup>

[-H] REALIZATION: *A [-H] tone is L if it is the only tone on a syllable beginning in a modally voiced obstruent; otherwise it is M.*

Application or non-application of this rule can be seen comparing the first syllables of **gèrí** 'chicken' vs. **kārí** 'vervet monkey'<sup>14</sup> and the second syllables of **kúrvi** 'tortoise' vs. **nyérām** 'monkey'. Note that this rule is worded to apply only to syllables bearing a *single tone*. This caveat accounts for the fact that in monosyllables bearing [+H][-H] or

<sup>13</sup> Schneeberg (1974) was working in a pre-autosegmental framework in which tone was a feature on syllables, all rules were formulated in linear terms, and a distinction was made between *rules* and *morpheme-structure conditions*. I am using the substance of her description without the formalisms.

<sup>14</sup> Also the pair **bùtí** 'okra' vs. **mbùtí** 'navel' at the beginning of this section, which show that **mb** does not behave as a modally voiced obstruent.

[-H][+H], the [-H] is always M, as in **zhī** ‘leopard’ and **dǎor** ‘Bosc’s monitor’. Schneeberg (1974:145) is explicit in giving the patterns HM and MH respectively. Caron (2005) uses only F and R diacritics for contours, i.e. **zhī** and **dǎor** respectively, so it is not possible to determine the pitches of the beginning and end points.

With respect to [-H] REALIZATION, there are some discrepancies between the description and data in Schneeberg (1974) and the data in Caron (2005). These are primarily of three types:

- (1) C. LM ~ LH vs. S. LH: (C) **gèrī** ‘chicken’, **dàarú** ‘fight, quarrel’  
 (S) **gèrí** (this word is not in S.)
- (2) C. HL ~ HM vs. S. HL: (C) **kúrvì** ‘tortoise’ **kávīt** ‘night’  
 (S) **kúrvì** **kávīt**
- (3) C. MH vs. LH predicted by S.: (C) **bārám** ‘fly (insect)’, predicted to be **?bārám** by  
 [-H] REALIZATION

Cases (1) and (2) are probably the result of varying transcription on Caron’s part as a result of intonational effects. Schneeberg (1974:175ff.) describes optional downdrift in Zaar, one effect of which is to lower a [+H] after a [-H].<sup>15</sup> It turns out that in Zaar, no lexical items or grammatical constructions depend on a contrast of [LH] vs. [LM], so one can apply a downdrift rule [H] → [M]/[L]\_\_ with no danger of confusion.

Case (2) involves another intonation rule formulated by (Schneeberg 1974:181), slightly simplified and reworded by me:

PHRASE-FINAL M LOWERING: *A phrase-final M becomes L when preceded by a H in the same word.*

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<sup>15</sup> The baseline from which the [+H] would be lowered would, in principle, be the pitch of a [+H] preceding the [-H], but one can think of a speaker’s pitch range as being divided into an arbitrary number of discrete levels. Schneeberg, in her description, uses seven such levels. If a [-H] were, for example, pronounced at level 3, then a following tone could be recognized as [+H] if it were pronounced at any level above 3.

All words in Caron (2005) with a descending tone pattern where the second syllable begins with a [-VO] segment are shown with a HM (= Schneeberg's *non-final* pattern), e.g. **nyérēm** 'monkey', **kádfi** 'dog'. Most nouns in Caron (2005) with a descending tone pattern where the second syllable begins in a [+VO] segment are shown with HL (= Schneeberg's *final* pattern), e.g. **kúrvì** 'tortoise', **tsábàr** 'rubbish heap'. However, Caron represents a few nouns of the latter type with a HM pattern, e.g. **kávīt** 'night', **márdū** type of pants. It seems likely that the transcription in Caron is that of citation forms, which would be the *final* environment for PHRASE-FINAL M LOWERING. It therefore appears that, for at least the speakers that Caron worked with, the rule for the phrase final pattern would actually better stated as an optional suspension of [-H] REALIZATION, which would allow ...[+H][-H]# to be pronounced [...HM] even when the last syllable begins with [+VO].

Nothing in Schneeberg's (1974) account would explain examples like those in case (3), with the MH pattern in words like **bārām** 'fly (insect)' or **dārāŋ** a type of *Ficus*, where the initial syllable begins with [+VO]. [-H] REALIZATION would predict a LH pattern for such words. There are a fair number of such cases, and Caron worked a long time on this language, so transcription lapses seem unlikely. The only account that I can offer is that, in LH words, one has the option of suspending [-H] REALIZATION that would lower [+VO] initial syllables to L. This is possible since such words would still have a distinctive ascending tone pattern.

Examination of examples in the table above reveal that there only two patterns that have initial H: monotonal monosyllables that begin with a [-VO] (**kúur** 'skin') and words with a tone pattern [+H][-H] (**lūū** 'meat', **kávīt/kávīt** 'night'). Note, in particular, that there are no words beginning with more than one H syllable. In fact, in Caron's (2005) dictionary, there are essentially no substantive words (nouns, verbs, adjectives, adverbs) that begin HH... . There are HH... grammatical formatives (e.g. **máatá** '1<sup>st</sup> singular remote past pronoun', which is bimorphemic) and ideophones (e.g. **pásàr-pàsàr** 'flowing, fluttering', **káskálàŋ** 'sprawled out'), and the handful of HH... words that I have found that do not fall into these categories all seem peculiar in some way:<sup>16</sup>

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<sup>16</sup> This is an exhaustive list of the ones that I found.



Consider first application to monotonal words.

Initial [+VO]:	[-H]            L	[-H]            L
		/ \                / \
	<b>zhiin</b> (1) → <b>zhiiin</b> tree sp.	<b>vwarəŋ</b> (1) → <b>vwàràŋ</b> blood
	[+H]            M	[+H]            M
		/ \                / \
	<b>zhiin</b> (1) → <b>zhīin</b> placenta	<b>voləŋ</b> (2) → <b>vōlāŋ</b> peanuts
Initial [-VO]:	[-H]            M	[-H]            M (if <b>kusuŋ</b> were /[-H]/)
		/ \                / \
	<b>miir</b> stet → <b>mīir</b> oil	<b>kusuŋ</b> stet → <b>kūsūŋ</b> hunger
	[+H]            H	[+H]            M (if <b>kusuŋ</b> were /[+H]/)
		/ \                / \
	<b>kuur</b> stet → <b>kúur</b> skin	<b>kusuŋ</b> (2) → <b>kūsūŋ</b> hunger

For monotonal words of more than one syllable beginning with a [-VO], the underlying [-H] ~ [+H] distinction is neutralized. If such words were underlyingly [-H], (1) [-H] REALIZATION, which applies only to [+VO] words, would not apply, leaving them with the specification [-H, -L] = M. If they were underlyingly [+H], they would become [-H, -L]<sup>18</sup> by (2) INITIAL [+H] LOWERING. Schneeberg does not mention monotonal monosyllabic words with phonetic H, but there are enough examples in Caron (2005) to consider them to be a real lexical category, e.g. **kúur** ‘skin’ **kír** ‘tail’, **kún** ‘boy’, hence the inclusion of the exception to INITIAL [+H] LOWERING.

Consider now multi-tonal words beginning with [+H]:

<sup>18</sup> They would automatically be [-L] because a specification [+H, +L] is non-existent.



[+H][-H]	[+H][-H,+L]	[-H][-H, +L]	H L
<b>kur vi</b>	(1) → <b>kur vi</b>	(2) → <b>kur vi</b>	(3) → <b>kúrvi</b> tortoise

[+H][-H]	[+H][-H,-L]	[-H][-H, -L] <sup>19</sup>	H M
<b>ne rəm</b>	(1) → <b>ne rəm</b>	(2) → <b>ne rəm</b>	(3) → <b>nérəm</b> monkey

[+H][-H]	[+H][-H,-L]	[-H][-H, -L]	HM
<b>lu u</b>	(1) → <b>lu u</b>	(2) → <b>lu u</b>	(3) → <b>lú ū</b> meat

[+H][-H]	[+H][-H,-L]	[-H][-H, -L]	M HM
/ \	/ \	/ \	
<b>tambufi</b>	(1) → <b>tambu fi</b>	(2) → <b>tambu fi</b>	(3) → <b>tāmbúfi</b> locust bean pods

[+H][-H]	[+H][-H,+L]	[-H][-H, +L]	M L
<b>bub zəŋ</b>	(1) → <b>bub zəŋ</b>	(2) → <b>bub zəŋ</b>	stet → <b>būbzəŋ</b> beard

[+H][-H]	[+H][-H, -L]	[-H] [-H, -L]	H M
<b>gyop ti</b>	(1) → <b>gyop ti</b>	(2) → <b>gyop ti</b>	(3) → <b>gyópti</b> wrapper

The monosyllabic but bimoraic **lúu** ‘meat’ works exactly like the disyllabic **nyérəm** ‘monkey’, showing that, strictly speaking the rules should refer to moras rather than syllables. Trisyllabic **tāmbúfi** ‘young locust bean pods’ shows that the /HL/ pattern

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<sup>19</sup> With application of (2) INITIAL [+H] LOWERING, the two tones end up with identical specifications, viz. [-H, -L][-H, -L] (= MM). Were the OCP to be an “everywhere” condition, the two domains would merge to become a single [-H, -L] domain. The implicit assumption here, however, is that the OCP is a condition on lexical assignment of tones, i.e. the lexical tonal links remain throughout the derivation.

illustrated in the table is restricted to monosyllabic and disyllabic words. Longer words cannot begin with a phonetic H. The necessity for rule (ii) [-H] RAISING becomes apparent only in such longer words. This rule seems to represent phonologization of an intonation effect whereby in the environment [PHRASE...HL..., where HL is the first such sequence in the phrase, the H is boosted in pitch above the H baseline.

Schneeberg (1974) seems not to explicitly account for words like **būbzàŋ** ‘beard’ and **gyóptī** ‘woman’s wrapper’, with a /HL/ underlying pattern beginning in [+VO]. Others are **gūzà** ‘tin’ and **gōbzàŋ** ‘archer’s thumb ring’, with both syllables beginning in [+VO], and **zhíisōŋ** ‘spotted eagle-owl’ and **dáamā** (a piece in a children’s game), with the second syllable beginning [-VO]. The first type have ML tones, the second HL. Accounting for these requires the exception to (ii) [-H] RAISING, which prevents raising a [+VO] syllable before a [+L] tone. This seems rather *ad hoc*, though resistance to raising a [+VO] syllable seems intuitive. In the case of words like **gyóptī**, however, the identity of the underlying /HL/ pattern would be lost if the second syllable conformed to [-H] REALIZATION and the first syllable were not raised.

The tonal adaptation of loanwords gives useful insight into the rules proposed to account for tones of native words. Consider loans from Hausa, a language with a canonical two tone system:

**Table 6:** Tone of Zaar loanwords from Hausa

Hausa all H		Hausa H...L		Hausa L tones	
HAUSA	ZAAR	HAUSA	ZAAR	HAUSA	ZAAR
<b>ín</b> if	<b>ín</b>	<b>múudùu</b> measuring bowl	<b>múudù</b>	<b>àkwàati</b> box	<b>àkwàati</b>
<b>máa</b> even	<b>máa</b>	<b>kárfèe</b> o’clock	<b>kárfè</b>	<b>gyàlè</b> shawl	<b>gèlè</b>
<b>dái</b> indeed	<b>dēe</b>	<b>góofò</b> kolanut	<b>góorō</b>	<b>kàasúwáa</b> market	<b>kàasūwā</b>

<b>kánwáa</b> potash	<b>kāṅwa</b>	<b>dáṅgì</b> relatives	<b>dǎṅgī</b>	<b>fádámàa</b> marsh	<b>fádámā</b>
<b>sáatfii</b> week	<b>sāatī</b>	<b>dábbàa</b> animal	<b>dābbà</b>	<b>dàǎ́jàa</b> worth, rank	<b>dàràjà</b>
<b>gáawáa</b> corpse	<b>gāawā</b>	<b>bíndígàa</b> gun	<b>bīndógà</b>	<b>hánkàlii</b> intelligence	<b>hánkálí</b>
<b>jírgií</b> boat, vehicle	<b>zhīrgī</b>	<b>láafiyàa</b> health	<b>lāafiyā</b>	<b>mágàajii</b> heir, first born	<b>mágàají</b>
<b>kwálábáa</b> bottle	<b>kwāl̄bā</b>	<b>kāasúwāncii</b> trading	<b>kāasūwāncī</b>		
<b>bázaráa</b> hot season	<b>bāzārā</b>				
<b>mákáǎntáa</b> school	<b>mākārāntā</b>				

Assuming that Zaar speakers assign Hausa H the feature [+H], monotonal H words in Hausa conform to (2) INITIAL [+H] LOWERING: all monotonal H words in Hausa become monotonal M in Zaar *except* monosyllabic words beginning with a [-VO] consonant (e.g. **ín** ‘if’).<sup>20</sup> Words with H...L tones in Hausa, have Zaar realizations that conform to (2) INITIAL [+H] LOWERING and (3) [-H] RAISING. For **múudù** ‘measuring’ bowl’, see the derivation for **kúrvì** ‘tortoise’ above, for **kárfè** ‘o’clock’ see **nérēm** ‘monkey’, for **góorō** ‘kolanut’ and **dǎṅgī** ‘relatives’ (recall the NC functions as a [-VO] unitary segment) see **gyópti** ‘woman’s wrapper’, for **dābbà** ‘animal’ see **būbzəŋ** ‘beard’.

<sup>20</sup> Zaar seems to have borrowed no monosyllabic substantives from Hausa, which is not surprising, since Hausa has very few such words, and the ones that exist refer to common concepts that would not be likely candidates for borrowing, e.g. **dāa** ‘son’, **ci** ‘eat’, etc. I did find one HH Hausa word beginning with a [+VO] segment with HH tones in Zaar, viz., the modal operator **gáarā** ‘it’s best that...’. This contrasts with another HH Hausa loanword, **gāarā** ‘wedding presents’, which has MM in Zaar. In Hausa, the words differ in final vowel length (the former ends in a short vowel, the latter in long). This suggests that loanwords that are grammatical formatives may have special tonal properties, as they do in native Zaar words.

Words that are (H)HHL in Hausa, such as **bīndógà** ‘gun’, **kāasūwāncī** ‘trading’, surface as (M)MHM/L in Zaar, with all the H’s lowered to [-H] by (i), then the H immediately preceding the L being raised to [+H] by (ii). See the derivation for **tāmbúfi** ‘young locust bean pods’.

There is an empirical disparity between Schneeberg (1974) and Caron (2005) regarding loanwords containing L. Schneeberg (p. 146) says, “Except in verb stems, non-high tone is realized as low tone in [+foreign] morphemes, regardless of the initial segment.” She exemplifies this with the Hausa loanwords **àkwàatì** ‘box’, **ájì** ‘class’, **kárfè** ‘o’clock’ (Caron’s representations of the first and third are included in the table above—the word for ‘class’ is not in his dictionary). Data in Caron (2005) indicates that this statement holds only for *word initial* L, which, following the OCP, may be linked to multiple syllables such as **àkwàatì** ‘box’ and **gèlè** ‘shawl’. Note that **kàasūwā** ‘market’, and **fādámā** ‘marsh’ begin with [-VO] segments while **dàràjà** ‘rank’ begins with [+VO], yet all have initial L in Zaar, contrary to the prediction of (1) [-H] REALIZATION, according to which the first three should have initial M. Non-initial L’s in loanwords, on the other hand, have the surface tones predicted by (1) [-H] REALIZATION. For example, Schneeberg (p. 146) gives **kárfè** ‘o’clock’, with HL tones, whereas Caron gives **kárfè**, with HM. Examination of other data in the table of Hausa loans reveals that all the non-initial L tones in Hausa are realized in Zaar as [L] if the syllable begins in a modally voiced obstruent but [M] for other syllable initial segments.

As an interim summary of the above discussion, we may say that although Zaar has three phonetic tones, tone patterns of nouns can be characterized almost entirely in terms of two underlying tone levels, called [+H] and [-H] following Schneeberg (1974), with [-H] realized as [+L] only on syllables beginning with modally voiced obstruents. By and large, underived adjectives and adverbs other than ideophones seem to conform to the same patterns, e.g. adjectives **gèərí** ‘old’ (LH with initial [+VO]) vs. **ḡāanyí** ‘small’ (MH with initial [-VO]), locative adverbs **dùulì** ‘on top’ (LL with initial [+VO]) vs. **nāptí** ‘left’ (MM with initial [-VO]). In data seen so far, the only challenge to this general account is word initial L in loanwords, which is always realized as L, regardless of initial segment.

When one moves outside these word categories, however, this account breaks down in one or more ways. There are numerous examples of words in “closed categories” that fail to conform.<sup>21</sup> **Nàmbón** ‘one’ has L on an initial syllable beginning with [-VO], whereas **dzúp** ‘ten’ has H on a monosyllable beginning with [+VO]. We have seen an example of a borrowed grammatical formative **gáará** ‘it’s best that...’, with unexpected H. A couple of others are **ɓàk** ‘don’t’ (prohibitive particle preceding imperative) with L on a [-VO] syllable and **gí** ‘that (one)’ with H on a [+VO] monosyllable. In discussion of the verbal system below, we will also see that pronoun tones cannot be predicted on phonological grounds.

In the verbal system, morphological and syntactic factors systematically override phonological factors in determining tone. Schneeberg (1974:159ff.) discusses this in some detail in a section called “Grammatical Tone”. Here, I will mention just a couple of examples.

Caron (2005:212) divides verbs into two lexical classes: H and M. The H class is restricted to monosyllables. A cursory scan of the dictionary reveals only a few verbs in this class, e.g. **súu** ‘love’, **kír** ‘run’, **kúŋ** ‘get dry’. The M class comprises both monosyllables and disyllables. With what Caron refers to as the “lexical” tone,<sup>22</sup> all M verbs, regardless of segmental make up, follow the same pattern. Verbs in the M class all have the same tones regardless of initial consonant type, whereas in nouns, at least the disyllabic words would have initial L for words beginning with [+VO] consonants.

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<sup>21</sup> Some of these categories, such as conjunctions, modal operators, and prepositions, are not exactly “closed” in the sense that new items can be borrowed, e.g. **gáará** ‘it’s best that’, **dón** ‘because’, both from Hausa, but words in these categories are semantically and functional constrained in ways that nouns and verbs are not.

<sup>22</sup> Caron (2005:212) assigns two tone patterns to verbs of each lexical class: *lexical* pattern and *modified* pattern. In the latter, the M lexical class does become differentiated according to initial consonant type. We consider here only the *lexical* pattern. This pattern, roughly speaking, is used with TAMs that have preverbal auxiliary complexes that, arguably, form phrases on their own, separate from the verb, e.g. PERFECTIVE **m-áa dētsó** ‘I sneezed’, REMOTE PAST **mā-tá dētsō** ‘I sneezed some time ago’. In an autosegmental framework, TAMs using the *modified* pattern would be handled by floating tones associated with the TAM marking complex but linked to the verb. I have not tried to work out a comprehensive account.

**Table 7:** Zaar verb classes

LEXICAL CLASS	MONOSYLLABIC		DISYLLABIC	
H	<b>súu</b>	love	-----	
M initial [+VO]	<b>bwāa</b>	choose	<b>dětsó</b>	sneeze
M initial [-VO]	<b>tāar</b>	tear	<b>tūurá</b>	push

Tone plays an important role in person agreement and TAM marking. Consider the following four TAMs with first person singular and plural subjects.<sup>23</sup>

**Table 8:** Tone in Zaar TAMs

TAM	1 <sup>ST</sup> SINGULAR	1 <sup>ST</sup> PLURAL	
PERFECTIVE	<b>máa dētsó</b>	<b>màa dētsó</b>	I/we sneezed
REMOTE	<b>mōtá dētsó</b>	<b>mòtà dētsó</b>	I/we sneezed some time ago
SUBJUNCTIVE	<b>mè dētsó</b>	<b>mè dētsó</b>	that I/we sneeze
AORIST	<b>mō dētsó</b>	<b>mó dētsó</b>	and I/we sneezed

First person singular and plural are differentiated only by tone. I adopt Schneeberg's (1974) proposal of underlying /ḿ/ for singular and underlying /m̀/ for plural. The PERFECTIVE and REMOTE PAST TAM auxiliaries are /ā/ and /ta/ respectively, which copy the tone of the subject pronouns. The verb in these TAMs has the lexical tone pattern. The SUBJUNCTIVE and AORIST have no segmental TAM marking. I suggest in these cases that the agreement pronouns are cliticized to the verb, forming a single word for purposes of tone assignment, and the H vs. L person marking is shifted to the verb. The SUBJUNCTIVE is basically unmarked for TAM—the tone of the pronoun is linked to the verb, and the pronoun, linked to no tone, takes a default L. I suggest that the AORIST is

<sup>23</sup> The examples are all from Schneeberg (1974:§3.3). Caron (2005) has **gětsó** for this verb, though in nearly all other cases, data in the two sources is segmentally identical. Caron (2005) gives only the forms of the agreement + TAM complexes without verbs. Second person singular and plural subjects work pretty much like first person. Third person is a bit more complicated in ways that are not important here.

marked by a floating H that is linked to the pronoun. This accounts for H on the first plural pronoun (whose underlying L is linked to the verb) and, in conjunction with (2) INITIAL [+H] LOWERING and (3) [-H] RAISING, *almost* account for first person singular, i.e. /H **má-détsó**/ TONE LINKING TO VERB → H **mə-détsó** LINKING OF FLOATING H → **má-détsó** INITIAL [+H] LOWERING → **mā-détsō** ???[-H] RAISING \*[**m̄-détsō**]. In fact both tones of the verb are H. I have no solution to this problem that doesn't involve hand-waving. The main point, however, is that these verbal constructions make a number of grammatical uses of tone that involve lexical contrasts (H vs. L in subject agreement) and morphosyntactic marking (TAM marking by tone) that do not have phonological explanations.

As a final example where tones play a grammatical role in the verbal system that cannot be accounted for on phonological grounds, consider pluractional verbs. Some CVC verbs form their pluractionals by lengthening the vowel and changing the tone to H, e.g. **nāt/náat** 'tie up/PLURACTIONAL', **dāt/dáat** 'nail/PLURACTIONAL'. This process alone creates a tone pattern not found in nouns, viz. H on a monosyllable beginning with a [+VO] segment. The H must therefore be a function of the morphological process of pluractional formation. There is another interesting outcome of pluractional formation, viz. creation of a lexical contrast between M and H. Consider the following verbs.

**Table 9:** Tone contrast in Zaar between high and mid

SHORT VOWEL		LONG VOWEL	
<b>kír</b>	run	<b>kíir</b>	run (pluractional)
<b>kāp</b>	weave	<b>káap</b>	weave (pluractional)
-----		<b>kāər</b>	scrape clean
-----		<b>káər</b>	be tired

For 'run' and 'weave', pluractional formation works as predicted by lengthening the vowel and adding H tone (vacuously in the case of the H class verb **kír** 'run'). The M class verb **kāər** 'scrape clean' has a long vowel. Were such verbs to undergo pluractional

formation, this would be shown only by a change to H, but I have found no verbs in Caron (2005) where a M verb with a long vowel has a pluractional counterpart with H tone. There are, however, numerous verbs like **káar** ‘be tired’, with a long vowel and H tone that have no counterpart in a related meaning with M tone and a short vowel. I suggest that some, if not all these H verbs with long vowels are *frozen pluractionals*, i.e. erstwhile pluractionals that have become lexicalized with historical loss of their original base form, a common feature in Chadic languages (see Chapter 8). If this hypothesis is correct, one effect has been to create a H vs. M lexical tonal contrast in verbs, even resulting in minimal pairs of the type seen in ‘scrape clean’ (an underived M verb) vs. ‘be tired’ (a frozen pluractional).

In summary, Zaar is a language with three tone levels, H, M, and L, but we can safely assume that it has developed from an ancestor with two level tones. Most of its West Chadic relatives have two-tone systems, including even languages within the South Bauchi group of which it is a member. (Haruna (2005) describes Guruntum as such a language). More important, internal Zaar evidence shows the source of the three tone system, viz. [-H] tones being lowered by the pitch-depressing effect of modally voiced obstruents.<sup>24</sup> The three phonetic tones of items in substantive lexical classes other than verbs can be derived almost entirely from an underlying two-tone system by taking into account segmental make up of morphemes, the one exception being word-initial /-H/ in loanwords, which is always L regardless of initial segment. Once one moves to non-substantives, and more importantly, to the verbal system, however, Zaar has taken advantage of the three phonetic tone levels to mark a number of morphosyntactic distinctions.

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<sup>24</sup> This assumes, of course, Schneeberg’s (1974) proposal that the basic system differentiates tones as /+H/ and /-H/ rather than an alternative /+L/ vs. /-L/. It would be possible to work out an analysis with underlying /+L/ vs. /-L/ that would be a sort of mirror image to the one laid out here, but it is hard to see what the advantages would be, and the disadvantage would be to require that [-VO] segments have a *raising* effect. But [-VO] consonants do not form a phonological natural class (comprising as they do, voiceless obstruents, nasals, liquids, and glides), whereas [+VO] consonants do comprise a natural phonological class that is known, both within and outside Chadic, to have a pitch depressing effect.



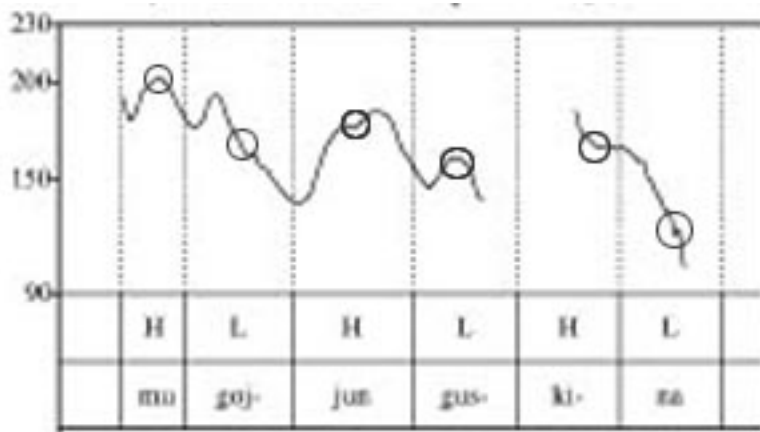
#### 4. Downdrift, Downstep, and Terraced Level Tone Systems

Probably all languages with two-tone systems exhibit the intonational phenomenon of *downdrift*, i.e. the realization of a HLH sequence as  $H_1LH_2$  where  $H_2$  has a lower pitch than  $H_1$ . Some languages with only lexical H and L have *downstepped* high tones, i.e. sequences  $H_1H_2$  where  $H_2$  has a lower pitch than  $H_1$  but where there are reasons for analyzing  $H_2$  as /H/, not a mid tone. Finally, there are languages with *terraced level* systems where downstepped H is in contrast with H and with L. All these tonal configurations are found in Chadic languages.

##### 4.1. Downdrift and related intonational phenomena

Downdrift is the lowering of pitch of the second H in a sequence HLH. Bole (I.A.2.a) is a typical two-tone language with downdrift. Figure 1 shows a six-syllable utterance with alternating H and L.<sup>25</sup> Circles show the approximate perceived pitch center (measured in Hz) for each syllable. Intervening consonants, particularly voiced obstruents cause considerable pitch perturbations and, of course, the voiceless **-sk-** sequence interrupts voicing in the pitch tracing at that point.

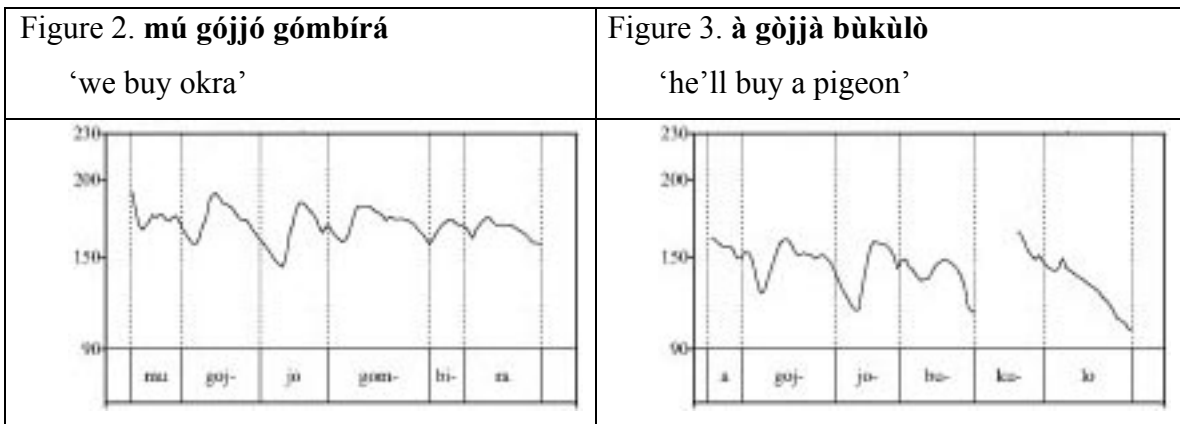
Figure 1. **mú gòjjún gùskínà** ‘we bought (and brought) burned crust’



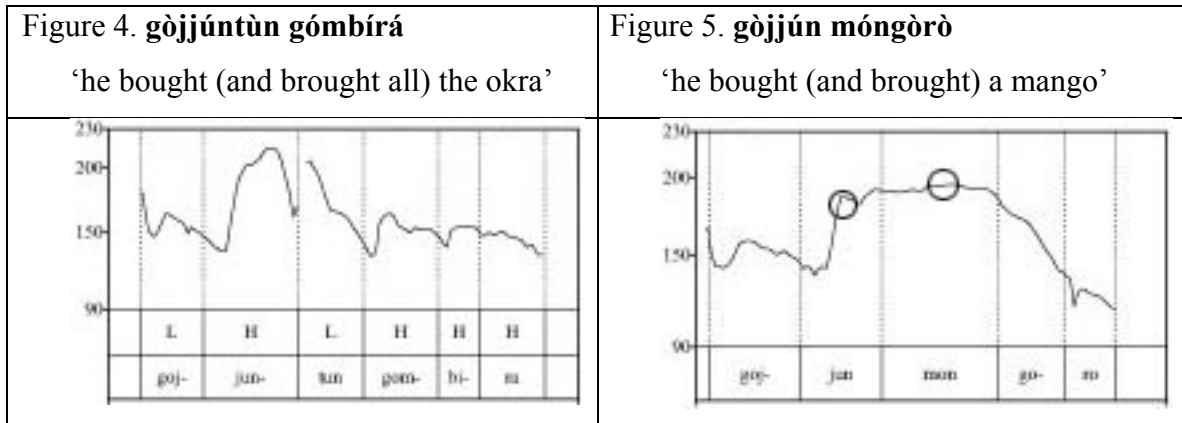
<sup>25</sup> Figures are from Schuh, Gimba, & Ritchart (2010), which provides a comprehensive description of Bole intonation for one speaker.

After the first H on **mú**, the successive H tones on **-jún** and **-kí-** are lowered compared to preceding H tones. The L tone on **gùs-** is lowered slightly from the pitch of the preceding L **gòj-**, but not as much as the H tones compared to preceding H's. The final L, however, drops considerably and has a falling pitch. This is a typical feature of phrase final L after both a preceding H and a preceding L, as is seen in Figure 3 below.

Utterances with all H tones retain more or less the same pitch throughout, with perhaps a slight declination, as in Figure 2. Utterances with all L tones, maintain more or less the same pitch until the last syllable which drops from the preceding syllable and has a falling pitch, as in Figure 3. In both figures, the perceived pitches for the syllables are those at about the middle of each column. The perturbations are the pitches of the consonants.



When a phrase ends in a sequence LH, it is often pronounced “L-level”, i.e. the H rises little, if at all above the pitch of the preceding L. The H can extend over several syllables, as in Figure 4, where the three-syllable H word **gómbirá** ‘okra’ continues about the same pitch as the preceding L **-tùn** (VENTIVE TOTALITY verb suffix).



A final intonational phenomenon worth mentioning is the tendency to raise the H of the first HL sequence within an utterance to a pitch higher than a preceding H. This is seen in Figure 5, where the pitch of the first syllable of **móngòrò** ‘mango’ is slightly higher than the preceding H of **jún**. Newman (2000:612-613) mentions this phenomenon for Hausa as well, but he restricts the context, saying, “In a sequence of H-H-L... (where, in a tensed sentence, for example, the second H is either the weak subject pronoun or the initial syllable of the verb) the second H raises to [a higher pitch than the preceding H]...” As far as Schuh, Gimba & Ritchart (2010) could determine for Bole, there are no restrictions on this pitch raising effect other than the phonological one that the HL sequence in question is not initial in the phrase. Note that in Figure 4, which has only one L syllable before the first HL, the pitch of **-jún-** is at the top of the normal speech pitch range for this speaker, whereas downdrift would predict that a preceding L would condition a lower pitch on a H than the pitch of a phrase initial H would have.

#### 4.2. Downstep

A downstepped H is a phonological H tone pronounced at a lower pitch than an immediately preceding H. Downstepping is related to downdrift in that the pitch relationship of a downstepped H to a preceding H is the same as that of the downdrifted second H of a HLH sequence to the first H. In fact, downstepping can often be accounted for by a rule that suppresses the L of a HLH sequence, leaving only the downstepped H as evidence of its underlying presence.

An example can be seen in the Yaya dialect of Ngamo (I.A.2.a). In the “NEUTRAL” column is a verb, alone with the PERFECTIVE suffix **-ko** and with suffixed 3<sup>rd</sup> masculine singular and 3<sup>rd</sup> feminine singular indirect object pronouns. These precede the PERFECTIVE suffix. The PERFECTIVE suffix has historically contracted with the 3<sup>rd</sup> feminine suffix, resulting in a single syllable with a rising tone. The TOTALITY extension **-tù-** precedes the PERFECTIVE suffix where there is no object, but the indirect object suffix preempts the immediate post-verbal position and the TOTALITY is marked by **-tì** suffixed to the entire word. Ngamo allows a rising tone only on the last syllable of a word, so the L portion of the rise on /-tòó-/ is suppressed, but its underlying presence is heard as a downstep on the pronoun, marked here by a superscripted <sup>!</sup>.

**Table 10:** Ngamo “NEUTRAL” vs. TOTALITY

	“NEUTRAL”	TOTALITY
‘he tied’	<b>ngár-kò</b>	<b>ngár-tù-kó</b>
‘he tied for him’	<b>ngár-nù-kó</b>	<b>ngár-nù-kó-tì</b>
‘he tied for her’	<b>ngár-tòó</b> (< *ngár-tò-kó)	<b>ngár-<sup>!</sup>tóo-tì</b>

Kanakuru (I.A.2.b) marks a number of close grammatical connections with the tone pattern H<sup>!</sup>H. In the analysis of Newman (1974:14 et passim), downsteps always result from downdrifted H tones separated by a non-pronounced L from the underlying environment / H L H /. The non-pronounced L has one of several sources:

- (1) Floating L as part of the underlying representation of one of the elements, as in the demonstratives /**pólá**/ ‘which (m, pl)’, /**shólá**/ ‘which (f)’ and the agentive **ná**:

/**pándái`pólá**/ → **pándái<sup>!</sup>pólá** ‘which mat’

/**gúnyói`shólá**/ → **gúnyói<sup>!</sup>shólá** ‘which girl’

/**ná`róhà**/ → **ná<sup>!</sup>róhà** ‘hunter’ (“doer bow”)

- (2) Elision of the underlying vowel that bore the L tone with effects of the L remaining, as with HL verb stems and the past continuous marker **ji-PRO(L)** where the vowel bearing the L can be elided if phonotactics allow:

/b̀̀l̀̀à ǹ̀à jí̀̀l̀̀í j̀̀á̀ṅ̀g̀àl/ → b̀̀l̀̀à ǹ̀à jí̀̀l̀̀í <sup>1</sup>j̀̀á̀ṅ̀g̀àl ‘in order that I reduce the tax’  
 /jí̀̀-ǹ̀ò ẁ̀ú̀p̀̀-<sup>1</sup>m̀̀ái/ → jí̀̀-ǹ̀ <sup>1</sup>ẁ̀ú̀p̀̀<sup>1</sup>m̀̀ái ‘I used to sell it’

(3) Displacement of a L to the boundary between the elements of the construction by a rule / H L + H... / → [ H H + <sup>1</sup>H...].<sup>26</sup>

/b̀̀l̀̀à ǹ̀à j̀̀ó̀b̀̀è j̀̀ó̀k̀ó/ → b̀̀l̀̀à ǹ̀à j̀̀ó̀b̀̀ <sup>1</sup>j̀̀ó̀k̀ó ‘in order that I wash the cap’  
 /yé̀r̀ò-ǹó/ → yé̀r̀o-<sup>1</sup>ǹó ‘my eye’  
 /g̀á̀àn m̀áǹj̀òì/ → g̀á̀an <sup>1</sup>m̀áǹj̀òì ‘forehead of the old man’  
 /j̀é̀ẁè m̀óǹó/ → j̀é̀ẁé <sup>1</sup>m̀óǹó ‘my slave’<sup>27</sup>  
 /m̀áǹj̀è m̀óǹa/ → m̀áǹj̀é <sup>1</sup>m̀óǹá ‘old house’

It is possible to have a series of downsteps by “stacking constructions” each of which has a conditioned downstep:

/ẁá̀r̀ìṅ m̀óǹd̀à dú̀ẁò-ǹó/ → ẁá̀r̀ìṅ <sup>1</sup>m̀óǹd̀á <sup>1</sup>dú̀ẁó <sup>1</sup>ǹó ‘my peer’s wife’s nose’

Downdrift and downstep attributable to it are common in two-tone languages but less common in three-tone languages for the reason that, following a H, there could be confusion between a mid tone (M) and a downstepped H, and likewise, moving up from a L, it would be difficult to distinguish a M from a downdrifted H. Nonetheless, R. M. Newman (1971b) reports both downdrift and downstepped H in Ga’anda (II.A.1.b), a language with three contrastive tones (cf. **c̀ò** ‘break!’, **c̀ō** ‘shoot!’, **c̀ú** ‘do!’). She says (p. 17), “The sequence high-lowered high is phonetically distinct from the sequence high mid,” offering the following examples:

<sup>26</sup> At least in verbal constructions, this may be a variant of (2) found in cases where the vowel bearing the underlying L cannot be elided for phonotactic reasons.

<sup>27</sup> The difference between pronouns in ‘my eye’ (seen just above) and ‘my slave’ is the difference between inalienable and alienable possession. These examples show that the rule resulting in downstepping is associated with a close syntactic relationship, not a particular semantic relationship.

HHHH MMM: **cínítáǎí mb̄rmb̄rāk** [ˈˈˈˈ ˌˌˌˌ] ‘that lion is rough’

HHHH HL HHH: **cínítáǎí í mólándú** [ˈˈˈˈ ˌˌˌˌ] ‘that lion of Mitlindu’s’

There are two main sources for downstepped H. One is like that described above for Kanakuru, where a L is suppressed from the underlying environment / H L H /, resulting in a downstep on the following H. An example is seen above, where the linking morpheme /í/ has a “latent” L. Ga’anda has numerous lexical items with such latent L tones, e.g. /f̄ǎǎ́ ǎ́yá/ → f̄ǎǎ́ ǎ́yá ‘this thigh’. A second source, particular to Ga’anda, is the raising of a root initial L or M following a L in certain environments. A H following this raised tone is realized as downstepped: /m̄làn s̄n n̄ǎǎ́/ → m̄làn s̄n ǎ́ǎ́ ‘he knows that man’.

### 4.3. Terraced level tone systems

Systems referred to as *terraced level* by Welmers (1973:82) are common in Africa, for example, Mende, Akan, and Igbo among others in West Africa and, according to Welmers (1959:4), “every Southern Bantu language”. Such systems are rarer in Chadic although, as illustrated above in §4.2, some Chadic languages do have such a system, which operates in a robust manner.

Terraced level languages have three tones: L, H, and downstepped H (<sup>1</sup>H). Such languages differ from three tone languages with H, M, L in that the only rising sequence is L-(downstepped) H, i.e. there is no sequence M-H. Also, there can be, in principle, an infinite number of successive drops of the type H <sup>1</sup>H <sup>1</sup>H <sup>1</sup>H..., whereas in a H M L language, there are only three possible descending patterns: HM, HL, ML (*modulo* three-tone languages with downstep such as Ga’anda, discussed above). Terraced level languages differ from two-tone languages with downstep in two related ways. First, in a language like Kanakuru, there are only two contrasting pitch levels, H and L. All pitch phenomena can be accounted for with these two tones and the phenomenon of downdrifting that causes the second H in a H L H sequence to have a lower pitch than the first. Downstepping is the result of the loss or suppression of the intervening L. Second, downstepping in a terraced level language is lexically and/or grammatically determined. L, H, and <sup>1</sup>H are all required as part of lexical tonal specifications, and downstepping in

particular grammatical environments cannot plausibly associated with loss of intervening low tones.

A good example from West Chadic is the North Bauchi language Miya (I.B.2.a). Here, I give only some of the basic features of the Miya system. Schuh (1998:Chapter 3) provides a fuller, detailed description.

Tone marking for Miya: For this section I use a marking system originated by Christaller (1875) for Akan. Acute accent (**á**) = H at the beginning of a phrase, downstepped H elsewhere; grave accent (**à**) = L. Syllables unmarked for tone are pronounced on the same pitch as the nearest preceding tone-marked syllable. This system has two advantages: it minimizes the number of diacritics needed, and, more important, it captures the fact that tone is not strictly speaking a syllabic phenomenon, but is a pitch phenomenon extending over a potentially multisyllabic domain.

All the possible citation patterns for Miya disyllabic nouns are shown in the data below. One lexical distinction is neutralized in citation form, viz. (iia), which is lexically /downstepped H/, and (iib), which is lexically /L/. The demonstrative **tákən** ‘this’, with phrase-initial high tone, reveals the lexical distinction. Tone patterns that do not occur in citation forms are shown in (vi).

(i)	<b>láahə</b>	[ <sup>ˉ</sup> ˉ]	H H	‘jackal’	
(iia)	<b>ghədə</b>	[ <sub>ˉ</sub> ˉ]	/ <sup>ˈ</sup> H H/	‘fish’	cf. <b>tákən ghədə</b> [ <sup>ˉ</sup> ˉˉˉˉ]
(iib)	<b>kəvən</b>	[ <sub>ˉ</sub> ˉ]	/L L/	‘buffalo’	cf. <b>tákən kəvən</b> [ <sup>ˉ</sup> ˉˉˉˉ]
(iii)	<b>lǝntá</b>	[ <sup>ˉ</sup> ˉ]	H <sup>ˈ</sup> H	‘lion’	
(iv)	<b>wútə</b>	[ <sup>ˉ</sup> ˉ]	H L	‘one’	
(v)	<b>dùrdúr</b>	[ˉˉ]	L H	‘heron’	
(vi)		*[ˉˉ], *[ˉˉ], *[ˉˉ], *[ˉˉ]			

Tonal domains have three possible lexical specifications, called *Toneless* (T), *High* (H), and *Low* (L) in Schuh (1998). The phonetic realizations of these three lexical specifications are accounted for by the following rules: # = beginning of a phonological phrase, αTone = same pitch, X = any material in the same phonological phrase. Recall

that all syllables not marked for tone are pronounced on the pitch of the preceding syllable.

**Table 11:** Miya tone processes

		INITIAL	AFTER H 'back of ...'	AFTER L 'mouth of ...'
T	T → H / #____ T → αTone / αTone____	<b>láahə</b> 'jackal'	<b>ákyar laahə</b>	<b>vəna laahə</b>
H	L → L / #____ H → !H / X____	<b>mədə</b> 'castrated goat'	<b>ákyar mədə</b>	<b>vəna mədə</b>
L	L → L everywhere	<b>gúzəm</b> 'Nile monitor'	<b>ákyar gúzəm</b>	<b>vəna guzəm</b>

One further rule is needed:

L-RAISING:  $[L]_{\sigma} \rightarrow H / L]_{\text{DOMAIN}} \_\_\_ \text{ where the L syllable does not begin in a voiced obstruent}$

“Raise a single L syllable to H when it follows a L in its own domain and the target syllable does not begin in a voiced obstruent”: /vəna<sub>L</sub> mbərgu<sub>L</sub>/ → **vəna mbərgù** ‘mouth of a ram’,<sup>28</sup> /təvam<sub>L</sub> tsər<sub>L</sub>/ → **təvam tsər** ‘two women’.

These rules apply within any phonological phrase, e.g. N+N genitives as in the table above, demonstrative + N seen in examples (iia, iib) above, N + number (/səbə<sub>T</sub> dərbitim<sub>T</sub>/ → **səbə dərbitim** ‘10 people’, /səbə<sub>T</sub> fərfədə<sub>TH</sub>/ → **səbə fərfədə** ‘eight people’, /səna<sub>TH</sub> fərfədə<sub>TH</sub>/ → **sənoo fərfədə** ‘eight days’), verb + object (/a-zar<sub>L</sub> zhaakə<sub>T</sub>/ → **à-zar zhaakə** ‘he called a donkey’, /a-zar<sub>L</sub> mədə<sub>H</sub>/ → **à-zar mədə** ‘he called a castrated goat’).

Derivation of words with HL citation tones, such as **wútə** ‘one’, is interesting. By the rules in the table above, this is the citation pattern of a /TL/ word. Following a L, however, the surface tone pattern is, in effect, reversed: /sən<sub>H</sub> wutə<sub>TL</sub>/ → **sən wutə** ‘one

<sup>28</sup> As is common, but not ubiquitous, in Chadic, prenasalized stops in Miya are treated like sonorants rather than obstruents, hence the rule applies to **mbərgu**.



person’. The T initial syllable of **wútə** copies the preceding L, then L-RAISING raises the second syllable. This shows that the environment for L-RAISING has to be  $L]_{\text{DOMAIN}}\_\_\_$ , not  $L]_{\text{WORD}}\_\_\_$  because the conditioning L is within the same word as the target L. Moreover, L-RAISING must be ordered after the tone copying rule for T domains in order that the T be realized as L when L-RAISING applies. For reasons that I do not understand, Miya seems to have no native nouns with surface tones HL (</TL/). However, Miya has borrowed extensively from Hausa, which does have many HL nouns, and such loanwords as **góorò** ‘kola’ and **móotà** ‘car’ appear in Miya with HL pronunciation. From the Miya perspective, these words are underlyingly /TL/, and following a L they undergo the same derivation as native Miya words, e.g. **Ndùwy-áa àa mootá** ‘Nduya has a car’.

Like Kanakuru, Miya can “stack” constructions that result in a long series of downsteps, as in the following (using the <sup>1</sup>H notation to highlight the downsteps):

**’án ta ’dér’wéli ’má ’vóna ’kámuw** ‘the wife of the leopard is not in front of the house’

Unlike Kanakuru, however, there is no plausible motivation for accounting for the downsteps with a suppressed /L/ before each one. This is particularly evident in the many words that have a root internal downstep, an impossible configuration in Kanakuru, e.g. **shínákə** ‘tongue’, **títelúw** ‘cornstalk flute’ **ázhúwazhùw** ‘musk shrew’, **ángárbàcə** ‘black ants’.

## 5. Tonal Phonology

All Chadic languages are tone languages and probably every language has phonological rules specific to tones, some of considerable complexity. It would be impossible to summarize such rules in a meaningful way. This section discusses a few tone rule types that apply cross-linguistically, referring in part to the typology of tone rules outlined in Hyman and Schuh (1974).

### 5.1. Rules affecting contour tones

African languages in general and Chadic languages in particular, with virtually no exceptions, can be characterized in terms of systems of level tones (HL, HML, H<sup>1</sup>H, etc.). Most Chadic languages do have one or more contour tones, but in §2, evidence is presented showing that contours result from associating two level tones with one syllable. Such evidence consists of contexts that either redistribute the contour as two level tones over two syllables or contract two syllables but retain the tones of both on one syllable. Contours may, however, be subject to rules that have the effect of eliminating the contour or part of it. This takes place through *simplification* or *absorption*.

Simplification takes place when a contour is replaced by a level tone with no phonetic evidence of its bi-tonal make up. A well-known case is Hausa rising (R) tone. Leben (1971) presented cases where two syllables bearing LH are contracted to one syllable, resulting in H, e.g. **dòomín** → **dón** ‘because’, **tàusàyíí** → **tàusai** ‘pity’. Newman (1995) showed that this account is not entirely accurate. If the ...LH in the configuration HLH is contracted, the result is L, e.g. **gàwàyíí** → **gàwàì** ‘charcoal’, **ìlímíí** → **ìlímì** ‘wisdom’. In both cases, however, the R is eliminated by simplification to a level tone.

Absorption takes place when a contour tone abuts a syllable bearing the tone of the second half of the contour, i.e.  $\widehat{L}HH \rightarrow LH$  or  $\widehat{H}LL \rightarrow HL$ . Margi has a number of verbal derivational suffixes. A suffix **-bá** gives the meaning “out”, which always has H tone (Hoffmann 1963:121-125). H and L stem verbs retain their tone when this suffix is added, but R tone stems are pronounced with L, e.g. **gǎ** ‘draw water’ → **gǎbá** ‘take out (a liquid)’, **là** ‘dig’ → **làbá** ‘dig out’, **nǎ** ‘mould pots’ → **nǎbá** ‘repair with clay’. The H portion of the R has been absorbed into the H of the suffix.

Bole has a number of words with the pattern RL (mostly proper names), but no words with a pattern RH, e.g. **Dǎwà** woman’s name but no \***Dǎwá**. There are also quite a few words with FH, e.g. **dûrmí** a type of *Ficus*, **sàwáapú** ‘blessing’. There are a few with FL but nearly all are loanwords, e.g. **lâakì** ‘laziness’ (< Kanuri, which has HL). Hausa has many words with F, but it always either precedes a H or is word final. These skewings are not necessarily the result of absorption, but they indicate the avoidance of tonal sequences that absorption repairs.

## 5.2. Tone spreading and interaction between consonant types and tone

Tone spreading is the extension of the domain of a tone beyond its original domain. This phenomenon is particularly common in languages of the Bole-Tangale (I.A.2.a) and Bade (I.B.1) groups in the northeast part of West Chadic. Spreading in these languages is strongly associated with consonant types. Lukas (1969) introduced the terms “permeable” and “impermeable” to describe the effect of consonants on tone.<sup>29</sup> Generally speaking, modally voiced obstruents (**b, v, d, j, z, ʒ, g**) block spreading of H tone and facilitate spreading of L tone, voiceless consonants (**p, f, t, c, s, ʃ, k**) block spreading of L tone and facilitate spreading of H tone, implosives (**ɓ, ɗ, ’y**) vary between being “blockers” or “facilitators”, and sonorants (**m, n, ŋ, r, l, y, w**) are “neutral”. Languages differ as to whether they treat prenasalized consonants (**mb, nd, nj, ŋg**) as voiced obstruents or as nasal sonorants. Most languages (for example, Bole (I.A.2), Miya (I.B.2.a), Zaar (I.C.1.a)) treat them as sonorants, but Bade group languages treat them as voiced stops.

Bole has a HIGH TONE SPREADING (HTS) rule that spreads H, replacing a L, just in case the syllable bearing the L does not begin in a voiced obstruent (Lukas 1969, Gimba 1998, Schuh & Gimba 2005):

**Table 12:** Bole tone spreading

<b>pòtí</b>	‘sun’	<b>rùuní pótí</b>	‘shade from the sun’
<b>bàadí</b>	‘knife’	<b>shòowí báadí</b>	‘handle of a knife’
<b>mòndù</b>	‘woman’	<b>tèmshí mónù</b>	‘sheep of a woman’
<b>ŋgùukà</b>	‘hernia’	<b>sèedí ŋgúukà</b>	‘remedy for a hernia’
<b>làawò</b>	‘child’	<b>dóoshó láawò</b>	‘horse of a child’

*but*

<b>bìdò</b>	‘monkey’	<b>ló bìdò</b>	‘meat of a monkey’
<b>zòngè</b>	‘desert date’	<b>àttí zòngè</b>	‘ <i>kunu</i> from desert dates’

<sup>29</sup> Tone permeability is most evident in West Chadic languages. Jungraithmayr (2003:27) uses the term in describing Mubi, an East Chadic language; however, under closer analysis, it turns out that the phenomenon he is describing is not really permeability, but rather the type of consonant-tone interaction involving depressor consonants widely found throughout Chadic and discussed above in §3.3.

The L of the target syllable is replaced with no trace of the original L, i.e. a high toned syllable following the replaced syllable is not downstepped and a heavy syllable becomes H, not F. The one exception to the latter statement is heavy monosyllables, where only the first mora is replaced, e.g. **kòm** ‘cow’, **ló kòm** ‘meat of a cow’.

Bole HTS is of particular interest for its sensitivity to non-phonological information, namely syntactic boundaries and lexical word classes. First, there must be an intervening boundary of at least the level of a clitic, e.g. **pàtáawò** ‘he went out’, **ká-pátáawò** ‘you (m.s.) went out’ (cf. **ápìrdì** ‘soft palate’, not \***ápìrdì**, where the HL sequence is internal to a word). Some boundaries facilitate HTS, some block it. The examples in the table are N+N genitives, but HTS does not take place between a noun and most other following modifiers such as adjectives or numbers. HTS takes place between a verb and a direct object but not between a nominal subject and a verb:<sup>30</sup>

**tèms hí pèetilà** ‘white sheep’

**témk á pòd d f ó** ‘four sheep’

V + object: **ñ dùw á láawò (/làawò/)** ‘I will beat a child’

Subject + V: **òosh í lòkkidíúú g à g àa zòor í** ‘the goat became entangled in the rope’

Lexical word class also plays a role. Proper names neither undergo HTS nor do they condition it: **tèms hí Kàkkàab á** ‘Kakkaba’s sheep’, **Kàkkàab á Píkk à** ‘Kakkaba of Fika’.<sup>31</sup> Demonstratives and question words do not undergo HTS: **kó màinêe** ‘from these’, **kó sòttò?** ‘from when?’ (cf. **kó máal á (/màal á/)** ‘from the bush’). The presentatives **èssée** ‘here’s...’, **àssáa** ‘there’s...’, despite having a verb-like function, do not spread their final H to their complement, e.g. **èssée sàarò yê** ‘here’s the grass’.

Languages of the Bade group have both high spreading (HTS) and low spreading (LTS). HTS is essentially the same for all the languages of the Bade group. This rule works similarly to HTS in Bole, in the sense that it is blocked by an intervening voiced obstruent, but there are differences. First, prenasalized consonants group with voiced

<sup>30</sup> See Schuh and Gimba (2005) for an exhaustive treatment of where HTS does and does not apply.

<sup>31</sup> Place names, unlike proper names, do undergo HTS in the appropriate environment, e.g. **tùràar é Píkk à** ‘perfume from Fika’.

obstruents in blocking the spreading. Second, Bade group HTS works essentially anywhere within an intonational phrase, including, for example, between a noun subject and a verb, a boundary that blocks HTS in Bole. Third, Bade group HTS works essentially at the moraic level, resulting in a F when the spread is to a heavy syllable, and when the spread is to a light syllable followed by a H, the H is realized as a downstep since the light syllable cannot accommodate two tones. Examples are from Ngizim:

<b>/ná kàtáú/ → ná ká'táw</b>	‘I returned’
<b>/ná zàadáú/ → idem</b>	‘I arrived’
<b>/ná mbàsú/ → idem</b>	‘I sat down’
<b>/Sàwná màsée àr̄ée/ → Sàwná má'sée ár̄èè</b>	‘Sauna bought bean cakes’
<b>/kwářá Mâakwái/ → kwářá Mâakwái</b>	‘Makwai’s donkey’ <sup>32</sup>
<b>/gèjí kùrám/ → gèjí kú'rám</b>	‘handle of a hoe’
<b>/kùrám Dènzà/ → idem</b>	‘Dimza’s hoe’

LTS in the Bade group can be formulated as follows:  $H \rightarrow L / L \_\_ +H$ , where “+” is at least a clitic boundary. There are differences between languages as to where this rule is blocked or not blocked by consonant types as follows:

Ngizim: Blocked by voiceless and glottalized consonants, facilitated elsewhere.

<b>/mùgbá báí/ → mùgbà báí</b>	‘not a monitor’
<b>/bàmá báí/ → bàmà báí</b>	‘not gambling’
<b>/àwđú báí/ → idem</b>	‘not a grave’
<b>/ciitá báí/ → idem</b>	‘not pepper’

Western Bade: Blocked by voiceless consonants, facilitated elsewhere.

<b>/gàají póm/ → gàajì póm</b>	‘not Gaji (a proper name)’
<b>/kàyáan póm/ → kàyàan póm</b>	‘not a squirrel’

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<sup>32</sup> In contrast to Bole, HTS applies any time the phonological environment is met, including with proper names.

/wìíḏḗn pám/ → wìíḏḗn pám ‘not a fart’

/mḗtḗn pám/ → idem ‘not death’

Gashua Bade and Duwai: No blocking, i.e. takes place across all consonant types.

/gàájí báí/ → gǎájì báí ‘not Gaji’

/kàyák báí/ → kǎyàk báí ‘not a squirrel’

/tḗ’yí báí/ → tǎ’yì báí ‘not food’

/kùnkús báí/ → kùnkùs báí ‘not charcoal’

Unlike HTS, which can result in a F if the H is spread to a heavy syllable, LTS never results in R. Hyman and Schuh (1974) attribute this fact to absorption of the H portion of the presumed intermediate R by the following H.

### 5.3. Other interactions between tones: copying, dissimilation, polarization

*Copying* applies to domains (usually syllables) that are lexically unspecified for tone and get their tones from adjacent domains. Examples of copying are seen in Miya, where word initial domains may be lexically toneless. At the beginning of a phrase, such a domain takes a default H, but otherwise it copies the tone of the preceding domain, e.g. **dǎrbítim** ‘10’, **sǎbǎ dǎrbítim** ‘10 people’, **níykin dǎrbítim** ‘these 10’. (The tone marked on the first syllable persists until a different tone is encountered).

The following data from Hoffmann (1963:§224) was presented in example (2). The suffix **-na**, which transitivity verbs, copies the tone of the preceding syllable. The third word, **njìná**, was described earlier as illustrating distribution the two components of the R over two syllables; however, another interpretation is that **-na** copies the preceding tone as with other verbs and the H portion of the R is absorbed into the H of **-ná**.

H verb:	<b>sá</b>	‘get lost’	<b>sáná</b>	‘lose, waste’
L verb:	<b>hyì</b>	‘tear (intr.)’	<b>hyìnà</b>	‘tear (tr.)’
R verb:	<b>njǐ</b>	‘pass urine’	<b>njìná</b>	‘urinate’

*Dissimilation* applies to a domain that has a lexical H or L. If that domain has the same tone as an adjacent domain, the target domain is given the opposite tone. An example is seen in Miya, where a L syllable at the beginning of a word is dissimilated to H following a L (except where the target L begins with a voiced obstruent), e.g. /p̀ram k̀v̀ən/ → p̀ram k̀v̀ən ‘blood of a buffalo’.

*Polarization* is the opposite of copying: domains (usually syllables) that are lexically unspecified for tone take the tone opposite an adjacent domain. A familiar example from Hausa is the copula (called the “stabilizer” in Hausa studies) **nee** (m, pl), **cee** (f), which always has tone opposite the preceding tone, e.g. **dóokii née** ‘it’s a horse’, **jàakii nèe** ‘it’s a donkey’, **bàa dóokii bá nèe** ‘it’s not a horse’. The latter example, where **nee** follows the negative marker **bá**, shows that the polarization rule is purely tonological, i.e. it is not somehow linked to particular morphological configurations. In Ngizim, the prepositions **naa** ‘with, and (conjoining nouns)’ and **kaa** ‘like’ have tone opposite that of the following syllable, e.g. **máǎdú náa g̀v̀ər̀k̀à** ‘millet and sorghum’, **g̀v̀ər̀k̀à nàa máǎdú** ‘sorghum and millet’, **káa dàakwiya** ‘like a deaf person’, **kàa sáu** ‘like that’. In Margi (Hoffmann 1963:§313 et passim), verbs in several TAMs have a prefix **a-** that is polar to the tone of the verb stem. Moreover, some TAMs may place the pronominal subject agreement after the verb, in which case the pronoun tone is polar to that of the verb stem: PRESENT **á-wì má** ‘we (incl) run’, **à-sá mà** ‘we (incl) drink’, **á-v̀ǎl mà** ‘we (incl) jump’.

In principle, one could dispense with polarization as a type of tonal interaction by supplying putative “polarizing” domains with a lexical tone, then applying a dissimilation rule when the target domain is adjacent to a domain with the same lexical tone. Pulleyblank (1983) proposed such an analysis for the Margi prefix, and there have been similar proposals for other cases of putative polarity rules. Newman (1995) criticizes such proposals (rightly in my view) as sacrificing common sense to basically unjustified theoretical hand-waving. The concept of polarization is simple, true to the facts, and undoubtedly easily acquired by children as they acquire a language, suggesting that tonal polarity is a linguistically legitimate tonal interaction.

## 6. Ngamo

Ngamo has a two-tone system with downdrift. Because of a major sound change affecting the tones of Gudi Ngamo, to be described below, the tone system has become somewhat skewed, but there are minimal sets such as the following that show tonal contrasts:

HL	<b>sháayì</b>	‘tea’	LL	<b>shàayì</b>	‘nettle tree’
LF	<b>zàazî</b>	‘husbands’	LL	<b>zàazi</b>	‘porcupine’
LF	<b>gèďê</b>	‘passing’	LL	<b>gèďê</b>	‘left side’

There is a systematic tonal distinction between class A1 verbs (see Chapter 6) with and without the TOTALITY extension (see Chapter 7):

**ngàrkô** ‘he tied (it)’ [no extensions]      **ngárkò** ‘he tied (it) up’ [TOTALITY]

Contour tones (F, R) are restricted in Gudi Ngamo. There are essentially no words with R tone.<sup>33</sup> F tone is very frequent, but aside from a couple of loanwords (e.g. **bâmmi** ‘palm wine’), F tones are all on monosyllables or on the final syllable of multi-syllabic words, e.g. **rô** ‘tree’, **diknâ** ‘wooden food bowl’, **làafiyâ** ‘good health’. The reason for the frequency of word final F tone will emerge below.

In the Bole-Tangale languages in particular, and in West Chadic in general, tone patterns tend to be a lexical property for non-verbs, and if one assumes, roughly speaking, that tones are assigned to syllables, these languages allow all the possible tone patterns implied by a two-tone system. Tones of verbs, on the other hand, are usually assigned as restricted templates—I return to this below. The table below shows non-verbs, mostly nouns, with cognate items for four Bole-Tangale languages. The presumed original tone patterns, shared by three of the languages, are in the left-hand column. Our

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<sup>33</sup> Only two words in my lexical database are given with rising tone: **kǒŋ** ‘buffalo’, which may be two syllables with H on a syllabic nasal, and **ně** ‘me’ (independent pronoun), which is a contraction of an alternative pronunciation, **ně’é**.



main interest here is the tone pattern that pre-Gudi Ngamo would have inherited. Items in parentheses differ from that pattern in some way. Empty cells indicate that a cognate item has not been found.

**Table 13:** West Chadic tone in nouns

	Orig.	Karekare	Bole	Yaya Ngamo	Gudi Ngamo	
L		<b>bòo</b>	<b>bòo</b>	<b>bò</b>	<b>bò</b>	‘mouth’
H		<b>lòo</b>	<b>ló</b>	<b>lú</b>	<b>lù</b>	‘meat’
R		<b>(bàká)</b>	<b>mbăa</b>	<b>mbăa</b>	<b>màa</b>	‘upper arm, wing’
F			<b>zôu</b>	<b>zôu</b>	<b>zâu</b>	‘next year; life’
LL		<b>bidò</b>	<b>bidò</b>	<b>bidò</b>	<b>bidò</b>	‘monkey’
LH		<b>tàmci</b>	<b>tèmshí</b>	<b>tèmshí</b>	<b>tèmshì</b>	‘sheep’
HH		<b>kóoróo</b>	<b>kóoró</b>	<b>kóoró</b>	<b>kòorò</b>	‘donkey’
HL		<b>dáaci</b>	<b>đóoshi</b>	<b>đóoshi</b>	<b>đòoshî</b>	‘tomorrow’
FH <sup>34</sup>		<b>(filfilàa)</b>	<b>(pémpéli)</b>	<b>hîblá</b>	<b>híplà</b>	‘wind’
LLL		<b>kànkàrè</b>	<b>kànkîrshà</b>	<b>kànkàrshà</b>	<b>kànkàrshà</b>	‘puff adder’
LHL		<b>àlbàsàa</b>	<b>àlbàsàr</b>	<b>àlbàsàr</b>	<b>àlbàsâr<sup>35</sup></b>	‘onion’
LLH		<b>gàlàafi</b>	<b>gàlàapí</b>	<b>gàlàafi</b>	<b>gàlàahì</b>	‘small axe’
LHH		<b>kàagílmó</b>	<b>kàagílmó</b>	<b>kàagílmó</b>	<b>kàagílmò</b>	‘garlic’
HHH				<b>mándirá</b>	<b>màndirà</b>	‘sesame’
HLH		<b>ánkàlí</b>	<b>ánkàlí</b>	<b>hánkàlí</b>	<b>hànkàlí</b>	‘intelligence’

<sup>34</sup> Contour tones (F, R) are not common in any of these languages. R is restricted to monosyllables and probably always results from contraction of a LH disyllable. Moreover, Chadic languages in general exclude FL, probably because it would merge with HL. I found no cognate items where all the languages have FH.

<sup>35</sup> In Gudi Ngamo this word tends to be used only in the compounds **àlbàsàr gādàayà** a type of wild onion (“crow onion”), **àlbàsàr kî ngô** ‘onion’ (“onion of person”), but the effects of the GNTS are evident.

HHL	<b>láafiyà</b>	<b>láapíyà</b>	<b>láafiyà</b>	<b>làahiyâ</b>	‘health’
HLL <sup>36</sup>		<b>bíbidò</b>	<b>(bíbidò)</b>	<b>biibídò</b>	‘like a monkey’

Working left to right across the table, genetic distance between the languages decreases. The table reveals that tone patterns in this group have, historically, been fairly stable until one reaches Gudi Ngamo, whose tones deviate from the original patterns in almost every case. This is the result of a remarkable sound change that took place in Gudi Ngamo that I refer to as the GREAT NGAMO TONE SHIFT (GNTS).<sup>37</sup> The GNTS can be schematized as follows, where T = any tone, L = low tone, D = domain of a tone, where D can range from a single mora to multiple syllables. Note that this account requires recognition of the OBLIGATORY CONTOUR PRINCIPLE (OCP), by which consecutive tone bearing units spoken on the same pitch are linked to a single tone.

#### THE GREAT NGAMO TONE SHIFT (GNTS)

$$\begin{array}{ccccccc}
 T1 & \dots & T_n & & L & T1 & \dots & T_{n-1} & T_n \\
 | & | & | & > & | & | & | & \setminus & (|) \\
 D1 & \dots & D_n & & D1 & D2 & \dots & D_n
 \end{array}$$

That is, the tones associated with domains 1 through  $n$  (= the number of tonal domains in a word) have shifted one domain to the right, with the vacated D1 supplied with a default L.

<sup>36</sup> For unknown reasons, the HLL pattern is rare in the Bole-Tangale languages, and I found no cognate trisyllables with this pattern, even between language pairs. The example here is a reduplicative pattern that takes the first CV of a word and reduplicates it to give a meaning ‘like X, X-ish’. In Bole, the reduplicated syllable is always H and the base word retains its base tone. Thus, a LL base word, like **bidò** ‘monkey’ will have a reduplicated tone pattern HLL. Assuming that this is the original pattern, the corresponding Gudi Ngamo tone pattern exemplifies the GNTS as expected.

<sup>37</sup> This discussion of the GNTS and its effects provides only basic facts. A much more detailed account of the change itself, as well as a description of the Gudi Ngamo tone system in general can be found at [http://www.linguistics.ucla.edu/people/schuh/Papers/ms\\_2009\\_ngamo\\_tones\\_and\\_clitics.pdf](http://www.linguistics.ucla.edu/people/schuh/Papers/ms_2009_ngamo_tones_and_clitics.pdf)

Here are historical derivations of three words from the table showing the assumed pre-Gudi Ngamo tone pattern and the steps leading to the contemporary pattern. **Àlbàsàr** had different tones associate with each of the three syllables; **láafiya** had a single H associated with the first two syllables, and that two syllable domain was vacated by the GNTS; **mándirá** had a single H associated with all three syllables, and the GNTS vacated the entire word, so that its citation form is now all L.

Original tones	L H L       <b>albasar</b>	H L / \   <b>laafiya</b>	H /  \ <b>mandira</b>
GNTS	L H L       <b>albasar</b>	H L / \   <b>laafiya</b>	H /  \ <b>mandira</b>
Default L on initial domain (and application of OCP)	L H L / \   <b>albasar</b>	L H L / \   <b>laafiya</b>	L H /  \ <b>mandira</b>
Reassociation of floating L	L H L / \  / <b>albasar</b>	L H L / \  / <b>laafiya</b>	L H /  \ <b>mandira</b>

The word for ‘wind’ requires further comment. The Yaya Ngamo form, **híblá**, indicates that the pre-Gudi Ngamo form probably had a FH pattern. The contemporary Gudi pattern is HL. As noted above, the domain of a tone can range from a mora to several syllables. F tone is actually H+L on one syllable, i.e. H on the first mora and L on the second. Here is the historical derivation for the Gudi Ngamo form:

H	L	H	GNTS & Default	L >	L	H	L	H	R SIMPLIFICATION >	H	L	H
									/ \			
μ	μ	μ		μ	μ	μ	μ	μ	μ	μ	μ	μ
<b>hi-</b>	<b>-p--la</b>			<b>hi-</b>	<b>-p-</b>	<b>-la</b>			<b>hi</b>	<b>p</b>	<b>la</b>	

As already noted, R tone is restricted to a few monosyllables. The final step in this historical derivation, R SIMPLIFICATION, assumes that a non-final R tone, should it come about through some tonal process, becomes H. This assumption has support elsewhere in Ngamo and in Hausa, which also does not tolerate R tones and where would-be R  $\rightarrow$  H.

One wonders whether the GNTS is still active as a rule of Gudi Ngamo, i.e. might the derivations above, presented as “historical” derivations, actually be synchronic derivations, starting with the historical tone patterns as the underlying synchronic patterns? I am quite sure that the answer is, “No,” but nonetheless there does seem to be an awareness of among Ngamo speakers of the tonal correspondences between Gudi Ngamo and the other languages. Most Gudi Ngamo speakers are fluent speakers of both Hausa and Bole, and a number of the words in the table are loanwords. The words for ‘donkey’, ‘onion’, ‘garlic’, ‘intelligence’, ‘health’ are all loanwords that retain the source tonal pattern in all the languages other than Gudi Ngamo, where the GNTS has applied to them. Some common loanwords, on the other hand, retain the source language tones even in Gudi Ngamo, e.g. **góorò** ‘kola nut’ (cf. Hausa **góorò**), **dànkáli** ‘sweet potato’ (cf. Hausa **dànkáli**). In a survey of tones of loanwords in Schuh (2009), I found that most well-integrated loanwords in Gudi Ngamo have undergone the GNTS, but those that have not have tone patterns that COULD have resulted from the GNTS. Thus, the HL pattern of **góorò** ‘kola nut’ exists in words like **híplà** ‘wind’ (see the derivation above), and the LHL pattern of **dànkáli** ‘sweet potato’ is seen in native words like **kùléeti** ‘hare’ (cf. Yaya Ngamo **kùlètti**) as well as loanwords that have undergone the GNTS, such as **hànkáli** ‘intelligence’ (cf. Hausa **hànkàli**). On the other hand, words with source patterns ending in ...LH, an impossible citation pattern after the GNTS, have virtually all taken the shifted pattern in Gudi Ngamo, e.g. **wàayò** ‘cleverness’ (cf. Hausa **wàayóo**). It therefore seems to be the case that there is a tendency to make words fit the canonical patterns that the GNTS has produced. If a loanword already has such a pattern, the word may be adopted with the source tone pattern.

A result of the GNTS is a large number of words with all L as citation tones. Not only do words with original all L retain this pattern, but also all words whose final tonal domain was H (HH, LH, LHH, LLH, etc.—see the table above) are now cited with all L tones. It turns out, however, that these words' final H tones have not been lost, but rather remain as a floating H that shows up when something follows in the same phrase. A simple diagnostic for demonstrating this is the general negative marker **bù**, which is cliticized to whatever precedes. In Yaya Ngamo, this clitic bears L regardless of what precedes, e.g. Yaya Ngamo **bìdò bù** 'not a monkey', **tèmshí bù** 'not a sheep', **kóoró bù** 'not a donkey'. In Gudi Ngamo, however, **bù** is realized as F (= H+L) **bû** if, and only if the preceding word historically ended with a H. For words that originally had a HL tone pattern, the citation form has a LF pattern in Gudi Ngamo (**ḏòoshî** 'yesterday', cf. Bole **ḏóoshì**). In these words, the original final L now attaches to **bù** and the preceding word ends in H. Compare the effects of the original pattern, represented by Bole on **bù** in Gudi Ngamo.

Bole	Gudi citation	Gudi + /bù/	
<b>bìdò</b>	<b>bìdò</b>	<b>bìdò bù</b>	'not a monkey'
<b>tèmshí</b>	<b>tèmshì</b>	<b>tèmshì bû</b>	'not a sheep'
<b>kóoró</b>	<b>kòrò</b>	<b>kòorò bû</b>	'not a donkey'
<b>ḏóoshì</b>	<b>ḏòoshî</b>	<b>ḏòoshî bù</b>	'not yesterday'

Tones of non-verbs are specific to the lexical items. Verb tones in most West Chadic languages, including those of the Bole-Tangale group, are assigned by template. In Schuh (1977), I argue that the basic template was probably (L)H, i.e. H on the last syllable and L on preceding syllables. Various suffixes could be attached to this basic template. Not surprisingly, the GNTS has altered this template. The Ngamo verbal system is described in detail in Chapter 6. Here I present just a Class B verb (CVCa-root) in the PERFECTIVE comparing Bole, which generally retains the original tones and Gudi Ngamo. This will give some idea of a tonal template and the effects of the GNTS. The verb root is **basaa-** 'shoot'.

**Table 13:** Bole and Ngamo verb tones

	BOLE (unextended)	BOLE (TOTALITY)	NGAMO (unextended)	NGAMO (TOTALITY)
1 sg.	<b>ṁ bàsáa-wòo-yí</b>	<b>ṁ bàsáa-tù-wó</b>	<b>nè bàsâ</b>	<b>nè bàsâ-t-kò</b>
2 m.sg.	<b>ká bàsáa-wòo-yí</b>	<b>ká bàsáa-tù-wo</b>	<b>kò bàsâ</b>	<b>kò bàsâ-t-kò</b>
2 f.sg.	<b>shí bàs-ák-kòo-yí</b>	<b>shí bàs-át-tùk-kó</b>	<b>shì bàsâ</b>	<b>shì bàsâ-t-kò</b>
3 m.sg.	<b>bàsáa-wòo-yí</b>	<b>bàsáa-tù-wó</b>	<b>bàsâ</b>	<b>bàsâ-t-kò</b>
3 f.sg.	<b>bàs-ák-kòo-yí</b>	<b>bàs-át-tùk-kó</b>	<b>bàsâ</b>	<b>bàsâ-t-kò</b>
1 pl.	<b>mú bàs-án-gòo-yí</b>	<b>mú bàs-án-tùn-gó</b>	<b>mù bàs-àn-kô</b>	<b>mù bàs-án-kò</b>
2 pl.	<b>mă bàs-án-gòo-yí</b>	<b>mă bàs-án-tùn-gó</b>	<b>ṅgù bàs-àn-kô</b>	<b>ṅgù bàs-án-kò</b>
3 pl.	<b>bàs-án-gòo-yí</b>	<b>bàs-án-tùn-gó</b>	<b>bàs-àn-kô</b>	<b>bàs-án-kò</b>

Bole shows some morphological innovations not seen in Ngamo: (1) 2<sup>nd</sup> and 3<sup>rd</sup> feminine subjects add a suffix **-aG-** (G = geminate copy of a following consonant); (2) transitive unextended verbs without an expressed object add a suffix **-yí**; (3) 2<sup>nd</sup> plural subject clitic is **mă** rather than the more widespread **\*kú** > **ṅgù** in Ngamo. Otherwise, the forms in the two languages derive from the following reconstructed templates:

**Table 14:** Bole and Ngamo reconstructed templates

	Unextended	TOTALITY
Singular subject	(PRO) <b>bàsáa-kò</b>	(PRO) <b>bàsáa-tù-kó</b>
Plural subject	(PRO) <b>bàs-án-kò</b>	(PRO) <b>bàs-án-tù-kó</b>

A clitic PRO subject is obligatory in 1<sup>st</sup> and 2<sup>nd</sup> persons. This had L tone in 1<sup>st</sup> singular, H for others. By the GNTS, all PRO clitics are L, and for those that were originally H, the resultant floating H has docked onto the first syllable of the verb.

Between vowels, the **\*kò** PERFECTIVE suffix has weakened to **-wò** in Bole. In Yaya Ngamo it is still heard as **-'V** (V = preceding stem vowel), e.g. Yaya **bàsá-'à**, but it has now completely disappeared in Gudi Ngamo. The **\*-kò** suffix still shows up after the

plural subject suffix **-an-**, and the unextended form with plural subject shows the regular effect of the GNTS: **\*bàs-án-kò** GNTS > **bàs-àn-kô** (cf. the derivation of **àlbàsàr** > **àlbàsâr** ‘onion’ above). The singular subject form **bàsâ** must have a similar derivation, but with contraction of the final stem **-a-** with **-a** that resulted from weakening of the PERFECTIVE suffix **\*-kò**: **\*bàsáa-kò** WEAKENING > **bàsá-’à** GNTS > **bàsà-’â** CONTRACTION > **bàsâ**.<sup>38</sup>

The TOTALITY suffix was originally **\*-tù-**, still seen in Bole. In Ngamo, the vowel has been syncopeated in singular subject forms, leaving just **-t-**, and in plural subject forms, the suffix has completely disappeared, presumably because syncopeation of the vowel would have left a three consonant sequence **-n-t-k-**, an impossible sequence in any Chadic language.<sup>39</sup> Nonetheless, the tonal effect of the L **\*-tù-** suffix remains. The L of the suffix remained after syncopeation of **-u-** (or the whole suffix). This L retracted to the preceding syllable to give a F (= H+L) tone. The GNTS applied, shifting the H+L just one mora to the right and the L of the root syllable shifted, resulting in a R (L+H), which changed to H:

Original	<b>*bàs-án-tù-kó</b>
SYNCOPEATION & RETRACTION >	<b>bàs-án-kó</b>
GNTS >	<b>bàs-àn-kò</b>
R to H >	<b>bàs-án-kò</b>

In addition to the primarily phonological aspects of tone discussed so far (lexical tones, effects of the GNTS, including resultant floating tones), tone plays a limited grammatical role in Ngamo. Here are the basic facts for N1+N2 genitive constructions where N1 and N2 are disyllabic.<sup>40</sup>

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<sup>38</sup> We know that WEAKENING took place before the GNTS because WEAKENING is shared by both Ngamo dialects, whereas the GNTS took place only in Gudi.

<sup>39</sup> A more expected outcome would have been retention of the full **-tu-** form, giving **\*bas-an-tu-ko**. I have no idea why this form, rather than the actual **bas-an-ko**, came about.

<sup>40</sup> A more complete description, including certain details affecting disyllabic nouns, nouns of other syllabic configurations, and a comparison with Yaya Ngamo genitives can be seen in Schuh (2009).

- (1) If N1 has initial L, it becomes all L regardless of the tone of N2.
- (2) If N1 has initial H, it becomes all H.
- (3) If N2 is LL (regardless of historical source tone), it become HL.
- (4) If N2 has a non-L syllable anywhere, it remains unchanged except for LF, which becomes HF after H.

If N1 is feminine, there is a genitive linking morpheme **-k**, seen in some of the examples. Presence of this linking morpheme does not affect tones.

**Table 15:** Tone in genitive constructions

N2 → N1 ↓	*LL > LL <b>bidò</b> (m) monkey	*LH > LL[H] <b>tèmshì</b> (f) sheep	*HH > LL[H] <b>kòorò</b> (m) donkey	*HL > LF <b>kàdâm</b> (m) crocodile	*FH > HL[H] <b>géejì</b> (pl) roosters
*LL > LL <b>ùdò</b> (f) tooth	<b>ùdòk bidò</b>	<b>ùdòk tèmshì</b>	<b>ùdòk kóorò</b>	<b>ùdòk kàdâm</b>	<b>ùdòk géejì</b>
*LH > LL[H] <b>tìlì</b> (m) heart	<b>tìlì bidò</b>	<b>tìlì tèmshì</b>	<b>tìlì kóorò</b>	<b>tìlì kàdâm</b>	<b>tìlì géejì</b>
*HH > LL[H] <b>kèrwò</b> (f) fish	<b>kèrwòk bidò</b>	<b>kèrwòk tèmshì</b>	<b>kèrwòk kóorò</b>	<b>kèrwòk kàdâm</b>	<b>kèrwòk géejì</b>
*HL > LF <b>lìnsò</b> (m) tongue	<b>lìnsò bidò</b>	<b>lìnsò tèmshì</b>	<b>lìnsò kóorò</b>	<b>lìnsò kàdâm</b>	<b>lìnsò géejì</b>
*FH > HL[H] <b>géejì</b> (pl) roosters	<b>géejì bidò</b>	<b>géejì tèmshì</b>	(this configuration was not elicited)	<b>géejì kàdâm</b>	<b>géejì Dísa<sup>41</sup></b>

One can summarize the genitive picture as follows: (a) N1 levels its overall pattern to match the tone of the first syllable; (b) there is a floating H genitive tone that associates to the first syllable of N2, unless N2 has a H later in the word. This picture turns out to be quite similar to the Yaya Ngamo genitive construction. For example Yaya **tìlì** ‘heart’ + **bidò** ‘monkey’ → **tìlì bidò** ‘monkey’s heart’ (LH **tìlì** → LL, LL **bidò** → HL), **lìnsà** ‘tongue’ + **tèmshì** ‘sheep’ → **lìnsà tèmshì** ‘sheep’s tongue’ (HL **lìnsà** → HH, LH **tèmshì**

<sup>41</sup> I did not elicit “roosters-of roosters”, which would have been the utterance to fill this cell. Both **géejì** ‘roosters’ and the proper name **Dísa** have HL citation tones, which illustrate the desired genitive configuration.



→ FH, where the genitive H plus the lexical L form F). Floating tones marking grammatical function often can be traced to the loss of an overt segmental morpheme bearing that tone, leaving only the tonal effect, but in Ngamo, there is no trace of a segmental host for the genitive H and no clear comparative evidence for what it might have been. Bole, for example, has neither tonal nor segmental marking of the genitive relation.

What is perhaps unexpected in Ngamo N1+N2 genitive constructions is that the GNTS seems not to have affected the placement of the genitive H—the locus of the H is the same for both Gudi and Yaya Ngamo. This seems to be a case where grammatical coherence has either blocked a change or has restored an earlier configuration. The marking of the genitive relation has remained at the point where the two nouns come together, whereas the GNTS would have displaced docking site for the genitive H.

## 7. Gude

(to be done)

**Table 16:** Gude tone patterns attested

SYLLABLES	ONE	TWO	THREE	FOUR	FIVE	TOTAL
(H)FH	-----	10	2	-----	-----	12
H...	28	120	51	5	0	204
H...D	-----	77	32	7	2	118
HLH...	-----	-----	90	0	0	90
HLHD	-----	-----	-----	3	-----	3
H...LH	-----	-----	-----	5	0	5
HL...H*	-----	-----	-----	3	0	3
H...L	-----	-----	3	2	0	5
HL...	-----	13	0	0	0	13
HLHL	-----	-----	-----	1	-----	1
LH...	-----	223	31	2	1	257

LH...D	-----	-----	13	0	1	14
L...H...	-----	-----	141	4	0	145
L...HD	-----	-----	-----	1	0	1
L...H	-----	-----	-----	17	0	17
LH...L	-----	-----	6	1	0	7
LHLH	-----	-----	-----	13	-----	13
L...	3	6	0	0	0	9
TOTAL	31	449	369	64	4	917

Note: ... indicates continuation of the preceding tone up to the next tone or the end of a word

- ...HH ~ ...HD probably variants; H\_\_# only context of D and no evidence of contrast

- (H)FH: F always on CVC syllable; H. writes a Cə syllable with a L

- absence of final L: Stage II articles have H

HL: 2 loans in **-a**; 3 titles/proper names; 8 < H., 1 ending in **-t**, most other in **-a**

HHL: 2 Fulfulde loans, one mistake on my part—H. has HH

HHHL: “Thursday”, a Fulfulde title

HLHL: 1 title < H.

LHHL: 1 < H. (type of ant)

LHL: 3 < H. in **-a**; 3 titles/names

L: ‘my/his father’, proper name

LL: 5 names/terms of address; **ùshì** ‘thing’

LLHL: 2 < H> in **-a**

- strong dispreference for ...HLHX, X ≠ Ø, i.e. a rising pattern once one has gone down

90 HLH vs. 44 LHH/D, 141 LLH

3 HLHH/D (all HLHD) vs. 5 HHLH, 3 HLLH, 2 LHHH, 5 LLHH/D, 17 LLLH, 13 LHLH

1 HLHL: a title

## 8. Hausa

- two tones plus Falling (= HL on a single heavy syllable)

- no R: reduces to L after H in same word, H elsewhere

- floating tones: verbal noun suffix **`waa**; L tone q morpheme?
- polar tones: **nee/cee**, but NOT direct object pronouns
- LTR (Low Tone Raising)
- ideophone key raising
- tonal templates: Newman's "tone-integrating" suffixes
  - verb grade patterns
  - all noun and adjective plurals
  - all nominal derived patterns
  - Abstract Nouns of Sensory Quality (ANSQ) and related adjectives
  - hypocoristic names

## 6 | Verb Classes, Tense/Aspect/Mood (TAM), and Subject Agreement

The three topics of this chapter comprise issues of three distinct types, but they interact in such a way that it is difficult to disentangle them. Tense/Aspect/Mood (TAM) morphology often directly relates to verb segmental and tone classes, and subject agreement morphology often differs by TAM. Indeed, in many cases, subject agreement consists of clitics attached to TAM-marking morphemes that are separate from the verb stem. This chapter thus has sections focusing on verb classes (§1), TAM systems including a section on the marking of negative and focus (§2), and subject agreement (§3). These sections are followed by detailed discussions of the issues of this chapter for Ngamo (§4), Gude (§5), Hausa (§6), and Kera (§7).

### 1. Lexical Verb Classes

Descriptions of Chadic languages invariably group verbs into lexical classes according to tone patterns and segmental features, such as final vowels and root shape (CV, CVC-, CVCC-, etc.). Knowing a verb's lexical class allows prediction of its morphosyntactic variants, such as TAM form (§2), pluractional form (5), and form with extensions (5). Newman (1975) was the first attempt to provide a comprehensive reconstruction of verb classification for Proto-Chadic. Newman proposed a reconstruction with cross-cutting tone and vowel classes. For example, given two final vowels, **-a** and **-ə** and two tone patterns, HH and LH, one could, in principle, have four lexically distinct verb types: HH-**a**, HH-**ə**, LH-**a**, LH-**ə**. This concept works fairly well for West Chadic, but the idea that one could reconstruct an actual Proto-Chadic system was probably overly optimistic. Though lexical tone classes for verbs are ubiquitous, it seems unlikely that specific tone patterns can be reconstructed, and outside West Chadic, evidence for reconstructable verb-specific vowel classes is tenuous at best.

## 1.1. West Chadic

Schuh (1977b) proposed a reconstruction for West Chadic verb classes that closely matches Newman's more ambitious Proto-Chadic reconstruction. Moreover, Schuh's reconstructed classes correspond closely to the lexical classes that Lukas (1970-72) established for Bole. For ease of reference I will use Lukas's class labels and example verbs from Karekare (I.A.2.a),<sup>1</sup> Duwai (I.B.1), and Ngizim (I.B.1) as they would appear with a 3<sup>rd</sup> singular masculine subjects in the PERFECTIVE. In Karekare, **-kàu** is the PERFECTIVE suffix; the hyphenated **-wo/-w** in Duwai and Ngizim are presumably cognate to the Karekare suffix.

**Table 1:** Lexical verb classes

LUKAS	*STEM SHAPE	*TONES	KAREKARE (I.A.2)	DUWAI (I.B.1)	NGIZIM (I.B.1)
A1	*CVCu/Ø	*LH	<b>cìru-kàu</b> steal	<b>kə̀ro</b> <sup>2</sup> steal	<b>kə̀ru</b> steal
A2	*CVCCu/Ø  *CVVCu/Ø  longer root-u/Ø	*LH	<b>dàndu-kàu</b> sew <b>ďǎfu-kàu</b> follow <b>mùďàngàlu-kàu</b> knead into balls	<b>ďə̀nko</b> sew	<b>ďə̀nku</b> sew
B	*CVCa	*LH	<b>fàtā-kàu</b> go out	<b>ďə̀rā-wo</b> wait	<b>ďə̀rā-w</b> wait
C	*Cu/*Ci	*H	<b>tū-kàu</b> eat	<b>tū-wo</b> eat	<b>ta-w</b> eat
D	*Caa	*H	<b>sā-kàu</b> drink	<b>sā-wo</b> drink	<b>sa-w</b> drink

<sup>1</sup> I use Karekare rather than Bole for subgroup I.A.2.a since Karekare is more conservative, both segmentally and tonally. Ngamo (I.A.2.a), described in 5, has the same classes. Newman's (2013) Chadic classification has Duwai and Ngizim grouped at the same level, but Duwai should probably be in a separate sub-group. It is lexically and morphologically quite distinct from the other languages in the Bade group, including Ngizim.

<sup>2</sup> After labials and palatals, PERFECTIVE verbs end in **-uwo**, e.g. **ďə̀bù-wo** 'water animals', showing the lexical stem vowel **-u** and the PERFECTIVE suffix **-wo**. These have been contracted to **-o** after other consonants.

Verbs with C- and CVC- root structure fall into either **-a** or **-u/Ø** classes, corresponding to the prediction of Newman’s (1975) proposal (all longer roots are in the **-u/Ø** class). The fact that the same classes appear in languages of both I.A and I.B, which are only distantly related within West Chadic provides support for the West Chadic reconstruction of Schuh (1977b).

Not unexpectedly, there has been some shifting and leveling. Languages of the Bade group aside from Duwai have shifted all original Class C verbs to Class D except for the highly irregular verb ‘go’ (Duwai **jù-wo**, Ngizim **ju**, Western Bade **ju**). Of the two classes with CVC- roots, A1 far outnumbers B (Karekare 126 A1 vs. 72 B, Ngizim 133 A1 vs. 52 B). This distinction has been unstable, mainly with Class B shifting to A1. In the Bade group, compare Gashua Bade **dǎ̃ru** ‘wait for’ with the Duwai and Ngizim cognates in the table.

Where the reconstructions of Newman (1975) and Schuh (1977b) crucially differ is in tone classes. In Schuh’s reconstruction for West Chadic, tones are predictable on the basis of root structure (CV → H, all others → LH), whereas under Newman’s proposal, there should be independent lexical tone classes. Data from Miya (I.B.2), (Schuh 1996), not available at the time that Schuh (1977b) was written, suggests that Newman may have been right about the independence of tone classes vs. final vowel classes. Here is a table of C- and CVC- roots illustrating the final vowel and tone classes. These are all intransitive verbs with an INTRANSITIVE COPY PRONOUN (ICP), which most clearly reveals the tonal classes. (The ICP is **-ta** ‘him’ except for **-lǎn** ‘them’ in ‘disperse’, which semantically requires a plural subject).<sup>3</sup>

**Table 2:** Miya vowel and tone classes.

L-a	H-a	LL-ə/Ø	LL-a	HH-ə/Ø	HH-a	HL-ə/Ø	HL-a
<b>à za-ta</b> enter	<b>à la-tá</b> arise	<b>à yar-ta</b> grow old	<b>à tsəga-ta</b> sit down	<b>à dzar-lǎn</b> disperse	<b>à yǎdza-tá</b> turn	<b>à tsǎr-tà</b> stop	<b>à sǎná-tà</b> sleep

<sup>3</sup> Tone marking for Miya examples: grave (à) = L, acute (á) = H. Only the first tone of a domain is marked. Syllables unmarked for tone continue the preceding tone.

As in the Bade group (see above), all monoverbs have shifted to the **-a** vowel class, with the exception of the highly irregular verb **bə** ‘come’. Longer underived native verbs are all of the **-ə/Ø** final vowel class, but they fall into the same three tonal categories:<sup>4</sup> LL **à rəvəzə-ta sáy** ‘he got fat’, HH **à gwarzə-tá say** ‘he grew up’, HL **món dáhón-àwan sáy** ‘I girded myself’. It may therefore be that the languages where tone is predictable have leveled originally distinct classes.

The data above come from “northern” West Chadic languages of the Bole-Tangale (I.A.2), Bade (I.B.1), and Warji = North Bauchi (I.B.2.a) groups, which have rich verbal TAM affixal morphology. I am assuming that verb classes and systems of TAM marking in these groups reflect in a rather direct way the reconstructable properties of proto-West Chadic. The “southern” West Chadic languages comprise three groups that have innovative verbal systems: these are the Angas-Goemai languages (I.A.3), which are close relatives of the Bole-Tangale languages, the South Bauchi languages (I.C.1), which arguably are most closely related to North Bauchi (I.B.2),<sup>5</sup> and the Ron group (I.A.4), which represents a branching from West-A preceding the separation of Bole-Tangale + Angas-Goemai. These three groups are surrounded by languages of the Niger-Congo family and, for the most part are not in contact with their closest Chadic relatives: Angas-Goemai falls to the west of Bole-Tangale, with Niger-Congo speaking or uninhabited areas intervening; South Bauchi borders on North Bauchi only at the northern edge with only Niger-Congo neighbors further south; Ron has Angas-Goemai neighbors to the east but only Niger-Congo to the west. Areal diffusion from Niger-

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<sup>4</sup> The formative **say** (actually **s-ay**) is almost always used in declarative citations in the PERFECTIVE though it is not required for syntactic well-formedness. It seems to have an auxiliary focusing function (Schuh 2005). The HL example is a derived pluractional with internal and final **-a** and a 1<sup>st</sup> singular ICP **-wan**. It nonetheless illustrates the LHL pattern characteristic of this class, cf. **à səná-tà** ‘he slept’ in the table.

<sup>5</sup> The exact place of the South Bauchi languages in West Chadic is not clear. Newman (1977) places them as a group in West-B parallel to the Bade and Warji (“North Bauchi”) languages, but Newman (2013) places them into a separate subbranch West Chadic. Though North Bauchi and South Bauchi languages are typologically quite different from each other, there is lexical evidence that they form a genetic group, e.g. Miya (NB) **ghàm**, Zaar (SB) **gam** ‘head’, Miya **ghèruw**, Zaar **gàal** ‘cow’, Miya **bətsə**, Zaar **pyàatsó** ‘spit’, all of which appear to be innovations restricted to these groups.

Congo contacts seems to have profoundly affected the typology of these three Chadic subgroups.

In all three groups, the typical CVCV Chadic typology has given way to a CVC typology. Since final vowels have usually been apocopated, lexical final vowel classes have been eliminated. There are CV(V) verbs, but these come from \*CV roots, where apocopation leaving a single C was impossible, or from C<sub>1</sub>VC<sub>2</sub>V roots where the final vowel was apocopated, then C<sub>2</sub> was subsequently lost, e.g. Ron-Daffo **fâṛ** ‘give’ vs. Ron-Fyer **fà**, cf. Ngizim **bàru**. These languages have some triconsonantal roots, which typically have the root shape CVCVC. The table below illustrates \*CVCV, \*CV, and \*CVCCV roots. For the latter type it has been difficult to find cognates in West Chadic languages that preserve lexical final vowels. The root ‘go out’ in Mushere is included to show that both proto-West Chadic \*-u and \*-a (Classes A1 and B respectively) have been apocopated (compare the Bole cognates). I could not find roots in the other groups that are unequivocal reflexes of proto-West Chadic Class B verbs.

**Table 3:** Verbs in “southern” West Chadic languages

	Mushere (I.A.3.a)	Ron-Fyer (I.A.4.b)	Zaar (I.C.1)	cf. Bole (I.A.2.a)
die	<b>múut</b>	<b>mot</b>	<b>məs</b>	<b>mutu-wò</b>
swallow	<b>ḏál</b>	<b>ḏyul</b>	<b>ḏēt</b>	<b>ḏolu-wò-yi</b>
go out	<b>pút</b>			<b>pàtā-wò</b>
drink	<b>shwáa</b>	<b>sho</b>	<b>siya</b>	<b>sā-wò-yi</b>
eat	<b>só</b>	<b>et</b> (R-Bokkos <b>cu</b> )	<b>ci</b>	<b>tī-wò-yi</b>
	<b>kólòm</b> ‘forge’	<b>palaj</b> ‘thank’	<b>wusuṅ</b> ‘be good’	
	<b>tákàl</b> ‘chew’	<b>ḥelem</b> ‘lick’	<b>dāambar</b> ‘disturb’	

Angas-Goemai languages do have tonal classes. Jungrathmayr (2008) identifies six tonal classes for Mushere. There are three patterns for the “simple” or PERFECTIVE stem: H, F, M. These fall into subclasses depending on the tone of the IMPERFECTIVE with which they are paired. The six PERFECTIVE/IMPERFECTIVE pairings are<sup>6</sup> H/H (**tál/tál**

<sup>6</sup> I have rearranged the classes differently from those of Jungrathmayr (2008:42) so as to put the three classes of PERFECTIVE’s together. I have taken the liberty of collapsing Jungrathmayr’s H/L and F/L



‘remove’, **bókól/bókól** ‘discover’), H/M (**mát/mat** ‘die’, **kálák/kalak** ‘fast’), F/L (**pût/pùt** ‘go out’, **tákàl/tàkàl** ‘chew’), M/M (**dyeer/dyeer** ‘decorate’, **bwakat/bwakat** ‘tie’), M/L (**teer/tèer** ‘spend the night’). Though tone classes such as these in Angas-Goemai languages may somehow reflect tone classes that existed in proto-West Chadic, there is no obvious way to historically connect them systematically with tone classes in the more conservative “northern” languages .

Verbs in Ron languages also fall into lexical tone classes. Jungrathmayr (1970b:375-378) identifies two or four tone classes depending on the language. I present data only from Ron-Bokkos, a two-class language (**â** = F (H+L), **á** = H, **à** = L, **a** = M).<sup>7</sup> All verbs in Ron-Bokkos fall into one of these tone classes, and knowing the tone class, one can predict the tones for each of the TAMs. As with the Angas-Goemai languages, it seems likely that Ron verbal tone classes are, in some sense, reflexes to the reconstructable classes of proto-West Chadic, but how they are related to classes outside Ron is not clear.

	AORIST	PERFECT	HABITATIVE	PROGRESSIVE	
Class 1	<b>léf</b>	<b>léf</b>	<b>lyâaf</b>	<b>lef-í</b>	‘cut’
Class 2	<b>cu</b>	<b>cu</b>	<b>cwáay</b>	<b>cu-ày</b>	‘eat’

South Bauchi languages have clearer hints of the classes seen in the “northern” West Chadic languages. In Zaar (I.C.1.a), monosyllabic verbs (CV(V) or CVC roots) fall into either a H or a M class; all other verbs are M (Caron 2005:212). Each of these classes has what Caron refers to as the *lexical* form and the *modified* form. Choice of stem type is determined by the TAM.

	LEXICAL	MODIFIED	
H class CVC	<b>kúus</b>	<b>kũus</b>	‘be spoiled’
M class CVC	<b>taar</b>	<b>tâar</b>	‘tear
M class CVCVC	<b>daambár</b> <sup>8</sup>	<b>dàambár</b>	‘disturb’

classes (his classes A and A<sub>1</sub>). All those of his H/L class have F/L as an option, whereas his F/L class does not have the H/L option.

<sup>7</sup> The forms shown here with F have H when phrase medial (Jungrathmayr 1970b:377).

<sup>8</sup> This is a CVCVC stem. The medial **-mb-** is a prenasalized unit consonant in Zaar. The verb is actually a causative, derived with a suffix **-r** from Hausa **dāmà** ‘bother’, but the stem falls into the regular M class.

Guruntum (I.C.1.b) (Haruna 2003), a language in a separate branch of South Bauchi from Zaar and geographically separated from it, has verbs that look typologically more like the “northern” West Chadic languages. There are many CVCV roots, and the language has a two-tone system. All verbs with two or more consonants end in **-i**, and monoconsonantal roots exist for four of the six vowels of Guruntum (there are no monoconsonantal roots with **-e(e)** or **-ə**), rather than the two vowel classes reconstructed for proto-West Chadic. Verbs must be lexically designated as having an H pattern, a L(H) pattern, and for a few CVC stems, a LL pattern.

H: **yú** ‘see’, **ló** ‘greet’, **dáa** ‘sit’, **yíí** ‘take’, **mási** ‘die’, **dálmí** ‘talk’

L(H): **gyù** ‘beat’, **ngì** ‘say’, **lòo** ‘put’, **pèní** ‘know’, **bási** ‘count’, **ngùrtí** ‘snore’

LL: **wùmì** ‘chew’, **zùbì** ‘close’

The tone classes of verbs in these South Bauchi languages are not unlike those seen in the “northern” West Chadic languages. In particular, the MH/LH pattern of Zaar disyllabic verbs and the LH vs. HH patterns for Guruntum are much like those for Bole and Miya, and a single pattern for all stems longer than CVC- is reminiscent of the situation in the Bole-Tangale and Bade groups.

## 1.2 Central Chadic

Newman (1975) included data from four Central Chadic languages (Tera, Ga’anda, Margi, Kotoko) in his reconstructed schema of cross-cutting lexical final vowel and tone classes. All Central Chadic languages seem to have tone classes that play a role in verb morphology, such as marking TAM; however, it is much less common for Central languages to have vowel classes in verbs with a role parallel to those in West Chadic. In West Chadic languages such as Bole, Ngizim, and others, lexical vowel classes are associated with a particular TAM that reveals the lexical class, but that vowel may be replaced in other TAMs (see §4 for discussion of Ngamo). In Central Chadic languages, a few languages such as Tera do have lexical vowel classes (also see discussion of Gude in §5), but in most languages, either all verbs behave the same way in terms of final vowels (Podoko (II.A.4.a), Mofu (II.A.5.b), Gidar (II.A.C)), or the inventory of final

vowels found on verbs does not differ markedly from that found on nouns (Margi (II.A.2)<sup>9</sup>) and the vowels do not vary with morphosyntactic context other than by predictable phonological variation.

As noted in the previous paragraph, Central Chadic languages do exhibit tone classes. A detailed account of Gude classes is in §5.1. Verbs in Margi (Hoffmann 1963) have one of three tone patterns: H (**gá** ‘draw water’, **káǂá** ‘meet’), L (**nyà** ‘be full’, **ǂàrzà** ‘push’), LH = R (**ǂí** ‘swell’, **ǂǂùrsá** ‘bend’). Those cited with L fall into what Hoffmann (116) calls CHANGING verbs vs. “constant” verbs. The latter retain one tone pattern everywhere, but the CHANGING class has L in some contexts, but H in others. Compare tones of a CHANGING verb (**sà** ‘drink’) and a constant L verb (**wì** ‘run’):

IMPERATIVE (“L” TAM):      **sà!**      ‘drink!’      **wì!**      ‘run!’  
 PRESENT (“H” TAM):      **à-sá yá**      ‘I drink’      **á-wì yá**      ‘I run’ (**yá** ‘I’)

For Podoko, Jarvis (1989:99) lists six tone classes for verbs (LL, LL+H, HL, and three subclasses for LH, which differ for specific TAMs). LL+H has a floating tone that docks to the following syllable. The examples below from Jarvis and Lagona (1989) exemplify four of the six classes. The examples are all in the PERFECTIVE. Podoko is a VSO language and reduplicates the verb in the PERFECTIVE. The relevant part for the tone classes is underlined.<sup>10</sup>

LL	à <u>hènà</u> hènə yà	‘I lay down’
LL+H	à pàrà <u>pàrà</u> dǂwə tàsà	‘my daughter washed the dish’
HL	à <u>gǂǂà</u> gǂǂə mǂ gwàǂà	‘we ended the quarrel’
LH	à <u>mǂtsó</u> mǂtsə mǂndǂ bà hǂkǂǂà	‘the man died on the spot’

<sup>9</sup> Newman (1975) lists only two vowel classes for Margi verbs, viz. **-a** and **-ə/∅**. Under one analysis, this is possible, at least historically, but Hoffmann (1963:118) lists verbs with a wider range of final vowels: **ǂǂǂà** ‘watch, guard’, **káǂá** ‘meet’, **jǂm** ‘end’, **ǂǂà’wì** ‘belch’, **wǂwì** ‘boast’, though CV verbs are limited to two class, exemplified by **sə** ‘become naughty’, **sa** ‘drink’.

<sup>10</sup> I’m not sure about the tones other than the underlined portion. This much is explicitly tone-marked in Jarvis and Lagona (1989). In their tone marking system, L is unmarked, H is marked with an acute accent. In the dictionary one can surmise that some examples are not tone-marked at all, so syllables unmarked for tone are often ambiguous between L and unmarked.

### 1.3. East Chadic

East Chadic languages, both A and B branches, lack lexical-final verb vowel classes. Final vowels of verbs other than CV verbs are supplied by TAM. CV roots in at least some East-A languages have a variety of final vowels that might be called “lexical”, but it is not clear that these can be associated with lexical “classes”. For Lele (III.A.2), Simons (n.d.) gives a set showing all five vowels in PAST TENSE forms: **yǎ** ‘speak’, **ye** ‘respond’, **yí** ‘put, place’, **yì** ‘pound in mortar’, **yo** ‘cover’, **yu** ‘brush’. All non CV verbs, cited in the PAST form, either have no final vowel (**cam** ‘sweep’, **bar** ‘hang’, **gèl** ‘deliver’, **gàb** ‘impede’) or end in final **-i** (**àsí** ‘be satisfied’, **còḡmí** ‘be sweet’). Those with no final vowel end in a sonorant or **-b**; those with final **-i** have an obstruent (other than **b**) or a CC cluster as their root final consonant(s), suggesting that the **-i** is postthetic, having been added to avoid an impermissible consonant coda.<sup>11</sup> Sibine/Somrai (III.A.1) (Jungraihtmayr 1978) shows a nearly identical situation, with at least four vowels for monoconsonantal verbs (**só** ‘descend’, **nu** ‘weigh’, **jà** ‘chop’, **na** ‘ripen’) and with /ə/ as the phonotactically conditioned final vowel for longer roots rather than /i/ (**ájìl** ‘mount’ vs. **ḡəsə** ‘spit’). Kera (III.A.3) has a similar distribution of verb-final vowels.

East-B languages lack a lexical final vowel distinction for any verbs, including monoconsonantal roots. In Mubi (III.B.1.b), (Jungraihtmayr 2013), all monoconsonantal roots have a PERFECTIVE of the form **Cii** and a verbal noun of the form **Ciya**, presumably < underlying /Cii-a/ (**tî/tiyá** ‘eat’, **sî/siyá** ‘drink’). In East Dangaleat (III.A.1.a) (Ebobissé 1979), which has historically split \*e into /e/ and /ɛ/, H monoconsonantal roots have base forms (Ebobissé’s *Grundform*) with /e/ (**té-ŋ** ‘eat’) and non-H base forms with /ɛ/ (**sɛ-ŋ** ‘drink’).

Both East-A and East-B have lexical verbal tone classes, which are distinguished by their behavior in TAM formation. Jungraihtmayr (1978b) documents three tone classes for Sibine/Somrai (III.A.1): L (**àl** ‘do’), M (**həbal** ‘weaken’), H (**ál** ‘put’). Lele (III.A.2)

<sup>11</sup> Frajzyngier (2001:169) says, “...past [is] derived through the addition of the suffix **i** to the root of the verb; the suffix **i** is subsequently dropped in all cases except when the verb ends in a disallowed segment or cluster of segments.”

has six verbal tone classes: L, M, H, LM, LH, MH, distributed as follows in the 506 verbs in Simons (n.d.):

**Table 4:** Lele tone classes

CLASS	# < 506	% of 506	C- root	CVC(C)- root
M	169	33.40%	<b>ye</b> ‘answer’	<b>lerwi</b> ‘be hot’
L	135	26.68%	<b>bè</b> ‘give’	<b>gàngri</b> ‘look’
LH	105	20.75%	<b>bǎ (5)</b> ‘fall’	<b>màglí</b> ‘repair’
MH	79	15.61%	<b>cé (1)</b> ‘get alms’	<b>ḍeḡlí</b> ‘understand’
LM	11	2.17%	---	<b>tàbli</b> ‘repeat’
H	7	1.38%	<b>sí</b> ‘accompany’	<b>hím</b> ‘collect’

The patterns are quite skewed: the H class is essentially negligible; there are no descending patterns; the only rising patterns with significant numbers end in H. To generalize, the verbal tone classes start on L or M, and bitonal patterns end on H. I have no figures on distribution of tones in the general vocabulary of Lele, but a perusal of Weibegé and Palayer (1982) indicates that H level and various falling patterns are well-represented among non-verbs. One can therefore conclude that Lele does have lexical tone classes specific to verbs. In contrast to Sibine and Lele, Kera (III.A.3) arguably has no verbal tone classes inasmuch as tonal differences between verbs are almost entirely determined by initial root consonants.

In the East-B branch, Ebobissé (1979) distinguishes just two tone classes in East Dangaleat (III.B.1.a), which he refers to as H (*Hochtoneklasse*) and non-H (*Nichthochtoneklasse*). In the base form (*Grundform*) the H class has all H tone regardless of the number of syllables (**té-ŋ** ‘eat’, **máté** ‘die’, **gídíyé** ‘buy’); the non-H class has final M with L on preceding syllables if there are any (**se-ŋ** ‘drink’, **bère** ‘give’, **kòkíde** ‘forge’). Tones in the various TAMs can be predicted from these classes.

## 2. Tense, Aspect, Mood (TAM) Systems

No Chadic language marks *tense*, *aspect*, and *mood* as independent variables. In contrast to various Indo-European languages, for example, Chadic languages cannot contrast, say, PAST PERFECTIVE vs. PRESENT PERFECTIVE or PRESENT INDICATIVE vs.

PRESENT SUBJUNCTIVE.<sup>12</sup> Depending on the language, the form, and the context, a particular verb form may have a PERFECTIVE sense, a FUTURE sense, a SUBJUNCTIVE sense, or it may function as a sort of portmanteau for tense+mood and the like if translated into a European language. The general terminological practice is therefore to refer to a particular TENSE/ASPECT/MOOD form—a TAM—that has identifiable properties that distinguish it from other TAMs. Those properties may be affixes, combination of clitics, segmental differences, and/or tonal differences.

### 2.1. Jungrathmayr’s perfective vs. imperfective dichotomy

Decades ago Herrmann Jungrathmayr introduced a distinction between PERFECTIVE and IMPERFECTIVE to refer to verbal TAMs (for example, see Jungrathmayr 1974, 1978b). Jungrathmayr has made use of this distinction in many subsequent publications, and other writers have also referenced it in one way or another. Jungrathmayr (1974:584) presents the following diagram:

Aspekte:	<b>Perfektiv</b> Kurzstamm (Accompli)	<b>Imperfektiv</b> Langstamm (Inaccompli)
Asp. Attribute:	Punktual	Kursiv - Durativ
Primäraktionsarten un Modi:	Aorist  Jussiv	Habitative Progressive

As I interpret the concept, PERFECTIVE and IMPERFECTIVE (which I have taken the liberty of bolding, though they are not in the original diagram) are overarching categories that subsume (1) stem types (“short” or “long”), (2) general semantic properties (“punctual event” vs. “event enduring over time”), and (3) specific TAMs found in individual languages. For (3), the diagram uses the German term *Aktionsarten*, for

<sup>12</sup> This statement may be slightly too strong. For example, Jungrathmayr (1978b) distinguishes a SUBJONCTIF (PRÉSENT) and a SUBJONCTIF (PASSÉ) in Sibine/Somrai, which are differentiated in tone. However, the tonal distinction itself is not used elsewhere to mark a temporal distinction, i.e. there is no evidence of tense being marked as an independent parameter in general. Perhaps more to the point, there is no discussion of the functions of these two SUBJUNCTIVES. They may be coding distinct functions where a tense distinction happens to be a convenient translation device in European languages.

which, English, unfortunately, does not have a good counterpart, causing Jungraithmayr himself and others to turn to the English term “tense”. Jungraithmayr (1978c:382) says,

“The verbal system of any given Chadic language consists of a number of conjugational forms which are usually called ‘tenses’ or ‘aspects’. In this paper these two terms will be used differently. ‘Tense’ will continue to denote any verbal paradigmatic set ..., ‘aspect’ however, shall be reserved for the basic binary distinction between ‘perfective’ and ‘imperfective’. For instance, conjugational forms like ‘Perfect’, ‘Aorist’, ‘Narrative’ are tenses based on the perfective aspect (stem), whereas ‘Progressive’, ‘Future’, ‘Habitual’ generally belong to the imperfective aspect base.”

It is, indeed, the case that Chadic TAMs often fall into two groups: those with a purely verbal base (what might be called “finite” verbal forms in traditional terminology)—Jungraithmayr’s PERFECTIVE—and those that, historically at least, are based on a nominal(ized) form—Jungraithmayr’s IMPERFECTIVE.<sup>13</sup> In general linguistic studies, however, the terms PERFECTIVE and IMPERFECTIVE *aspects* are semantic terms with rather precise definitions, as are terms such AORIST,<sup>14</sup> PROGRESSIVE, HABITUAL, SUBJUNCTIVE, etc., which certainly cannot all be called “tenses” in the traditional sense of referring to *time*. In the following sections on TAMs, I will attempt, insofar as possible, to use PERFECTIVE, IMPERFECTIVE, and other terms in their traditional semantic senses rather as purely classificatory terms.

## 2.2. TAM form and function

Although the ways that TAMs are marked morphologically differ considerably across the Chadic family, there are several basic functions that consistently show up. PERFECTIVE, IMPERFECTIVE, SUBJUNCTIVE, SEQUENTIAL, and IMPERATIVE are consistently found, though, as often as not, labeled with different terms. In some languages, one or more of these covers a “family” of TAMs, while in other cases, a single TAM covers

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<sup>13</sup> Lukas (1971-72:§68) writing on Bole, distinguished between “verbal” and “nominal” TAMs based on whether the verb form was related to a derived nominal form or not.

<sup>14</sup> In the case of AORIST, different writers seem to use it in different ways, but in its original use with reference to Greek, it meant “an unqualified past tense of a verb without reference to duration or completion of the action”.

more than one function with context determining interpretation. The following sections discuss how selected languages express these five functions in affirmative declarative clauses. In a separate section, I consider TAM expression in negative clauses and in clauses with questioned or focused constituents, which has attracted attention with respect to Chadic studies.

### 2.2.1. Perfective

An often quoted definition of PERFECTIVE is from Comrie (1976:12): “The term ‘perfective’ ... denotes a situation viewed in its entirety, without regard to internal temporal constituency ... .” Probably every Chadic language has a specific TAM that fits this definition and that has been variously labeled *past*, *perfective*, *perfect*, *completive*, *accompli* (in French), *aorist*, *anterior*, *factative*, and perhaps others. Welmers (1973:346-347), says of this TAM, “A better label [than ‘past’] might be ‘factative’; the construction expresses the most obvious fact about the verb in question, which in the case of active verbs is that the action was observed or took place, but for stative verbs is that the situation obtains at present.” Consider these examples:

Hausa (I.A.1)	<b>nā fādi</b>	‘I fell’
	<b>nā sanī</b>	‘I know’
Bole (I.A.2.a)	<b>dàwwònì sutùwo</b>	‘his pants fell down’
	<b>m̄ montùwo</b>	‘I know
Miya (I.B.2.a)	<b>món zàbi-yá say</b>	‘I scared him’
	<b>món sèn-ya sáy</b>	‘I know him’
Tera (II.A.1)	<b>ḡàà xá ghà</b>	‘I sat down’
	<b>ḡàà zènì</b>	‘I know’
Bura (II.A.2)	<b>yì kè t̀rà</b>	‘I returned’
	<b>yì kè s̀ndà</b>	‘I know’
Podoko (II.A.4.a)	<b>a mbaha mbahə ya kumakaka</b>	‘I caught some mice’
	<b>a mba mbə ya səkala</b>	‘I know how to sing’
Gude (II.A.8)	<b>kó àlí-c</b>	‘he sought (something)’
	<b>kó p̀lì-c tíi d̀ g̀r̀n</b>	‘he is taller than me’



Gidar (II.C)	<b>nə-zbór-kà</b>	‘I fell’
	<b>nə-són-kà</b>	‘I know’

Related to Jungraithmayr’s formal characterization of the PERFECTIVE category as a *Kurzstamm* and Welmers’s semantic characterization of the “factative” nature of the PERFECTIVE, the PERFECTIVE is often chosen as the citation form by analysts. In languages where verbs fall into lexical classes, it tends to reveal properties, such as final vowel distinctions, that become neutralized in other TAMs, and it is often the most trustworthy form in elicitation.<sup>15</sup>

Hoffmann (1963:115–116) presents a morphosemantic analysis of (im)perfectivity that is not found elsewhere in descriptions of Chadic languages as far as I know. Speaking of Margi, he says (p. 115), “[The] difference between the imperfective and the perfective aspects of the verb can be seen very clearly in the past tense. While the past tense of a perfective verb stem means ‘somebody actually did (and finished) the action’, the past tense of an imperfective verb only means ‘somebody started to do the action (but did not finish it)’ or ‘somebody started to do the action (but did not succeed)’.” Further (p. 116), “The difference between the perfective and the imperfective aspects is closely connected with the difference between simple and derivative verb stems. For the transitive use of the verb, at least, it can be assumed that the simple verb stem is imperfective, while the derivative stems generally speaking are perfective.” By “derivative verb stems”, Hoffmann is referring to a number of suffixes found in languages of the Bura-Margi group which, by themselves, are hard to define, e.g. **ḃ̀zà** ‘move’ vs. **ḃ̀z-àni** ‘move’. These suffixes have counterparts in many languages, particularly in Central Chadic (5). Descriptions of languages generally list affixes of this type and attempt to assign meanings to them, but no one but Hoffmann, as far as I know, has related them to marking aspect. Use and non-use of these suffixes to aspect is reminiscent of prefixation as one indicator of perfectivity in Slavic and Germanic languages and could be an interesting area for typological research on aspect.

<sup>15</sup> In my experience, informants who have not been trained in linguistic analysis prefer to choose derived nominal forms for citation for the rather good reason that they can be cited in isolation from any context. However, from an analytical perspective, derived nominals tend to be idiosyncratic and often do not allow one to accurately predict TAM forms and other properties, such as final vowel and tone classes.

### 2.2.2. Imperfective

The basic function of IMPERFECTIVE is the expression of incompleteness. It often comprises a family of TAMs that differentiate FUTURE, PROGRESSIVE (or DURATIVE), and/or HABITUAL. The base or bases for IMPERFECTIVE TAMs is typically a verbal noun or a form allied to verbal nouns.

In Ngizim, the basic IMPERFECTIVE is an auxiliary **aa** + VERBAL NOUN. Historically, at least, **aa** is the preposition ‘at’ and still functions as such in the modern language. This basic construction can mean future or progressive depending on context, but these specific senses can be achieved with additional auxiliary elements.

IMPERFECTIVE:	<b>n-àa wanà</b>	‘I am working, I will work’
PROGRESSIVE:	<b>n-aa t̀kà wanà</b>	‘I am working’ (“I-at body-of work”)
FUTURE:	<b>n-àa yee /ya ii/ wanà</b>	‘I’m gonna work’ (“I-at going to work”)

Bole can distinguish FUTURE, PROGRESSIVE, and HABITUAL. Bole has a number of types of verbal nouns. For Class A1 verbs, two of these have the forms CVCa and CVCo, e.g. **b̀la** ‘finding’ (< **bolu-** ‘find’), **̀gàd̀** ‘eating (meat)’ (< **̀gad̀**). Used as verbal nouns, the type is idiosyncratic for each verb, e.g. there is no verbal noun \***b̀lo** for find. However, these shapes have been generalized as TAM forms usable with all verbs:

FUTURE:	<b>à ̀gàd̀ lo</b>	‘he will eat meat’ <sup>16</sup>
PROGRESSIVE:	<b>à j̀ ̀gàd̀ lo</b>	‘he is eating meat’
HABITUAL:	<b>à ̀gàd̀ lo</b>	‘he eats meat’

### 2.2.3. Subjunctive

This TAM is sometimes called OPTATIVE or JUSSIVE. In Schuh (2003c:20), I defined the SUBJUNCTIVE as follows:

“The Subjunctive signals an event which will have its inception subsequent to the moment of speaking and/or to an event in a superordinate clause. The temporal, aspectual, and modal (= TAM) interpretation of the event represented by the Subjunctive is dependent on that of the superordinate clause or operator.”

<sup>16</sup> This is actually the general IMPERFECTIVE. Lukas (1970-72) called it FUTURE because it is the form volunteered when translating Hausa FUTURE. However, in context, it can express any IMPERFECTIVE meaning, e.g. from a tale about an ogre, **ishi kala à ̀gàd̀ ye m̀m̀** ‘but he was eating people’.

Schuh (2003c) gives a list of contexts typical of SUBJUNCTIVE, such as complements to verbs of desire ('want'), coercion ('force'), expressions of necessity or preference ('one must', 'it would be better'), clauses expressing purpose, embedded commands, an alternative to imperatives and hortatives, and others. In West Chadic, a common function is the expression of sequence in narrative or procedural texts. Examples of SUBJUNCTIVE in context are found in §4.3.2 for Ngamo (I.A.2.a), §5.2.2.1. for Gude (II.A.8), and in §7.2.6–7.2.8 for Kera (III.A.3). See Schuh (2003c) for examples in Hausa and other West Chadic languages.

Formally, the SUBJUNCTIVE usually falls in the *Kurzstamm* type in Jungraithmayr's typology, but tends to neutralize lexical distinctions seen in the PERFECTIVE.

#### 2.2.4. Sequential

Most Chadic languages seem not to have a special SEQUENTIAL TAM. Rather, one of the other TAM forms marks sequentially in narrative and procedural texts as one of its functions. Tera (II.A.1) is an exception in having a special SEQUENTIAL TAM. It consists of **t(ɓ)** plus a personal pronoun (which is zero in the case of 3rd person singular), e.g.

<b>wa zhi t̄a baŋgər sar rap</b>	'he slept and (then) turned over twice'
<b>wa da shipita t̄a ɗa sə kaari</b>	'he took the load and (then) went home with it'
<b>naŋ vi-ki taŋ gwa nəkumara</b>	'when I entered, (then) I found the judge'
<b>mə no gwa vid ɓa, to ŋgəɗ gargha</b>	'if you don't find it above, (then you) look under'

#### 2.2.5. Imperative and Hortative

Most, if not all Chadic languages, have morphologically distinct IMPERATIVE forms for issuing commands to second person addressees or addressees that include second person. Western Bade has distinct IMPERATIVE forms for addressees that include a second person, though as the hyphenated agreement suffixes show, they are just two basic IMPERATIVE stems, a singular with suffix **-i** and a plural with suffix **-a**:

2 <sup>nd</sup> masculine singular:	<b>à v̄ri-i</b>	'go out!'
2 <sup>nd</sup> feminine singular:	<b>à v̄rə-m / à v̄ri-m/</b>	'go out!'
2 <sup>nd</sup> plural:	<b>à v̄ra-wún</b>	'go out!'
1 <sup>st</sup> plural inclusive:	<b>à v̄rá-wà</b>	'let's go out!'

Some languages have a morphologically distinct HORTATIVE form for issuing exhortations to third persons. In Western Bade, Schuh (2007) refers to this as SECOND SUBJUNCTIVE, which also replaces the IMPERATIVE under negation., e.g. **dò v̀̀ra** ‘he should go out!

Like the SUBJUNCTIVE, the IMPERATIVE and the HORTATIVE, if there is one, usually fall in the *Kurzstamm* type in Jungrauthmayr’s typology. They sometimes neutralize lexical distinctions seen in the PERFECTIVE, but in other languages the singular IMPERATIVE is simply the verb base.

### 2.3. Sketches of TAM systems in affirmative declarative clauses

In sections below, I give brief sketches of the basic TAM systems of selected languages from West Chadic, Central Chadic, and East Chadic. Detailed descriptions of individual languages from these branches are found for Ngamo (West-A) and Gude (Central-A).

There are three principle means of marking TAM: *affixation*, most commonly suffixation; *clitics*, most commonly proclitics, which often form the indication of a portmanteau with subject agreement clitics; and *tone*. All three means often cooccur to form a single TAM. Suffixation as a means of TAM marking dates from Proto-Chadic and was probably the primary means of TAM marking, perhaps combined with tone. Some languages now use stem modification to distinguish TAMs, most notably the Ron languages (I.A.4) in West Chadic and the East-B languages in general, but this means of TAM marking has been the result of secondary developments within the respective groups, originally associated with suffixation (see discussion of Ron in §2.2.1 and East-B in §2.2.3). Clitics have probably always played a role in TAM marking, but these have developed repeatedly and independently from semantic bleaching of locative constructions (“at/on/in” + ACTION to indicate PROGRESSIVE or HABITUAL), phrasal verbs (“go” + ACTION to indicate FUTURE), and other periphrastic constructions. Tone has sometimes become the primary or only indicator of one or more TAMs, but this is always in languages that have drastically reduced segmental marking (affixes, clitics) through phonological erosion. Tone has probably always played a role in TAM marking, but it is usually in some sense subsidiary, being associated with lexical class and or TAM affixes.

### 2.3.1. West Chadic TAM systems

As discussed in §1.1, West Chadic languages fall into at least four typologically distinct groups. The most conservative are those from the “northern” groups: Bole-Tangale (I.A.2), Bade (I.B.1), Warji (= “North Bauchi”) (I.B.2). Hausa (I.A.1) should also be included here, though Hausa has obscured the prototypical West Chadic features by innovative overlays. The “southern” branches of West Chadic have each been innovative in somewhat different ways. These are the South Bauchi (I.C.1), Angas-Goemai (I.A.3), and Ron (I.A.4) branches.

*2.3.1.1. The “northern” branches of West Chadic.* The verbal systems of languages of the Bole-Tangale, Bade, and Warji (“North Bauchi”) groups are characterized by inflections that rely heavily on vocalic suffixes and minimally on tones and preverbal clitics. For example, in Karekare, the verb ‘follow’ with a 3<sup>rd</sup> singular subject has the forms PERFECTIVE **d̥aafu-kàù**, SUBJUNCTIVE **d̥aafi**, FUTURE **nàa d̥aafà**; in Ngizim, the verb with the same meanings has the forms PERFECTIVE **d̥ɔ̄gu**, SUBJUNCTIVE **da d̥ɔ̄gi**, FUTURE **aa d̥ɔ̄ga-w**. In each language, the verbs have TAM-marking suffix vowels, tones are predictable based on verb root shape, and in some cases there is an additional clitic preceding and/or following the verb.

The TAM system for Ngamo (IA.2.a), which has a rather typical “northern” TAM system is described in detail in §4. Here, I present a sketch of the TAM system of Miya (I.B.2), which is in a separate branch of West Chadic from Ngamo but which shares clear typological similarities. Data are from Schuh (1998). TAMs in affirmative declarative clauses are as in the table below. The class references are those used in §1.1: A1 = CVC- root with final **-ə/Ø** in the PERFECTIVE; B = CVC- root with final **-a** in the PERFECTIVE. Forms are as they appear with a 3<sup>rd</sup> person singular subject (except for IMPERATIVE). The Miya TAMs have the functions outlined in §2.2.

**Table 5:** Miya TAMs

TAM	Class A1 verb ‘wash’	Class B verb ‘accompany’
PERFECTIVE	<b>à bəsə sáy</b>	<b>à təkə sáy</b>
IMPERFECTIVE	<b>t-àa bəsaw</b>	<b>t-àa təkaw</b>
(IMPERFECTIVE) FUTURE	<b>t̥ə s-áa bəs-ay</b>	<b>t̥ə s-áa tək-áy</b>

(IMPERFECTIVE) PROGRESSIVE	<b>t-àa-táa bəsa bəsàw*</b>	(not elicited)
(IMPERFECTIVE) HABITUAL	<b>tə g-aa bəsa kábə**</b>	(not elicited)
SUBJUNCTIVE	<b>də bəsaw</b>	<b>də təkaw</b>
SEQUENTIAL	= SUBJUNCTIVE	= SUBJUNCTIVE
IMPERATIVE: 2 <sup>ND</sup> SING.	<b>bəsə</b>	<b>təka</b>
2 <sup>ND</sup> PLURAL	<b>bəsiy</b>	<b>təkiy</b>
1 <sup>ST</sup> PLURAL	<b>bəsiymá</b>	<b>təkiymá</b>
HORTATIVE	<b>tà bəsə</b>	<b>tà təkə</b>

\*‘he is washing’ (“doing laundry”), with cognate object

\*\*‘he washes clothes’, e.g. as an occupation

As discussed in §1.1, Miya also has verbal tone classes, but this is a lexical feature of the verb not directly involved in TAM marking. PERFECTIVE, SINGULAR IMPERATIVE, and HORTATIVE use the lexical base form of the verb, which reveals the lexical final vowel. The two plural IMPERATIVE forms have a special suffix **-iy**. All other TAMs use a form called a *participle* in Schuh (1998). For all verbs, the participle has the form ROOT-**aw** phrase finally, ROOT-**a** if anything follows. They reveal the lexical tone class of the verb (see §1.1). In addition to serving as the head of a verb phrase, the participle can appear as a cognate complement (**bəsàw** is a cognate complement in FUTURE example in the table) and as some types of verbal complements. The participle has nominal properties, however. Notably, a pronoun object of a TAM using the lexical base form comes from a special object series, but a pronoun object of a TAM using a participle is the same as a genitive pronoun: PERFECTIVE **à bəsə-ya** ‘he washed him’, SUBJUNCTIVE **də bəs-uwsə** ‘that he wash him’, cf. **mbəd-uwsə** ‘his thigh’.

Within the two groups of TAMs (those using the simple base vs. those using the participle), individual TAMs other than the IMPERATIVE are marked by preverbal clitics. PERFECTIVE uses simple subject pronouns. The **à** in the examples is used only when a nominal subject is not expressed, cf. **Kásham təka sáy** ‘Kasham accompanied’. The following **say** < /suw-ay/ was almost always included when verbs in the PERFECTIVE were elicited: I suggest that it is an “auxiliary focus” marker. HORTATIVE uses **tà**, which is present even with an overt noun subject (**Kásham tà təkə** ‘Kasham’ should accompany’). The canonical IMPERFECTIVE clitic is **aa**, which is, historically at least, the

general locative preposition ‘at/on/in’. The basic IMPERFECTIVE without an additional clitic seems to be rarely, if ever, used as a stand-alone TAM.<sup>17</sup> **T(ə)** in the IMPERFECTIVE examples is the 3<sup>rd</sup> singular masculine independent pronoun. These TAMs probably had their source as non-verbal subject+predicate constructions. The **s-...-ay** in the FUTURE is the same construction as the **say** in the PERFECTIVE, but bracketing the full predicate.<sup>18</sup> The PROGRESSIVE uses the preposition **àatáa** ‘on’ as an auxiliary. The HABITUAL has an auxiliary **g-** whose independent meaning is uncertain. The SUBJUNCTIVE uses a special set of subject pronouns, distinct from non-3<sup>rd</sup> person PERFECTIVE subject pronouns in vowel length (PERFECTIVE **fà təká sáy** ‘you (m.s.) accompanied’, SUBJUNCTIVE **fàa təkaw** ‘that you accompany’) and by different clitics in 3<sup>rd</sup> person (PERFECTIVE **à təká sáy** ‘he accompanied’, SUBJUNCTIVE **də təkaw** ‘that he accompany’).

*2.3.1.2. Angas-Goemai.* In contrast to this typical “northern” system, with verbal affixal inflection combined with clitics, languages of the Angas-Goemai group rely entirely on clitics and tones. Jungrathmayr & Diyakal (2008) describe eight TAMs (including IMPERATIVE) for Mushere (I.A.3.a).<sup>19</sup> Mushere distinguishes PERFECTIVE and IMPERFECTIVE stems solely by tone, see §1.1. Jungrathmayr & Diyakal use different verbs as illustrations from TAM to TAM, so tonal minimal sets for lexical tone class do not emerge from the data. In part, TAMs are distinguished by different subject pronoun sets, two called “short”, three drawn from the independent series. For example, for 2<sup>nd</sup> masculine singular, the “short” forms are **ka** and **ká**, the independent forms are **ŋgá**, **ŋga**, and **ŋgà**. I will call these S1, S2, I1, I2, I3 respectively. Examples all have 2<sup>nd</sup> masculine singular subjects. PF = PERFECTIVE tone stem, IPF = IMPERFECTIVE tone stem.

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<sup>17</sup> In Schuh (1998:128), I say, “The IMPERFECTIVE without additional auxiliaries has rather restricted distribution and as a consequence I did not elicit a full paradigm of persons in this form.”

<sup>18</sup> This is reminiscent of the Russian “future”, which is morphologically the present tense form of the verb with an affix showing perfectivity.

<sup>19</sup> Jungrathmayr & Diyakal (2008:50) describe two further forms, FUTURE III and POTENTIALIS. These seem to be outside the canonical TAM system and are not included here.

**Table 6:** Mushere TAMs (Jungrathmayr & Diyakal 2008)

TAM <sup>20</sup>	TAM structure		
PERFECTIVE	S1+PF	<b>ka náa</b>	‘you have seen’
FUTURE I	S2+IPF	<b>ká naá</b>	‘you will see’
HABITUAL I	I1+derived N	<b>ngá ďak</b>	‘you work’
HABITUAL II	I2+IPF	<b>nga cìn</b>	‘you do’
PROGRESSIVE I	I2+póò+IPF	<b>nga póò ďák</b>	‘you are working’
PROGRESSIVE II	I3+kə+IPV	<b>ngà kô shwàa</b>	‘you are drinking’
SUBJUNCTIVE	= PERFECTIVE		
SEQUENTIAL	= PERFECTIVE		
IMPERATIVE: 2 <sup>ND</sup> SING.*	PF	<b>náa</b>	‘see!’

\*Jungrathmayr & Diyakal (2008) do not say whether the IMPERATIVE is restricted to the singular, and if it is only singular, what form COMMANDS take with plural addressees.

2.3.1.3. *South Bauchi*. South Bauchi languages, have TAM marking similar to that of the Angas-Goemai languages, but with more reliance on auxiliary particles and less on tone. Zaar (Caron 2005) verb tone classes are described in §1.1. TAMs in Zaar are differentiated by preverbal clitics that form a portmanteau with the subject pronoun plus tonal alternations in the verb. Caron’s AORIST, which “has a narrative functional value” (p. 216), is marked only by a pronoun set of the form Cə (aside from 3<sup>rd</sup> singular): **mə** ‘I’, **kə** ‘you (sg.)’, **á** ‘he/she’, **mó** ‘we’, **kó** ‘you (pl.)’, **tó** ‘they’. Other TAMs use essentially these pronouns combined with other clitics. Caron divides TAMs into *aspects*, *tenses*, and *moods*, presumably relating to their translations in European languages. I have taken the liberty of referring to all [PREVERBAL MORPHEMES+V] complexes as TAMs. Caron does not illustrate any of his TAMs with actual verbs. I have added the verb **bwaa** ‘choose’, supplied with tones as I understand them from his description (**á** = H, **à** = L, unmarked = M).

<sup>20</sup> I have taken the liberty of renaming the TAMs to be consistent with the other languages described here. My names and Jungrathmayr & Diyakal’s are as follows: PERFECTIVE = Aorist-Perfect/Subjunctive, FUTURE I = Future I, HABITUAL I = Present-Habitual I, HABITUAL II = Present-Habitual II, PROGRESSIVE I = Present Continuous I, PROGRESSIVE II = Present-Continuous II, FUTURE II = Future II. J & D are not explicit on the functional or semantic differences between the two FUTURES, HABITUALS, or PROGRESSIVES.



**Table 7:** Zaar TAMs (Caron 2005)

TAM <sup>21</sup>	TAM structure		
PERFECTIVE	Pro+áa+Lex	<b>k-áa bwaa</b>	‘you (sg.) chose’
IMPERFECTIVE	Pro+yáa+Lex <sub>SG</sub> , Mod <sub>PL</sub>	<b>k-yáa bwaa</b>	‘you choose’
PROGRESSIVE (C. CONT.)	Pro+yi-ghá+Vb. Noun	<b>k-i-ghá bwaa</b>	‘you are choosing’
FUTURE	Pro+a+ Lex <sub>SG</sub> , Mod <sub>PL</sub>	<b>k-a bwaa</b>	‘you will choose’
SUBJUNCTIVE	Pro+L**+Verb	<b>àa bwaa</b>	‘that you choose’
SEQUENTIAL (C. AORIST)	pro+Verb*	<b>kə bwàa</b>	‘and you chose’
IMPERATIVE: 2 <sup>ND</sup> SING.	Lex	<b>mán</b>	‘come (sg.)!’
2 <sup>ND</sup> PL.	Lex-(ó)n	<b>màńón</b>	‘come (pl.)!’

\*H on first syllable of 1<sup>st</sup> & 2<sup>nd</sup> singular, modified form in others.

\*\*The singular pronouns all have L tone (mè ‘I’, àa ‘you (sg.)’, tè ‘he/she’). The plurals have L with a floating L (mè-L ‘we’, àa-L ‘you (pl.)’, tè-L ‘they’) which docks to the following verb.

Zaar has developed additional TAMs that do not have widespread counterparts. For example, there are three degrees of PAST: IMMEDIATE PAST **k-íí+V**, RECENT PAST **kə-ńáa+V**, REMOTE PAST **kə-tá+V**. Moreover, TAM-marking morphemes can be combined for more finely grained meanings, e.g. REMOTE PAST IMPERFECTIVE **kə-tá-yáa+V**, IMPERFECTIVE CONTINUOUS **k-yáa-yi-ghá+V**, etc.

*2.3.1.4. The Ron languages.* The Ron languages present quite a different picture from any of the other West Chadic groups. Although they have reduced their canonical root structure from the more conservative “CVCV” type to “CVC” much like Angas-Goemai and South Bauchi (cf. Bole **pòďďo** ‘four’, Ron-Kulere **fúd**, Bole **pòti** ‘sun’, Ron-Kulere **fat**), they mark TAM largely through suffixation and/or stem modification. Ron tonal verb classes were discussed in §1.1. Tones are predictable on the basis of tone class and

<sup>21</sup> I have taken the liberty of renaming the TAMs to be consistent with the other languages described here. My names and J & D’s are as follows: PERFECTIVE = Aorist-Perfect/Subjunctive, FUTURE I = Future I, HABITUAL I = Present-Habitual I, HABITUAL II = Present-Habitual II, PROGRESSIVE I = Present Continuous I, PROGRESSIVE II = Present-Continuous II, FUTURE II = Future II. J & D are not explicit on the functional or semantic differences between the two FUTURES, HABITUALS, or PROGRESSIVES.

TAM, so I will not specifically mention tones here. All data are from Jungraithmayr (1970b).

In addition to tone classes, TAMs are marked by a combination of *subject pronoun* type, *stem type*, and *suffix*. Subject pronouns are *simple*, called Pro1 in the table below (basically, CV, e.g. **yá** ‘you (m.s.)’, **kí** ‘you (f.s.)’) or “*long*”, called Pro2 in the table below (basically, the simple set + **a**, e.g. **yáa**, **kyá**). Jungraithmayr (1970b) describes three stem types, as follows for Ron-Kulere:

SIMPLE	PERFECTIVE	IMPERFECTIVE	
<b>fa</b>	<b>fa-hè</b>	<b>f-áay</b>	‘go’
<b>fu</b>	<b>fu-hè</b>	<b>fw-áay</b>	‘close’
<b>ci</b>	<b>ci-hè/cy-ê</b>	<b>c-áay</b>	‘eat’
<b>ndal</b>	<b>ndál-è</b>	<b>ndál-áy</b>	‘drink’
<b>syen</b>	<b>syén-èy</b>	<b>syán-áy</b>	‘know’
<b>palaŋ</b>	<b>páláŋ-è</b>	<b>páláŋ-áy</b>	‘thank’
<b>mohoh</b>	<b>móhóh-è</b>	<b>móhá-áy</b>	‘write’
<b>ndîm</b>	<b>ndim-è</b>	<b>ndy-áà-m</b>	‘beg’
<b>duk</b>	<b>dúk-è</b>	<b>dw-áa-k</b>	‘beat’
<b>bisiky</b>	<b>bísiky-è</b>	<b>bísy-áa-k</b>	‘shoot’

The SIMPLE stem is the root alone. The PERFECTIVE stem has a suffix **-e**. The IMPERFECTIVE has a suffix **-ay** with CV roots and longer roots where the final vowel of the root is non-high (with CV roots, the suffix is lengthened by merger with the root vowel); for non-CV roots where the last root vowel is high, there is an infix **-aa-** between the last two root consonants.

Jungraithmayr (1970b) did not use the same verb from TAM to TAM. I have taken the liberty of creating examples using the root **duk** ‘beat’ in order to have a minimal set. Any errors that I may have introduced should be minimal.

**Table 8:** Ron TAMs

TAM	TAM structure		
PERFECTIVE	Pro2+PERF. stem	<b>yá-a dúk-è</b>	‘you (ms) have beaten’
PLUPERFECT I	Pro1+SIMPLE-o	<b>yá dúk-ó</b>	?’you have beaten’
PROGRESSIVE	Pro1+IMPERF. stem	<b>yá dwáak</b>	‘you are beating’
HABITUAL	Pro1+IMPERF.-e	<b>yá dwáak-è</b>	‘you beat’
FUTURE	Pro2 fa+PERF. stem	<b>yá fa dúk-è</b>	‘you will beat’
SUBJUNCTIVE (J. AORIST)	Pro1+SIMPLE stem	<b>yá duk</b>	‘that you beat’
SEQUENTIAL (J. RELATIVES PERFEKT)	Pro1-â+PERF. stem	<b>yá-à dúk-è</b>	‘...and you beat’
IMPERATIVE: 2 m.s. 2 f.s. 2 pl.	SIMPLE stem+Pro	<b>duk-â</b> <b>duk-êk</b> <b>duk-ôk</b>	‘beat (m.s.)!’ ‘beat (f.s.)!’ ‘beat (pl.)!’

In addition, there is a PLUPERFECT II with suffix **-oh-e** (**syen-ó-h-é** ‘know’) and a FUTURE PROGRESSIVE with suffix **-ane** (**wát-àne** ‘do’ < **wot**). The meanings of these two forms as well as that of the PLUPERFECT I seem uncertain.

Jungrathmayr (1968a) and numerous subsequent publications, extending to Jungrathmayr (2013), has hypothesized that the IMPERFECTIVE stem in Ron, particularly the type with an internal vowel change, such as SIMPLE **duk**, IMPERFECTIVE **dwáak** ‘beat’, is a reflex of an archaic Afroasiatic feature of APOPHONY, i.e. internal stem change indicating imperfectivity. Jungrathmayr (1968a:19) compares the Ron-Kulere forms to Akkadian PERFECTIVE stem **-prus** ‘decide’, IMPERFECTIVE stem **parras**. This hypothesis seems unlikely on the face of it, considering the huge time depth involved and the clearly strongly innovative nature of Ron-Kulere and the other Ron languages within West Chadic. Newman (1977c) likewise challenges this hypothesis, noting that were internal vowel changes an archaic feature preserved within Ron, they should be reconstructable at least for the group. It is not. Comparing the IMPERFECTIVE stems for ‘die’ in Ron-Daffo (**mwaát**), Kulere (**mót-áy**), and Scha (**mót-ót**), we see that Ron-Daffo does appear to form its IMPERFECTIVE stem purely by apophony, but the other two languages use suffixing: Kulere has a suffix **-ay**, Scha has a reduplicative suffix **-V<sub>1</sub>C<sub>2</sub>**. If apophony

were original, one would require a scenario where the apophony somehow was decomposed into affixed forms in some languages. Newman (1977c:188-189) proposes a more plausible scenario beginning with suffixed forms, which were phonologically eroded, bringing about internal vowel changes in the root.

My own hypothesis is that Ron IMPERFECTIVE stems are grammaticalized pluractional verb forms, i.e. forms that indicate plural action of some kind. It is striking that Jungraithmayr (1970b) describes pluractionals in Ron only for Ron-Scha, and there, only for a handful of frozen forms, whereas pluractional formation is ubiquitous in West Chadic languages.<sup>22</sup> There is an extensive discussion of pluractional formation in the West-A branch in Chapter 8. Briefly stated, reduplicative infixation is overwhelmingly the most common type (cf. Karekare **tèđu-kàù** ‘he asked’, **tè-đà-đu-kàù** ‘he repeatedly asked’). Phonological erosion of these reduplicative infixes in some languages has led to opaque pluractionals, including lexicalized pluractionals in Angas-Goemai languages such as Sura **pùs** ‘shoot’, pluractional **pwas**. I would argue that all the languages of the Nigerian plateau area inherited pluractionals of this type, but the Angas-Goemai and Ron groups have gone in different directions. In Angas-Goemai, because of the opaque relation between simple verbs and their pluractional counterparts, a few have been lexicalized essentially as separate words whereas most have been lost. In Ron, what was originally a morphological difference chosen for semantic reasons has been grammaticalized as a productive method of showing TAM distinctions.

*2.3.1.5. Conclusion on West Chadic TAM systems.* To conclude this section on West Chadic TAM formations, the reconstructable proto-West Chadic method of marking TAMs was essentially through suffixation, perhaps in combination with tones related to lexical tone classes. Various “imperfective” TAMs were based on nominal forms of verbs, not unlike English ‘I am reading’, where the verb form is a gerund or ‘I’m gonna read’ where the verb form was originally an infinitive ‘to read’. These nominal sentences allowed for development of periphrastic constructions such as “I am upon reading” as a HABITUAL or PROGRESSIVE, and the like. Phonological erosion and the areal influence of

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<sup>22</sup> Pluractional formation is, in fact, ubiquitous throughout Chadic, but West Chadic types of pluractional formation are particularly relevant to the Ron situation.

non-Chadic languages has led to the situation found in the “southern” West Chadic languages, with much greater reliance on tone and periphrasis using prepositions, locative constructions, and frozen verbal complement constructions.

### 2.3.2. *Central Chadic*

Central Chadic languages rely primarily on pre- or postverbal clitics or suffixes to distinguish TAMs. These are usually accompanied by tonal distinctions in the verbs based on lexical tonal classes, but verb tone alone is usually not the only feature distinguishing one TAM from another. A feature of a number of Central Chadic languages is marking TAM, at least in part, by morphological palatalization (see Chapter 3, §5.3 for a discussion of morphological palatalization and labialization). Two of the languages discussed in this chapter use palatalization as a feature of TAM marking: Gude, whose TAM system is described in detail in §5, and Podoko, with a sketch of the TAM system below in §2.3.2.2. Bewilderingly, Gude marks PERFECTIVE this way, whereas Podoko marks IMPERFECTIVE. Unlike West Chadic, where we have a pretty good idea of what the original TAM-marking system was like, we are nowhere near having even a schematic reconstruction of the proto-Central Chadic TAM system, so understanding the distribution of morphological prosody as a TAM marking device must remain an unsolved mystery.

2.3.2.1. *Bura*. Bura (II.A.2) data are from my own field notes. Verbs seem to be essentially invariable in terms of TAM marking.<sup>23</sup> The examples all have second person singular subjects. This would be replaced by comparable clitic pronouns in other persons and by a noun with nominal subjects.

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<sup>23</sup> Bura and other languages of the Bura group do have extensive sets of verbal suffixes that add shades of meaning such as direction, completedness, etc. (Blench 2010, Hoffmann 1963:117 ff.). These may, in some cases, have a quasi-TAM-marking function. Describing Margi, but also related languages like Bura, Hoffmann (1963:115-116) says, “The difference between the perfective and the imperfective aspects is closely connected with the difference between simple and derivative verb stems.”

**Table 9:** Bura TAMs (Schuh field notes)

TAM	TAM structure		
PERFECTIVE	Subj kè V stem	<b>gè kè bàrà</b>	‘you (m.s.) sought’
HABITUAL	Subj àa <sup>24</sup> V stem	<b>g-àa bàrà</b>	‘you seek’
PROGRESSIVE	Subj à kwà V stem	<b>g-à kwá bàrà</b>	‘you are seeking’
FUTURE	Subj à tà V-ári	<b>g-à tà bàrà-ári</b>	‘you will seek’
SUBJUNCTIVE	ká Pro V stem	<b>ká-à /-gè/ bàrà</b>	‘that you seek’
SEQUENTIAL	Subj V stem	<b>gè bàrà</b>	‘and you sought’
IMPERATIVE: 2 sg	V stem	<b>bàrà</b>	seek (sg.)!
2 pl	V stem+gìrì	<b>bàrà-gìrì</b>	seek (pl.)!

The clitic **kwá** in the PROGRESSIVE is the preposition ‘in’, and **tà** in the FUTURE is the preposition ‘on’. The suffix **-ári** in the FUTURE is probably the definite marker used with nouns (**là** ‘cow’, **l-ári** ‘the cow’), i.e. the FUTURE is (a grammaticalization of?) “on the seeking”. Alternatively, **-ári** may actually be a verbal suffix, found also in Margi and about which Hoffmann (1963:121) says, “The meaning of the suffix **-ari** is not quite clear, but in some cases it indicates that the action is only done ‘a bit’.” The TAM that I have termed SEQUENTIAL is formally the TAM often referred to in other languages as the AORIST, i.e. a completely unmarked and often multi-functional TAM. I have labeled it SEQUENTIAL here based on uses in such sentences as **tó dà sí dà fàtè kári-dá** ‘when they came, they collected their things’ (**dà** is the 3<sup>rd</sup> plural subject clitic). I don’t have information on other functions of this TAM.

2.3.2.2. *Podoko*. Podoko (II.A.4.a) data come from Jarvis (1989) and personal field notes. Podoko is a VSO language. Verbs in the PERFECTIVE are reduplicated. Verbs in IMPERFECTIVE TAMs are palatalized. I use Jarvis’s convention of placing **y** before a palatalized root, although I do it here with superscript.

<sup>24</sup> The long vowel is as in my notes. Bura does not have a vowel length distinction, but I consistently wrote it this way. It is possible that there are really two vowels: clitic **à** and a prefix **à-**. Most TAMs in Margi have a prefix **a-** on the verb (Hoffmann 1963).

**Table 10:** Podoko TAMs (Jarvis 1989)

TAM	TAM structure			
PERFECTIVE	<b>a</b> V <sub>1</sub> V <sub>2</sub> Subj	<b>a kəsá kəsə ta mətsəra</b>	‘they caught a thief’	
PROGRESSIVE	<b>a</b> <sup>y</sup> V (Obj) Subj	<b>a <sup>y</sup>kəsə mətsəra ta</b>	‘they are catching a thief’	
FUTURE	<b>a da</b> <sup>y</sup> V (Obj) Subj	<b>a da <sup>y</sup>kəsə vala ya</b>	‘I will catch him’	
SUBJUNCTIVE	Subj <sup>y</sup> V	<b>ngə ka <sup>y</sup>səlu yəwa</b>	‘that you drink water’	
SEQUENTIAL (J. AORIST)	V <b>m</b> -Pro Subj	<b>...kəsa mə-tá mətsəra</b>	‘and they caught a thief’	
IMPERATIVE:	2 sg.	V <sub>1</sub> V <sub>2</sub>	<b>kəsa kəsə</b>	‘catch (sg.)!’
	2 pl.	<b>a-kwó</b> V <sub>1</sub> V <sub>2</sub>	<b>a-kwó <sup>1</sup>kəsa kəsə</b>	‘catch (pl.)!’
	1 incl.	<sup>y</sup> V <sub>1</sub> - <b>mə</b> <sup>y</sup> V <sub>2</sub>	<b><sup>y</sup>kəsa-mə <sup>y</sup>kəsə</b>	‘let’s catch!’

Here are a few brief comments on the Podoko system.

(1) Initial **a** in PERFECTIVE, PROGRESSIVE, FUTURE: Jarvis (1989:81) calls this the *focalisateur* (focalizer). By her analysis, all declarative statements require that something be in focus. The default focus position is immediately postverbal. In the PERFECTIVE, the default focus is the verb itself and the focus position is filled by a copy of the verb root; verbal suffixes are attached to the first instance of the verb (**kəsá-və kəsa** ‘take each other’, **kəsa-da kəsa** ‘take down’, **a mala-tá malə yá** ‘I transformed them’). Anything else in focus is postverbal and the verb is not reduplicated (compare the PERFECTIVE example above to **a kəsá mətsəra yá** ‘I caught THE THIEF’, **a kəsá wayó mətsəra** ‘it’s I who caught the thief’). With IMPERFECTIVE TAMs, non-subject constituents always directly follow the verb (and the verb is not reduplicated) meaning that formally speaking, IMPERFECTIVE TAMs always have something in focus, though Jarvis (1989:82) says, “Si la proposition est affirmative, la position de focalisation ... est toujours occupée par quelque chose. Cependant, la valeur de la focalisation n’est pas toujours évidente; parfois elle semble neutre.”

(2) SUBJUNCTIVE, SEQUENTIAL (= Jarvis AORIST): These TAMs are not used in independent declarative statements and cannot contain focused constructions. The SUBJUNCTIVE is used in clauses expressing purpose, desire, and the like. Like IMPERFECTIVE TAMs, the verb stem is palatalized. It is the only TAM in Podoko in which the subject precedes the verb.<sup>25</sup> This includes both pronoun and noun subjects, e.g. [sayə à ufəla à ufi ndi sləbə] ɲó fəfayə mbarə-da ɲa ‘[one must pour hot water on the meat] so that the worms come out (**mbarə-da**)’ (Jarvis & Lagona 1989). This TAM uses a special set of subject pronoun that Jarvis (1989) calls the “**ma**” set because of a prefix **ma-** in some persons, as in the 3<sup>rd</sup> plural **mə-tá** in the example.

(3) IMPERATIVE: There are both PERFECTIVE imperatives (shown in the table here) and IMPERFECTIVE imperatives (ʔkəsə ‘catch!’), which use the unaffixed form of the verb for the respective TAMs. The meaning distinction is not clear; a glance through examples in Jarvis & Lagona (1989) suggests the IMPERFECTIVE may be the default. The 2<sup>nd</sup> plural requires a subject pronoun, presumably to differentiate it from the singular. The 1<sup>st</sup> plural inclusive suffixes the pronoun **-mə** to the verb and is palatalized. This seems to be the only case of palatalization of a non-IMPERFECTIVE TAM.

2.3.2.3. *Gidar*. *Gidar* (I.C.) data come from Schuh (1984). Verbs differ in tone from TAM to TAM depending on lexical tone of the verb. *Gidar*, like a few other languages, marks plural subjects with a suffix (**-aŋ** for intransitive verbs, **-nən-** for transitives).

**Table 11:** *Gidar* TAMs (Schuh 1984)

TAM	TAM structure		
PERFECTIVE	Pro V (pl) <b>-ka</b>	<b>kə zbór-kà</b> <b>kə zbór-áŋ-kà</b>	‘you (sg) fell’ ‘you (pl) fell’
2 <sup>ND</sup> PERFECTIVE/ “AORIST”	Pro V	<b>ká zbór bà</b> <b>ká zbór-áŋ bà</b>	‘you didn’t fall’
PROGRESSIVE/ IMPERFECTIVE	<b>I-Pro tà-tó VN (pl)</b>	<b>is tà-tó-zbərə</b> <b>mənòkùm tà-tó-zbər-áŋgè</b>	‘you fall/are falling’

<sup>25</sup> The 2<sup>nd</sup> plural IMPERATIVE also requires a preceding subject pronoun, but this is a grammatical requirement, not a free choice.



FUTURE	(w)a Pro V (pl)	á kə-zbór wâ kə-zbór-áŋgə	‘you will fall’
SUBJUNCTIVE	Pro V-gəni	ká zbór-gəní ká zbòr-áŋ-gəní	‘that you fall’
SEQUENTIAL	= PERFECTIVE <sup>26</sup>		
IMPERATIVE: 2 sg.	á-V-a/-ə	á-zbórə	‘fall (sg)!’
2 pl.	mə-V-a/-ə	mə-zbórə	‘fall (pl)!’
1 incl.	see below	mə nzhá-m-sə-m-éŋg	‘let’s run!’

Gidar has both morphological palatalization and labialization, though unlike languages like Podoko (§2.3.2.2 and Gude (§5.2), where prosodies are actually part of the TAM inflectional system, these prosodies in Gidar are lexical properties of individual roots, or, in some cases, affixal morphemes. The “neutral” forms of the PERFECTIVE suffix is /-kà/ and that of the plural subject suffix is /-aŋ/, but these suffixes take on the prosody of the verb root: neutral à ssàr-áŋ-kà ‘they became dry’, palatalized à ffèt-éŋ-kè ‘they rested’, labialized à vóŋg-óŋ-kò ‘they lay down’.

The TAM labeled 2<sup>ND</sup> PERFECTIVE/“AORIST” is essentially unmarked for TAM. It is used to express the negative of the PERFECTIVE and also in clauses where something is questioned or focused, e.g. is kó hálá ‘it’s you (sg) who stole’, mənòkúm kə hál-nəni ‘it’s you (pl) who stole’ (recall that the plural agreement suffix for transitives is -nən-, not -aŋ), nəwá kə ró di? ‘who did you abuse?’ (di is a question marker).

I elicited the PROGRESSIVE/IMPERFECTIVE using the French present tense, so from my data, it is not clear whether it has a progressive sense, a habitual sense, or both. It stands apart from the other TAMs in using independent pronouns as subjects and the verbal noun, marked by the final -a (which is elided medially). I do not have an independent gloss for the morphemes (or morpheme?) t̩à-t̩ə, but on the basis of formation of IMPERFECTIVE TAMs in other languages, it probably has a prepositional source and the entire construction has its origin in a phrase meaning something like “you are on falling”.

<sup>26</sup> I did not collect narrative data in Gidar. Texts in Frajzyngier (2008) give many examples of PERFECTIVE as a sequential in narrative: à gəmè-k gòrdú à kpà-ək á màkrá-nì mày à mtə-kà ‘he took a knife, plunged (it) into his heart, and died’ (482).

2.3.2.4. *Conclusion on Central Chadic TAM systems.* Central Chadic has (almost) entirely abandoned TAM marking by verbal affixation--“abandoned”, since both West and East Chadic TAM systems show that affixation must have played a major role in the Proto-Chadic TAM-marking picture. TAM marking is done primarily by clitics, usually preverbal, or by the absence of clitics. Verbal tone patterns, which I have not explicitly discussed in the sketches here, does play a role in TAM marking in probably all Central Chadic languages, but this is always related to lexical tone classes of verb roots; tone itself cannot be said, on its own, to function as a TAM-marking morpheme.

Morphological palatalization is found in nearly all Central Chadic languages of northern Cameroon, and in a few of these languages, palatalization is a crucial feature of TAM marking (Podoko and Gude among the languages discussed in this chapter).<sup>27</sup> One is tempted to suggest that this may be the result, say, of a TAM marking suffix *\*-i* whose palatalizing influence spread to the verb with subsequent apocopation of the suffix. This cannot have been the case. First, palatalization is not always associated cross-linguistically with the same TAM: in Podoko, palatalization marks IMPERFECTIVE, in Gude, it marks PERFECTIVE. Second, and probably more important, morphological palatalization (and labialization in languages that have it) is a cross-lexicon phenomenon, not restricted to verbs. Whatever the ultimate source of morphological prosodies may be, their incorporation into TAM marking is innovative.

There are two morphological markers that look to be reconstructable for at least proto-Central-A. One is a PERFECTIVE affix/clitic *\*kə*. This is found in languages that are not closely related within Central Chadic: Bura (II.A.2) *gə kə bərə* ‘you sought’, Gude (II.A.8) *kə nzā Bəli* ‘Bili sat down’, Gidar (II.C) *kə zbər-kə* ‘you fell’. This could, in fact, be a reflex of the PERFECTIVE morpheme seen in West Chadic languages, e.g. Karekare *mətu-kəu* ‘he died’, Ngizim *gəfa-w* ‘he caught (it)’. It is NOT related to the Hausa *-kə* of the RELATIVE PERFECTIVE, which derives from a copula used for focus (see §6.2.9).

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<sup>27</sup> Quite a few Central Chadic languages have morphological labialization as well as palatalization. Gravina (2014) argues convincingly that development of morphological palatalization is a more recent phenomenon, probably beginning with spread of labialization from labialized velars. Morphological labialization plays no role in TAM marking in any language as far as I know.

The second is an affix *\*m* to mark 2<sup>nd</sup> plural IMPERATIVE: Margi (II.A.2) singular **wì** ‘run!’, plural **wì-a-mə̀**; Mofu (II.A.5.b) singular **ca** ‘weave!’, plural **ca-m**; Gude (II.A.8) singular **dəm-ù** ‘enter!’, plural **dəm-óm**; Gidar (II.C.1) singular **á-zbǎ̀rə̀** ‘fall!’, plural **mə̀-zbǎ̀rə̀**. The source of the affix is the first plural pronoun, *\*mu* ‘we’, which is usually the *inclusive* form in languages that distinguish ‘we’ *exclusive* vs. *inclusive*. Indeed, in languages that have a 1<sup>st</sup> plural IMPERATIVE meaning ‘let’s...’, a form of the *\*mu* etymon is often incorporated, including in languages that use the **-m-** to mark 2<sup>nd</sup> plural. Compare the following forms with the 2<sup>nd</sup> person IMPERATIVES just above: Mofu **ca-ma-kwa** ‘let’s weave’, Gude **dəm-àam** ‘let’s enter!’, Gidar **mə̀ nzhá-m-sə̀-m-éŋ** ‘let’s sit!’.<sup>28</sup> There also languages that do not incorporate the *\*mu* etymon in 2<sup>nd</sup> plural but do incorporate it in 1<sup>st</sup> plural: Podoko **ykəsə̀ mǎ ykəsə̀** ‘let’s catch!’ in Central Chadic and West Chadic languages like Miya (**zàriy-má** ‘let’s call!’) and Bole (**bàsā-mù-yi** ‘let’s shoot!’), neither of which have a 1<sup>st</sup> person exclusive/inclusive distinction. My speculation is that use of **-m-** as a plural *second* person IMPERATIVE resulted from reinterpretation of 1<sup>st</sup> plural inclusive as being directed only to 2<sup>nd</sup> person, as in English phrases such as ‘let’s take our seats!’, said by the leader of a meeting, when the speaker may not be included among those taking their seats.

### 2.3.3. Masa

Languages of the Masa Branch for which verbal morphology data is available rely heavily on tone rather than segmental affixes for TAM marking. Jungraithmayr (1978d) provides a detailed description of a language/dialect in the Zime cluster.<sup>29</sup> Here I use data from the Masa language (IV.A.1) from Caïtucoli (1978). Tones in Masa and other Masa Branch languages are determined on two levels: phonological properties of verb stems and tone patterns that mark TAM. The relationship of tone to phonology can be

<sup>28</sup> Using **-m-** to mark 2<sup>nd</sup> plural IMPERATIVE is an innovation that seems to be confined to Central-A and Gidar, classified as Central-C by Newman (2013). Whether or not this can be used to unite Central-A and Central-C into a higher level group awaits further research.

<sup>29</sup> Zime data from my own field notes, collected in 1982 from Augustin Bembatim of Kelo, Chad, provides examples: PERFECTIVE **mī kīr** ‘he stole’, PROGRESSIVE **mī kīr** ‘he is stealing’, FUTURE **mī tá kīr** ‘he will steal’, **kīr** ‘theft’, **kīr** IMPERATIVE and INFINITIVE.

seen in VERBAL NOUNS, which are cited with the suffix */-na/*, a masculine gender suffix found in nearly all languages of the Masa Branch (**á** = H, **ā** = M, **à** = L).

**Table 12:** Masa tone and consonant types

Initial voiced obstruent + some nasals      Voiceless, glottal, glide, liquid + some nasals

<b>dùu-nà</b>	‘pound’	<b>tāp-nà</b>	‘join’
<b>zùt-nà</b>	‘be quiet’	<b>lēt-nà</b>	‘scrape’
<b>zòk-ŋà</b>	‘move’	<b>ḏūm-nà</b>	‘pay dowry’
<b>hàl-là</b>	‘jump’	<b>līk-ŋà</b>	‘swallow’
<b>mùs-nà</b>	‘wash’	<b>mōl-là</b>	‘round up animals’
<b>ŋàf-nà</b>	‘fight’	<b>nūs-nà</b>	‘swim’

Roots that have an initial modally voiced obstruent have L on the root syllable of a VERBAL NOUN; roots that have an initial voiceless or glottalized obstruent or a sonorant consonant other than a nasal have an initial M; roots beginning with a nasal unpredictably fall into L or M group. For CVC- roots, the suffix */-na/* is L; for CV- roots, it is H (**dà-ná** ‘say’, **zò-ná** ‘touch’, **ŋò-ná** ‘open’; **bē-ná** ‘mount’, **lī-ná** ‘take’, **ŋā-ná** ‘count’).

TAM examples are from the type 1 verb **hàl-là** ‘jump’. It is primarily the tone pattern associated with the root, pronominal suffixes, and the suffix vowel **-a** that distinguishes TAMs. The patterns differ between type 1 and type 2, but the principle of marking TAM contrast by tone is the same. Masa has suffixed pronouns for 1<sup>st</sup> and 2<sup>nd</sup> plural subjects. Following Caïtucoli, I illustrate each TAM with a 3<sup>rd</sup> singular and a 1<sup>st</sup> plural exclusive subject. All persons apparently require preverbal subject pronouns, which I include in the examples. Caïtucoli distinguishes two PERFECTIVES, but he does not discuss the functions of TAMs. He also does not give the form for the IMPERATIVE. (R = verb root, Pro = suffixed subject pronoun)

**Table 13:** Masa TAMs (Caïtucoli 1978)

TAM	TAM structure		
PERFECTIVE	R-H (Pro-M)-ā	<b>nàm fíal-ā</b>	‘he jumped’
		<b>núma fíal-mā-’ā</b>	‘we (excl) jumped’
PERFECTIVE II	R-H-í-ā	<b>nàm fíal-í-yā</b>	‘he jumped’
	R-H Pro-H-í-ā	<b>núma fíal-má-y-ā</b>	‘we jumped’
PRESENT	R-L-á	<b>nàm fíal-á</b>	‘he is jumping’
	R-L Pro-H-ā	<b>núma fíal-má-’ā</b>	‘we are jumping’
FUTURE	mà R-L-á	<b>nàm mà fíal-á</b>	‘he will jump’
	mà R-L Pro-H-ā	<b>núma mà fíal-má-’ā</b>	‘we will jump’
SUBJUNCTIVE	R-L (Pro-L)-à	<b>nàm fíal-à</b>	‘that he jump’
		<b>núma fíal-mà-’à</b>	‘that we jump’

The vowel **-a** seen in the examples is elided when something follows the verb, but its tone reverts to the preceding verb root: PERFECTIVE **nàm gār cáwnā** ‘he investigated’ (**gàa-rà** < /gār-nà/ ‘follow’ + **cáw-nā** ‘tail’), PRESENT **nàm gār cáwnā** ‘he is investigating’, SUBJUNCTIVE **nàm gār cáwnā** ‘that he investigate’. It does not revert to a preceding pronoun suffix: PRESENT **núma gār-má cáwnā** ‘we are investigating’, apparently not \***núma gār-má cáwnā**. One might think that this is because the light syllable **-ma-** cannot accommodate the shifted tone, but the tone does revert to light verb roots: PRESENT **nàm gī tūàmù** ‘he dove’ (**gī-ná** ‘throw’ + **tūà-nà** ‘body’).<sup>30</sup>

#### 2.3.4. East Chadic: East Dangaleat

Languages of the A and B Branches of East Chadic differ sharply in the typology of their verbal morphology. East-A languages have rather simple stems with some vowel alternations governed by low-level phonologically conditioned assimilations. TAM marking relies mainly on verb suffixes and/or proclitics. The TAM system of Kera (III.A.3) is described in detail in §7.2. Sibine/Somrai (III.A.1) is typologically similar, judging by the sketch in Jungraithmayr (1978b).

<sup>30</sup> The expected reverted tone from PRESENT **-á** would be H. but it is realized as M. I do not have an explanation for this.

East-B languages have far more complex TAM structure, involving suffixation, infixation, and vowel alternations that make stems based on the same root look quite different from each other. The remainder of this section will focus on the East-B language East Dangaleat, concluding with remarks on the nature of East-B stem structure.

East Dangaleat (III.B.1.a) data are from Ebobissé (1979), supplemented with items from Djibrine et al. (1973). A crucial feature of East Chadic-B TAM morphology is root shape. The most common root shapes are C-, CVC-, CVVC-, and CVC(i/u)C-. TAMs are differentiated by affixal morphology that is, in some cases, sensitive to root shape.

Tone also plays a role in differentiating TAMs, but tone is always a function of lexical tone of the verb, i.e. if one knows the lexical tone, the TAM tone can be supplied by rule. East Dangaleat has three tones: H (**á**), M (**a**), L (**à**). Verbs fall into two tone classes, which Ebobissé calls H (*Hochtonklasse*) and non-H (*Nichthochtonklasse*) based on the tones in the INFINITIVE (*Grundform*): H **té-ŋ** ‘eat’, **mát-é** ‘die’, **rúgúm-é** ‘cook’; non-H **sɛ-ŋ**<sup>31</sup> ‘drink’, **bèr-e** ‘give’, **nòsìr-e** ‘be right’. Ebobissé derives the tones for each TAM from these INFINITIVE patterns. In the table of TAMs, I include “TP” to indicate that there is a tone pattern derived from the respective INFINITIVE tones. The illustrative verbs are all of the H class.

**Table 14:** East Dangaleat TAMs (Ebobissé 1979)

TAM	TAM structure		
PERFECTIVE	INF+TP-e	<b>ŋà te-e</b>	‘he ate’
		<b>ŋà màt-e</b>	‘he died’
		<b>ŋà rugum-e</b>	‘he cooked’

<sup>31</sup> For the most part, tones are independent of segmental properties, but mono-consonantal roots all have INFINITIVES either of the form C**é**-ŋ in the H class or C**ɛ**-ŋ in the non-H class.

IMPERFECTIVE	CV, CVC+TP-a C <sub>1</sub> VC <sub>2</sub> aC <sub>3</sub> +TP-i	<b>ɲà tá-a</b> <b>ɲà mat-a</b> <b>ɲà rugam-i</b>	‘he is eating’ ‘he is dying’ ‘he is cooking’
HABITUAL	<b>ɲaa-Pro</b> + IMPERF. <sup>32</sup>	<b>ɲaa-k tá-a</b> <b>ɲaa-k mat-a</b> <b>ɲaa-k rugam-i</b>	‘he eats’ ‘he dies’ ‘he cooks’
FUTURE	Subj <b>aa</b> <sup>33</sup> INFINITIVE	<b>ɲaa té-ɲ</b> <b>ɲaa mát-é</b> <b>ɲaa rúgúm-é</b> <b>gɛɛm aa sɛɲ kòrrɛ</b>	‘he will eat’ ‘he will die’ ‘he will cook’ ‘the people will drink beer’
SUBJUNCTIVE	C-: TP+IMPERF Others: TP+IMPERF-u	<b>ɲà tá-a</b> <b>ɲà mát-ú</b> <b>ɲà rúgám-ú</b>	‘that he eat’ ‘that he die’ ‘that he cook’
SEQUENTIAL	= PERFECTIVE (p. 44)		
IMPERATIVE: 2 sg. 2 pl. 1 incl.	= SUBJUNCTIVE <b>Ca-àɲ</b> ; ROOT- <b>òɲ</b> <b>Ca-àntè</b> ; ROOT- <b>òntè</b>	<b>tá-a, mát-ú, rúgám-ú</b> <b>ta-àɲ, mat-òɲ, rúgum-òɲ</b> <b>ta-àntè, mat-òntè, rugum-òntè</b>	

In addition to the simple TAMs, East Dangaleat can form a DURATIVE base with a suffix **-aaw-** for mono- or biconsonantal roots and an infix **-aa-** in triconsonantal roots. This base allows formation of DURATIVE PERFECTIVE, FUTURE, SUBJUNCTIVE, and IMPERATIVE. If I understand Ebobissé’s explanation, the DURATIVE TAMs indicate an activity that was repeated over time, whereas the IMPERFECTIVE indicates an activity that itself spans time. DURATIVE + IMPERFECTIVE is an incompatible combination. Compare

<sup>32</sup> The source and the exact meaning of **ɲaa** (Ebobissé 1979:31, 81) is not clear. It is not the **ɲà(a)** 3<sup>rd</sup> masculine singular pronoun of other paradigms. There 3<sup>rd</sup> m.s. is **ɲaa+k**.

<sup>33</sup> Ebobissé (1979:60) cites the verboid **daa** ‘go’ as the source of the **aa** future marker. He gives two ways to form the FUTURE: a set of special FUTURE pronoun subjects and the clitic **aa**. The pronouns themselves appear to derive from the simple subject pronouns merged with **aa** but retaining the vowel quality of the pronoun, e.g. 1<sup>st</sup> sg. **no+aa** → **noo**, 2<sup>nd</sup> m.sg. **kí+aa** → **kíi**, 2<sup>nd</sup> pl. **kú+aa** → **kúu**, etc.

the examples below to the corresponding simple TAMs above (called *Punktual* by Ebobissé).

INFINITIVE	DURATIVE-PERFECTIVE	DURATIVE SUBJUNCTIVE	
<b>té-ŋ</b>	<b>tiy-àaw-e</b>	<b>tíy-áaw-ú</b>	‘eat’
<b>mát-é</b>	<b>mat-àaw-e</b>	<b>mát-áaw-ú</b>	‘die’
<b>kàaw-e</b>	<b>kàaw-e</b>	<b>kàw-aaw-ù</b>	‘speak’
<b>bàkìl-e</b>	<b>bàk-àa-l-e</b>	<b>bàk-aa-l-ù</b>	‘eat soft foods’

It is important to go into some descriptive detail concerning the forms of the various TAM stems. The table below gives examples of all the common stem shapes and, for each shape, an example of each stem shape with each of the seven vowels (the V of CV verbs is always e/ɛ). All examples are from the H tone class except for **ròm-ɛ** ‘dry’—Ebobissé (1979) includes no examples of H CVC- roots with the root vowel /ɔ/. It seems that the DURATIVE stem is not freely formed from all roots. I have included only DURATIVE bases that are attested in Ebobissé (1979) or in Djibrine et al. (1973). These are not marked for tone since that will vary according to the TAM.

**Table 15:** East Dangaleat verbs (Ebobissé 1979)

	INFINITIVE	PERFECTIVE	IMPERFECTIVE	DURATIVE STEM
C-				
eat	<b>té-ŋ</b>	<b>te-e</b>	<b>tá-a</b>	<b>tiy-aaw-</b>
drink	<b>sɛ-ŋ</b>	<b>sɛ-ɛ</b>	<b>sa-a</b>	<b>siy-aaw</b>
CVC				
bicker	<b>gíd-é</b>	<b>gìd-e</b>	<b>gíd-a</b>	
help	<b>gún-é</b>	<b>gùn-e</b>	<b>gun-a</b>	
jump	<b>bér-é</b>	<b>bèr-e</b>	<b>ber-a</b>	<b>ber-aaw-</b>
hold	<b>dédy-é</b>	<b>dèdy-ɛ</b>	<b>dedy-a</b>	
reject	<b>tód-é</b>	<b>tòd-e</b>	<b>tođ-a</b>	
dry	<b>ròm-ɛ</b>	<b>ròm-ɛ</b>	<b>ròm-à</b>	
die	<b>mát-é</b>	<b>màt-e</b>	<b>mat-a</b>	<b>mat-aaw-</b>



CVVC-				
break apart	<b>dyíim-é</b>	<b>dyiim-e</b>	<b>dyíim-í</b>	<b>dyim-aaw-</b>
plug a hole	<b>túudy-é</b>	<b>tuudy-e</b>	<b>túudy-í</b>	
be thick	<b>néer-é</b>	<b>neer-e</b>	<b>néer-í</b>	
crush	<b>ηέεδ-έ</b>	<b>ηèεδ-ε</b>	<b>ηέεδ-ί</b>	
greet	<b>óol-é</b>	<b>ool-e</b>	<b>óol-í</b>	<b>ol-aaw-</b>
bring near	<b>nyóws-έ</b>	<b>nyows-ε</b>	<b>nyóws-ί</b>	
jump	<b>áal-é</b>	<b>aal-e</b>	<b>áal-í</b>	<b>al-aaw-</b>
CVCC-				
squeeze, corner	<b>dírdy-é</b>	<b>dirdy-e</b>	<b>dírady-í</b>	<b>dir-aa-dy-</b>
mystify	<b>úrs-é</b>	<b>urs-e</b>	<b>úrás-í</b>	<b>ur-aa-s-</b>
make a knot	<b>kérs-é</b>	<b>kers-e</b>	<b>kérés-í</b>	
sweat	<b>téng-έ</b>	<b>teng-ε</b>	<b>téneg-ί</b>	
lie face down	<b>zóbK-έ</b>	<b>zobk-e</b>	<b>zóbók-ί</b>	
dsew	<b>órp-έ</b>	<b>orp-ε</b>	<b>óróp-ί</b>	<b>or-aa-p-</b>
mix dry things	<b>sárk-έ</b>	<b>sark-e</b>	<b>sárák-ί</b>	
CVCi/uC-				
throw down	<b>síkír-έ</b>	<b>sikir-e</b>	<b>síkár-ί</b>	
be silent	<b>búgúm-έ</b>	<b>bugum-e</b>	<b>búgám-ί</b>	<b>bug-aa-m-</b>
flame up	<b>zéwír-έ</b>	<b>zewir-e</b>	<b>zéwér-ί</b>	
lean on elbow	<b>tékíl-έ</b>	<b>tekil-ε</b>	<b>tékél-ί</b>	
listen	<b>tyókíy-έ</b>	<b>tyokiy-e</b>	<b>tyókóy(i)</b>	
close	<b>sókúm-έ</b>	<b>sokum-ε</b>	<b>sókóm-ί</b>	
work together	<b>tápír-έ</b>	<b>tapir-e</b>	<b>tápár-ί</b>	

## NOTES:

(1) Vowel harmony: Both East and West Dangaleat have vowel harmony with respect to the mid vowels. Within a word (a root and any affixes) all mid vowels must be either “tense” (e, o) or “lax” (ɛ, ɔ). Epenthetic **i/u** in CVCi/uC- roots is transparent to harmony—cf. **tékíl-é** ‘lean on the elbow’, **sókúm-é** ‘close’, where the suffix is **-ɛ** despite the intervening **-i-** and **-u-**.

(2) Epenthetic vowels in triconsonantal roots: C<sub>1</sub>VC<sub>2</sub>C<sub>3</sub>- and C<sub>1</sub>VC<sub>2</sub>**i/u**C<sub>3</sub>- roots are in complementary distribution, determined by a “sonority” scale (see, e.g., Murray and Vennemann 1983, Clements 1992, and Zec 1995). This scale is defined as:

More sonorous ← Glides - Liquids - Nasals - Implosives - Fricatives - Modal stops → Less sonorous

If C<sub>2</sub> is less sonorous than C<sub>3</sub>, the consonants must be separated by an epenthetic **i** or **u**. Generally speaking, **u** is chosen if the vowel in the preceding syllable is round, **i** otherwise. Disallowing sequences of consonants that clash in sonority in this way is ubiquitous in Chadic languages.

(3) Formation of IMPERFECTIVE stems: The methods of marking IMPERFECTIVE stems are in complementary distribution by root type:

- CV- and CVC- roots (i.e. verbs with a light root syllable) suffix **-a**. The root vowel of all CV roots is underlyingly a front mid vowel (e/ɛ), which assimilates to the suffix **-a**.
- Triconsonantal roots infix **/-a-/** between C<sub>2</sub> and C<sub>3</sub>.<sup>34</sup> If the root vowel is non-high, the infixed IMPERFECTIVE marker assimilates to the root vowel. These roots suffix **-i**, which might be viewed as a “default” suffix—all verbs must end in a vowel before pause. The real IMPERFECTIVE affix is the infixed **/-a-/**, corresponding to the suffixed **-a** of CV- and CVC- roots.
- CVVC- roots add the “default” suffix **-i** with no overt root change (other than tone). Like CVCC- roots, CVVC- roots have a heavy root syllable. One might think of them as having a “hidden” IMPERFECTIVE infix that is absorbed by the long root vowel.

<sup>34</sup> One could generalize over CVC- and CVCC- roots by a rule that inserts the IMPERFECTIVE **/a/** after the second root consonant.

(4) Formation of DURATIVE stems: DURATIVE stems add a suffix **-aaw-** to roots with one or two consonants and an infix **-aa-** between  $C_2$  and  $C_3$  of triconsonantal roots. To the DURATIVE stem are added the vowel suffixes characteristic of the TAMs (see examples preceding the table). CV roots have the root shape  $Ci-$  with epenthetic /y/ before the DURATIVE stem suffix. CVVC- roots shorten the root vowel in adherence to a restriction against long vowels in consecutive syllables (Ebobissé 1979:17, 73).<sup>35</sup>

In papers dating back to the 1960s, Jungraithmayr has argued that languages of the East-B Branch of Chadic such as Mubi, Migama, Mokilko, and others preserve traces of an ancient Afroasiatic heritage in their verbal systems, *see* Jungraithmayr (1968b, 1974, 1975a, 1978, among others). A most recently summary of the theory is found in Jungraithmayr (2012). The hypothesis is that these languages make extensive use of *apophony* in forming verb stems, that is, building verb stems from consonantal skeletons by infixation of vowels, internal vowel alternations, and internal vowel and/or consonant lengthening. Jungraithmayr likens the alternations seen in these languages to stem formation found, for example, in Berber in PERFECTIVE/IMPERFECTIVE pairs such as Tamazhaq **i-kras/i-karras** ‘build’, **i-ywis/i-tiywas** ‘cry in pain’, **i-kkarad/i-takarad** ‘make an effort’ (Alojaly 1980). In a system like the Berber one, such morphological distinctions cannot be derived phonologically—the morphology is, in part, vowel patterns that are idiosyncratic to particular verb classes and are superimposed on roots.

Assuming that East Dangaleat is representative of systems of TAM stem formation in East-B languages, its TAM stem morphology shows that it is of a different nature from an “apophonic” system like that of Berber. The only apparent resemblance between Berber and East Dangaleat is *infixation* of IMPERFECTIVE /a/ in triconsonantal roots, but in East Dangaleat there is a single IMPERFECTIVE affix, /a/, with complementary distribution as a suffix or an infix depending on root shape. The form of the IMPERFECTIVE affix is not an idiosyncratic property of particular lexical verb classes. All vowel alternations in stems are phonologically, not morphologically driven: vowel harmony for roots with mid vowels, epenthetic **i/u** for  $/C_1VC_2C_3-/$  roots where  $C_2$  is less sonorous than  $C_3$ .

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<sup>35</sup> Djibrine et al. (1973) shows the root vowels of all CVVC- roots with the DURATIVE suffix as long. There may be dialectal variation, or the compilers of the dictionary may have chosen not to mark the vowels as short, considering this to be an automatic alternation.

Newman (1977c) challenged the hypothesis that TAM stem formation in Chadic languages can be likened to the morphologically determined apophony found in Berber and Semitic. Rather, the vowel alternations seen in Chadic languages are innovations that have arisen through phonological changes associated with affixation at the Chadic (sub)group level.

Newman (1977c) looked at data from Mubi (taken from Jungrathmayr 1973) to make essentially the same point as I have made for the East Dangaleat data, but the nature of the Mubi data made Newman's arguments seem more tentative and speculative than the straightforward picture presented by the East Dangaleat data. Here is a sample of the data that Newman cited:

**Table 16:** Mubi (Newman 1977c)

ROOT	GLOSS	VERBAL NOUN	PERFECTIVE	IMPERFECTIVE
1. CV <sub>[+HIGH]</sub> C	be silent	<b>súúl-í</b>	<b>sòl</b>	<b>súl-là</b>
	cook	<b>rííb-í</b>	<b>reb</b>	<b>ríf-fà</b>
2. CV <sub>[+LOW]</sub> C	weave	<b>rád-é</b>	<b>rát</b>	<b>rid-át</b>
3. CVCi/uC	urinate	<b>fara'j-é</b>	<b>feríc</b>	<b>fír-á-c</b>
	approach	<b>'jemeg-é</b>	<b>'jemík</b>	<b>'jim-é-k</b>
	ruminant	<b>golo'j-é</b>	<b>golúc</b>	<b>gul-ó-c</b>

The VERBAL NOUN has a suffix **-í** following a high vowel, **-é** elsewhere; the PERFECTIVE has no suffix; and the IMPERFECTIVE has affixes reminiscent of those for East Dangaleat except that the **-a** suffix for CVC- roots is part of a reduplicative suffix.<sup>36</sup>

Newman (1977c) proposes that the IMPERFECTIVE is based on the root of the VERBAL NOUN. Class 1 adds a suffix **-C<sub>2</sub>à**; class 2 adds a reduplicative suffix **-áC<sub>2</sub>**;<sup>37</sup> class 3 is

<sup>36</sup> If one compares the Mubi VERBAL NOUN with the East Dangaleat IMPERFECTIVE, the resemblance is even closer: CVVC- roots suffix **-i**, and the root vowel and infix vowel in triconsonantal roots match the root vowel. It may, therefore, be the case that stem types in East-B languages have shifted in function.

<sup>37</sup> Depending on where one designates morpheme boundaries, class 2 could be analyzed as adding a reduplicates infix C<sub>1</sub>-VC<sub>2</sub>-C<sub>2</sub>V. This is the analysis that is called for in many West Chadic pluractionals.

simply the VERBAL NOUN root with H tone on -VC<sub>3</sub>. Newman derives the high vowel in the initial syllable of the IMPERFECTIVE by a dissimilation rule, raising the root vowel before a non-high vowel. Thus, contrary to the proposal that the IMPERFECTIVE is derived by apophony from the “unmarked” PERFECTIVE, it is actually the PERFECTIVE that shows what looks like apophony, at least within the morphological system of modern Mubi.

East Dangaleat evidence provides a likely source of this apparent PERFECTIVE apophony in Mubi. East Dangaleat data make it likely that the Mubi PERFECTIVE at one time was marked by a suffix vowel, probably \*-e, to which the root vowel assimilated; the original root vowels for all classes are still seen in the VERBAL NOUN. The PERFECTIVE vowel suffix was apocopated,<sup>38</sup> which, in class 3, would have left an impossible word final \*CC cluster. This was repaired by an epenthetic **i** or **u** depending on the environment. The high vowels in the second syllables of the PERFECTIVE forms are thus part of Mubi phonology and are irrelevant to morphological stem formation.

Formation of TAM stems in East Dangaleat<sup>39</sup> shows how affixation combined with application of straightforward phonological rules can result in stems that look dissimilar from TAM to TAM. Phonological erosion and assimilation in some languages, like Mubi, has obscured the original system to the point where one can argue that it is the internal alternations themselves that mark stem type. What is important from examination of the East Dangaleat and Mubi data is that vowel alternations in the verbal systems of these languages are of an entirely different nature from Berber and Semitic apophony. The rather remarkable systems of TAM stem formation in East-B languages is innovative at the level of East-B within Chadic. They are not even an inheritance from an earlier stage of Chadic, much less from an Afroasiatic ancestor.

#### 2.4. Negative TAMs and TAMs in clauses with questioned or focused constituents

Under negation or in sentences where some constituent is questioned or focused, TAMs are often marked in a way that differs from the corresponding TAMs in

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<sup>38</sup> Apocopation of vowels when not phrase final is common throughout Chadic, including East-B languages.

<sup>39</sup> Data from Jungraithmayr (1975) shows that stem forms in Migama can be derived from affixation and phonology in a way similar to East Dangaleat.

affirmative declarative clauses. Here are examples from languages of different branches of West and Central Chadic comparing PERFECTIVE in an affirmative declarative sentence, the same clause in the negative, and a comparable clause with a questioned direct object.

Hausa (I.A.1):	<b>sun kāwō kuđi</b>	‘they brought money’
	<b>bà sù kāwō kuđi ba</b>	‘they <u>did not</u> bring money’
	<b>mè sukà kāwō?</b>	‘ <u>what</u> did they bring?’
Bole (I.A.2.a):	<b>m̄ montū Bamoi</b>	‘I know Bamoi’
	<b>m̄ monū Bamoi sa (*m̄ montū Bamoi sa)</b>	‘I <u>don</u> ’t know Bamoi’
	<b>m̄ monū lè? (*m̄ montū lè?)</b>	‘ <u>what</u> do I know?’
Miya (I.B.2.a):	<b>à zar sáy</b>	‘he called’
	<b>à zar má-w (*à zar say má-w)</b>	‘he did <u>not</u> call’
	<b>à zar wêe?</b>	‘ <u>who</u> did he call?’
Tera (II.A.1):	<b>woyá wà na nèmáləm</b>	‘the boy saw the teacher’
	<b>woyá nè na nèmáləm bá</b>	‘he <u>didn</u> ’t see the teacher’
	<b>woyá na kí-a?</b>	‘ <u>who</u> did the boy see?’ (= UNMARKED)
Bura (II.A.2):	<b>tsà kó bàrà</b>	‘he sought’
	<b>ts-á-dí bàrà wà</b>	‘he <u>didn</u> ’t seek’ (= UNMARKED)
	<b>w-àn tó Hámàn bàrà rí?</b>	‘ <u>who</u> did Haman seek?’ (= UNMARKED)
Gude (II.A.8):	<b>kó ’yír Húmtí àlín</b>	‘Humti bought eggs’
	<b>mà dór mē Húmtí àlín</b>	‘Humti <u>did not</u> buy eggs’
	<b>mì ’yír Húmtí aa?</b>	‘ <u>what</u> did Humti buy?’
Gidar (II.C)	<b>à zbór-kà</b>	‘he fell’
	<b>dó zbór bà</b>	‘he <u>did not</u> fall’
	<b>mí Tizi à hál dì?</b>	‘ <u>what</u> did Tizi steal?’
Podoko (II.A.4.a):	<b>a tə-la tə ya ɗafa</b>	‘I cooked <i>tuwo</i> ’ (reduplicated V root /tə/)
	<b>a tə-la yó ɗafó la</b>	‘I <u>did not</u> cook <i>tuwo</i> ’
	<b>a tə-la tawə ndi na?</b>	‘ <u>what</u> did one cook?’

[*Tuwo* is the Hausa term for the the staple food dish, typically eaten with *miya* ‘sauce’.]

Let us compare first the affirmative and negative clauses. In every case, morphological marking that is required, or at least characteristic of the affirmative is absent in the negative. In Hausa, a special set of PERFECTIVE subject pronouns (3<sup>rd</sup> plural **sun** in the example) is replaced by a simple CV pronoun (**sù**) with L tone, the pronoun also seen in the SUBJUNCTIVE, which is, in some sense, the unmarked TAM.<sup>40</sup> In Bole and Miya, a morpheme generally called the TOTALITY marker (**-tù** in Bole, **sáy** in Miya), whose presence is frequent in affirmative PERFECTIVE statements, results in ungrammaticality if it is included in a negative clause. In Schuh (2005), I argue that rather than “totality” being a term used to describe what is thought of as a verbal extension, a better characterization of these morphemes is *auxiliary focus*, i.e. focus on the action or the TAM, which is the default in the absence of explicit focus elsewhere (see Chapter 7). In Bura, Gude, and Gidar, a PERFECTIVE morpheme **kV** required in affirmative statements is absent in negatives. In Tera, the PERFECTIVE morpheme **wà ~ à** is replaced in the negative by a special NEGATIVE PAST form **nə̀**. Finally, in Podoko, which reduplicates the verb in affirmative PERFECTIVE statements (**tə...tə** in the example), verb reduplication is illicit in negative clauses. See §2.3.2.2 for an account of verb reduplication in the PERFECTIVE.

Jarvis (1989:81), referring to Podoko, provides a unified account of these facts: “Si la proposition est négative, il n’y a pas de possibilité de focalisation. Il semble que la négation est une sorte de focalisation et qu’elle n’est pas compatible avec une autre focalisation dans la même proposition.” In other words, it is not so much the case that these languages “substitute” a different way of expressing PERFECTIVE in negative clauses as it is a case of shifting focus from the TAM to the negative. In noting that the TAM translated as a NEGATIVE PERFECTIVE is often a morphologically unmarked form, one is drawn back to Welmers’ (1973) label FACTATIVE (§2.2.1) for this TAM.

Turning to clauses with a questioned direct object, those of us familiar with Hausa have had a tendency to be on the look out for a special RELATIVE TAM that is, itself, an indicator of focus—note the substitution of RELATIVE PERFECTIVE **sukà** for **sun** in the

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<sup>40</sup> Newman (2000:593ff.) proposes a separate “NEUTRAL” TAM that is formally identical to but historically and functionally distinct from the SUBJUNCTIVE, an analysis with which I disagree (Schuh 2003c); nevertheless, the “neutral” function is unquestionably one of the uses of the SUBJUNCTIVE.

Hausa examples. In most of the other languages sampled here, however, the TAM form in clauses with a questioned object is similar to, if not identical to the negative, aside from the fact that all the languages except Hausa and Bole have a clause final question marker. In Bole, the *tù* “TOTALITY” suffix is illicit in constituent questions, as is the *sáy* of Miya. In Bura, Gude, and Gidar, the **kV** PERFECTIVE morpheme is absent (in Bura, *tó* is probably a copula—“who is it that Haman sought?”); similarly, in Tera the PERFECTIVE morpheme (**w**)*à* is absent. In Podoko, the verb form in the question is identical to that in the negative.

In short, the concept of special TAMs that mark focus has the situation backward for most languages. It is actually “neutral” affirmative statements that have the “special” TAMs, viz. those that place default focus on the action or the TAM itself. Once some other element preempts focus, the TAM reverts to a relatively “unmarked” status.

### 3. Subject Agreement

The typical Chadic method of showing verbal subject agreement is clitic pronouns. The overwhelming most common form is proclitics, the systematic exception being languages that have basic VSO order—see examples from Podoko in §3.3.2.2 and Gude in §5. Typical subject clitics have CV form, giving them a “prefixal” look, but “clitic” is a better designation for most, if not all languages, because TAM marking elements often intervene between the clitic and the verb. See examples in Miya (§3.3.1.1), Ron-Kulere (§3.3.1.4), Bura (3.3.2.1), and East Dangaleat (§3.3.4). A common feature is specific obligatory clitics in 1<sup>st</sup> and 2<sup>nd</sup> persons, but no clitic at all in 3<sup>rd</sup> person or a generic TAM marking clitic for all third persons. Overt pronominal 3<sup>rd</sup> person subjects, if used at all, would be expressed with independent pronouns. A fairly typical system is that of Duwai (I.B.1).<sup>41</sup> Duwai speakers prefer to overtly express 3<sup>rd</sup> person pronominal subjects, parenthesized in the table, but these would be absent were there a nominal subject. In the SUBJUNCTIVE all third persons require a clitic *tə*, which is neutral for gender and number.

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<sup>41</sup> An atypical feature for all the languages of the Bade group (I.B.1) is lack of differentiation of subject clitics between 2<sup>nd</sup> masculine and feminine singular, which these languages do distinguish in other functions, e.g. Duwai independent pronouns *kì* ‘you (m.s.)’, *kəm* ‘you (f.s.)’



The illustrative verb is **ə̀ɣnó** ‘accept, take’. The initial ə̀ is elided following a vowel but its tone is retained.

**Table 17:** Duwai (Schuh field notes)

	PERFECTIVE	SUBJUNCTIVE	IMPERFECTIVE
1 sg.	<b>yí-ɣnó</b>	<b>yì-ɣní</b>	<b>yí-ɣnùwó</b>
2 sg.	<b>kâ-ɣnó</b>	<b>kà-ɣní</b>	<b>ká-ɣnùwó</b>
3 m. sg.	<b>(icî) ɣnó</b>	<b>(icí) tà-ɣní</b>	<b>(icí) ɣnùwó</b>
3 f. sg.	<b>(itâ) ɣnó</b>	<b>(itá) tà-ɣní</b>	<b>(itá) ɣnùwó</b>
1 pl. excl.	<b>gè-ɣnó</b>	<b>gè-ɣní</b>	<b>gí-ɣnùwó</b>
1 pl. incl.	<b>gù-ɣnó</b>	<b>gù-ɣní</b>	<b>gú-ɣnùwó</b>
2 pl.	<b>kû-ɣnó</b>	<b>kù-ɣní</b>	<b>kú-ɣnùwó</b>
3 pl.	<b>(ə̀kshî) ɣnó</b>	<b>(ə̀kshí) tà-ɣní</b>	<b>(ə̀kshi) ɣnùwó</b>

### 3.1. Prefix and suffix conjugation

A few languages use suffixes rather than proclitics to express subject agreement. In some languages, some persons have suffixes where other persons have proclitics. An example is Masa (IV.A.1), seen in §2.3.3, which suffixes 1<sup>st</sup> and 2<sup>nd</sup> plural agreements. Lele (III.A.2) has proclitics for 1<sup>st</sup> and 2<sup>nd</sup> persons but shows 3<sup>rd</sup> person agreement with suffixes. The illustrative verb is **hím** ‘gather’.

**Table 18:** Lele (Simons n.d.)

SINGULAR		NON-SINGULAR	
1	<b>ɣ́ hím</b>	1 dual	<b>ɣ̀gā hím</b>
2 m.	<b>gī hím</b>	1 excl.	<b>nī hím</b>
2 f.	<b>mē hím</b>	1 incl.	<b>ɣ̀gā hím-ɣ̀gú</b>
3 m.	<b>hím-dí</b>	2	<b>ɣ̀gū hím</b>
3 f.	<b>hím-dú</b>	3	<b>hím-gé</b>

The languages that best exemplify suffixed subject agreements are some of the languages of East Chadic-B. Jungrathmayr (1987:49) lists East Dangaleat (III.B.1.a), Bidiya

(III.B.1.a), and Mubi (III.B.1.b) as languages that have both preverbal and suffixed subject agreement<sup>42</sup> whereas Migama (III.B.1.a), Birgid (III.B.1.a), and Mokilko (III.B.2) have only preverbal. Note that these groupings do not break down along genetic lines. It is unlikely that the languages that have suffixed subject agreement developed it independently, meaning that it is probably a feature of an early stage of East-B that has been lost in some languages.<sup>43</sup> Below are examples from East Dangaleat (Ebobissé 1979:106-109). Only PERFECTIVE and IMPERFECTIVE TAMs have suffixed conjugations. Ebobissé calls the suffix **-tè** in the PERFECTIVE the *Perfektsmorphem*. It is deleted when an object suffix is present: **hòò bèègé àn-dyi-dyì** ‘and the prince told him’

PERFECTIVE	<b>ɲà às-e</b>	‘he came’	<b>às-dyi-tè</b>	‘and he came’
IMPERFECTIVE	<b>tyà dyàlag-ì</b>	‘she cooks’	<b>dyàlag-gìtí</b>	‘and she cooks’
	<b>ɲà tá-a</b>	‘he eats’	<b>tá-a gìdyi</b>	‘and he eats’

Ebobissé (1979:Chapter 6) calls constructions with suffixed subject agreement *Relativformen*, explaining, “...da sie sich auf eine schon geäußerte sprachliche Mitteilung beziehen und nie im ersten Satz eines Textes stehen können. Diese Formen bringen eine semantische Abhängigkeit der Handlung eines Satzes von dem Vorhergehenden zum Ausdruck und werden in den nachfolgenden Ausführungen, wie bereits erwähnt, Relativformen genannt.” Jungrathmayr (1987:53-55), based on analysis of forms in two Bidiya folktales, lists environments where the suffixed form prevails, among them sequential events in a narrative, relative clauses, and sentences with elements preposed for focus. He explicitly notes that in these tales “das präponierte PERFEKT nur selten vorkommt, meist nur zur Feststellung von Tatsachen (Konstative)...oder bei Vorzeitigkeit.”

<sup>42</sup> Jungrathmayr uses the verb *präponieren* for preverbal agreements and *suffigieren* for postverbal agreements. This jibes with the intuition expressed in §3 that preverbal agreements are clitics but postverbal are affixes.

<sup>43</sup> Jungrathmayr (1987:53) argues against historically associating East-B suffix agreements to Intransitive Copy Pronouns (ICP) found in a number of West Chadic languages, a view with which I concur.

Outside of East Chadic-B, Margi (II.A.2) (Hoffmann 1963:175 ff.) has alternative prefixed or suffixed agreement patterns in the PRESENT and PAST, but not in other TAMs.

PRESENT	<b>n-ì-áwì</b>	= <b>áwì yá</b>	‘I run’
	<b>nà-g-áwì</b>	= <b>áwì gá</b>	‘you run’
PAST	<b>n-ì-áwìrì</b>	= <b>áwìr yá</b>	‘I ran’
	<b>nà-g-áwìrì</b>	= <b>áwìr gá</b>	‘you ran’

Hoffmann (1963) says nothing about functional differences between the two agreement patterns. One wonders whether the suffixed agreement may reflect an earlier period of VSO syntax—the closest relatives of Bura group languages are VSO languages of northern Cameroon, such as Wandala and Podoko, whereas Bura group languages about only SVO languages to the west and south. Closely related Bura has only preverbal agreements, but as in East Chadic B, loss in Bura (and probably other languages of the Bura group) seems more likely than innovation in Margi.

Tera (II.A.1) (Newman 1970a:126, 151) is normally a straightforward SVO language with preverbal subject pronouns. However, in the subjunctive (indicated optionally by a marker **kə̀**) and negative commands, the pronoun is suffixed to the verb, e.g. (tone not marked):

<b>dole rək-ŋa məjin ye baba</b> perforce send-I money to dad)	‘I must send money to my father’
<b>kabu kab-ndi dama, wa pura ngha</b> before plant-he farm ∅ perf. hoe well	‘before he planted the farm, he hoed it’
<b>Musa a ndola kə ci-mi taza</b> Musa cont. want sjn. do-we singing	‘Musa wants us to sing’
<b>kə vər-mi dlu ye-nda</b> sjn. give-we meat to-him	‘let’s give him some meat !’
<b>masa-na pərsa ɓa</b>	‘don’t (you sg.) buy the horse!’
(cf. <b>moso pərsa</b> ‘buy the horse!’ (with the special imperative form indicated by ablaut on the verb))	
<b>masa-nu pərsa ɓar ɓa</b>	‘don’t (you pl.) sell (lit. “buy away”) the horse!’

Note that this suffixation applies only to pronouns. Nouns remain in preverbal position, e.g. **kabu kə Madu kaɓ dama wa pura ngha** ‘before Madu planted the farm, he hoed it’.

The historical path leading to some languages developing suffixed subject agreement is an unsolved mystery. In the East-B languages it seems to be related to functional backgrounding of the event (see discussion of TAMs in negative and focused constructions in §2.4), but how this could effect postposing subject agreement is unclear. Whatever the exact source of suffixed subject agreement patterns, however, they bear no relation to the so-called suffix conjugations found in Afroasiatic cousins of Chadic.

### 3.2. Plural subject agreement

A number of languages in both the West and the Central Branches have plural subject agreement morphology. It may be significant that the agreement marker is a nasal suffix.

**Table 19:** Plural subject agreement

	SINGULAR SUBJECT		PLURAL SUBJECT	
Bole (I.A.2.a)	<b>ñ gàndu-wò</b>	‘I lay down’	<b>mu gànd-an-gò</b>	‘we lay down’
	<b>ka gàndu-wò</b>	‘you (m) lay down’	<b>mă gànd-an-gò</b>	‘you lay down’
	<b>gàndu-wò</b>	‘he lay down’	<b>gànd-an-go</b>	‘they lay down’
Mofu (II.A.5.b)	<b>ya wey</b>	‘I got drunk’	<b>ya w-am</b>	‘we (ex.) got drunk’
	<b>ka wey</b>	‘you got drunk’	<b>ka w-am</b>	‘you got drunk’
	<b>a wey</b>	‘he got drunk’	<b>a w-am</b>	‘they got drunk’
Gidar (II.C.1)	<b>nè tón-kò</b>	‘I entered’	<b>mù tón-kò*</b>	‘we entered’
	<b>kù tón-kò</b>	‘you entered’	<b>kù tòng-ón-kò</b>	‘you entered’
	<b>à tón-kò</b>	‘he entered’	<b>à tòng-ón-kò</b>	‘they entered’

\*Gidar does not have plural subject agreement for 1<sup>st</sup> person.

Another type of quasi-plural agreement is found in many languages: with an *intransitive* verb, a pluractional verb form (Chapter 8) is required, or at least strongly preferred when the subject is plural, but with a *transitive* verb, the pluractional is required or strongly preferred if the object is plural. Here are examples from Pero (I.A.2.b)

(Frajzyngier 1989:86, 115), Podoko (II.A.4.a) (Jarvis 1989:78), and Lele (III.A.2) (Simons n.d.). The Podoko examples have suppletive pairs of non-pluractional and pluractional verbs. Pluractionals in Lele are derived with a suffix **-wi**.

**Table 20:** Pluractional verbs

Pero		
INTR.	<b>tà kúf-ée-nì</b> 'he will resist'	<b>mìnì kúfjì-ée-mù</b> 'we will resist'
TR.	<b>nì dǐg-kò mínà</b> 'I have built a house'	<b>nì dǐkkújù-kó mínà</b> 'I have built many houses'
Podoko		
INTR.	<b>a mǎtsə mǎtsə mǎnda ba hekəŋa</b> 'the person died immediately'	<b>a rəwaha rəwə ta</b> 'they died'
TR.	<b>a kəsá kəsə ndi mǎtsəra</b> 'one has caught a thief'	<b>a mbáha mbahə ndi mǎtsərakáka</b> 'one has caught thieves'
Lele		
INTR.	<b>gùná pìnà bǎ</b> 'one peanut fell'	<b>gùná něny bòi-gé /bà-wí-gé/</b> 'many peanuts fell'
TR.	<b>ŋ hál kālō pìnà</b> 'I stomped one snake'	<b>ŋ hál-wí kālō něny</b> 'I stomped many snakes'

Descriptions of a number of other languages mention this relationship but do not provide satisfactory contrasting examples. For example,

Zaar (I.C.1.a) (Caron 2005:214) "Plural verbs, or 'pluractionals' mark agreement with a plural subject in case of intransitive verbs, and repeated or distributed action in case of transitive verbs."

Mubi (III.B.1.b) (Jungraithmayr 2013:82) [following an example of plural object agreement] "Il est évident que la pluralité se rapporte à l'object de l'action. S'il s'agit d'un verb intransitif, la pluralité se rapporte à la fréquence de l'action et/ou au sujet de l'action."

Above, I referred to this as "quasi-plural agreement". Unlike true plural subject agreement as illustrated with the data from Bole, Mofu, and Gidar, the type of agreement illustrated by Podoko and Lele and mentioned for other languages is (semi-) grammaticalization of a pragmatic association. Most Chadic languages have a way to

form pluractional verbs (see Chapter 8) which, by definition, indicate multiple actions. For intransitive verbs, multiple actions would most often involve multiple subjects, and for transitive verbs, multiple actions would most often involve multiple objects. In some languages, these pragmatic tendencies have led to a default choice of pluractional verb forms in the respective intransitive and transitive contexts.

Even in languages that have grammaticalized pluractionals in this way, however, pluractional forms can be used for any plural event, even if no plural participants are involved. For example, Jarvis (1989:78) says, “[Le thème pluriel] traduit la pluralité d’un autre participant dans l’action,” citing examples like INTRANSITIVE **a dawə bá a ysəgó yá dá kwasákwa** ‘I (yá) would habitually go on foot to the market’ and TRANSITIVE **a ytalawə utsəkə gana** ‘the squirrel (**gana**) touched the chicken (**utsəkə**) several times’. Frajzyngier (1989:85) says, “There is a third function which has been alluded to [in addition to plural subjects or objects], and that is simply of indicating an action performed many times.”

Moreover, in at least some languages that have grammaticalized pluractionals with plural referents, use of non-pluractionals does not result in ungrammaticality in the same contexts. For example, perusing examples in Frajzyngier (1989), one finds examples of plural subjects of non-pluractional verbs, e.g. (p. 117) **píddi gbàráam-ì fèl-kò-ée-cù** ‘some sticks broke’. (-kò is the PERFECTIVE suffix, -cù is the Intransitive Copy Pronoun, showing that the verb is intransitive, and -ée- is a formative required before an ICP.)

In short, pluractional formation, essentially a derivational process, has, in some languages, been drawn into the verbal inflectional system to a greater or lesser extent. However, the fact that pluractionals are not restricted to argument agreement in any language and the variability to which argument agreement is a grammatical requirement suggest that it is an innovation that has taken place independently numerous times, triggered by pragmatic tendencies and, perhaps, bolstered by areal influences. It cannot, however, be viewed as part of the verbal inflectional system reconstructable to a high level in the Chadic family.

Nor does it have anything to do with ergativity, as hinted at in Frajzyngier (1984). Ergativity refers to a relation between an argument and a predicate (*absolute* case for

objects of transitive verbs and subject of intransitives). Chadic pluractionality has to do with plurality of action, not argument structure.

#### 4. Ngamo<sup>44</sup>

##### 4.1. Lexical verb classes

Ngamo verbs fall into the five lexical classes described for Bole by Lukas (1971-72) and reconstructed for West Chadic in Schuh (1977b). Features distinguishing the classes emerge most clearly in the PERFECTIVE and the SUBJUNCTIVE. The table below illustrates each class in the form the verb would take with a third person singular subject (which has no overt agreement marking) in the unextended PERFECTIVE (§4.3.1), the PERFECTIVE with the TOTALITY EXTENSION (Chapter 7, §6.3), and the SUBJUNCTIVE (§4.3.2).

**Table 21:** Ngamo verb forms

CLASS	UNEXTENDED PERFECTIVE	PERFECTIVE W. TOTALITY EXT.	SUBJUNCTIVE (UNEXTENDED)	
A1	<b>ngàr-kô</b>	<b>ngar-kò</b>	<b>à ngàrí</b>	‘tie’
A2	<b>biskâ</b>	<b>biski-t-kò</b>	<b>à biskê</b>	‘accept’
B	<b>bàsâ</b>	<b>bàsa-t-kò</b>	<b>à bèsê</b>	‘shoot’
C	<b>tù-kô</b>	<b>tu-t-kò</b>	<b>à tôi</b>	‘eat’
D	<b>wâ</b>	<b>wa-t-kò</b>	<b>à wê</b>	‘get’

*Class A1* comprises CVC- roots with  $\emptyset$  stem vowel in all forms in the PERFECTIVE and -i stem vowel in the SUBJUNCTIVE when no object follows.

*Class A2* comprises all roots that are “longer” than CVC- (CVVC-, CVCC-, and all polysyllabic roots/stems). For Gudi Ngamo, the stem vowel of the SUBJUNCTIVE is -e, reconstructable for proto-Bole-Tangale. The expected Bole-Tangale PERFECTIVE stem

<sup>44</sup> Throughout this section I have marked tone where I marked it on elicited data (grave accent (**à**) = L, circumflex (**â**) = H, unmarked (**a**)= H). Long vowels are marked with a macron (**ā**). Some examples are drawn from texts in which tone and vowel length were not marked. I have left those as they appeared.

vowel for this class would be **-u**,<sup>45</sup> but in modern Gudi Ngamo, the unextended PERFECTIVE has a stem vowel **-a** because of a change  $*\text{ROOT-}u_{\text{STEM V}}\text{-kò}_{\text{PERF}} > \text{ROOT-}\hat{a}$  (via  $-\text{o}'\hat{o} > -\hat{o}$ , still seen in Yaya Ngamo **bisk-o'ò** = **bisk-ô**). In the Gudi Ngamo PERFECTIVE plus TOTALITY (marked by **-t-**), the **-t-k-** sequence prevented the stem vowel+suffix conflation, but here, an epenthetic **-i-** rather than a “real” stem vowel shows up.

*Class B* comprises CVC- roots with **-a** stem vowel in the PERFECTIVE and **-e** stem vowel in the SUBJUNCTIVE. This is the reconstructable proto-Bole-Tangale configuration, although the unextended PERFECTIVE has undergone the conflation  $*\text{ROOT-}a_{\text{STEM V}}\text{-kò}_{\text{PERF}} > \text{ROOT-}\hat{a}$ , parallel to the similar conflation for Class A2 verbs.

*Class C* comprises monoconsonantal C- roots with a stem vowel **-u** in the PERFECTIVE<sup>46</sup> and an idiosyncratic looking **-oi** in the SUBJUNCTIVE (see discussion in §4.3.2).

*Class D* comprises monoconsonantal C- roots with the reconstructable Bole-Tangale stem vowel **-a** in the PERFECTIVE and stem vowel **-e** in the SUBJUNCTIVE, though like Class B verbs, the unextended PERFECTIVE form in the table, **wâ** ‘he got (it)’, has undergone the conflatory change  $*\text{ROOT-}a_{\text{STEM V}}\text{-kò}_{\text{PERF}} > \text{ROOT-}\hat{a}$ .

Tones of the five classes can be predicted on the basis of class and TAM. The basic tone pattern for all Bole-Tangale verbs is (L)H (H on the last or only syllable, L on all preceding syllables). For the forms in the table above, this looks like it almost works for Gudi Ngamo, even though it has undergone the GREAT NGAMO TONE SHIFT (GNTS) (Chapter 5, §6 and Schuh 2009). The only exception is **tù-kô** ‘he ate (it)’. The expected pattern is found in Yaya Ngamo **tu-kò**, which has not undergone the GNTS.

## 4.2. Subject agreement

All Ngamo verbal predicates use the same set of CV subject agreement proclitics. There are special agreement clitics only for 1<sup>st</sup> and 2<sup>nd</sup> person. Third persons do not have overt agreement clitics. In 3<sup>rd</sup> person, simple pronominal subjects are typically not

<sup>45</sup> Cf. Karekare **bisk-u-kàu**, Bole **bikk-u-wò-yi** ‘he accepted (it)’.

<sup>46</sup> The verb ‘do’ has the form **ì-kô** in the unextended PERFECTIVE. This looks like it could be a reduction of  $*\text{yu-ko}$  (cf. Hausa **yi** ‘do’), but there is a contrasting verb with PERFECTIVE **yù-kô** ‘he poked’. The verb ‘do’ must thus be regarded as a slightly irregular Class C verb.



expressed overtly, but the independent pronouns are used if overt pronominal expression is needed for some reason. The 1<sup>st</sup> and 2<sup>nd</sup> person Bole-Tangale agreement clitics originally had L on 1<sup>st</sup> person singular, H on all others. In the Gudi dialect of Ngamo, which has undergone the GNTS, all pronominal clitics have L tone, and the H of originally H clitics has shifted to the first syllable of the verb. Another feature of Bole-Tangale subject agreement is that verbs in the PERFECTIVE add a plural subject agreement suffix, **g**, to the roots for all plural subjects. Here is a paradigm of the verb **shir-** ‘steal’ in the unextended PERFECTIVE illustrating (1) L clitics with original tones shifted to the first syllable of the verb, (2) absence of clitics for third person subjects, and (3) the plural subject suffix **-an**. The suffix **-kô** marks PERFECTIVE. Karekare illustrates the original pronoun tones.

**Table 22:** Ngamo and Karekare pronoun paradigms

SINGULAR		Karekare		PLURAL		Karekare	
1	<b>nè shìr-kô</b>	<b>nà cìru-kò</b>	1	<b>mù shìr-àn-kô</b>	<b>mu cìr-an-kò</b>		
2 m.	<b>kò shìr-kô</b>	<b>ka cìru-kò</b>	2	<b>ngù shìr-àn-kô</b>	<b>ku cìr-an-kò</b>		
2 f.	<b>shì shìr-kô</b>	<b>ci cìru-ko</b>					
3 m.	<b>shìr-kô</b>	<b>cìru-kò</b>	3	<b>shìr-àn-kô</b>	<b>cìr-an-kò</b>		
3 f.	<b>shìr-kô</b>	<b>cìru-kò</b>					

### 4.3. TAMs

Ngamo has five TAMs: PERFECTIVE, SUBJUNCTIVE, FUTURE (both an inflected and a periphrastic form), HABITUAL, and IMPERATIVE. The primary indicators of TAM differences are inflections of the verb. In most cases inflections are changes in stem vowels, but the PERFECTIVE has a suffix **/-ko/** that shows up in some environments, tones play a role, and extensions (5) vary in form from TAM to TAM. All TAMs except the IMPERATIVE can be negated by adding **bù** to the end of the clause. The IMPERATIVE uses the negative of the SUBJUNCTIVE. Ngamo does not have special TAM forms for “relative” environments (relative clauses, WH-questions, focus). In this chapter I discuss

only verbs with no extensions and no pronoun objects. Both of these parameters are marked by suffixes that themselves play a role in TAM marking.

#### 4.3.1. Perfective

The PERFECTIVE with an active verb marks an event as being viewed as complete, and with a stative verb, it indicates existence of a state.

Declarative (active):	<b>nè <u>tùko</u> <u>dàmi</u></b>	‘I have taken an oath’ (“I <u>ate</u> an anvil”)
	<b>zòrì <u>batkô</u></b>	‘the rope <u>broke/has broken</u> ’
Declarative (stative):	<b>zuwe wonse <u>kolko</u> <u>suga</u></b>	‘this <i>kunu</i> <u>tastes</u> of sugar’
Negative (active):	<b>màntà bò kàdīnis <u>mùrkò</u> sī bù</b>	‘his knowledge of the ways of the world didn’t <u>save</u> him’
Negative (stative):	<b>kànnì ’yòuko bù</b>	‘he is not <u>troubled</u> ’ (“his head is wet”)
WH-question:	<b>Sauna <u>kaja</u> <u>miya?</u></b>	‘what did Sauna <u>buy?</u> ’
	<b><u>Bo’ota</u> soto ki Saunai lo?</b>	‘who <u>sold</u> the <i>kosai</i> to Sauna?’

The PERFECTIVE indicates anteriority to a time of reference, i.e. the action of an active verb is viewed as completed and a state is viewed as having been achieved and still existing. The unmarked time of reference is the time of speaking, making the past tense or present perfect the normal English translation for active verbs and the English present for statives. However, if the time of reference is the past, translation is usually pluperfect, and future time of reference, future perfect. In the following example from a tale, the speaker sets the time of reference in the past by saying **tin ai kutei bu** ‘before today’ (lit: “since didn’t do today”).<sup>47</sup>

**Ai, ka na-n mano-ti ai tin ai kutei bu na-n an-ko uska na-k dari-t-ko.**

‘Well, had I known before today and I had told you the remedy, you would have been cured.’

<sup>47</sup> I apparently didn’t elicit any examples where a future perfect translation would be called for, and I couldn’t find any in texts. The verb **manō-** ‘know’ in the example is irregular and defective, hence it does not have a PERFECTIVE form like those described below. Both this verb and **dāri-t-ko** ‘get well, be cured’ have the TOTALITY extension, but this is unrelated to the anterior sense of the PERFECTIVE TAM.

The PERFECTIVE without extensions or pronominal object affixes is marked by the stem vowel associated with lexical class and a suffix */-ko/*. Both these indicators are retained with  $\emptyset$ , nominal, and pronominal direct objects. In the case of pronouns, a direct object is expressed in the form of an independent pronoun, which behaves syntactically like a noun object. The table below shows the five verb classes in the PERFECTIVE, with singular and plural subject and with  $\emptyset$  object, a nominal direct object, and a 3<sup>rd</sup> plural pronominal direct object.

**Table 23:** Ngamo verb classes

CL.	SUB. #	$\emptyset$ OBJECT	N OBJECT	3 PL. PRO. OBJ.	
A1	SING.	<b>ngàrkô</b>	<b>ngàrko tèmshì</b>	<b>ngàrko nzùnî</b>	tied (a sheep)
	PL.	<b>ngàrànkô</b>	<b>ngàràngo tèmshì</b>	<b>ngàràngo nzùnî</b>	
A2	SING.	<b>bìskâ</b>	<b>bìska tèmshì</b>	<b>bìska nzùnî</b>	accepted (a sheep)
	PL.	<b>bìskànkô</b>	<b>bìskàngo tèmshì</b>	<b>bìskàngo nzùnî</b>	
B	SING.	<b>bàsâ</b>	<b>bàsa bò'ì</b>	<b>bàsa nzùni</b>	shot (a duiker)
	PL.	<b>bàsànkô</b>	<b>bàsànkô</b>	<b>bàsàngo nzùni</b>	
C	SING.	<b>yùkô</b>	<b>yùko àdà</b>	<b>yùko nzùni</b>	poked (a dog)
	PL.	<b>yànkô</b>	<b>yàngo àdà</b>	<b>yàngo nzùni</b>	
D	SING.	<b>wâ</b>	<b>wa òyù</b>	<b>wa nzùni</b>	got (money)
	PL.	<b>wànkô</b>	<b>wàngo òyù</b>	<b>wàngo nzùni</b>	

The verbs remain unchanged with or without object except that the final falling tones seen with  $\emptyset$  objects are simplified to H when an object follows. This is a general rule affecting all word final falling tones and is not particular to VERB+OBJECT constructions (Schuh 2010). As discussed in §4.1, Classes A2, B, and D have merged their historical lexical stem vowels (\*-u, \*-a, \*-a respectively) with the PERFECTIVE suffix */-ko/* so that with singular subjects, verbs in these classes now all end in **-â/-a**. This phonological merger did not take place with the stem vowel **-u** of Class C verbs (\***yu-kò** > **yù-ko**, not

**\*yâ**). The plural subject suffix **-an-**, which ends in a consonant, “protected” the **-k-** of the PERFECTIVE suffix in all classes. The **-a-** of the **-an-** plural subject suffix elides the lexical stem vowel, neutralizing the Class A1 vs. B and Class C vs. D distinctions. The tone pattern of **ROOT+an+ko** would have originally been LHL, but the GNTS has shifted this pattern one domain to the right, giving LLH+L (Bole **bàs-an-gò-yi**, Karekare **bàs-an-kò** vs. Gudi Ngamo **bàsànkô** ‘they shot’)

#### 4.3.2. Subjunctive

In Schuh (2009:9), a study of functions of the SUBJUNCTIVE in West Chadic languages, I characterized the SUBJUNCTIVE as follows:

The SUBJUNCTIVE signals an event which will have its inception subsequent to the moment of speaking and/or to an event in a superordinate clause. The temporal, aspectual, and modal (= TAM) interpretation of the event represented by the SUBJUNCTIVE is dependent on that of the superordinate clause or operator.

Environments that typically fit this characterization are exhortations, complements of various kinds (following expressions of desire, causation, necessity, fittingness, possibility, and others), clauses expressing purpose, ‘before’ clauses, and direct sequence to a preceding event in narrative and descriptive texts. Following are examples of some of these types:

Exhortations: **Ndeyi kasshe-ko ei disak domko**  
 ‘may Allah protect-you from the evils that lie ahead of you’

**ɗongo ne moi si** ‘let me see him first’

Negative imperative: **kò ɗap bo yōbi bù** ‘don’t pay any attention to him’  
 (don’t follow the edge of his)

Complements of

‘want’: **nè ndàlo nè sè shāyi** ‘I want to drink tea’

of necessity: **Sarak a wolo dole a dambe dom.**  
 ‘A hand that flays has to touch blood.’

‘before’ clause: **kàbù nè ndùtù** ‘before I come’

Purpose clause: **i goyou ye ne moyi** ‘play the game so that I might see (it)’

Sequence after future: **ne gonno oha wuyo ne malin-ko** ‘I will dig a hole and bury you’

Sequence in narrative:

**Nduko<sub>PERF</sub> ban turum, a zop bo, turum a lafi sai a dol si ta, “Lolo?”**

‘when he arrived<sub>PERF</sub> at the house of the lion, he announced himself (he put mouth), the lion responded and asked him saying, “What is it?”

Sequence in procedural text (generic, timeless):

**Na bei an<sub>PERF</sub> hoti jo, ko go ko nam eli jo, ko some sura domkoi’ye.**

‘When the place was hot (“made<sub>PERF</sub> sun”), you would go and take some earth, and you would begin to cauterize your forepart.’

The SUBJUNCTIVE is marked by distinctive vowel suffixes. Unlike the PERFECTIVE, there is a single form for all persons, i.e. verbs are not inflected for singular vs. plural subjects. In Gudi Ngamo, third person subjects use a proclitic **à**, which seems to be optional if a noun subject is present (**sai zonge a huple si ta...** ‘then hyena abused him saying...’ vs. **sai turum ani-k zonge ta...** ‘then the lion spoke to the hyena saying...’). First and second person subjects use agreement clitics instead of **à** (**nè èrinnò** ‘that I stand up’, **ngù erìtkù** ‘that you (pl.) stand up’, etc.).

**Table 24:** Ngamo SUBJUNCTIVE

CL.	Ø OBJECT	N OBJECT	3 PL. PRO. OBJ.	
A1	<b>à ngàrî</b>	<b>à ngàr temshì</b>	<b>à ngàr nzùnî</b>	tie (a sheep)
A2	<b>à bìskê</b>	<b>à bìskè temshì</b>	<b>à bìskè nzùnî</b>	accept (a sheep)
B	<b>à bèsê</b>	<b>à bèsè temshì</b>	<b>à bèsè nzùnî</b>	shoot (a sheep)
C	<b>à yôi</b>	<b>à yò temshì</b>	<b>à yò nzùnî</b>	poke (a sheep)
D	<b>à wê</b>	<b>à wè temshì</b>	<b>à wè nzùnî</b>	get (a sheep)

The primary inflectional sign of the SUBJUNCTIVE is a suffixed front vowel: **-i** in Class A1 verbs, **-e** in Classes A2, B, and D. The **-i** of A1 verbs is elided when it is not phrase final. Class B verb that have **/-a-/** in the root change this to **[-e-]**.<sup>48</sup> Class C looks anomalous—one would expect “**Ci**”, parallel to Class A1, since A1 and C seem to be a

<sup>48</sup> This fact may not require a special statement for SUBJUNCTIVE. There are virtually no words in Ngamo of the form CaCe, with short **/-a-/** in the first syllable.

formal pair in a number of ways. It is a feature of Bole-Tangale languages that Class C SUBJUNCTIVE uses a stem **Co-** or **Ca-** to which the SUBJUNCTIVE inflection **-i** is added: Karekare **yàyi** (cf. **yò-si** with TOTALITY extension **si-**), Bole **yài**, Yaya Ngamo **yō-'i**). Among Bole-Tangale languages, the SUBJUNCTIVE tone pattern is (L)H. In Gudi Ngamo, this has become all L by the GNTS. I do not understand the final F on the Ø object forms. Word final F is usually the result of a pattern  $*...HL > ...LH+L$ , whereas these verbs would have originally had the pattern  $*...LH$ .

#### 4.3.3. Future

FUTURE meaning can be expressed with an inflected verb or with a periphrastic construction with a verb meaning ‘go’.

*4.3.3.1. Inflected Future.* I use the term FUTURE to describe this TAM because its most frequent translation in texts is English or Hausa future.<sup>49</sup> In elicitation, probably the most frequently volunteered translation of the Hausa future is the Ngamo periphrastic future (5.3.3.2), but the inflected FUTURE is also volunteered, and it is more common in narrative texts than the periphrastic future. As with the SUBJUNCTIVE (§4.3.2), third person subjects use a proclitic **à**, which can be deleted following a noun subject, whereas 1<sup>st</sup> and 2<sup>nd</sup> person subjects use the regular subject clitics.

**Table 25:** Ngamo FUTURE

CL.	Ø OBJECT	N OBJECT	3 PL. PRO. OBJ.	
A1	<b>à ngarâi</b>	<b>à ngara temshì</b>	<b>à ngara nzunî</b>	will tie (a sheep) / (them)
A2	<b>à biskà</b>	<b>à biskà tèmshì</b>	<b>à biskà nzunî</b>	will accept (a sheep)
B	<b>à besè</b>	<b>à besè tèmshì</b>	<b>à besè nzunî</b>	will shoot (a sheep)
C	<b>à yîná</b>	<b>à yîná tèmshì</b>	<b>à yîná nzunî</b>	will poke (a sheep)
D	<b>à wèná</b>	<b>à wèná tèmshì</b>	<b>à wèná nzunî</b>	will get (a sheep)

<sup>49</sup> It is also cognate to, and functionally similar to Lukas’s (1970-72) FUTURE in Bole.

The verb forms of the FUTURE are formally identical to the *gerunds* of the respective verbs, i.e. the predictable verbal nouns, and for some verbs, the only forms volunteered when eliciting verbal nouns. In their function as FUTURE verb forms, however, they must be considered finite verbs since they take all the same extensions and pronominal complement as TAMs that have unequivocal finite verb forms (PERFECTIVE, SUBJUNCTIVE, IMPERATIVE).

As noted above, the interpretation of the FUTURE TAM is usually that the inception of the action will take place after the time of reference. The default time of reference is the time of speaking, making English future the most usual translation. I assume that Ngamo, like other West Chadic languages, could also be used when the time of reference is past and the usual English translation would be “was about to”, but I didn't elicit examples with this context and have not found any in texts. (See §4.3.3.2 for a couple of examples of the periphrastic FUTURE with this interpretation.) Formally, the FUTURE corresponds to the general IMPERFECTIVE in languages of the region, and in some cases, a *progressive* interpretation seems to fit.

**ko sena bone** ‘you will experience (drink) trouble’

**Ndino unu ke a mena unu.** ‘He came black and he’ll go back black.’  
(Proverb: “He’ll never change.”)

**Rayis na esheno<sub>PERF. VENT.</sub> ham ye ke ham ye a duga te.**

‘The bird that called the rain, the rain will beat her.’

**A gizo a mara ki ngeje.** ‘The blacksmith cultivates with a worn out hoe.’

**moishe gyam ruko ada mala si, a mala si, a mala si**

‘then the ram went in and the dog was burying him and burying him and burying him’

Negative: **Deinommus a hoda muni bu fa!**

‘Our staying here will not remove us (from trouble) I tell you!’

**A ina bu ai!** ‘That just won’t do!’

WH-Question: **Kaiso ne ina lolok zonge ye?**

‘Now what am I going to do about the hyena?’

4.3.3.2. *Periphrastic Future with the verb ‘go’*. In elicitation, the Hausa future is probably most often translated in Ngamo with a verb meaning ‘go, be on one’s way’. This is an irregular verb using the following roots: PERFECTIVE **ndu-**, Progressive **is-ko** (which is PERFECTIVE in form, with the **-ko** suffix, but progressive in meaning), SUBJUNCTIVE/IMPERFECTIVE **go-** (an invariable root).<sup>50</sup> By far the most common form is **go-** + Intransitive Copy Pronoun. In 1<sup>st</sup> person singular and third person, at least, the clitic subject agreement may be omitted. The periphrastic FUTURE almost always uses a form of the root **go-**, but the last example below shows that the **is-** root can be used to indicate progressive activity with a future goal. I have found no examples of the **ndu-** root as a FUTURE auxiliary nor did I try to elicit this.

**à gonnì ràdà tēri** ‘he will weed a ridgerow’

**gōnnì mbàda-na kì lipra** ‘he will poke me with a needle’

**gonno fita-di magani kanni** ‘I will sprinkle medicine on it’

**Na ko gotko hada mushei ke ko had yo a shidar.**

‘If you’re going to eat carrion, eat a fat one.’

(Proverb: “If you are going to make a mistake, make it a big one.”)

**ne sara-ko gamani ko go ā-ni ta...**

‘I will send<sub>INFLECTED FUT</sub> you to him and you will say to him quote...’ (no ICP on go)

**moishe zonge gukmenok ton da’ur gonnì ngaha ada.**

‘then the hyena jumped out from inside the basket and he was going to seize the dog’

**moishe Keketembi is-ko gedfe, moishe jo kotko shekento**

‘then Keketembi was going to go in, and then she too struck her foot’ (**is-** root)

#### 4.3.4. *Habitual*

Classes A1, C, and D form the HABITUAL by adding a suffix **-she**. This suffix also forms derived nominals for most verbs in these classes.<sup>51</sup> HABITUAL for Classes A2 and

<sup>50</sup> The root **go-** and the way it is used has a striking phonological convergence with English. Despite the fact that I know of no Bole-Tangale cognates for this word, it is certainly not a loan from English. The only English influence on Ngamo consists of a few loanwords acquired indirectly through Bole or Hausa.

<sup>51</sup> In Bole, the cognate suffix is used only with A1 verbs and only to form derived nominals. Bole forms its HABITUAL using the inflection ROOT-**o**]<sub>H</sub>, which is the default derived nominal pattern for A2 verbs. For



B differ from the inflected FUTURE only in tone. I do not have a plausible story for how this tonal distinction arose.

**Table 26:** Ngamo HABITUAL

CL.	Ø OBJECT	N OBJECT	3 PL. PRO. OBJ.	
A1	à ngàrshê	à ngàrshê temshì	à ngàrshê nzùnî	tie (sheep) / (them)
A2	à bìskà	à bìskà oyù	à bìskà nzùnî	accept (money)
B	à bèsé	à bèsé bo’i	à bèsé nzunì	shoot (duikers)
C	à yìshê	à yìshê temshì	à yìshê nzùnî	poke (sheep)
D	à wèshê	à wèshê temshì	à wèshê nzùnî	get (sheep)

The HABITUAL usually indicates customary activity, though in the right contexts it can also indicate progressivity, where it seems to overlap with the inflected FUTURE. The HABITUAL is unmarked for time and can thus refer to customary events in the past (as in narrative) or timeless customary events, translatable by English simple present.

Past time:

**si kullum, a dukno milla bidanshe’e, a ndishe a ishe luma banonni, lumas me a bese bo ngo pau!**

‘he (the squirrel), when he killed children of the monkeys, he would come, he would make miya at his house, [and] that miya would strike (“shoot”) the mouth of a person *pau*!’ (i.e. is was very tasty)

Timeless: **inta uskai a gomta si ki lui zuk zonge**

‘well this medicine, one assembles it from the meat of a hyena’s body’

Progressive: **Mu anshe bo tilimu.**

‘We were freely expressing our minds.’

Ngu opshe miya?

‘What are you (pl) digging up?’

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example, the root ‘yor- ‘stand up’ has the derived verbal noun ‘yòrshê, FUTURE à ‘yòra, HABITUAL à ‘yoro. Bole Class C and D verbs resemble Ngamo in adding a HABITUAL suffix **-sho**, e.g. root **mā-** ‘return’, FUTURE à **mēnà**, HABITUAL à **mēsho**. This Bole Class C and D HABITUAL suffix adds the **-o** HABITUAL inflection to a base ROOT-**sh-**, apparently from a verbal noun type that no longer exists for these verb classes in Bole.

Negative: **Goraji tische lumak gabte bu baya dolma ngapshe ngo bu.**

‘Young men do not eat *miya* of senna because (then) charms won’t take effect on a person.’

WH-Question: **Si wo’oto’i banotko ye, ko ishe si-k miya a ishe ze ka’a ye?**

‘This food from your house, what do you make it with [that] it tastes good (“does pleasantness”) like that?’

There are two further formal characteristics of HABITUAL morphology that the table above does not illustrate. First, HABITUAL stems add **-n-** when the verb bears any suffix. The suffixes that can be added to verbs in the HABITUAL are the following:

Indirect object pronouns:	<b>à ngàr-she-n-tò</b>	‘he ties for her’
TOTALITY extension:	<b>à ngàr-she-n-tì</b>	‘he ties (it) up’
ADDITIVE extension:	<b>à ngàr-she-n-dì</b>	‘he ties (it) there/that way’

Second, in contrast to other TAMs, the HABITUAL does not permit formation of VENTIVE stems. For example, though the FUTURE can form a VENTIVE as in **à ndìnà<sub>FUTURE</sub>/à nditù<sub>VENTIVE FUTURE</sub>** ‘he will go/he will come’, the HABITUAL has **à ndìshê** ‘he goes’, but not **\*à ndìshetu** (‘he comes’). There is no semantic clash that would explain this restriction. The etiology of the restriction seems to be the fact that the form of the HABITUAL is based on a verbal noun which, itself, does not have a VENTIVE counterpart. Originally finite verb forms have special VENTIVE stem morphology, but there is only one VENTIVE verbal noun, related to the verb form used in the FUTURE. A VENTIVE HABITUAL would require invention of a novel stem, and Ngamo has chosen not to do this.

#### 4.3.5. Imperative

Ngamo has special IMPERATIVE forms for addressees that include the 2<sup>nd</sup> person: 2<sup>nd</sup> singular, 2<sup>nd</sup> plural, and 1<sup>st</sup> plural inclusive. IMPERATIVES can be used only in the affirmative. Negative commands are expressed in the SUBJUNCTIVE (§4.3.2). I elicited IMPERATIVES only with Ø objects and with a 3<sup>rd</sup> feminine singular object pronoun (expressed with the independent pronoun **tê** ‘her’ when the verb has no extensions).

Examples from texts show that verbs take the same forms before noun objects as before this pronoun object.

**Table 27:** Ngamo IMPERATIVE

CL.	SUB. #	Ø OBJECT	3 F.SG. PRO. OBJ.	
A1	2 <sup>ND</sup> sg.	<b>ngàrî</b>	<b>ngàr tê</b>	tie (her)!
	2 <sup>ND</sup> pl.	<b>ngàràî</b>	<b>ngàrà tê</b>	
	1 <sup>ST</sup> pl.	<b>ngàrà-mù</b>	<b>ngàrà-mu tê</b>	
A2	2 <sup>ND</sup> sg.	<b>biskî</b>	<b>biskî tê</b>	accept (her)!
	2 <sup>ND</sup> pl.	<b>biskâî</b>	<b>biskà tê</b>	
	1 <sup>ST</sup> pl.	<b>biskâ-mù</b>	<b>biskâ-mu tê</b>	
B	2 <sup>ND</sup> sg.	<b>bìsì</b>	<b>bìsì tê</b>	shoot (her)!
	2 <sup>ND</sup> pl.	<b>bàsâî</b>	<b>bàsà tê</b>	
	1 <sup>ST</sup> pl.	<b>bàsà-mù</b>	<b>bàsà-mu tê</b>	
C	2 <sup>ND</sup> sg.	<b>yûi</b>	<b>yû tê</b>	poke (her)!
	2 <sup>ND</sup> pl.	<b>yâi</b>	<b>yà tê</b>	
	1 <sup>ST</sup> pl.	<b>yâ-mù</b>	<b>yâ-mu tê</b>	
D	2 <sup>ND</sup> sg.	<b>wî</b>	<b>wî tê</b>	get (her)!
	2 <sup>ND</sup> pl.	<b>wâi</b>	<b>wà tê</b>	
	1 <sup>ST</sup> pl.	<b>wâ-mù</b>	<b>wâ-mu tê</b>	

The canonical inflections for singular and plural IMPERATIVE are **-i** and **-a** respectively, inflections found throughout Bole-Tangale and Bade-Ngizim languages, and probably reconstructable for proto-West Chadic. The 1<sup>st</sup> plural shares **-a-** with 2<sup>nd</sup> plural, but the vowel is lengthened, and a suffix **-mu** ‘we’ is added. This is not the Intransitive Copy Pronoun, which, unlike the 1<sup>st</sup> plural IMPERATIVE suffix, is used only with intransitive

verbs and is not added by obligatory morphological rule. Class B and Class C have inflectional parallels with the SUBJUNCTIVE of the same classes. In §4.3.2, I pointed out that Class B roots of the form /CaC-/ → [CeC-] when the SUBJUNCTIVE suffix **-e** is added. In the singular IMPERATIVE, Class B /CaC-i/ → [CiC-i]. This is a morpheme-specific alternation for the singular IMPERATIVE, i.e. there are many words that have the phonetic shape CaCi. In §4.3.2, I pointed out further that the Class C SUBJUNCTIVE **Co-i**, with a stem vowel **-o-**, is idiosyncratic. The same holds for the singular IMPERATIVE **Cu-i**, with stem vowel **-u-**. Compare the Ngamo Class C IMPERATIVE to Karekare **yî** ‘poke!’ and Bole **yîi** ‘poke!’, which simply add the 2<sup>nd</sup> singular suffix **-i** to the verb base.

## 5. Gude

### 5.1. Lexical verb classes

Underived verbs<sup>52</sup> fall into lexical classes defined by three cross-cutting parameters: *stem vowel*, *verbal noun suffix*, and *tone* of the stem. The table below summarizes the possible verb types in a hierarchical structure, working left to right with one or two examples of each type.<sup>53</sup>

Verbs fall into two major classes depending on whether the stem has  $\emptyset$  or **-a** as a final stem vowel. In addition to these major classes, there is a class comprising two monoconsonantal roots that have **-aa** as the stem vowel (**nzaa-** ‘sit, stay’, **baa-** ‘spend the night’).

<sup>52</sup> “Underived” here means verbs without extension affixes (see Chapter 7).

<sup>53</sup> Hoskison (1983:84) singles out stems ending in [a’a] as a special type, e.g. **pa’an** (PERFECTIVE. **pya**) ‘close’. **tàkòra’an** (PERFECTIVE. **tàkòryà**) ‘roll between hands’. He gives PERFECTIVE forms as ending in ...**a’a**, but I found that PERFECTIVES for verbs of this type always end in glottal stop. Examination of the lexicon shows that there are many words with the sequence **a’a** but none with the sequence **a’a**. Gude must have a rule /ə/ → [a] /**a’**\_\_\_. I therefore include verbs of this type in the  $\emptyset$  stem class, which adds an epenthetic [ə] before a consonantal suffix.

**Table 28:** Gude verb types

STEM TYPE	VN TYPE	BASE TONE	VERBAL NOUN	PERFECTIVE		
Ø stem V <sup>54</sup>	<b>-n</b>	H	<b>ḍərən</b>	<b>’yir</b>	buy	
			<b>takurən</b>	<b>takwir</b>	dally	
		L	<b>ɣwùsən</b>	<b>ɣwùsh</b>	laugh	
			<b>kələbən</b>	<b>kəlɪb</b>	stir	
			<b>dzəgunən</b>	<b>jəgwiny</b>	learn	
	<b>-na</b>	(L)	<b>vəna</b>	<b>vì</b>	give	
			<b>gərna</b>	<b>gyìr</b>	grow up	
	<b>-a</b> stem V	<b>-n</b>	H	<b>ḍan</b>	<b>ḍì</b>	do, happen
				<b>təḍan</b>	<b>təḍì</b>	stretch
			L	<b>səban</b>	<b>səbi</b>	chase
<b>-na</b>		(L)	<b>dzàna</b>	<b>dzi</b>	beat	
			<b>kùràna</b>	<b>kùri</b>	look	
<b>-aa</b> stem V	<b>-n</b>	(H)	<b>nzaan</b> <sup>55</sup>	<b>nzaa</b>	sit, stay	

These stem classes further fall into two classes depending on the type of verbal noun they take: a suffix **-n**, which is the Stage 2 article found on concrete nouns, or a suffix **-na**, unique to verbal nouns.<sup>56</sup> For Ø stem verbs, the two types of verbal nouns are distributed roughly equally, but for **a** stem verbs, the **-n** type of verbal nouns is much more common.

Finally, stems are classified as to tone. All verbs with **-na** verbal nouns have L tone stems, but tone must be lexically specified for verbs with **-n** verbal nouns. Ideally, one

<sup>54</sup> The termination **ən** of the verbal nouns consists of an epenthetic **-ə-** plus an **-n** suffix.

<sup>55</sup> Hoskison (1983:84) writes **ndzaa-**. The distinction between /z/ and /dz/ is neutralized after /n/.

<sup>56</sup> Hoskison (1983:25) implies that the **-na** type verbal noun is somehow derived from the **-n** type. I prefer to view the two types of verbal nouns as involving distinct, lexically determined suffixes.

would like to speak of “H” stems and “L” stems, and this almost works, but for stems of two or more syllables that start on a L, it is necessary to distinguish LL- from LH-stems.<sup>57</sup> Note that there are no \*HL- stems, i.e. regardless of the number of syllables, if the first syllable of a stem bears H, the entire stem bears H pitch. Using the three parameters of *stem vowel*, *verbal noun type*, and *tone*, we can refer to verb classes as “Ø-n-H”, “a-na-L”, etc.

To get an idea of how these classes are distributed, I counted the number of underived stems for each of the types in Table 28. Figures can be seen in Table 29 below. The figures are for verbs from lexical material that I collected and include just those verbs where I collected both a verbal noun and a PERFECTIVE form, which is an important diagnostic as will be shown below.

**Table 29:** Frequency of verb stems in Gude

STEM TYPE	VN TYPE	BASE TONE	STEM TYPE	NUMBER	% TOTAL	
Ø stem V	-n	H	CVC	68	21.5%	40.7%
			> 2 C's	7	2.2%	
		L	CVC	9	2.8%	
		LL	> 2C'	10	3.2%	
		LH	> 2 C's <sup>†</sup>	35	11%	
	-na	(L)	C	8	2.5%	29.7%
			CVC	86	27.1%	
	-a stem V	-n	H	Ca	15	4.7%
> 1Ca				50 <sup>††</sup>	15.8%	
L			CVCa	13 (see ††)	4.1%	
-na		(L)	Ca	8	2.5%	4.4%
			CVCa	6 <sup>†††</sup>	1.9%	
-aa stem V	-n	(H)	Caa	2	.6%	.6%
TOTAL				317		

<sup>57</sup> In both Hoskison's (1983) data and mine, the LH pattern is the more common, but our respective data sets do not always agree on whether a specific root is LL or LH.

†Included are four CVCC- roots with LH verbal nouns and four verbs with three syllable stems, all of which have LLH tones

††About half of these verbs, including all the native verbs, have the stem shape CVCa. This is the default class for loan verbs regardless of segmental structure of the stem. Loan verbs, particularly from Fulfulde, usually have forms CVCCa or CvvCa (vv = long vowel). One likely Fulfulde loan verb, **kàalan** (PERFECTIVE **kàali**) ‘announce’, has a L tone stem.

†††Three of these have long **-uu-** in the first syllable, e.g. **ùulàna** (PERFECTIVE **ùuli**) ‘collapse’. The significance of this is not clear. Usually long vowels are restricted to pluractionals.

The distribution of class types is not lexically random. By far the largest group consists of Ø stem verbs (over 70% of the total). The numerical skewing between Ø stem verbs and a stem verbs is even greater if one excludes loan verbs, particularly from Fulfulde, which have the **a-n-H** type as their default (see note †† accompanying the table above). Other distributional facts are worth pointing out:

- Monoconsonantal roots: There is only one Cən verb, the highly irregular **dzən/gyì** ‘go’. All other monoconsonantal Ø stem verbs have **-na** verbal nouns, probably to maintain minimum word size.<sup>58</sup> Moreover, there are almost three times as many **-a** stem monoconsonantal verbs as Ø stem. This jibes with the proportion of the comparable classes in West Chadic languages (classes D and C respectively).
- -a stems limited to Ca- and CVCa- stems: Aside from loan verbs, which take a H as their default class regardless of segmental stem shape, verbs in the **-a** stem class comprise only verbs with C- and CVC- stem shapes. This jibes with a similar restriction in West Chadic (classes D and B respectively).
- Tones: Setting aside verbs with **-na** verbal nouns, which all have L stem tone, tones for Ø stem verbs are strongly skewed to H for CVC- stems and L for longer stems. Most CVCa verbs also have H stem tone, though the skewing is not as strong as for Ø stems. The PREFERENCE for initial L and absence of HL as a verbal tone pattern on stems longer than CVC- jibes with a similar pattern in West Chadic.

<sup>58</sup> The only Cən nouns that either Hoskison (1983) or I have in our lexical materials are **rən** ‘dry season’, usually used in **daa rən** ‘(during) the dry season’, and **mən** ‘mother’ and **dən** ‘father’, which are normally used with a possessive pronoun suffix.

## 5.2. TAM stems and TAM forms

Gude TAMs can be divided into three groups as a function of the type of verb stem they use. I describe these in §§5.2.1-3.

### 5.2.1. *Perfective stem and Perfective TAM*

The PERFECTIVE stem is used in the PERFECTIVE TAM only. The form of the PERFECTIVE stem is a function of the lexical classes described in §5.1.

PERFECTIVE stems for Ø-stem verbs palatalize the root. This is a somewhat variable process which, briefly stated, palatalizes one or more consonants of the root and often fronts /a/ → [e] and /ə/ → [i]. Some of the more salient effects of palatalization are the following. Verbal nouns are to the left of the slash, PERFECTIVE stems to the right:<sup>59</sup>

- Coronal [+strident] /ts, dz, s, z/ → [c, j, sh, zh]: **tsəfən/cif** ‘warm up food’; **dzakən/jak** ‘adorn, dress up’; **ɲwùsən/ɲwùsh** ‘laugh’; **zənən/zhin** ‘stink’
- Coronal stops /t, d, d/ → [ky, gy, ’y]: **ntəna/nky** ‘die’; **ndərən/ngyir** ‘climb’; **dərən/’yir** ‘buy’
- Other consonants vary in palatalization, esp. depending on whether another consonant in the root is palatalized, or whether a vowel is fronted without obvious palatalization of the consonant: **mbakən/mbaky** ‘patch’ vs. **takən/cak** ‘increase’; **palən/pyal** ‘make ridgerows’ vs. **pàlna/pèl** ‘pass’; **bùrən/bùry** ‘chop’ vs. **ḃərən/ḃir** ‘shine’.

PERFECTIVE stems for a-stem verbs replace the stem vowel -a with H-toned -i and do *not* palatalize the root:<sup>60</sup> **tsan/tsi** ‘build a fence’, **dàna/di** ‘swallow’, **dadən/dadī** ‘escape’, **kùràna/kùri** ‘look at’, **sollarán/sollari** ‘behave rebelliously’ (< Fulfulde).

<sup>59</sup> See Chapter 3, §5.3 for a general discussion of morphological palatalization in Gude. For Gude, Hoskison (1983:83) gives a rather complex algorithm for predicting the effects of palatalization. His description corresponds fairly well to data that I collected, but exact outcomes from production to production vary. He does not mention vowel fronting.

<sup>60</sup> Hoskison (1983:83) says that the PERFECTIVE stem vowel is long -ii, which he represents as underlying /əyə/. In all my notes, I represent the PERFECTIVE stem vowel as short -i.



PERFECTIVE stems of the two **aa**-stem verbs have long **aa** in the PERFECTIVE: **baan/baa** ‘lie down’.

Tones of PERFECTIVE stems are the same as the lexical tones for the most part. H and L tone classes have PERFECTIVES with the corresponding tones, and LL stems all have LL PERFECTIVES (**dùgwàsən/dùgwàsh** ‘render blunt’). For LH verbs, my notes show 26/37 with LL PERFECTIVES (**dzə̀gunən/jə̀gwìny** ‘learn’), but the remainder have LH (**dùgulən/dùgwil** ‘become deaf’).

The PERFECTIVE TAM is used in affirmative sentences. With *active* verbs it indicates that the action is viewed as complete at the time of reference; with *stative* verbs, it indicates that the arguments are in the state represented by the verb.

Active: **kə ’ush Raabi dāfna** ‘Rabi cooked *tuwo*’  
**kə lə̀gi Dzàar sukuŋwa** ‘Dzar planted sorghum’  
 Stative: [H] **kə sənəvə iinə da ci** ‘we are used to each other’  
 (lit: we (excl.) are familiar with him)

When no constituent is questioned, focused, or relativized, a proclitic **kə** precedes the verb. Since Gude is a VSO language, noun subjects follow the verb; pronominal subjects are marked by suffixes. Subjects are illustrated below with the **nzaan** ‘sit, stay’, one of the two **aa** stem verbs. When pronoun suffixes are added, the VERB+SUFFIX tone pattern becomes LH. The singular subject suffixes are all realized as -C, and the resultant LH on the verb becomes a downstep, marked with an acute accent.

**Table 30:** Gude subjects after the verb

	SINGULAR	DUAL	PLURAL	
1	<b>kə nzáa-ny</b>	<b>kə nzàa-’əŋw</b>	1 excl	<b>kə nzàa-’in</b>
			1 incl	<b>kə nzàa -’am</b>
2	<b>kə nzáa-h</b>		2	<b>kə nzàa -’wun</b>
3 m	<b>kə nzáa-c</b>		3	<b>kə nzàa -tti</b>
3 f	<b>kə nzáa-ky</b>			

Noun **kə nzaa Bə̀li** ‘Bili sat down’

When a constituent is questioned or focused, it is placed before the verb and the proclitic **kə** is absent; the verb is palatalized as in PERFECTIVE declarative statements. Similarly, in relative clauses the verb is preceded by the relative marker and **kə** is absent.

- Q: **Wù 'ùshi dafân aa?** Who cooked this *tuwo*?  
 A: **Raabi 'ushi dafânkəi.** RABI cooked the *tuwo*.  
 Q: **Mi 'ush Rəgw-aa?** What did Rugwa cook?  
 A: **Dâfn 'ushí-ky.** *Tuwo* is what she cooked.  
**ùudà tə 'ushi-gi-ky**<sup>61</sup> 'the pot that she cooked with'

### 5.2.2. Basic stem form

The “basic verb stem” is the form of the verb to which the suffixes **-(ə)n** or **-na** are added to form verbal nouns (see the Table 28). In four of six TAMs that use the basic stem, it is used in the configuration SUBJECT+**a**+VERB<sub>BASIC STEM</sub>. TAMs using this configuration thus have SVO order whereas other TAMs have (or appear to have) VSO order. The four TAMs that use this configuration are described in §§5.2.2.1-4.<sup>62</sup> A special NEGATIVE PERFECTIVE uses the basic stem alone and has VSO order. This is described in §5.2.2.5. Finally, the basic stem is the base for IMPERATIVES, described in §5.2.4.

5.2.2.1. *Subjunctive* (= *Hoskison's NEUTRAL aspect*). The SUBJUNCTIVE uses the SUBJECT+**a**+VERB<sub>BASIC STEM</sub> configuration without further marking. The SUBJUNCTIVE fulfills a suite of functions typical of the comparable TAM in other Chadic languages. These include hortatives, clauses expressing purpose, complements to verbs of desire, complements of constructions expressing necessity or fittingness, and sequential events.

I illustrate the full SUBJUNCTIVE paradigm in a hortative construction with the verb **'ələn** ‘look for’, marked by clause initial **wà**, followed by examples in other functions.

<sup>61</sup> The formative **-gi** following the verb stem is an extension (see Chapter 7), here probably indicating that an instrument is relativized.

<sup>62</sup> Hoskison (1983:91) includes an additional TAM with this configuration, which he calls “Negative of refusal”. He describes it as having the form **pə** SUBJECT **a** VERB<sub>BASIC STEM</sub> and as taking only pronoun subjects, e.g. **pə nyi a dzə** ‘I refuse to go’. I have no data on this construction.

**Table 31:** Subjunctive paradigm

	SINGULAR	DUAL	PLURAL	
1	<b>wa ny-à 'àl</b>	<b>wà 'aŋw-à 'al</b>	1 excl	<b>wà 'in-à 'àl</b>
			1 incl	<b>wà 'am-à 'àl</b>
2	<b>wa h-à 'àl</b>		2	<b>wà 'un-à 'àl</b>
3 m	<b>wa c-à 'àl</b>		3	<b>wà ttiy-à 'àl</b>
3 f	<b>wa ky-à 'àl</b>			

Noun **wa Bòli'y a 'àl** ‘Bili should look for (it)’

Purpose: **kə həny-ky gun ā ky-à 'us dāfna** ‘she fanned the fire in order to cook *tuwo*’

Desire: [H] **ka uudənə nə nyi ka Musa a shi** ‘I want Musa to come’

Fittingness: **kə dəbe c-à shì** ‘it is fitting that he come’

Sequence initiated by PERFECTIVE:

[H] **kə shi Musa ci a sa ma'inə ci a palə** ‘Musa came, drank water, and left’

Sequence initiated by a FUTURE:

[H] **ka shi-nə Musa ci a sa ma'inə ci a palə**

‘Musa will come, drink water, and leave.’

5.2.2.2. *Progressive with questioned, focused, or relativized constituents.* The PROGRESSIVE describes an action viewed as unfolding at the time of reference. In neutral declarative statements, the PROGRESSIVE uses a verbal noun (§5.2.3), but in sentences with a questioned, focused, or relativized constituent, it has the following configurations. “Q, F, R” = questioned, focused, or relativized constituent.<sup>63</sup>

SUBJECT<sub>Q,F,R</sub> /**ci a**/ VERB<sub>BASIC STEM</sub> /**ci a**/ → [**caa**]

NON-SUBJECT<sub>Q, F, R</sub> **ci** SUBJECT **a** VERB<sub>BASIC STEM</sub>

<sup>63</sup> My notes show a long vowel on the clitic **ci**, and also **ni** in the FUTURE form in §5.2.2.3, just when it precedes subject clitic pronouns other than 3<sup>rd</sup> masculine singular and 3<sup>rd</sup> plural. Since I collected these at different times yet marked the rather idiosyncratic length in a consistent way, it seems unlikely that this is a transcription error, but I have no explanation for it. Hoskison (1983:87) represents these clitics as **ci** and **nə** respectively, with short vowels and no tone marking.

Focused subject:	<b>B̀̀li'i caa '̀̀al</b>	'it's Bili who is looking for (it)'
	<b>nyì caa '̀̀al</b>	'it's me who is looking for (it)'
	<b>h̀̀e caa '̀̀al</b>	'it's you (sg) who is looking for (it)'
	<b>̀̀tti caa '̀̀al</b>	'it's they who are looking for it'

Relativized subject: **uuz̀̀n ǹ̀e cáa v̀̀e àlin ka Humti**  
 'the boy who is giving Humti eggs'

Focused non-subject:	<b>inshin c̀̀i B̀̀li'y a '̀̀al</b>	'it's today that Bili is looking for (it)'
	<b>inshin c̀̀i ny-a '̀̀al</b>	'it's today that I am looking for (it)'
	<b>inshin c̀̀i kw-a '̀̀al</b>	'it's today that you (sg) are looking for (it)'
	<b>inshin c̀̀i ttiy-à '̀̀al</b>	'it's today that they are looking for (it)'

Relativized non-subject: **àlii ǹ̀e c-uuz̀̀n a v̀̀e ka Humti**  
 'the eggs that the boy is giving to Humti'

5.2.2.3. *Future (= Hoskison's Potential) with questioned, focused, or relativized constituents.* The FUTURE describes an action viewed as not yet initiated at the time of reference. In neutral declarative statements, the FUTURE uses a verbal noun (§5.2.3), but in sentences with a questioned, focused, or relativized construction, it has the following configurations. "Q, F, R" = questioned, focused, or relativized constituent.

SUBJECT<sub>Q,F,R</sub> **n-a** VERB<sub>BASIC STEM</sub>

NON-SUBJECT<sub>Q, F, R</sub> **ǹ̀e/ǹ̀i** SUBJECT **a** VERB<sub>BASIC STEM</sub>

Focused subject:	<b>B̀̀li'i n-a '̀̀al</b>	'it's Bili who will look for (it)'
	<b>nyì n-a '̀̀al</b>	'it's I who will look for (it)'
	<b>h̀̀e n-a '̀̀al</b>	'it's you (sg) who will look for it'
	<b>̀̀tti n-a '̀̀al</b>	'it's they who will look for it'

Relativized subject: **uuz̀̀n n-a v̀̀e àlin ka Humti** 'the boy who will give Humti eggs'

Focused non-subject:	<b>inshin ǹ̀e B̀̀li'y a '̀̀al</b>	'it's today that Bili will look for (it)'
	<b>inshin ǹ̀i ny-a '̀̀al</b>	'it's today that I will look for (it)'
	<b>inshin ǹ̀i kw-a '̀̀al</b>	'it's today that you (sg) will look for (it)'
	<b>inshin ǹ̀e ttiy-à '̀̀al</b>	'it's today that they will look for (it)'

Relativized non-subject: **àlii ǹ̀e n-uuz̀̀n a v̀̀e ka Humti**  
 'the eggs that the boy will give to Humti'

5.2.2.4. *Negative Subjunctive*. The NEGATIVE SUBJUNCTIVE expresses prohibition in all persons, including 2<sup>nd</sup> persons, where it serves as the negative form for the IMPERATIVE (§5.2.4). In clauses expressing negative purpose, it can be translated “lest”. The form of the NEGATIVE SUBJUNCTIVE is **gə**+SUBJECT+**ā**+VERB<sub>BASIC STEM</sub>.<sup>64</sup>

**gə ny-aa ’əl** ‘let me not look for (it)’  
**gə h-aa ’əl** ‘don’t look for (it)’ (negative singular imperative)  
**gə Bə̀li’y aa ’əl** ‘Bili shouldn’t look for (it)’  
**kə ùmbē-ny ka kwab-aaki gə m̀ahiirón àa lùwutt** ‘I hid my money lest a thief steal it’

5.2.2.5. *“Special” Negative Perfective*. Hoskison (1983:91) describes an “alternative way” of negating the PERFECTIVE. This takes the form

**m̀à**+VERB<sub>BASIC STEM</sub>+**m(ə)**+SUBJECT

Unlike the affirmative PERFECTIVE, this NEGATIVE PERFECTIVE does not have a palatalized root. Hoskison says, “This alternative form occurs very rarely.” My informant characterized it as being used “only in answer to questions”. This is clearly a more archaic form of the NEGATIVE PERFECTIVE than the periphrastic form now in general use (§5.3). From a comparative point of view, it is of interest for two reasons. First, as in a number of other Chadic languages, the NEGATIVE PERFECTIVE is not formed simply by adding negative marking to the affirmative form. The form used in this way is sometimes referred to as the *aorist*. Second, Gude can be added to the list of languages that use a “sandwich” type of negation, suggesting that this may be an archaic feature, lost in the languages that do not use it rather than being innovative.

**m̀à dər m̀ə Humti** ‘Humti didn’t buy (it)’  
**m̀à dər m-íi** ‘I didn’t buy (it)’  
**m̀à dər m̀á-h** ‘you (sg) didn’t buy it’  
**m̀à dər m-̀tti** ‘they didn’t buy it’

<sup>64</sup> My notes show the **ā** preceding the verb with a long vowel. Presumably this is a variant of the **a** seen in the TAMs in §§3.2.2.1-3. Hoskison (1983:94) gives the vowel as short and calls **a**+VERB in the negative SUBJUNCTIVE the “neutral aspect”. The SUBJUNCTIVE marker in Tera (II.A.1), a quite distantly related Central Chadic language, is **kə**.

### 5.2.3. Verbal nouns as aspect stems in Progressive and Future

Verbal nouns, seen in the Table 28, serve as the aspect stem in the PROGRESSIVE (= Hoskison’s (1983) “continuous”) and the FUTURE (= Hoskison’s (1983) POTENTIAL) TAMs when they are used in affirmative declarative statements with no focused or questioned constituents. The PROGRESSIVE describes an action viewed as ongoing at the time of reference; the FUTURE describes an action viewed as not yet initiated at the time of reference. The two TAMs have the same basic form:

PREPOSITION+VERBAL NOUN+n(ə)+SUBJECT

They differ only in the aspect-marking PREPOSITION: PROGRESSIVE **agì** ‘in’, FUTURE **kà** ‘at’.<sup>65</sup> I therefore will illustrate the two TAMs together.

PROGRESSIVE:	<b>agì ’àlən n-ii</b>	‘I am looking for (it)’
	<b>agì ’àlən nə-h</b>	‘you (sg) are looking for (it)’
	<b>agì ’àlən nə-tti</b>	‘they are looking for (it)’
	<b>agì ’àlən nə Bə̀li’</b>	‘Bili is looking for (it)’
FUTURE:	<b>kà ’àlən n-ii</b>	‘I will look for (it)’
	<b>kà ’àlən nə-h</b>	‘you (sg) will look for (it)’
	<b>kà ’àlən nə-tti</b>	‘they will look for (it)’
	<b>kà ’àlən nə Bə̀li’</b>	‘Bili will look for (it)’

These sentences appear to have VSO order, and from the point of view of the modern language, that is probably the correct analysis. However, historically they must be derived from equational sentences with nominal predicates in which **nə** is a copula, i.e., a literal translation would be something like “in looking is me”, or, more idiomatically, “I am in [the process of] looking”.

### 5.2.4. Imperatives

Commands directed to addressees that include a second person add a set of special suffixes to the basic stem described in §5.2.2. IMPERATIVES may be directed to 2<sup>nd</sup> person

<sup>65</sup> I have a few examples in my notes with **də̀** (possibly the preposition ‘from’) inserted after **kà**, translated as a sort of uncertain future, e.g. **kà də̀ ɖərən nə-c àlin** ‘he will buy eggs’ vs. **kà də̀ ɖərən nə-c àlin** ‘it’s likely he’ll buy eggs’.

singular and plural addressees as well as to 1<sup>st</sup> dual (“you (sg) and me”) and 1<sup>st</sup> plural inclusive (“you (pl) and me”).

**Table 32:** Imperatives

		Ø STEM L	Ø STEM H	a STEM L	a STEM H
		<b>'àlən</b>	<b>tsəbən</b>	<b>ətsàna</b>	<b>san</b>
		‘look for’	‘eat (meat)’	‘roast’	‘drink’
2 sg.	-uu (copy tone)	<b>'àlùu</b>	<b>tsəbuu</b>	<b>ətsòo</b>	<b>soo</b>
2 pl.	-(ə)m (H)	<b>'àləm</b>	<b>tsəbəm</b>	<b>ətsam</b>	<b>sam</b>
1 dual	-aaŋw (copy tone)	<b>'àlàŋw</b>	<b>tsəbaaŋw</b>	<b>ətsàaŋw</b>	<b>saŋw</b>
1 pl. incl.	-aam (copy tone)	<b>'àlàam</b>	<b>tsəbaam</b>	<b>ətsàam</b>	<b>sām</b>

The final **-oo** of **a** STEM singular IMPERATIVES is the result of a regular Gude phonological rule, /**a-uu**/ → [oo]. The tone of Ø STEM L singular IMPERATIVES, but not **a** STEM L, becomes H before objects (**'àluu 'àlin** ‘look for eggs!’, **ətsòo lùwa** ‘roast meat!’). I did not check the other “copy tone” IMPERATIVES, and Hoskison (1983) does not discuss the two 1<sup>st</sup> person forms. The two **aa** STEM verbs retain the long **aa** for all IMPERATIVES: **nzaaw**, **nzaam**, **nzàa'aŋw**, **nzàa'am** ‘sit down!, let’s sit down!’. The tones of the dual and 1<sup>st</sup> plural are idiosyncratic.

On a historical note, the **-m** 2<sup>nd</sup> plural suffix looks odd, since “**m**” is associated almost exclusively with *first* person in Central and West Chadic languages. My guess is that this was originally a 1<sup>st</sup> plural inclusive suffix (still found in the Gude **-aam** suffix used in this function), which became reinterpreted as applying only to second person addressees. A parallel may be found in English, where “let’s” can be used as a sort of polite plural IMPERATIVE, as in, “Let’s quiet down!” said to an unruly group and obviously not including the speaker.

### 5.3. Negative TAMs: Perfective, Progressive, Future

I described the NEGATIVE SUBJUNCTIVE or PROHIBITIVE in §5.2.2.4 and a “special” NEGATIVE PERFECTIVE in §5.2.2.5. The productive configuration for negating PERFECTIVE, PROGRESSIVE, and FUTURE is the following:<sup>66</sup>

**ōshi**+SUBJECT+verbal construction as in affirmative

The initial word, **ōshi**, is the negative existential ‘there isn’t’, so literally these negatives mean “there is not SUBJECT+ACTION”.

PERFECTIVE

**ōshi Humti ’yir àlin** ‘Humti did not buy eggs’

**Table 33:** Pronoun paradigm in the negative

	SINGULAR	DUAL	PLURAL	
1	<b>ōsh-ī ’yir àlin</b>	<b>ōsh-āṅw ’yir àlin</b>	1 excl.	<b>ōsh-īn ’yir àlin</b>
			1 incl.	<b>ōsh-ām ’yir àlin</b>
2	<b>ōsh-h ’yir àlin</b>		2	<b>ōsh-ūn ’yir àlin</b>
3 m.	<b>ōsh-ci ’yir àlin</b>		3	<b>ōsh-ətti ’yir àlin</b>
3 f.	<b>ōsh-ky ’yir àlin</b>			

PROGRESSIVE<sup>67</sup>

**ōsh-iy àgi ’àlən** ‘I am not looking for (it)’

**ōshi-h àgi ’àlən** ‘you (sg) are not looking for (it)’

**ōsh-ətti àgi ’àlən** ‘they are not looking for (it)’

**ōsh B̀̀lì’ agì ’àlən** ‘Bili is not looking for (it)’

<sup>66</sup> Hoskison (1983:90) has **pōshi** rather than **ōshi** as in the data here. He says that **ōshi** “is more commonly used in the Lamurde dialect”.

<sup>67</sup> Note that the tones of the **agi** progressive marker have LH tone after pronoun subjects rather than expected HL.



## FUTURE

<b>ōshi-ī kà ’àlən</b>	‘I will not look for (it)’
<b>ōshi-h kà ’àlən</b>	‘you (sg) will not look for (it)’
<b>ōsh-ətti kà ’àlən</b>	‘they will not look for (it)’
<b>ōsh Bə̀lì’ kà ’àlən</b>	‘Bili will not look for (it)’

Another version of the NEGATIVE FUTURE provided by my informant uses **ōshi** together with the FUTURE with questioned/focused/relativized constituents described in §5.2.2.3, e.g. **óshə humti n-à ’àl t-ūzə̀na** ‘Humti will not look for the boy’. This was said to represent a distant FUTURE, in contrast with the near FUTURE **ōshə Humti kà ’àlən t-ūzə̀na**. This does not seem to be the negative of FUTURE with a focused constituent, first, because it was not translated that way, and second, there is a different negative used in sentences with focused constituents, found both in Hoskison (1983:121) and in my notes. Such sentences are introduced by **ńtā**, a particle that seems to have only this function, e.g. **ńtā àlin ’yir Húm̄ti** ‘it’s not EGGS that Humti bought’, [H] **ənta əndzī nə Musa a bə̀lə tə bwaya** ‘it’s not NOW that Musa will kill the leopard’.

## 6. Hausa

In this section I will show how Hausa verbal morphology is related to the reconstructable five-class system of West Chadic. I will then show how the TAM system changed from the reconstructable West Chadic system that marked TAMs primarily by verb affixation to a system marking TAMs by affixing the original simple subject clitics to auxiliary morphemes or by using independent pronouns as subjects. In particular, I will show that so-called “relative” TAMs derive from cleft-like constructions with a copula **kV** that historically was part of the determiner system.

## 6.1. Verb classes

### 6.1.1. The Grade System

The standard framework for verb classification in all modern works on Hausa is the *Verbal Grade System* laid out in Parsons (1960b).<sup>68</sup> In this system, verbs “operate” one of seven “grades”, each grade being defined by a particular tone pattern and final vowel or set of vowels (or final -C in one grade). Forms of transitive verbs in some grades vary depending on whether no object follows the verb (“A FORM”), a pronoun object follows the verb (“B FORM”), or a noun object follows the verb (“C FORM”). Parsons (1971/72) added a “D FORM”, viz. the form a verb takes before an indirect object. Table 34, next page, summarizes the grade system with a disyllabic and trisyllabic verb from each class. The B FORM is illustrated with a 3<sup>rd</sup> feminine singular direct object pronoun **ta/ita**,<sup>69</sup> the C FORM is illustrated with the noun **màcè** ‘woman’. The B FORM and C FORM cells are shaded for GRADE 3 and GRADE 7, which comprise only intransitive verbs.

Nearly all verbs have a lexical base form in one of the Grades 1-4. The grade system is also a derivational system (a system of “extensions” in Chadic parlance). I discuss this in more detail in Chapter 7, but here is a brief overview. Grade 1 can derive an *applicative* meaning and function, e.g. **sàyā** ‘buy’ with base Grade 2 has Grade 1 **sayà** ‘buy for’). Grade 2 can derive a *partitive/separative* meaning, e.g. **yankà** ‘cut’ with base Grade 1 has Grade 2 **yànkā** ‘cut a piece off’). Grade 3, which is comprised of basic intransitive verbs, can derive *intransitives* from transitives, e.g. **cikà** ‘fill’ with base Grade 1 has Grade 3 **cika** ‘be full’).<sup>70</sup> Grade 4 can derive a meaning *done totally* or *done away*, e.g. **sàyā** ‘buy’, with base Grade 2, has Grade 4 **sayè** ‘buy up’ or ‘buy and take

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<sup>68</sup> The fact that Hausa verbs can be put into classes based on phonological and morphological criteria was well-recognized before Parsons (1960b). For example, Abraham (1959) has sections on Changing Verbs, Unchanging Verbs, Verbs in Long Vowels, and others.

<sup>69</sup> Strictly speaking, the B Form in Grade 5 is not really a B Form as such since the thematic object pronouns, e.g. **ita**, are grammatically not direct object pronouns, but rather are independent pronouns serving as the complement of the prepositional-like marker **dà**.

<sup>70</sup> In this case, it isn’t clear which is the base, since one of the “applicative” functions of Grade 1 is to turn intransitives into transitives.

**Table 34:** Hausa grade forms

	A FORM (no object)	B FORM (pronoun object)	C FORM (noun object)	
GRADE 1 HL(H/L), -ā/-ā/-a	<b>rakà</b>	<b>rakà ta</b>	<b>rakà màcè</b>	‘accompany’
	<b>rāzàṅā</b>	<b>rāzàṅā ta</b>	<b>rāzàṅā màcè</b>	‘terrify’
GRADE 2 LH, LHL/LLH, -ā/-ē/-i	<b>àurā</b>	<b>àurē tà</b>	<b>àuri màcè</b>	‘marry’
	<b>tàmbayà</b>	<b>tàmbayē tà</b>	<b>tàmbàyi màcè</b>	‘ask’
GRADE 3 LH(L), -a	<b>fita</b>			‘go out’
	<b>hàkurà</b>			‘be patient’
GRADE 4 HL(H/L), -ē/-ē/-e ~ -ē	<b>kyālè</b>	<b>kyālè ta</b>	<b>kyālè(e) màcè</b>	‘ignore’
	<b>tsòkàṅē</b>	<b>tsòkàṅē ta</b>	<b>tsòkàṅē/ē màcè</b>	‘poke’
GRADE 5 H, -aĩ/-dà/-dà	<b>tsayaĩ</b>	<b>tsay(aĩ) dà ita</b>	<b>tsay(aĩ) dà màcè</b>	‘bring to a stop’
	<b>wahalaĩ</b>	<b>wahalaĩ dà ita</b>	<b>wahalaĩ dà màcè</b>	‘give hard time’
GRADE 6 H, -ō	<b>kāwō</b>	<b>kāwō tà</b>	<b>kāwō màcè</b>	‘bring’
	<b>tambayō</b>	<b>tambayō tà</b>	<b>tambayō màcè</b>	‘ask and come’
GRADE 7 (L)LH, -u	<b>tàru</b>			‘gather’
	<b>tàmbàyu</b>			‘take potions’

away’); Grade 4 can also derive *intransitives* from transitives *intransitives* from transitives (**cikà** ‘fill’ with base Grade 1 has Grade 3 **cika** ‘be full’).<sup>71</sup> Grade 4 can derive a meaning *done totally* or *done away* (**sàya** ‘buy’ with base Grade 2 has Grade 4 **sayè** ‘buy up’ or ‘buy and take away’); Grade 4 can also derive *intransitives* from transitives (**karyà** ‘break (something)’ with base Grade 1 has Grade 4 **karyè** ‘break (intr.)’). Grade 5 derives *causatives* or *transitivized* verbs, often with the meaning of “action away” (**fita** ‘go out’ with base Grade 3 has Grade 5 **fit(aĩ) dà** ‘take out, remove’). Grade 6 is *ventive*,

<sup>71</sup> In this case, it isn’t clear which is the base, since one of the “applicative” functions of Grade 1 is to turn intransitives into transitives.

i.e. an action which takes place or starts at a distance from the place of reference, also often indicating “for the benefit of the speaker” (**sàya** ‘buy’ with base Grade 2 has Grade 6 **sayō** ‘buy and bring’). Grade 7 derives intransitive verbs with *middle voice* meaning, often with the connotation “thoroughly done” (**dafà** ‘cook’ with base Grade 1 has Grade 7 **dàfu** ‘have been (thoroughly) cooked’).

As useful as this system may be as a way to organize a linguistic discussion of the modern Hausa verb system, comparative evidence shows that, insofar as it does capture actual generalizations,<sup>72</sup> it comprises multiple innovations that have taken place after the time that Hausa’s ancestral language split from its Chadic cousins. No other Chadic language has a system anything like this.

Looking through a Hausa dictionary, one would find that nearly all verbs (certainly well over 90%) fit into this system, and new verbs added through productive derivation or borrowing will likewise conform to this system. However, a significant number of verbs, particularly those that are among the most frequently used, do not fit any of the grade categories. It is a well-known principle of historical linguistics that as morphological forms become *regularized*, i.e. rule-based rather than memorized idiosyncrasies, they spread to encompass more and more words. An obvious example is

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<sup>72</sup> Classification of Hausa verbs in the grade system is the invention of 20<sup>th</sup> century linguists who were not native speakers of Hausa and who were not drawing on any comparative Chadic knowledge or any classificatory tradition, such as that used in Romance languages or Semitic languages. Organization of verbs into a system like this must have some psychological reality for native Hausa speakers. For example, base forms of borrowed roots are made to conform to one of the grade forms, and such verbs can use other grades to alter verb meaning. Thus, English *change*, borrowed as **canjì**, with postthetic **-i** added to avoid an illegal final consonant cluster, phonologically fits a common HL-**ì**, verbal noun pattern. On this basis, this word has been back-formed into the base for a Grade 1 verb, **canzà** ‘change, exchange’, including reinterpretation of the original [dʒ] of English as resulting from a regular palatalization rule /z/ → [j] / \_\_\_ {i, e}. This verb can then be used, for example, in Grade 6 **canzō** ‘change and come’. Nonetheless, the grade system is not really a verb classificatory system like those of Romance or Semitic languages or even Chadic languages like those discussed above. It mixes inflectional properties (how a verb is conjugated depending on context) and derivational properties, such that the same root can potentially appear in several grades. It thus gives no way in principle, other than stipulation, to designate that a particular form of a particular root is “lexical” or “basic”. Newman (2000:677ff.), discussed below, addresses some of these issues.

the spread of marking past tense and past participles in English by adding *-ed* rather than maintaining “strong verb” forms. To understand how Hausa fits into the comparative Chadic picture, we would thus expect to learn at least as much from apparently idiosyncratic verbs that do NOT fit neatly into the grade system as from the highly regular grade system. These idiosyncratic verbs fall into several categories:<sup>73</sup>

Monoconsonantal roots (called Grade 0 in Newman 2000)<sup>74</sup>

<b>bi</b>	‘follow’	<b>bā</b>	‘give to’	<b>jē</b>	‘go’
<b>ci</b>	‘eat’	<b>jā</b>	‘pull’	<b>sō</b>	‘want, like, love’
<b>fi</b>	‘surpass’	<b>shā</b>	‘drink’	<b>zō</b>	‘come’
<b>ji</b>	‘hear, feel, smell’			(cf. <b>zâ</b>	‘going’)
<b>ki</b>	‘refuse, dislike’				

CVC roots (used only before objects; related “A” forms are in parentheses)

<b>bar</b>	( <b>barì</b> )	‘leave’	<b>kas</b>	( <b>kashè</b> )	‘kill’
<b>ɗar̄</b>	( <b>ɗarà</b> )	‘exceed slightly’	<b>sai</b>	( <b>sàyā</b> )	‘buy’
<b>ɗau</b>	( <b>ɗagà</b> )	‘pick up’	<b>sam</b>	( <b>sāmū</b> )	‘get, receive’
<b>far̄</b>	( <b>fāɗi</b> )	‘fall upon’	<b>san</b>	( <b>sanì</b> )	‘know’
<b>hau</b>	( <b>hau</b> )	‘mount, climb’	<b>sau</b>	( <b>sàkā</b> )	‘release’
<b>kai</b>	( <b>kai</b> )	‘carry, transport’	<b>zam</b>	( <b>zamā</b> )	‘become’

<sup>73</sup> One group (or maybe two groups) that do not fit the grade system but that I have omitted are transitive and intransitive verbs with HH tones ending in **-ā/-a**, e.g. **kirā** ‘call’, **tsūfa** ‘grow old’.

<sup>74</sup> Parsons (1960b) did not include mono-consonant roots in this grade system. Newman (2000:630), following R. M. Newman (1990:xviii), added “Grade 0” to accommodate these verbs. This, however, just provides a label for listing these verbs. Grade 0 has none of the properties of the other grades. It is a closed class to which no verbs can be added through derivation or borrowing, and none of the verbs in this class have identifiable derivational semantics of the types associated with other grades.

Intransitive verbs whose A forms do not fit any of Parsons' grades

<b>bāci</b>	‘become ruined’	<b>kòshi</b>	‘be well-fed’
<b>batà</b>	‘get lost’ (note short final -à)	<b>mutù</b>	‘die’
<b>fādī</b>	‘fall’	<b>tàfi</b>	‘go away’
<b>gàji</b>	‘become tired’	<b>tāshì</b>	‘stand up’
<b>gudù</b>	‘run’	<b>wunì</b>	‘spend the day’

Transitive verbs whose A forms do not fit any grade

<b>barì</b>	‘leave’	<b>bar</b> before objects (see CVC roots above)
<b>fadī</b>	‘say, tell’	<i>acts</i> like a Grade 2 before DO, Grade 1 before IO
<b>sāmù</b>	‘get, receive’	<i>acts</i> like a Grade 2 before DO, Grade 1 or CVC before IO
<b>sanì</b>	‘know’	<b>san</b> before objects (see CVC roots above)
<b>ganì</b>	‘see’	<b>gan</b> before pronoun, <b>ga</b> before noun

## COMMENTS

Monoconsonantal roots: At least four of these have monoconsonantal cognates in other Chadic languages: **ci** ‘eat’ (Bole **tī-**), **shā** ‘drink’ (Bole **sā-**), **bi** ‘follow’ (Miya **bə** ‘come’),<sup>75</sup> **jē** ‘go’ (Ngizim **ju**, Bole **ndī-**). From a comparative point of view, the verb **ki** ‘refuse, dislike’ belongs in the CVC group. It comes from **\*kər** (cf. Ngizim **kùru**) via a well-established Hausa sound change **\*r > y / \_\_\_**<sub>SYLLABLE</sub>, resulting in **\*kiy** [**kī**], reinterpreted as a monoconsonantal verb like **ci**. The same may be the case for **ji** ‘hear’, which has a Grade 1 dialectal variant **jiyà**, but I know of no comparative support. The verb **zō** ‘come’ is usually interpreted as the Grade 6 of **zā**, used today only as a future auxiliary (§6.2.6) and as a defective verb meaning ‘going’ with suffixed subjects, e.g. **inā zā ka?** ‘where are you going?’.<sup>76</sup> The verb **sō** ‘want, like, love’, with the vowel **-ō** is anomalous. It may be a Grade 6, but it does not have the “hither” semantics of Grade 6.

<sup>75</sup> The Chadic root is **\*b-** ‘come, go’. The modern meaning ‘follow’ probably derives from ‘come/go behind’. Something closer to the original meaning is the expression **bi ta** ‘go by way of’.

<sup>76</sup> Historically, **zō** ‘come’ is unrelated to **jē** ‘go’, despite the fact that they are, semantically, VENTIVE and non-VENTIVE counterparts: **/z/ → [j] / \_\_\_[V, +front]** by regular rule. Historically the VENTIVE counterpart of **jē** is **dāwō** ‘come back’. The form **zō** probably derives from **zakā** ‘come’, used in Western dialects, as

CVC roots: Newman (2000:676) calls these “clipped verbs” and analyzes them as apocopated versions of  $C_1V_1C_2V_2$  bases. Historically, however, it is the other way around, i.e. the base was  $*C_1V_1C_2$  and  $V_2$  was, morphologically, a stem vowel or verbal noun affix. The verbs **ɗau** ‘take’ (<  $*ɗag$ )<sup>77</sup> and **sau** ‘release’ (<  $*sak$ ) have undergone a sound change  $*K > w / \_\_\_\_\_\_ ]_{\text{SYLLABLE}}$  (“K” = any velar) (Newman 2004). The verb **faĩ** ‘fall upon’ (<  $*fad$ ) has undergone the sound change  $*T > \tilde{r} / \_\_\_\_\_\_ ]_{\text{SYLLABLE}}$  (“T” = any alveolar stop) (Newman 2004). The verb **kai** ‘carry, take away’ <  $*kar$ , a pan-Chadic root meaning ‘steal’, has undergone a sound change  $*r > y / \_\_\_\_\_\_ ]_{\text{SYLLABLE}}$  (Newman 1970). The verb **hau** ‘mount, climb’ is not included in Newman’s “clipped verb” list since, in Hausa, there no longer exists a related CVCV form that could have been “clipped”. The verb **bar/barĩ** ‘leave’ is a doublet with the highly irregular verb **bā/bāi** ‘give’. Cognates for ‘give’ with a root **bar-** are ubiquitous. The etymological  $*r$  is seen in the noun indirect object form **bāi**<sup>78</sup> (<  $*bar$  via the change  $*r > y / \_\_\_\_\_\_ ]_{\text{SYLLABLE}}$ ), in the derived noun **baiwā** ‘gift’, and perhaps also in **bāiwā** ‘concubine’ (“given woman”). **Barĩ** was originally a regular verbal noun of ‘give’, with various derived meanings, probably including something like ‘thing left (for someone), leaving something (for someone)’. Through this semantic shift, **barĩ** ‘leav(ing)’ developed into a verb independent of its “give” source, and the CVC pre-object form was backformed from the verbal noun after the  $*r > y / \_\_\_\_\_\_ ]_{\text{SYLLABLE}}$  change was no longer active.

### 6.1.2. Historical perspective on Hausa verb classes

There are two keys to understanding how modern Hausa verb forms relate to what we know about verb classification in West Chadic. First there is an expectation that we should see at least outlines of the reconstructed verb classification system (Schuh 1977b),

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follows: **zakā** >  $*zak$  >  $*zaw$  > **zō** via a sound change, discussed immediately below, whereby  $*k > w$  in syllable final position. For a discussion of **zō**, see McIntyre (1989).

<sup>77</sup> The verb **ɗau** does not come from **ɗaukā** ‘pick up, take’ by loss of the syllable **-ka**, as suggested by Newman (2000:676). Rather, **ɗaukā** is derived from **ɗau** (<  $*ɗag$ ) by addition of the “remnant affix” **-k** and the grade-marking vowel affix **-ā**.

<sup>78</sup> In all contexts, **bā**, with long **ā**, is more commonly heard than **bai**, with a diphthong. This is an idiosyncratic, though not unique, contraction or vowel leveling, perhaps due to the frequency of this verb.

summarized here using the class numbers of Lukas (1971/72) and examples from Bole (where **-wò** is the PERFECTIVE suffix):

- A1: CVC- roots ending in Ø/**-u/-ə** in the PERFECTIVE (Bole **lom-u-wò** ‘arrive’)
- A2: roots longer than CVC- ending in Ø/**-u/-ə** in the PERFECTIVE (Bole **bùnk-u-wò** ‘hide’)
- B: CVC- roots ending in **-a** in the PERFECTIVE (Bole **pàtā-wò** ‘go out’)
- C: C- roots ending in **-u/-i/-ə** in the PERFECTIVE (Bole **rī-wò** ‘enter’)
- D: C- roots ending in **-a** in the PERFECTIVE (Bole **mā-wò** ‘return’)

Second is the fact, first pointed out by Newman (2000) as far as I know, that Hausa has undergone a historical morphosyntactic shift, reinterpreting verbal nouns as finite verbs.

“The final **-ā** of the A-form [of Grade 2 verbs] (the present-day ‘anaphora stem’) was probably due to a *morphosyntactic* replacement of the lexical form by a related form with a distinct final vowel *and* tone pattern, namely, a stem derived verbal noun, i.e., [zā̀bi]<sub>V</sub> ⇒ [zā̀bā]<sub>VN</sub>. Note that the drift toward using verbal nouns in the finite A environment continues in Hausa, cf. the A-form **fadī** ‘tell’, derived from an H-L **-ī** verbal noun), with the regular A-form **fādā**.” (page 640, Newman’s italics)

Newman continues (page 673),

“At a shallow synchronic level, one can think of the verbal nouns **barī** [‘leave’] and **sanī** [‘know’] as coming from their identical finite verb forms. Viewed historically, however, **barī** and **sanī** are H-L **i**-final verbal nouns belonging to the same class as **ginī** ‘building’ (< **ginā** ‘build’) ....”

These quotes from Newman focus on the A forms of Grade 2 verbs, which end in **-ā**, and certain irregular A forms (see the list above of A forms that do not fit verbal grades). I would go a step further and argue that using original nominal forms as verbs has been a major source of Grade 1 and Grade 4 verbs. In Hausa, Grade 1, the **a**-final class, is the most common verbal base form. This contrasts with the reconstructed West Chadic classes, where finite verbs ending in **-a** are restricted to Class B (CVC-**a**) and D (C-**a**) roots.<sup>79</sup> On the other hand, **a**-final verbal nouns are by far the most common “non-finite”

<sup>79</sup> In languages that maintain the Class A1 vs. Class B distinction, Class B are always a significant minority among CVC- roots. In current data for Bole, for example, there are 136 Class A1 roots compared to 95 Class B roots.



verbal forms in both the Bole-Tangale and Bade-Ngizim languages. Hausa Grade 4 verbs with final **-ē**, have no obvious counterpart elsewhere in West Chadic. Within Hausa, however, Newman (2000:713) characterizes final **-e** verbal nouns with a LH pattern as “the second largest derivational VN class” (after **-i** with a HL pattern). To this one may add the productive LH-**e** stative form (**zàune** ‘seated’, etc.) which is nominal in origin, a fact recognized by Parsons (1981:33), who called these Verbal Adverbial Nouns of State (VANS).<sup>80</sup> Alongside LH-**e** nominal forms in Hausa, there is also a significant number of final **-e** verbal nouns with a HL pattern (Newman 2000:158), all of which points to nominal origin as a major source, perhaps the only source, for verbs ending in **-e**.<sup>81</sup>

Cross-linguistic phenomena and evidence within Chadic provide support for the hypothesis that nominal forms can and do shift to verbal forms that have the hallmarks of finite verbs, such as heading VP, taking TAM marking affixes, affixing pronominal arguments, etc. In the Afroasiatic phylum, the entire Middle Egyptian TAM system is based on nominal forms (Callender 1975:§3.5.5). The Akkadian PERMANSIVE (Rowton 1962), originally a stative predicate, is the counterpart of the “suffix conjugation” of modern Semitic languages, where it is a finite PERFECTIVE TAM. Even in English, the *-ing* form can be used as a noun or a verb (*running is good exercise, he is running*)

In Chadic, Lukas (1971-72), writing on Bole, and Schuh (1998), writing on Miya, both grouped the TAMs of the respective languages as *verbal* TAMs and *nominal* TAMs (= Lukas’s *verbale Aspektsämme* and *nominale Aspektstämme*). Lukas classed the Bole FUTURE and HABITUAL as *nominal* TAMs on the basis of the resemblance of the TAM forms to common verbal noun types. Some, but not all, Class A1 verbs (verbs with CVC- roots) have verbal nouns of the form CVCa with LH tones, e.g. **màra** ‘cultivating’, **shòla** ‘gossiping’. However, all A1 verbs, whether they use a CVCa verbal noun or not, use this form in the FUTURE TAM, e.g. **à ’yòra** ‘he will stop’, **à ngòrā-yi** ‘he will tie’.<sup>82</sup>

<sup>80</sup> Newman (personal communication) rejects Parsons’ characterization of these STATIVES as being nouns in any sense.

<sup>81</sup> Verbal nouns inflected with final **-e** are unusual in West Chadic—in fact, mid-vowels as part of the native phonological inventory are unusual! However, **-e** is the regular verbal noun suffix for Class B verbs in the Bole-Tangale languages.

<sup>82</sup> The commonly used verbal nouns for these verbs are **’yorno** and **ngòryà**, respectively.

Transitive verbs in the FUTURE take the Ø object suffix **-yi** (seen in ‘he will tie’), a suffix not used with nouns of any kind.

Schuh (1998:121) distinguishes *verbal* and *nominal* TAMs in Miya in a similar way. Miya distinguishes the proto-West Chadic Ø/**-u/-ə** vs. **-a** stem vowel classes in verbal TAMs (PERFECTIVE **à bəsə** ‘he washed’ vs. **à bəta** ‘he untied’), whereas in nominal TAMs, stem vowels are neutralized to **-a**, also used in the most common verbal noun types (nominal TAM SUBJUNCTIVE **də bəsə-w** ‘that he wash’, **də bəta-w** ‘that he untie’). The expression of indirect objects is the same for both categories of TAM: PERFECTIVE **à bəsə-yá** ‘he washed for him’, SUBJUNCTIVE **də bəsə-yá** ‘that he wash for him’ (all verbs have a suffix **-a** with indirect object clitics). However, the nominal source of the nominal TAMs is still evident with pronominal direct objects, where verbal TAMs have a special set of object clitics, but nominal TAMs use the same pronouns as those used in nominal genitive constructions: PERFECTIVE **à bəsə-ya** ‘he washed him’, SUBJUNCTIVE **də bəs-uwsə** ‘that he wash him’ (cf. **á ngar-ùwsə** ‘his leg’).

In light of the discussion above, I conclude that modern Hausa finite verb forms, whether categorized in the Grade system or some other classificatory scheme, are actually a mix of three historically distinct morphological structures:

- Forms of nominal origin: These encompass many, if not most, Grade 1 and Grade 4 forms, most of the forms in the lists of verbs whose A forms do not fit into the grade system, and, at least in part, the A forms of Grade 2 verbs as argued by Newman (2000:640).
- Frozen PERFECTIVE verb forms: (1) Ci and Ca monoconsonantal verbs must have been PERFECTIVES. In other languages, these vowels are replaced in non-PERFECTIVE TAMs—cf. Bole C **tī-wò-yi** ‘he ate (PERFECTIVE)’, **tài-yi** ‘that he eat (SUBJUNCTIVE)’, D **sā-wò-yi** ‘he drank (PERFECTIVE)’, **sài-yi** ‘that he drink (SUBJUNCTIVE)’. (2) The CVC verbs listed above have their source in West Chadic Class A1 PERFECTIVE stems, where the stem vowel Ø/**-u/-ə** is typically elidable. (3) Grade 3 verbs, which are all intransitives, are a direct reflex of West Chadic PERFECTIVE Class B verbs. As with monoconsonantal roots, these must have been PERFECTIVES since in other TAMs in languages like Bole, the **-a** PERFECTIVE stem vowel would be replaced by other vowels. (4) Newman (2000:640) argued that A forms of Grade 2 verbs, such as **sàyā**

‘buy’ are nominal in origin. It is likely that Grade 2 A forms actually have a dual source, viz. syncretism of LH-**a** verbal nouns, as Newman suggests, and PERFECTIVE forms of West Chadic Class B verbs such as Bole **binā-wò-yi** ‘he washed (it)’. (5) Finally, Hausa Grade 7, though now treated as a derivational pattern, comprises frozen PERFECTIVES of West Chadic Class A1 and A2 verbs, with final **-u** and the LH tone pattern characteristic of West Chadic PERFECTIVES. See Chapter 7 for further discussion of Grade 7.

- Verbs with verbal extensions: Grade 5 and Grade 6 have their source in morphologically extended stems (treated in Chapter 7). Grade 5 CAUSATIVE is marked by a suffix **-dà**, found throughout Chadic, and Grade 6, VENTIVE, has functional counterparts in many Chadic languages.

One further apparent comparative anomaly is worth mentioning. West Chadic class B verbs have the shape LH-**a** with a CVC (short vowel) root syllable, e.g. Bole **pātā-wò** ‘go out’, **bàsā-wò-yi** ‘shoot’. Hausa Grade 3 verbs, such as **fita** ‘go out’ are a direct reflex of this class in terms of stem shape. However, Hausa Grade 3 verbs are all intransitive whereas class B verbs in other Chadic languages comprise both intransitive and transitive verbs. Newman (p.c.) has proposed that the transitive reflexes of Chadic class B verbs are now “hidden” by adding the **-à** Grade 1 suffix, which is accompanied by a HL tone pattern. Hausa has many transitive verbs like **bug-à** ‘strike’, **gin-à** ‘build’, **tab-à** ‘touch, taste’ **daf-à** ‘cook’, etc. that have the expected Class B root shape. It is not clear why transitive class B verbs would have all taken this path, but if this hypothesis is on the right track, it would account for the apparent “missing” reflexes of West Chadic transitive class B verbs.

The table below summarizes the Hausa reflexes of the West Chadic verb classes.

**Table 35:** Hausa reflexes of West Chadic verb classes

WC CLASS	HAUSA REFLEXES	BOLE EXAMPLES
A1 CVCu	- CVC “clipped” verbs: <b>san</b> ‘know’ - Grade 7 verbs: <b>dàfu</b> ‘be cooked’ - Grade 2 B & C forms: <b>sàye/sàyi</b> ‘buy-Pro/buy-N’ - Outside grade system: <b>gàji</b> ‘be tired’, <b>tàfi</b> ‘go’	<b>ngor-wò-yi</b> ‘he tied (it)’ <b>ngor-tā-wo</b> ‘he tied her’ <b>ngorū tèmshi</b> ‘he tied a sheep’
A2 other -u	- Grade 7 verbs: <b>tàmbàyu</b> ‘take potions’ ( <i>idiom</i> ) - Grade 2 B & C forms: <b>tàmbàye/tàmbàyi</b> ‘ask-pro/ask-N’	<b>dōppu-wò-yi</b> ‘he followed (it)’ <b>dōppi-tā-wo</b> ‘he followed her’ <b>dōppū tèmshi</b> ‘he followed a sheep’
B CVCa	- Grade 3 intransitive verbs: <b>fita</b> ‘go out’ - Grade 1 transitives with HLCā stems: <b>dafà</b> ‘cook’ - Grade 2 A forms: <b>sāyā</b> ‘buy-Ø’ (syncretic with phonologically similar verbal nouns)	<b>pātā-wò</b> ‘he went out’ <b>bāsā-wò-yi</b> ‘he shot (it)’ <b>bāsā tèmshi</b> ‘he shot a sheep’
C Cu	Monoconsonantal Ci verbs: <b>ci</b> ‘eat’	<b>tī-wò-yi</b> ‘he ate (it)’ tī ottò ‘he ate <i>tuwo</i> ’
D Ca	Monoconsonantal Cā verbs: <b>shā</b> ‘drink’	<b>sā</b> ‘he drank (it)’ <b>sā àmma</b> ‘he drank water’

## COMMENTS

A1: Newman (1973, 2000:677ff.) proposed the Grade 2 C form, e.g. **sàyi** ‘buy NOUN’, as both the synchronic base form and the reflex of the West Chadic class marker. The B form **sàye** ‘buy PRONOUN’ is the same form with vowel lengthening, typical before pronoun clitics. The intransitive verbs **gàji** ‘get tired’ and **tàfi** ‘go away’ (from the list of intransitives above that do not fit the grade system) obviously parallel the transitive C forms. While I like this idea and suspect that it is right, it raises questions. First, how can CVC pre-object forms like **san** ‘know’ and CVCi forms like **sàyi** be reconciled as coming from a single source, viz. Class A1 + object? The answer seems to be that the Grade 2 forms represents a regularization, perhaps of an alternative pronunciation of an epenthetic vowel, and the few verbs that can be used in CVC form are a relic preserved with just a few high frequency verbs. More troublesome is reconciling the final **-i** of

Grade 2 C forms and the **-u** of Grade 7 verbs, which look more like the West Chadic reconstruction. There are (at least) two possibilities. (1) The Grade 2 C **-i** and B **-ē** are pre-object stem vowels, and the **-u** of Grade 7 represents the  $\emptyset$  object form. This leaves the **-i** of the intransitives **gàji** and **tàfi** unexplained. (2) Grade 2 B and C forms are not reflexes of the West Chadic PERFECTIVE, but rather of the West Chadic SUBJUNCTIVE, which is marked by a front vowel in both Bole-Tangale and Bade-Ngizim (cf. Bole **ngor-wò-yi** ‘he tied (pf.)’, **ngòrī-yì** ‘that he tie (SUBJUNCTIVE)’).<sup>83</sup>

A2: The problem of reconciling the **-i/-ē** of Grade 2 pre-object forms and the **-u** of Grade 7 is the same as for Class A1. Note the **-i-** in the Bole pre-pronominal form (**dòppi-tā-wo**). In various publications, Newman (1973 and elsewhere) has cited this as being etymologically related to the **-i/-ē** of Hausa Grade 2 pre-object forms. There is little support for this. The **-i-** in Bole is, in origin at least, a case of language specific phonologically conditioned epenthesis to avoid CCC clusters rather than a morphologically conditioned stem vowel.

B: As already argued, Hausa Grade 3 verbs are unequivocal reflexes of West Chadic Class B PERFECTIVES. Hausa has expanded Grade 3 to include roots other than CVC-, e.g. **hàkurà** ‘be patient’, but underived Grade 3 verbs of this type are few in number and surely an innovation.<sup>84</sup> Above, I suggested that the A form of Grade 2 verbs, such as **sàyā** ‘buy’ represents syncretism of CVCā verbal nouns, as argued by Newman (2000:640), and West Chadic transitive Class B verbs. In modern Hausa, however, there are no verbs of the form CVCa with LH tones used with an object, such as the Bole example **bàsā tèmshi** ‘he shot a sheep’, so Hausa retains no reflex of this West Chadic construction.

C, D: These are the West Chadic monoconsonantal classes, inherited essentially intact in Hausa. The vowel of Class C verbs has been unstable within West Chadic. Bole has **-ī**,

<sup>83</sup> In Schuh (1977) I argued that in Kanakuru (Newman 1974), whose lexical vowel classes for PERFECTIVES are **-i** and **-e**, in fact are originally SUBJUNCTIVES. In all the northern Bole-Tangale languages, A1 SUBJUNCTIVE stems have the vowel **-i** while A2 SUBJUNCTIVE stems have **-e**, and formally, Kanakuru **-i** roots vs. **-e** roots correlate perfectly with Classes A1 vs. A2 in other languages.

<sup>84</sup> Some Grade 3 verbs like **hàkurà** ‘be patient’, **sàuka** ‘descend’ that do not have the canonical CVC- root form may be derived forms with “remnant affixes” (5). In Bole, derived verbs with Class B bases retain the Class B stem vowel **-a**, e.g. **kàutā-** ‘feed’ < **kàwā-** ‘be sated’, **gàdītā-** ‘put in’ < **gādā-** ‘enter’.

as in the example, but Karekare and Ngamo have **-u**, e.g. Karekare **tū-kàù** ‘he ate’, Ngamo **tù-kô** ‘he ate’. Bade and Ngizim have shifted all Class C verbs, except the highly irregular **ju** ‘go’, to Class D, e.g. Ngizim **ta-w** ‘he ate’, though Duwai preserves the C ~ D distinction, e.g. Duwai **tù-wo** ‘he ate’, **sà-wo** ‘he drank’.

### 6.1.3. Newman’s Vowel Class Extension (VCE) model

An alternative view of Hausa verb classification in terms of the synchronic grade system and in terms of the historical-comparative picture presented above is Newman’s (1973, 2000:677 ff.) Vowel-Class Extension (VCE) model. Newman (1975), citing data from eight languages, four Central Chadic = Biu-Mandara languages (Tera, Ga’anda, Margi, Kotoko) and four West Chadic languages (Ngizim, Bole, Kanakuru, Hausa), reconstructs a Proto-Chadic system in which, for many languages, verbs fall into cross-cutting classes comprising two tone classes and two final vowel classes. As an example, Tera verbs fall into the following classes (Newman 1975:70):<sup>85</sup>

**Table 36:** Tera verb classes

TONE	<i>a</i> -verbs	<i>ə</i> -verbs <sup>86</sup>
Hi	<b>ǵá</b> ‘call’	<b>cí</b> ‘eat’
Mid	<b>ǵa</b> ‘set a trap’	<b>ǵi</b> ‘receive’
Lo	<b>zà</b> ‘close’	<b>jì</b> ‘measure out’
Lo-Mid / Hi-Mid	<b>wàǵa</b> ‘finish’	<b>ŋǵúmi</b> ‘be tired’
Mid-Mid	<b>masa</b> ‘buy’	<b>kǵdi</b> ‘pull’
Lo-Lo	<b>làwà</b> ‘seize’	<b>zǵnì</b> ‘know’

Tera has six vowels (**i, u, e, o, a, ə**) and three tones. This inventory would, in principle, yield nine possible cross-cutting vowel-tone classes for monoconsonantal verbs, and, with nine possible tonal classes for a three-tone system, potentially 54 classes for disconsonantal roots (9 tone classes x 6 vowels). A similar picture emerges in the

<sup>85</sup> I have modified the Tera examples, adding mono-consonant roots, which Newman did not include in his description.

<sup>86</sup> Underlyingly, the final vowel is /ə/; in pre-pausal position it is pronounced [i].

other languages where the number of theoretically possible vowel-tone classes is limited in non-random ways.

The Hausa VCE model fits this comparative picture as follows:

**Table 37:** Hausa verb final vowels and tone

TONE	<i>a</i> -verbs	<i>i</i> -verbs
H	<b>jā</b> ‘pull’	<b>ci</b> ‘eat’
H-L	<b>dafà</b> ‘cook’ (= Grade 1)	<b>fadi</b> ‘fall’
L-H	<b>fita</b> ‘go out’ (= Grade 3)	<b>sàyi</b> ‘buy’ (= Grade 2)

This classification of Hausa verbs departs from the grade system in two principle ways. First, Newman takes the C form of verbs, the form used with nominal objects, as the base form of Grade 2 verbs, whereas the implicit assumption in most work on Hausa is that the A form, the form with no object and the form given as the headword in most dictionaries is the base.<sup>87</sup> This aligns Hausa with a two-way vowel class distinction, *-a* and *-i/ə*, for the inventory of possible tone patterns—H ~ L for monoconsonantal verbs and HL ~ LH for diconsonantal verbs in Hausa’s ditonal system. Second, Newman distinguishes grade forms that are the lexical base forms from those that are derived, particularly with reference to verbs of Grades 1 and 2. Formally, Grade 1 verbs hide a distinction between a “neutral” base form like **dafā** ‘cook’ and a derived form like **sayà** ‘buy for’, derived from the basic Grade 2 **sàyi** by changing the verb to a HL **à** APPLICATIVE, which is formally indistinguishable from basic Grade 1. Conversely, a basic Grade 1 like **yankā** ‘cut’ has a Grade 2 counterpart **yàнки** ‘cut a piece off’, which formally is identical to basic Grade 2 verbs but which is a derived PARTITIVE.

The main difference between the proposal laid out in §6.1.2 and the VCE system is that the VCE model relates Hausa verb classes directly to a reconstructable Chadic verb classification system, whereas the proposal in §6.1.2 argues that the verb classes defined by the grade system arise from multiple sources, summarized in the table in §6.1.2. These are innovation of finite verbs from erstwhile nominal forms; reinterpretation of erstwhile PERFECTIVE TAM forms as derived forms, viz. LH-**u** Grade 7 reflecting the

<sup>87</sup> The Hausa-French dictionary of Mijinguini (1994) is an exception in using the verbal noun as the citation form for verb entries.

PERFECTIVE of proto-West Chadic classes A1 and A2 and LH-a Grade 3 reflecting the PERFECTIVE of proto-West Chadic class B; reconstructable extended forms inherited into Hausa from proto-West Chadic, most notably Grade 5 CAUSATIVE with a suffix **-da** and Grade 6 VENTIVE with a suffix **\*-w > -ō**.

An upshot of reinterpretation of erstwhile PERFECTIVES as derived forms rather than forms inflected for TAM is that, unlike Hausa's West Chadic cousins, verbs are invariable for most TAMs (§6.2). The two exceptions are the CONTINUATIVE (§6.2.4), which use a nominalized verb form as do some of Hausa's cousins, and the singular IMPERATIVE (§6.2.9), which preserves two vestiges of proto-West Chadic TAM inflectional morphology. The reconstructable pattern for West Chadic IMPERATIVES is singular LH-i, plural LH-a, as exemplified by Bole **ngòri temshi!** 'tie up (singular) a sheep!', **ngòra temshi!** 'tie up (plural) a sheep!' (cf. **ngorū tèmshi** 'he tied up (PERFECTIVE) a sheep'). Hausa has lost a special plural IMPERATIVE, using the SUBJUNCTIVE for commands to plural subjects. Hausa retains the LH tone pattern for all IMPERATIVES. e.g. Grade 1 **kāmā!** 'catch (it)!' (**kāmā** in other TAMs), Grade 4 **rùfē!** 'close (it)!' (**rùfē** in other TAMs), Grade 6 **kòmō!** 'come back!' (**kòmō** in other TAMs). The proto-West Chadic **-i** singular inflectional suffix is preserved only with Grade 2 verbs, e.g. **kàrbī!** 'take (it)!' (A form **kàrbā**). Newman (2000:264) points out that the Grade 2 IMPERATIVE is identical to the LH-i form that he proposes as one of the base forms in the VCE system, which raises the question as to whether even this is a reflex of real proto-West Chadic TAM inflection. I suspect that it is. Grade 2 IMPERATIVES with pronoun object have forms such as **kàrbè-su!** 'take them!', with L on the verb stem and the pronoun object incorporated into the LH IMPERATIVE tone pattern. This pattern is unique to IMPERATIVES, suggesting that there is still a sense in Hausa that IMPERATIVES are "special".

To summarize, the Hausa grade system may retain elements of a reconstructable Proto-Chadic system of lexical verb classes as outlined in the VCE system, but the complete breakdown of TAM marking by inflectional morphology on verbs themselves points to massive reinterpretation of the functions of verb forms, which has led to a system of verb classification unlike that of any of Hausa's West Chadic cousins.



## 6.2. Subject agreement and TAMs

The section above notes that Hausa, unlike most of its West Chadic cousins, does not mark TAM distinctions by inflectional morphology on the verb with the exception of the CONTINUATIVE, which uses nominal forms and the IMPERATIVE, which retains vestiges of the proto-West Chadic IMPERATIVE inflectional morphology. Inflectional morphology on verb stems relates to types of complements: no overt complement (A form), pronoun direct object (B form), noun direct object (C form), and indirect object (D form). See the table in §6.1.1 for details. Rather than inflecting the verbs themselves, Hausa marks TAM distinctions by preverbal auxiliary clitics and/or special subject pronoun paradigms.

The tables below show Hausa TAM marking. Pronoun clitics serve the dual function of showing subject agreement and of TAM marking. Because of this, subject clitics are required in most TAMs even when an overt noun subject is present). Subject clitics fall into three groups, shown in the three tables below. The TAMs are all illustrated with the verb *yi* ‘do, make’, but they would all have the same marking regardless of verb.

**Table 38:** Subject clitics

DEFAULT SUBJECT CLITICS (= Newman’s (2000:485) “weak subject pronouns”)<sup>88</sup>

	SUBJUNCTIVE	NEG. PERFECTIVE	POTENTIAL	CONT.	NEG. CONT.	REL. CONT.
1 s.	<b>ìn/nà yi</b>	<b>bà-n yi ba</b>	<b>n-â yi</b>	<b>ń/i-nà yî</b>	<b>bā n-à yî</b>	<b>ni/na-kè yî</b>
2 m.s.	<b>kà yi</b>	<b>bà kà yi ba</b>	<b>k-â yi</b>	<b>ka-nà yî</b>	<b>bā k-à yî</b>	<b>ka-kè yî</b>
2 f.s.	<b>kì yi</b>	<b>bà kì yi ba</b>	<b>ky-â yi</b>	<b>ki-nà yî</b>	<b>bā ky-à yî</b>	<b>ki-kè yî</b>
3 m.s.	<b>yà yi</b>	<b>bà-i yi ba</b>	<b>y-â yi</b>	<b>ya-nà yî</b>	<b>bā y-à yî</b>	<b>ya-kè yî</b>
3 f.s.	<b>tà yi</b>	<b>bà tà yi ba</b>	<b>t-â yi</b>	<b>ta-nà yî</b>	<b>bā t-à yî</b>	<b>ta-kè yî</b>
1 pl.	<b>mù yi</b>	<b>bà mù yi ba</b>	<b>m(w)-â yi</b>	<b>mu-nà yî</b>	<b>bā m-à yî</b>	<b>mu-kè yî</b>
2 pl.	<b>kù yi</b>	<b>bà kù yi ba</b>	<b>kw-â yi</b>	<b>ku-nà yî</b>	<b>bā kw-à yî</b>	<b>ku-kè yî</b>
3 pl.	<b>sù yi</b>	<b>bà sù yi ba</b>	<b>s(w)-â yi</b>	<b>su-nà yî</b>	<b>bā s-à yî</b>	<b>su-kè yî</b>

<sup>88</sup> These tables omit two TAMs that use the DEFAULT CLITIC. The HABITUAL described in §6.2.7, is marked by the auxiliary **kàn**, e.g. **ya-kàn yi** ‘he does it’. The RHETORICAL, discussed in §6.2.3, is marked by an auxiliary **-kà**.

## PERFECTIVE SUBJECT PRONOUN SET

	PERFECTIVE	“RELATIVE” PERFECTIVE			
		ORIGINAL		W. HAUSA	ST. HAUSA
1 s.	<b>nā yi</b>	<b>*nā-kà yi</b>	> <b>*na-k yi</b>	> <b>na-G yi</b>	> <b>na yi</b>
2 m.s.	<b>kā yi</b>	<b>*kā-kà yi</b>	> <b>*ka-k yi</b>	> <b>ka-G yi</b>	> <b>ka yi</b>
2 f.s.	<b>kin yi</b>	<b>*kin-kà yi</b>		> <b>ki-G yi</b>	> <b>ki-kà yi</b>
3 m.s.	<b>yā yi</b>	<b>*yā-kà yi</b>	> <b>*ya-k yi</b>	> <b>ya-G yi</b>	> <b>ya yi</b>
3 f.s.	<b>tā yi</b>	<b>*tā-kà yi</b>	> <b>*ta-k yi</b>	> <b>ta-G yi</b>	> <b>ta yi</b>
1 pl.	<b>mun yi</b>	<b>*mun-kà yi</b>		> <b>mun-kà yi</b>	> <b>mu-kà yi</b>
2 pl.	<b>kun yi</b>	<b>*kun-kà yi</b>		> <b>kun-kà yi</b>	> <b>ku-kà yi</b>
3 pl.	<b>sun yi</b>	<b>*sun-kà yi</b>		> <b>sun-kà yi</b>	> <b>su-kà yi</b>

## POST-AUXILIARY CLITICS

FUTURE			
1 s.	<b>zā-n yi</b>	1 pl.	<b>zā mù yi</b>
2 m.s.	<b>zā kà yi</b>	2 pl.	<b>zā kù yi</b>
2 f.s.	<b>zā kì yi</b>		
3 m.s.	<b>zā-i yi</b>	3 pl.	<b>zā sù yi</b>
3 f.s.	<b>zā tà yi</b>		

The DEFAULT SUBJECT CLITICS are reflexes of the proto-West Chadic subject clitics, which are maintained pretty much as-is in Bole-Tangale languages and to a large extent in Bade-Ngizim. These clitics originally had no function other than marking subject agreement. This is almost the case in Hausa as well. The only TAM marked by default subject clitics alone is the SUBJUNCTIVE, where they have taken on TAM marking function by the back door: Hausa lost TAM inflection on the verb, but other TAMs that use default subject clitics have other overt TAM marking, leaving the CLITIC+VERB configuration of the SUBJUNCTIVE as being marked by the *absence* of marking! The default subject clitics have L tone when coming directly before the verb (NEGATIVE PERFECTIVE, SUBJUNCTIVE), H tone when preceding a TAM auxiliary. Newman

(2000:486) considers these clitics to be inherently toneless, which is probably right for modern Hausa.<sup>89</sup>

The POST-AUXILIARY CLITICS are identical to the DEFAULT SUBJECT CLITICS and even follow the same tone rule (L directly before a verb). In modern Standard Hausa they should probably be collapsed into the same set. Historically, however, they have different sources. The Hausa DEFAULT SUBJECT CLITICS are functionally unchanged from their historical source. The POST-AUXILIARY CLITICS, however, were originally Intransitive Copy Pronouns (ICP), found in a number of West Chadic, as suffixes to intransitive verbs, e.g. Miya à **ba-tlá** **say** ‘she went-she’, **món tsòga-wan** **sáy** ‘I sat-me’ (Schuh 1998:182). See Chapter 7, §1.2. The Hausa FUTURE auxiliary **zā** is, historically, a verb meaning ‘go’, used in Standard Hausa only as a defective verb meaning ‘going’, with only suffixes marking subject, e.g. **ìnā zā ka?** ‘where are you going?’. I return to this in §6.2.6.

The PERFECTIVE SUBJECT PRONOUN set has led to considerable discussion in the literature on Hausa, much of it trying to figure out ways to decompose the pronouns into a subject agreement clitic and a TAM marker. Comparative evidence shows that these pronouns are unrelated to the other subject clitics and that a bimorphemic analysis of AGREEMENT+TAM is misguided—they are non-decomposable cumulative expressions of AGREEMENT+TAM. From a historical perspective, these pronouns are the West Chadic INDEPENDENT PRONOUNS, exemplified by Kirfi (I.A.2), whose independent pronoun paradigm is nearly identical to that of Hausa PERFECTIVE (Schuh 1978:34).

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<sup>89</sup> Chadic languages vary considerably as to subject clitic tones. In the Bole-Tangale languages, 1<sup>st</sup> person singular is L, others are H. The principle of *archaic heterogeneity* (Hetzron 1976) would dictate that this is the original situation, and languages, such as Hausa, which have regularized the tones, are innovative.

**Table 39:** Kirfi independent pronouns

KIRFI INDEPENDENT PRONOUNS			
	SINGULAR		PLURAL
1	<b>nǎa</b>	1	<b>mùnnu</b>
2m	<b>kǎa</b>	2	<b>kùnnu</b>
2f	<b>cǐi</b>		
3m	<b>shǐi</b>	3	<b>sùnnu</b>
3f	<b>tǎa</b>		

The most striking difference between the Hausa PERFECTIVE and the Kirfi independent pronouns is Hausa 2<sup>nd</sup> feminine singular **kin** vs. Kirfi **cǐi** < \***kii**, where the Hausa form ends in a nasal and the Kirfi form does not. The Hausa feminine **kin** is a reflex of proto-Afroasiatic \***kəm**, found in Egyptian, Berber, and throughout Chadic, e.g. Ngizim **kəm**, Miya **-ghəm**, and outside West Chadic, Buduma **-gəm**. The **-n** terminating the plural pronouns is likewise an inheritance from proto-Afroasiatic found in all the languages cited as preserving the nasal in the 2<sup>nd</sup> feminine singular.

From a historical perspective, there are three main issues to be addressed in understanding formal marking of modern Hausa TAMs:

- The forms of the verbs themselves: In §6.1, I have argued that modern Hausa finite verb forms come from three sources: reconstructable verbs stems without or with reconstructable verbal extension suffixes; verbal nouns reinterpreted as finite verbs; erstwhile PERFECTIVE inflected forms reinterpreted as being invariable and TAM-neutral.
- The sources of subject agreement pronouns and of TAM markers: I have argued above that subject agreement pronouns have three historical sources, and in some cases it is the pronouns themselves that mark TAM. In particular, the SUBJUNCTIVE and the PERFECTIVE have no overt TAM marking other than their distinctive subject pronouns.
- The GENERAL ~ RELATIVE distinction in some TAMs: Broadly speaking, the GENERAL TAMs are used in affirmative declarative statement, the RELATIVE TAMs in

constructions involving some kind of focus. The functions and historical source of this distinction is discussed in §6.2.8.

### 6.2.1. Subjunctive

The SUBJUNCTIVE consists of PRONOUN+VERB with no overt TAM marking. From the perspective of syntactic distribution and English translations, the SUBJUNCTIVE appears to be polyfunctional. I give here some cases to illustrate this.

Exhortations:	<b>bākī sù shigō</b>	‘have the guests enter’
Beseechments:	<b>Allàh yà kiyàyē</b>	‘may God watch over (your trip, etc.)’
Complements		
of desire, etc.:	<b>inà sô kà fàdā</b>	‘I want you to say it’
of causation:	<b>zân sâ kà fàdā</b>	‘I’ll make you say it’
of necessity:	<b>dōlè kà fàdā</b>	‘it’s necessary that you say it’
of fittingness:	<b>bài kāmātà kà fàdā ba</b>	‘you shouldn’t say it’ (it’s not fitting you say [not])
of possibility:	<b>yā yiwu yà fàdā</b>	‘it’s possible that he might say it’
of prohibition:	<b>kadà kà fàdā</b>	‘don’t say it!’
Purpose clauses:	<b>nā fita ìn yi yāwò</b>	‘I went out to stroll about’
‘before’ clauses:	<b>kāfin ìn kwántā, sai ìn yi sallā</b>	‘before I lie down, I’ll pray’
Sequence after		
future:	<b>zân kāwō itācē ìn hūrà wutā</b>	‘I’ll bring wood and start the fire’
continuative:	<b>kullum sunā tāshì sù gudù</b>	‘their always arise and run’
imperative:	<b>tāshi kà tàfi!</b>	‘get up and get out!’

Sequence in generic narrative:

**Dukàn sàmārī sai kōwànnensù yà ci adō yà shāfè wàrkìnsà dà m̄ai yà s̄a zōbbā.**

‘All the youths, each one of them [he] dresses up, [he] rubs his apron with oil, [and he] puts on rings.’<sup>90</sup>

Newman (2000:593-594) argues that there are two phonologically identical but functionally distinct TAMs: : SUBJUNCTIVE, with underlying TAM marking that surfaces

<sup>90</sup> *Ka Yi Ta Karatu*, Zaria, Nigeria: Northern Regional Literacy Agency, 1958, page 37.

as phonologically null, and “NEUTRAL”, with no TAM marking at all.<sup>91</sup> The SUBJUNCTIVE is seen in the first group of examples above, where the clause containing the SUBJUNCTIVE has a modal value; the “NEUTRAL” is seen in the second group of examples, where a temporal, aspectual, or modal value is established in the first clause and is the understood value of the following clauses.<sup>92</sup>

Evidence from other Chadic languages provides no support for making this synchronic distinction in Hausa nor for postulating two historical sources that have fallen together. Indeed, other Chadic languages provide evidence *against* the existence of such a distinction. In languages that do have overt inflectional TAM marking, such as the Bole-Tangale and Bade-Ngizim languages, or, outside West Chadic, Gude (§5.2.2.1), there is a single SUBJUNCTIVE TAM form that encompasses the full suite of functions listed above. It would be farfetched to suggest that these languages had lost a morphological distinction in a way exactly parallel to that loss in Hausa. In Schuh (2003c) I argue that the apparent polyfunctionality of the SUBJUNCTIVE in Hausa and its Chadic cousins is an artifact of translation into European languages and of theoretical predilections about what constitutes natural morphosyntactic classes. To show that the SUBJUNCTIVE in these languages can be viewed as a morphosyntactic unity, I propose the following characterization:

The SUBJUNCTIVE signals an event which will have its inception subsequent to the moment of speaking and/or to an event in a superordinate clause. The temporal, aspectual, and modal (= TAM) interpretation of the event represented by the SUBJUNCTIVE is dependent on that of the superordinate clause or operator. (Schuh 2003c:9)

Whether or not this is the most satisfactory way to characterize the function of the SUBJUNCTIVE may be open to question, but both comparative and internal Hausa evidence point to a single reconstructable TAM and to a single TAM in Hausa.

Like its counterparts in all Chadic languages, the SUBJUNCTIVE cannot be used in conditional clauses (\**idan kà fādā...* for ‘if you might say it...’) or “relative”

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<sup>91</sup> Newman credits Wolff (1991:416ff.) as the first to connect a functional distinction to a hidden TAM distinction in Hausa.

<sup>92</sup> Personally, I do not accept this interpretation. The SUBJUNCTIVE clauses are not “neutral” in semantic content. Rather, the presence of the SUBJUNCTIVE shows that the events are sequential. This contrasts with repetition of the superordinate TAM, which indicate separated, unconnected events in some TAMs.

environments (*\*wà yà fàfā?* for ‘who might say it?’), and as in many languages, the formal SUBJUNCTIVE is excluded from negatives. In Hausa grammars, the prohibitive construction seen above in **kadà kà fàfā!** ‘don’t say it!’ is usually called the “NEGATIVE SUBJUNCTIVE”. This is functionally equivalent to a negative imperative or hortative, but grammatically, it is simply a clause embedded under the prohibitive operator **kadà** ‘let not..., lest...’, no different syntactically from clauses embedded under operators such as **dōlè** ‘it is necessary...’ or **yā yiwu...** ‘it’s possible...’. Negative modalities using the SUBJUNCTIVE are always expressed by negating a superordinate clause, not the embedded SUBJUNCTIVE, as in the example above, **bàì kāmātà kà fàfā ba** ‘you shouldn’t say it’, where the modal verb **kāmātà** ‘be fitting’ uses the NEGATIVE PERFECTIVE TAM. In a sequential situation, if absence of an event is part of a sequence, the negative of an appropriate TAM other than the SUBJUNCTIVE is used. For example, if one wanted to add ‘...and he doesn’t shave his head’ to the end of the sequence of events in the example cited above, ... **yà sà zōbbā** ‘...and he puts on rings’, (a description of Fulbe youths preparing for the *sharo* ritual), this would be expressed ...**bà zā-i askè kânsà ba** ‘...and he won’t shave his head’, using the negative of the FUTURE.

### 6.2.2. Negative Perfective

The NEGATIVE PERFECTIVE negates PERFECTIVE events. With active verbs, it indicates non-completion (usually non-initiation) of an event. With stative verbs, it indicates absence of a state.

**bàrèyī bà sù gudù ba** ‘the gazelles didn’t run away’

**bà-n sanì ba** ‘I don’t know’

Formally, the modern Hausa subject marking in the NEGATIVE PERFECTIVE is identical to the SUBJUNCTIVE with the addition of the discontinuous negative marking **bà...ba**. We can assume, however, that historically the fundamental morphological distinction between SUBJUNCTIVE and NEGATIVE PERFECTIVE was a difference in verbal inflection. The modern PERFECTIVE, to be discussed in §6.2.7, is innovative and is formally unconnected to the original West Chadic PERFECTIVE.

### 6.2.3. Potential and Rhetorical

I discuss these two TAMs together because, historically, they stood in a GENERAL vs. RELATIVE relationship to each other (§6.2.9). The POTENTIAL is a productive and commonly used TAM, the RHETORICAL is largely confined to fixed phrases.

The POTENTIAL has been given about as many labels as there are people who have written about it: “FUTURE II”, “INDEFINITE FUTURE”, “MODAL FUTURE”, “PREDICTIVE”, and others. I have adopted Newman’s (2000:14) POTENTIAL (FUTURE). This TAM indicates an event that will take place after a time of reference, assuming circumstances permit it. It contrasts with the FUTURE (§6.2.6) in English translation by adding “surely” to a FUTURE clause, which, ironically, makes the English future less “sure”!, e.g. FUTURE **yârānā zā sù gānè ka** ‘my children will recognize you’, a statement of fact, vs. POTENTIAL **yârānā s-â gānè ka** ‘my children will surely recognize you’ (there’s no reason to think they won’t). It is common in proverbial sayings:

**Kômē ka hàkurà dà shī, k-â ga bāyansà.**

‘Anything you are patient with, you’ll see the end of it.’

The construction **â+VERB** has a cognate form in the Ngizim IMPERFECTIVE (Schuh 1971), which uses an auxiliary **â** plus a verbal noun, e.g. Ngizim **n-â rawà** ‘I will run, I am running’. The Ngizim auxiliary **â** is identical to the general locative preposition meaning ‘at, on, in’, and at some historical level, this and other Chadic IMPERFECTIVES (various progressives, habituals, futures) have a locative metaphor as their source, such as “I am a-running”. This metaphor has been created repeatedly in the history of Chadic, sometimes inherited with loss of any sense of locativeness, sometimes recreated using the metaphor.<sup>93</sup> The CONTINUATIVE (§6.2.4) does use the verbal noun, suggesting that it is a more recent development than the POTENTIAL, which reveals no nominal characteristics. This more recently developed form with a progressive sense, plus the development of the innovative FUTURE (§6.2.6), with a verb-based auxiliary, have largely taken over the IMPERFECTIVE semantic space in affirmative declarative clauses.

<sup>93</sup> A striking loss of the metaphor in some dialects of Hausa is the uses of the PERFECTIVE pronouns with a falling tones to mark POTENTIAL rather than the original C-â, e.g. PERFECTIVE **sun zō** ‘they came’, POTENTIAL **sûn zō** ‘they will surely come’ = standard Hausa **sâ zō**.



As Newman (2000:588) points out, the POTENTIAL cannot be used in “relative” environments (relative clauses, WH-questions, focus constructions). In these environments, the RELATIVE CONTINUATIVE or the RHETORICAL are now the formal counterpart, if not exactly the pragmatic counterparts, of the POTENTIAL.

The POTENTIAL is negated by the general discontinuous negative marker **bà...ba**, e.g. **bà s-â gānè ka ba** ‘they probably won’t recognize you’. Like the shift to using a finite verb form, this is an innovation. The negative corresponding historically to the POTENTIAL is the NEGATIVE CONTINUATIVE (§6.2.5)

The RHETORICAL, first described in any detail by Newman (2000:588-590), is marked by an auxiliary complex **-k-à**. The GENERAL POTENTIAL pronouns, with falling tone, e.g. third plural **s-â**, are a contractions of the high tone default subject pronoun (§6.2) and the low tone preposition; the RHETORICAL consists of the default subject pronoun, the RELATIVE clitic **-kà-**, and the locative preposition **-à**, e.g. third plural **su-kà-à**.

Though this derivation is historical parallel to other GENERAL TAMs and their RELATIVE counterparts (§6.2.9), in modern Hausa, the POTENTIAL and the RHETORICAL should probably be considered to be independent TAMs. As noted, the POTENTIAL is productively used in affirmative clauses. The RHETORICAL is largely restricted to fixed turns of phrase expressing doubt or uncertainty, e.g. **hāli-n kākà ni-kà yi** “being in a difficult situation” (lit: circumstance-of how I-might do). Though a pragmatic connection to the POTENTIAL is evident, expressions like this are not generated by speakers on the fly.

#### 6.2.4. Continulative

Depending on context, the CONTINUATIVE (= “continuous” or “progressive”) can cover a range of uses in IMPERFECTIVE semantic space, particularly progressive and habitual meanings. The CONTINUATIVE uses a verbal noun rather than a finite verb, though there are some caveats to this statement. Here are examples of form and function:

- |        |                      |                           |
|--------|----------------------|---------------------------|
| (1) a. | <b>mu-nà isôwa</b>   | ‘we are arriving (here)’  |
|        | cf. <b>mun isô</b>   | ‘we arrived (PERFECTIVE)’ |
|        | b. <b>mu-nà gudù</b> | ‘we are running’          |
|        | cf. <b>mù gudù</b>   | ‘let’s run (SUBJUNCTIVE)’ |

- (2) a. Q: **Ku-nà kàwō hatsī?** ‘Are you bringing millet?’  
 b. A: **Mu-nà kàwôwā** ‘we are bringing (some).’  
 c. Q: **Ku-nà sàye-n hatsī?** ‘Are you buying millet?’  
 d. A: **Mu-nà sàyē** ‘We are buying (some).’
- (3) a. **mu-nà kàwō mukù hatsī** ‘we are bringing you millet’  
 b. **mu-nà sayà mukù hatsī** ‘we are buying millet for you’
- (4) a. **i-nà dīnkà rīgā** ‘I am sewing a shirt’  
 b. **i-nà dīnkì-n rīgā** ‘I sew shirts’
- (5) **nā yi watà biyu i-nà aikì à Kanò** ‘I spent two months working in Kano’
- (6) **rānā ta-nà fitôwā dàgà gabàs nē** ‘the sun rises in the east’ (Newman 2000:577)
- (7) a. **rākumà (su-)nà tàfiyà** ‘the camels are traveling’  
 b. **su-nà (\*nà) tàfiyà** ‘they are traveling’

The examples in (1) show intransitive verbs in the CONTINUATIVE with verbal nouns vs. other TAMs that use a finite verb (**isôwa** vs. **isô**, **gudû** vs. **gudù**). The examples in (2) illustrate the behavior of two classes of transitive verbs. When verbs of Grades 1, 4, 5, 6 in the CONTINUATIVE have an overt direct object, they appear as finite verbs, but with no following direct object, they use a regularly formed verbal noun with the suffix **-wā**. In (2a, b), compare the forms of the Grade 6 verb **kàwō** (= finite form) ‘bring’ vs. **kàwôwā** (verbal noun) ‘bringing’. Verbs of Grade 2 and some verbs that do not fit the grade system, most notably monoconsonantal verbs like **ci** ‘eat’ and **shā** ‘drink’, have verbal nouns that are lexically idiosyncratic for most verbs. Verbs of this type require that the verb have its verbal noun form in all CONTINUATIVE contexts except that in (3), with an indirect object, and when a direct object follows, it forms a genitive complex with a genitive linker. In (2c, d) the verbal noun of the Grade 2 verb **sàyā** is the lexically listed form **sàyē**, and VERB+OBJECT has the form **sàye-n hatsī**, literally “buying-of millet”. As shown in (3), however, all verbs in the CONTINUATIVE use a finite verb form when an indirect object follows: **kàwō** ‘bring’ has its normal finite form and **sayà** ‘buy’ uses a Grade 1 APPLICATIVE finite form.

Many Grade 1 verbs have a regularly formed verbal noun with the suffix **-wā** as well as a lexically specified derived noun, similar to pairs like English *amusing* vs. *amusement*. In cases like this, it is possible to get a semantic contrast in the

CONTINUATIVE like that in (4a, b), where the regular verb has a progressive sense (as in 4a) but a construction with the derived verbal noun gives the sense of doing the action as an occupation or a personal habit (as in 4b).<sup>94</sup>

The typical context and meaning for the CONTINUATIVE is similar to the English BE+VERB-*ing* progressive, i.e. on-going action in the present. Example (5), however, literally translated “I did two months I was working in Kano”, has a past context, showing that the CONTINUATIVE is not specified for *tense*. Example (5) also shows another typical use of the CONTINUATIVE, viz. ongoing activity that overlaps other events. Example (6) requires a HABITUAL interpretation, translatable by English simple present, rather than a progressive translation.

Examples (7a, b) show another difference between the CONTINUATIVE and “finite” TAMs, viz. if a noun subject is present, the agreement clitic may be elided. If a noun subject is not present, however, even if it is understood from context, the agreement clitic is required.

The historical source of the CONTINUATIVE auxiliary **nà** is something of a mystery. The **-à** must, historically, be the same **-à** seen in the POTENTIAL, but where did the **n-** come from? I feel fairly confident that it has the same source as the non-verbal copula **nē**, but copulas in Hausa, which all come from reinterpreted demonstratives, should come at the ends of clauses, e.g. **nī nē** ‘it’s me’, **wāwā ka kē** ‘a fool is what you are’. A copular origin for the **n-** of the CONTINUATIVE auxiliary, which *precedes* the VP, is thus problematic. I leave the historical derivation of the CONTINUATIVE auxiliary **nà** without a satisfactory resolution.

#### 6.2.5. Negative Continuative

Semantically, the NEGATIVE CONTINUATIVE is the negation of the CONTINUATIVE. All the examples in §6.2.4 could be negated by substituting the NEGATIVE CONTINUATIVE for the CONTINUATIVE, e.g. (1a’) **bā m-à isôwā** ‘we are not arriving’, (5’) **nā yi watà biyu**

<sup>94</sup> It is not clear how robust this contrast is in practice. In my experience, it seems that Hausa speakers often use constructions with the derived verbal noun in a progressive sense, though a construction with a **-wā** verbal noun does not seem to allow the “occupational, personal habit” sense. For verbs like Grade 2 and monoconsonantal verbs, which do not have **-wā** verbal nouns, both meanings are systematically possible.

**bā n-à aikì à Kanò** ‘I spent two months when I wasn’t working in Kano’. In negative examples parallel to (7), a noun subject precedes the negative marker and the subject clitic cannot be omitted: (7a) **rākumà bā s-à (\*bā à) tàfiyà** ‘the camels are not traveling’.

Formally and historically, the NEGATIVE CONTINUATIVE is the negative of the POTENTIAL, with the auxiliary **à**.<sup>95</sup> Rather than the discontinuous negative **bà...ba** used to negate all TAMs with finite verbs, the CONTINUATIVE is negated by a single VP-initial **bā**, historically related to the negative existential operator **bâ... ‘there is no...’**. Using the 2<sup>nd</sup> masculine singular form to illustrate, the modern **bā k-à**... NEGATIVE CONTINUATIVE comes either from **\*bā ka-à**... or **\*bâ ka-à**... with vowel elision and tonal simplification to become the modern **bā<sup>H</sup> k-à<sup>L</sup>**... pattern.<sup>96</sup>

Like the NEGATIVE PERFECTIVE (§6.2.2), the NEGATIVE CONTINUATIVE is more conservative than its affirmative counterpart. In the case of the NEGATIVE CONTINUATIVE, not only does it lack the innovative **n-** element of the CONTINUATIVE (see end of §6.2.4), but contrasted with its formal affirmative counterpart, the POTENTIAL, the NEGATIVE CONTINUATIVE continues to use the verbal noun rather than a finite verb.

#### 6.2.6. Future and Allative

The FUTURE refers to an event that will have its inception after the time of reference. In the absence of context to the contrary, it can be translated by English future tense with *going to* or *gonna*. Like other TAMs in Hausa and Chadic in general, however, the FUTURE marks *relative*, not *absolute* tense. If the context is past, the FUTURE can be used with an English translation “was about to”. The FUTURE is negated by the default discontinuous negative marker **bà...ba**.<sup>97</sup> The FUTURE may be used in “relative” contexts.

<sup>95</sup> As noted above, the modern POTENTIAL now uses the regular discontinuous **bà...ba** negative pattern.

<sup>96</sup> This is the pattern of Standard Kano Hausa. There is considerable dialect variation in the NEGATIVE CONTINUATIVE, both in tone patterns and vowel lengths.

<sup>97</sup> Some speakers have a long vowel on the first **bā**, i.e. **bā...ba**. In other TAMs, this would be interpreted as sentential negation, e.g. PERFECTIVE **bā nā yi ba** ‘it’s not the case that I did it’, but for speakers who use this negative form in the FUTURE, it seems to indicate normal VP negation.

No context:	<b>rākumà zā-sù gudù</b>	‘the camels will run away’
Past context:	<b>rākumī zâ-i gudù sai na kāmà shi</b>	‘the camel was about to run away, but I caught him’
Negative:	<b>rākumà bà zā-sù gudù ba</b>	‘the camels won’t run away’
“Relative” context:	<b>rākumà nawà zā-sù gudù?</b>	‘how many camels will run away?’

The FUTURE auxiliary **zā** derives from the defective verb **zâ** ‘going’, which, in Standard Hausa, is used only with suffixed subject pronouns and only with an obligatory locative goal as a complement, never a verb: Q: **Ìnā zâ ka?** ‘Where are you going?’, A: **Gōnā zâ ni. ~ Zâ ni gōnā.** ‘I’m going to the farm.’ Newman (2000:585) includes this construction in the TAM system and refers to it as the ALLATIVE. In some varieties of Western and Northern Hausa, the ALLATIVE can be used with verbal complements, where the verb is inflected as a verbal noun, as in the CONTINUATIVE. For example, dialectal **zâ su dāwōwā** ‘they will come back’ (= Standard Hausa **zā sù dāwō**, with the finite form of the verb, **dāwō**).

As mentioned in the discussion of subject pronoun types, the suffixed pronoun of the ALLATIVE is a reflex of the Intransitive Copy Pronoun (ICP)—see Chapter 7, §1.2. ICPs also have Hausa reflexes in the IMPERATIVES **yā-kà!** ‘come here!’, **jè-ka!** ‘be on your way, go on!’ and optionally (and dialectally) with the verbs **jē** ‘go’ and **zō** ‘come’ in expressions like **nā zō-ni** ‘I have come, I’m here’, **mù jē-mu** ‘let’s go’. The dialectal ALLATIVE with verbal complements undoubtedly represents the precursor to the modern FUTURE.

### 6.2.7. Habitual

The HABITUAL marks subject agreement with the default subject clitics (§6.2) plus an auxiliary **-kàn**. Newman (2000:590) says, “The HABITUAL denotes customary action, without explicit reference to time. It often expresses an ongoing habit, where it is best translated by the English present tense”, or, when referring to past time, by English “used to”. For example, **wà ya-kàn shārè dākìn?** ‘who sweeps the room?’, **dā can, na-kàn yi aikì na awà gōmà shâ biyu kōwàcè rānā** ‘in the past I used to do farm work 12 hours every day’. The auxiliary **kàn** is from the locative expression **kâ-n** ‘on’, literally “head of”, used in locative constructions such as **kâ-n tēbūr** ‘on the table’. The HABITUAL may

be a relative recent innovation. In conservative western dialects, the CONTINUATIVE is the TAM of choice to express habit, and in the negative, all dialects tend to substitute NEGATIVE CONTINUATIVE for HABITUAL.

### 6.2.8. Perfective

With active verbs, the PERFECTIVE (referred to as COMPLETIVE in Newman (2000:569)) indicates that an event is viewed as completed. In the absence of context, this can usually be translated as English past tense or present perfect. As with all other TAMs, however, to the extent that the PERFECTIVE marks *tense*, it is *relative* to the time of the event, not *absolute*. Given the proper context, PERFECTIVE can also be translated as English pluperfect or future perfect. With stative verbs, PERFECTIVE indicates existence of a state, usually translatable by English simple present. The PERFECTIVE is used with *performatives*, a use derived from the “completed event” sense of active verbs, i.e. “by my saying this, the event is complete”, and in statements of *generic truth*, a use derived from an “existing state” sense of stative verbs. The formal PERFECTIVE is replaced by the NEGATIVE PERFECTIVE (§6.2.2) in negatives and by the RELATIVE PERFECTIVE (§6.2.9) in “relative” contexts.

Active V w. no context:	<b>rākumà sun gudù</b>	‘the camels ran away/have run away’
Active V, past context:	<b>dà na isō, rākumà sun gudù</b>	‘when I arrived, the camels had (already) run away’
Active V, future context:	<b>gòbe wàrhakà bàkī sun tàfi</b>	‘tomorrow at this time the guests will have left’
Stative:	<b>nā sanī</b>	‘I know’
Performative:	Q: <b>Kā bā ni iznī?</b>	‘Will you give me permission?’
	A: <b>Nā bā kà.</b>	‘I give (it) to you.’
Generic:	<b>Hàusàwā sun cê...</b>	‘the Hausas say...’

In discussing the subject pronoun sets (§6.2), I presented evidence that the modern Hausa PERFECTIVE subject pronouns derive from West Chadic independent pronouns, but today they are cumulative markers of person agreement and PERFECTIVE TAM. I view this much as established. The unanswered question is how there could have been a

radical shift in function from a set of self-standing pronouns, canonically used in contexts such as predicates in equational sentences (*it's me*), topics (*as for me,...*), objects of prepositions (*with me*), etc., to a set of bound subject clitics marking a verbal TAM. Comparative evidence offers no “intermediate” stages that I know of that can shed light on the path that led to this functional transition.

The best hypothesis that I can offer is that loss of TAM inflectional morphology necessitated other ways to mark TAM. Chadic languages in general and Hausa in particular have a suite of preverbal auxiliaries to differentiate TAM, e.g. **nà** CONTINUATIVE (§6.2.4), **zā** FUTURE (§6.2.5), **kàn** HABITUAL (§6.2.7), and in the SUBJUNCTIVE (§6.2.1), I suggested that it is the *absence* of any overt TAM marking that allows the bare default subject agreement to mark the TAM.

A typical configuration in Chadic languages is to mark TAM by inflection on the verb, use special subject pronouns to mark agreement for first and second person, and, in third persons, use only the inflected verb with no overt subject agreement. Overt expression of a third person subject, if called for, is shown with an independent pronoun, not an agreement clitic. Bole, as a typical example, has the following PERFECTIVE forms with singular subjects (**-wò/-kò** = PERFECTIVE inflection): **in pàtā-wò** ‘I went out’, **ka patā-wò** ‘you (m.s.) went out’, **shi patak-ko** ‘you (f.s.) went out’, **(ishi) pàtā-wò** ‘he went out’, **(ita) pàtak-kò** ‘she went out’, where the independent pronouns **ishì** ‘he, him’, **ità** ‘she her’ are optional. Once Hausa lost PERFECTIVE inflectional verb morphology, the independent pronouns, i.e. those that are now exclusive to PERFECTIVE, spread to first and second persons. These pronouns, differing from the default subject agreement, distinguished PERFECTIVE from SUBJUNCTIVE by subject agreement pronoun and the other TAMs by preverbal auxiliaries.

### 6.2.9. General and Relative TAM forms

6.2.9.1. *Functions of the General and Relative TAMs.* All descriptive work on Hausa that touches on syntax discusses the distinction between GENERAL and RELATIVE TAMs as exemplified in the following table:

**Table 40:** GENERAL VS. RELATIVE TAMs

	GENERAL	RELATIVE
PERFECTIVE	<b>rākumà sun gudù</b> the camels ran away	<b>don mè rākumà su-kà gudù?</b> why did the camels run away?
CONTINUATIVE	<b>rākumà su-nà cîn magaryā</b> the camels are eating jujubes	<b>mè rākumà su-kè cî?</b> what are the camels eating?
LOCATIVE SENTENCES	<b>rākumà su-nà garkè</b> the camels are in the pen	<b>à inā rākumà su-kè?</b> where are the camels?
‘have’ SENTENCES	<b>rākumà su-nà dà tōzō</b> camels have humps	<b>wàcè irìn dabbā ta-kè dà tōzō?</b> what type of animal has a hump?

Two TAMs distinguish a GENERAL form from a RELATIVE form: PERFECTIVE and CONTINUATIVE.<sup>98</sup> In addition to verbal sentences, CONTINUATIVE is used with non-verbal predicates, exemplified by locative and “have” predicates in the table. The RELATIVE CONTINUATIVE comprises the default subject pronouns (§6.2) followed by an auxiliary **kè** phrase medial in eastern dialects, **kà** phrase medial in western dialect, **kè** phrase final in both areas.<sup>99</sup>

The GENERAL TAMs are used in affirmative declarative statements and polar (“yes”-“no”) questions. The RELATIVE TAMs are used in constructions with fronted question words, sentences with constituents that are fronted for focus, and within relative clauses. The RELATIVE PERFECTIVE is also used to mark sequence in a series of events understood as complete, e.g. **dà ’Yan Gadi sukà ji hakà, sai sukà cirjè** ‘when the watchman heard that, then they came to a halt’ (Imam 1962:23). Negative clauses do not show a non-relative ~ relative distinction.

*6.2.9.2. History of the General vs. Relative distinction.* I argue that the source of the **kV** relative TAM auxiliaries is a copula, itself historically derived from a demonstrative.<sup>100</sup>

<sup>98</sup> The RHETORICAL historically probably was the RELATIVE counterpart of the POTENTIAL, but today, the RHETORICAL is largely marginalized to fixed expressions that are not in a productive syntactic or semantic relationship to the POTENTIAL.

<sup>99</sup> Before non-verbs, western dialects use **kè**, illustrated in the “have” construction in the table. Western dialect us a form **aG** (**G** = gemination of the next consonant) < **\*ak** < **\*ake/a**, e.g. **rākumà ad dà tōzō** ‘Camels have humps’.

<sup>100</sup> The account here differs radically and fundamentally from that suggested in Newman (2000:571) in his Historical Note on the source of the RELATIVE PERFECTIVE (= his “PRETERITE (REL-COMPLETIVE”).



Derivation of copulas from demonstratives is a common typological phenomenon cross-linguistically and has occurred a number of times in Chadic languages (Schuh 1983a). Here it is sufficient to note that Hausa has inherited two types of copulas. The one described in all grammars, and usually referred to as the “stabilizer” following Parsons (1963), has the forms **nē/cē** in eastern dialects, **nā/tā** in western dialects, where the **n-** forms shows masculine singular and plural agreement, the **c-/t-** shows feminine singular agreement (Parsons 1963, Newman 2000:Chapter 66). The other copula has the form **-kV**, where **-V** is **-a**, **-e**, **-ē** depending on context. This copula is always associated with constructions involving focus of some kind. It is heard in virtually any Hausa conversation in the fixed expression **shī-kē-nan** “OK, that’s it” (lit: It is here), and it is productively used in constructions such as equational sentences with focused predicates **wāwā ka kè** ‘a fool is what you are’, CONTINUATIVE sentences with focused items **sū kè gudū** ‘They are running’, etc.

In standard (eastern) Hausa, it appears that GENERAL PERFECTIVE and RELATIVE PERFECTIVE use distinct subject agreement pronouns as, for example, first singular GENERAL PERFECTIVE **nā**, RELATIVE PERFECTIVE **na** and first plural GENERAL PERFECTION **mun**, RELATIVE PERFECTIVE **mukà**. However, Western dialect reveal that the RELATIVE PERFECTIVE derives by straightforward historical change from the GENERAL forms plus the **-kV** copula via the following stages, exemplified by second person pronouns, which show all the possible phonological configurations of the GENERAL pronouns (PD = pan-dialectal, W = Western, E = Eastern, G = geminate copy of the following consonant):

**Table 41:** Development of the Hausa RELATIVE PERFECTIVE

Proto-Hausa RELATIVE PERF.	Apocope & Shortening (PD)	Assimi- lation (PD)	Leveling of 2f (W)	Degemi- nation (E)	Clitic leveling (E)	Eastern	Western
<b>*kaakà</b>	<b>*kak</b>	<b>*kaG</b>	<b>(*kaG)</b>	<b>ka</b>	<b>(ka)</b>	<b>ka</b>	<b>kaG</b>
<b>*kinkà</b>	-----	-----	<b>*kiG</b>	-----	<b>kikà</b>	<b>kikà</b>	<b>kiG</b>
<b>*kunkà</b>	-----	-----	-----	-----	<b>kukà</b>	<b>kukà</b>	<b>kunkà</b>

Historically speaking, then, the RELATIVE PERFECTIVE forms could be literally translated “you it is”, etc., but in eastern dialect where **\*Cā-kà** > **\*Ca-k** > **\*CaG** > **Ca**, the copula

has disappeared such that the difference between GENERAL and RELATIVE is now one of vowel length rather than presence or absence of a clitic.

We are now in a position to understand how the relative TAMs developed as syntactically conditioned alternates to their non-relative counterparts. I propose the following series of developments:

- Stage I: Non-relative TAMs were expressed by a pronominal subject alone when the subject was not focused and by PRONOUN-**kV** when the subject was focused: PERFECTIVE \***kim fita** ‘you (f.s.) went out’, \***kim kà fita** ‘YOU it was [who] went out’; CONTINUATIVE \***ki à fitā** ‘you (f.s.) are going out’, \***ki kè à fitā** ‘YOU it is [who] is going out’).
- Stage II: The PRONOUN+**kà/kè** constructions that were, in a sense, phrasal, i.e. FOCUSED SUBJECT+COPULA, were reanalyzed as unitary TAM markers. At this stage, such phrases would have been used only with focused *subjects*, parallel to languages that use different morphosyntax for subject focus vs. focus of other constituents, as in Gude (§5.2.2.2) or Miya (Schuh 1998).
- Stage III: Once the PRONOUN+**kà/kè** construction was viewed as a TAM-marking unit rather than a phrase comprising a focused pronominal subject plus a focus-marking copula, it became a general marker of focus.
- Stage IV: With PRONOUN+**kà/kè** now analyzed as focus marking units, it became obligatory to use them whenever any constituent was placed preverbally for focus. We can compare the Stage I situation with the Stage IV situation, which is essentially the modern situation (I use the Western RELATIVE PERFECTIVE 3<sup>rd</sup> plural TAM marker **sun-kà** rather than the eastern **su-kà** to avoid the additional complications relating to how the forms of the TAM markers evolved):

**Table 42:** Stages of Hausa TAM development

	STAGE I		STAGE IV	
Neutral	<b>sun ci magaryā</b>	they ate jujubes	<b>sun ci magaryā</b>	they ate jujubes
Focused subject	<b>sun kà ci magaryā</b>	THEY ate jujubes	<b>sū sun-kà ci magaryā</b>	THEY ate jujubes
			<b>*sun-kà ci magaryā</b>	(ungram. as an indep. clause)
Focused object	<b>magaryā sun ci</b>	they ate JUJUBES	<b>magaryā sun-kà ci</b>	they ate JUJUBES
	<b>*magaryā sun kà ci</b>	(both subject and object focused)	<b>*magaryā sun ci</b>	(focus requires relative TAM)

Modern Hausa is, in effect, undergoing a second round of marking focus using a copula. When constituents are fronted for focus, the **nē/cē ~ nā/tā** is often used. Typical expression of focused subjects or object in modern Hausa would be **sū nē su-kà ci magaryā** ‘they it is [who] ate jujubes’, **magaryā cē su-kà ci** ‘jujubes it is [that] they at’.

6.2.9.3. *Relative Perfective as Sequential.* There is a function of the RELATIVE PERFECTIVE in Hausa that is difficult to understand both in the overall picture of RELATIVE TAMs in Hausa and in the comparative Chadic picture. The RELATIVE PERFECTIVE marks sequences of events in narratives understood as having taken place in the past with no sense of focus. Ebert (1979) likened the comparable TAM in Kera to use of the *passé simple* in French narrative. The following, from a well-known collection of Hausa stories, is typical.

**Kō dà fàrà̀yìn nan su-kà ji hakà fa, sai su-kà kwāshè ’yan kā̀yansù su-kà runtù̀mā dà gudū.**

‘When those thieves [they] heard that, then they collected up their few belongings, and they ran off in a pack.’ (Imam 1962: 21)

West Chadic languages in the Bole (I.A.2), Bade (I.B.1) and Warji (I.B.2) groups use the SUBJUNCTIVE in this function, just as they, and Hausa, use the SUBJUNCTIVE to mark sequence in non-PERFECTIVE discourse, such as procedural texts, descriptions of customs, and series of events projected into the FUTURE (§6.2.1). The only other language that I know of in northern Nigeria that uses different TAMs to mark sequence in narrative vs. sequence in non-PERFECTIVE texts is Fulfulde, but the comparable distinction in Hausa is highly unlikely to be from Fulfulde influence.

Newman (2000:571) uses the term “PRETERITE” for the TAM that I am calling RELATIVE PERFECTIVE. As used in the terminology of European languages, *preterite* is a past *tense* (more precisely a PAST PERFECTIVE). In the narrative function of the RELATIVE PERFECTIVE, this seems to be a reasonable characterization. However, the RELATIVE PERFECTIVE, *qua* TAM, does not carry a sense of absolute past tense across the board. For example, in relative environments, stative verbs retain their sense of existing state, translatable as English present, e.g. **wà ya sanì?** ‘who knows?’, and the RELATIVE PERFECTIVE can be used in conditional clauses to refer to events that will take place in the future, e.g. **ìdan ki-kà yi hagu, zā kì ga gidan mâi Mobil** ‘when you (f.s.) go left, you will see a Mobil gasoline station’. A plausible path leading to the sequential function of the RELATIVE PERFECTIVE remains indeterminate.

6.2.9.4. *The General vs. Relative distinction as a typological/areal feature.* Because the GENERAL ~ RELATIVE distinction occupies such a central place in Hausa morphosyntax, and because there is a tendency to look to Hausa as a source of Chadic data, one is led to expect a reconstructable GENERAL ~ RELATIVE distinction for Chadic. This turns out not to be possible. Many, if not most Chadic languages mark GENERAL vs. RELATIVE distinctions in the canonical environments given in §6.2.9.1, but the ways the distinctions are made vary greatly from language to language. Here I give examples from just two West Chadic languages and two Central Chadic languages.

Ngizim (I.B.1) has no special TAM forms distinguishing GENERAL/RELATIVE. Ngizim has SVO syntax in the affirmative, e.g. **māmū jib-nā aku** ‘the children caught a goat. Non-subjects are all *in situ*. The presence of a question word obviously marks a question, but in answer to a non-subject question, there is no syntactic difference between an affirmative statement and a sentence with a constituent in focus.<sup>101</sup> However, questioned and focused subjects are marked by post-posing them to the end of the VP:

Questioned/focused non-subject:	<b>māmū jib tam?</b>	‘ <u>what</u> did the children catch’
	<b>jib aku</b>	‘they caught a <u>goat</u> ’
Questioned/focused subject:	<b>jib akun tai?</b>	‘ <u>who</u> caught the goat?’
	<b>jib akun māmāu</b>	‘the <u>children</u> caught the goat’

<sup>101</sup> There is a covert difference. Verbs in sentences with questioned or focused constituents cannot take the TOTALITY extension; however, this extension, is not syntactically obligatory in any context.

This is an areal feature of Yobe State, Nigeria, where all the Chadic languages of the state in both the Bole groups (I.A.2) and the Bade group (I.B.1) have this syntactic configuration.

Miya (I.B.2) is similar to Ngizim in using SVO syntax, e.g. **à zar súw zhāk-áy** ‘he called a donkey’. The discontinuous **súw...áy** that brackets the object **zhākə**, called TOTALITY in Schuh (1998), is usually used in declarative statement, though it does not seem to be syntactically obligatory. It is obligatorily absent in sentences with any kind of focus. Questioned and focused non-subject constituents are *in situ*, questioned and focused subjects are fronted. Miya verb forms differentiate *nominal* from *verbal* TAMs. The PERFECTIVE uses a verbal TAM with questioned and focused non-subjects, but questioned and focused subjects use a nominal TAM. The questioned/focused subject is followed by **-ā** or **dó**, which seem to be interchangeable (Schuh 1998:127).

Questioned/focused non-subject: **fà t̩ka wê?** ‘who did you accompany?’

**món t̩ka Shágè̄m** ‘I accompanied Shagè̄m’

Questioned/focused subject: **wā dó zàrae-a?** ‘who called?’

**Kásh̄m dó zàraw** ‘Kasham called’

Turning to Central Chadic, Podoko (II.A.4.a) requires that focus fall on some constituents except in the AORIST, which is used in sequential narrative, e.g. **a k̩sá m̩ts̩əra ta** ‘...they caught the thief’ (lit. ‘caught thief they’—Podoko has SOV syntax). The position for a focused argument is immediately post-verbal, and absent a focused or questioned argument, a copy of the verb itself fills the focus position:

Focused non-subject: **a k̩sá m̩ts̩əra ta** ‘it’s a thief that they (**ta**) caught’

No argument focused: **a k̩sá k̩sa ta m̩ts̩əra** ‘they caught [catching] a thief’

The TAM system of Gude (II.A.8) is described in detail in §5.2. Gude differentiates GENERAL ~ RELATIVE syntax in PERFECTIVE, PROGRESSIVE, and FUTURE. Here, I discuss only PERFECTIVE (see subsections of §5.2 for other TAMs). Gude has VSO syntax. GENERAL PERFECTIVE is marked by preverbal **k̩**<sup>102</sup> and a palatalized verb directly

<sup>102</sup> There are Chadic languages in both the West and Central Branches that have a **k** formative as part of the PERFECTIVE TAM system. This raises the question of whether the Proto-Chadic **\*kV**, formative, now a copula in Hausa, might be the source of PERFECTIVE marking **kV**. Proto-Chadic **kV** can be reconstructed as a definite deictic, and both perfectly and focus have a sense of punctuality and specificity.

followed by the subject, e.g. **ká àlí B̀̀li'** 'Bili sought (it)'. Both questioned and focused non-subjects and subjects are placed before the verb, replacing the **ká** PERFECTIVE marker. Subject agreement is suffixed to the verb: Definite direct objects are marked by a preposition **tə**:

Questioned/focused non-subject: **tá wú Húmtí ya?** 'who did Humti look for?'  
**tə B̀̀li'** àli-ny 'he looked for Bili'

These examples should be sufficient to show that the ways that the GENERAL ~ RELATIVE distinction is formally marked across Chadic languages have little in common, and an attempt to reconstruct a specific Proto-Chadic GENERAL ~ RELATIVE system would be fruitless. Looking across West Africa, what does emerge is that marking this distinction is a widespread areal feature, of which the Chadic languages are one part. Such a system is found in languages as typologically, genetically, and geographically diverse as Wolof in Senegal, Fulfude across West Africa, and Kanuri in Nigeria and Niger. Such systems must have been innovated, lost, and recreated many times through the histories of these languages as a way to express a fundamental semantic and pragmatic distinction.

### 6.2.10. Imperative

Hausa has a special IMPERATIVE form used only for singular addressees. A command with plural addressees uses the 2<sup>nd</sup> plural SUBJUNCTIVE, and all negative IMPERATIVES are expressed with the prohibitive operator **kadà/kâr** plus the SUBJUNCTIVE.

Transitive		Intransitive
<b>jèrà yàrà!</b>	'line up the children!'	<b>tsàyā!</b> 'stop!'
<b>jèrà su!</b>	'line them up!'	<b>tāshi!</b> 'stand up!'
<b>jèrà!</b>	'line (them) up!'	<b>fitā!</b> 'get out!'
<b>kòri àkwiyà!</b>	'chase the goat away!'	<b>fitō!</b> 'come out!'
<b>kòrè ta! ~ kòrè ta!</b>	'chase it away!'	
<b>kòri!</b>	'chase (it) away!'	
<b>jā àkwiyà!</b>	'drag the goat!'	
<b>jā ta!</b>	'drag it!'	
<b>jā!</b>	'drag (it)!'	

Compare the LH tone pattern of the singular IMPERATIVE **tsàyā!** ‘stop!’ with the HL pattern of the plural **kù tsayà** ‘(you pl.) stop!’ (SUBJUNCTIVE) and negative **kadà kà/kì/kù tsayà!** ‘don’t stop!’ (m.s./f.s./pl.) (prohibitive **kadà** followed by SUBJUNCTIVE).

For a TAM that covers a small semantic niche (affirmative commands with singular addressees), the details of form for the IMPERATIVE are remarkably complex (Newman 2000:Chapter 37, Jaggar 1982). Here, I will focus only on two features of the IMPERATIVE that are of particular comparative interest.

Tone: The basic pattern of the IMPERATIVE is (L)H (H on the last or only syllable, preceded by all L). This is the default tone pattern for West Chadic verbs reconstructed in Schuh (1977). In modern Hausa, it is a formal mark of the IMPERATIVE, but viewed historically, it is an archaism, i.e. the West Chadic IMPERATIVE was simply the verb stem with its default tones, and vocalic suffixes marked singular vs. plural.

In the examples, the only exceptions to the (L)H pattern on the verb itself are (1) some of the forms with pronoun objects and (2) **jèrà yârā!** ‘line up the children!’, with LL on the verb. With noun objects, this latter pattern is used only with verbs that have HL(H) tones in their finite form (Grades 1, 4). In the case of verbs with pronoun object, the LH pattern for IMPERATIVES holds in all but one case if we incorporate the pronoun objects into verb stem, e.g. LH **kòri!** ‘chase (it)!’, **kòrè-ta!** ‘chase her!’). Here, the exception is cases like **jèrà su!** ‘line them up!’, where the verb has LH tones and the object pronoun likewise bears H. Newman (2000:478-480) accounts for this by distinguishing “strong object pronouns”, which always have H tone, from “weak object pronouns”, which are incorporated into the verb and participate in its overall tone pattern. As a description of modern Hausa, this solution works for both IMPERATIVES and for finite verbs, though the historical explanation is not well worked out.

Final vowel: Languages of both the Bole-Tangale group and the Bade-Ngizim group not only have the (L)H tone pattern for IMPERATIVES, but they also have distinctive forms for singular and plural, viz. singulars end in **-i**,<sup>103</sup> plurals end in **-a**: Bole **’yòrî!** ‘stop (sg.)!’, **’yòrà!** ‘stop (pl.)!’, Ngizim **a-ř’yí!** ‘stop (sg.)!’, **a-řďá!** ‘stop (pl.)!’<sup>104</sup> Since the

<sup>103</sup> The vowel is lowered to **-e** in Classes B and D, i.e. those with stem vowel **-a** in the PERFECTIVE.

<sup>104</sup> The base tone of the Ngizim verb is LH, the initial **a-** is a proclitic used in SUBJUNCTIVE and IMPERATIVE. The underlying form of the singular would be **/a-řď-i/**, with syncope of the **ə**, contraction of

groups represent separate branches of West Chadic yet have identical IMPERATIVE marking, this must be the reconstructable pattern. Remarkably, though Hausa has lost essentially all traces of TAM marking through verb inflection, the singular IMPERATIVE of Grade 2 verbs, represented by **kòri!** ‘chase (it) away!’ in the data above, retains the proto-West Chadic **-i** singular IMPERATIVE inflection.<sup>105</sup> One further possible trace is found with the verb **barì** ‘leave’. This verb belongs to the CVC “clipped” group (§6.1), i.e. in all “finite” TAMs it has the form **bar-** before objects, but as Newman (2000:264) notes, when used in the meaning ‘quit doing...’ followed by a complement (e.g. **bàri kūkà!** ‘stop crying!’) it can be heard with the LH-**i** pattern. This verb in this form is also used to introduce first person HORTATIVES, much like English *let me/let’s...*, e.g. **bàri in ci wannàn** ‘let me eat this one’, **bàri mù fita** ‘let’s go out’. In this function, **bàra...** also occurs as an stylistic or dialectal form.

As a final remark, note the alternative pronunciations of **kòrè ta!** ~ **kòrè ta!** ‘chase it away!’, with a long or short **-e-** before the pronoun. I suggest that the first form with long **-è** is analogically formed on the basis of Grade 2 verbs in finite TAMs, such as PERFECTIVE **nā kòrè tà** ‘I chased it away’. The second form should be written **kòrè-ta**, where the pronoun is a suffix on an IMPERATIVE stem, not a clitic, and hence typical lengthening before pronoun clitics does not apply.

## 7. Kera<sup>106</sup>

### 7.1. Verb classes

Kera verbs fall into cross-cutting classes of *tone patterns* and *stem vowels*. The tone patterns are predictable based on the segmental structure of the root. The stem vowels are likewise predictable on the basis of the lexical vowels of the roots. In the table below, I present examples of the classes as numbered by Ebert (1979:60ff.).

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the tones /HLH/ to [H<sup>1</sup>H], palatalization of /d/ before **-i**, and obligatory realization of /r/ as [r̥] before a coronal stop.

<sup>105</sup> This fact was first pointed out by Newman (1973:302). Newman (2000:264) seems to signal a retreat from this obviously correct analysis.

<sup>106</sup> For Kera, the best documented East Chadic language, we are fortunate to have an excellent 3-volume set describing the language consisting of texts, lexicon, and grammar (Ebert 1975, 1976, 1979).



**Table 43:** Kera verb classes

EBERT'S CLASS #	BASE TONE PATTERN	STEM ROOT STRUCTURE	CITATION FORM	MEANING
1	M → H(H)	mē-	mé	die
		pā-	pí	remove
		lū-	lí	climb
		fal-	félé	find
		ɗos-	ɗósé	fill
		mən-	míní	say, inform
		po'-	pó'é ~ pé'é	dust off
		'ay-	'áyé	give
		nūm-	númí	groan
		kunt-	kúntí	twist
		mírg-	mírgí	greet
ɓars-	ɓársé	divide up		
2a	L → LH	dàf-	dèfé	cook
		gùs-	gùsí	buy
		gèd-	gèdé	become sterile
		dàs-	dàsé	say one's motto
		dòɓ-	dòbé	blur, cloud
		bù'-	bù'í ~ bì'í	ruin
		vǎg-	vǎgí	reconcile
		bàrg-	bàrgé	pull out
		gòld-	gòldé	look for
2b	L → L(L)	gǎ-	gè	throw
		dò-	dè	begin
		bǎ-	bì	come
		bàl-	bèlè	love
		bəŋ-	bìŋì	open
		dàm-	dèmè	thatch
		gày-	gèyè	tire out
		bǎw-	bǎwè	throw down opponent
		dùr-	dùrì	make war

The class numbers 1, 2a, and 2b refer to *tone classes*. The tone classes are, in turn, almost 100% predictable by segmental structure of the stem:

Class 1: The initial consonant is *not* a modally voiced obstruent, i.e. it is voiceless, glottalized, or a sonorant. If the verb has a /H/ suffix, the root assimilates to H, otherwise the root is M. e.g. CITATION FORM **fél-é** ‘to find’, IMPERATIVE **fal-la** ‘find!’.

Class 2a: The root has the form [VOICED OBSTRUENT]VC(C) AND in a C<sub>1</sub>VC<sub>2</sub> root, C<sub>2</sub> is *not* a sonorant. The root is always L; if it has a /H/ suffix, the verb pattern is LH; non-H suffixes are L, e.g. CITATION FORM **gùs-í** ‘to buy’, IMPERATIVE **gùs-là** ‘buy!’.

Class 2b: The root has the form [VOICED OBSTRUENT]V([SONORANT]). All verb forms have LL tones, i.e. even /H/ suffixes assimilate to the L of the root, e.g. CITATION FORM **/bàl-é/ → bèl-è** ‘to love’, IMPERATIVE **bàl-là** ‘love!’

Only when the first consonant of a root is **s** or **h** are classes not predictable (see Ebert (1979:28-30) for a large list of examples of verbs of both predictable and non-predictable class membership).

**Table 44:** Kera verbs with initial /s/ and /h/

EBERT'S CLASS #	BASE TONE PATTERN	STEM ROOT STRUCTURE	CITATION FORM	MEANING
1	M → H(H)	<b>sā-</b>	<b>sé</b>	drink
		<b>sō-</b>	<b>sé</b>	swell
		<b>sū</b>	<b>sí</b>	grow
		<b>sōn-</b>	<b>sóné</b>	dream
		<b>hōl-</b>	<b>hólé</b>	warm up
		<b>herd-</b>	<b>hérdé</b>	eat sth. uncooked
2a	L → LH	<b>sòk-</b>	<b>sòké</b>	shove
		<b>hèd-</b>	<b>hèdé</b>	cut
		<b>hàrg-</b>	<b>hàrgí</b>	dance
2b	L → L(L)	<b>hà-</b>	<b>hè</b>	look for
		<b>sè-</b>	<b>sè</b>	change residence
		<b>sū-</b>	<b>sì</b>	fling
		<b>sùm-</b>	<b>sùmì</b>	etch
		<b>hàm-</b>	<b>hàmè</b>	eat

Ebert (1979:31) suggests that the presence of some **s**- initial verbs in classes 2a/b may be the result of a (sporadic) change  $*z > s$ , citing a case of dialect variant in **zùmì/sùmì** ‘etch’.<sup>107</sup> In the case of **h**-, she says, “Ein stimmhafter Vorgänger zu **h** vor Tiefton is innersprachlich nicht rekonstruierbar,” but if one goes outside East Chadic-A, there are a couple of candidates for voiced precursors of Kera **h**: cf. Kera **hàmè** ‘eat’, Mokilko (East-B) **gòómé** ‘eat *tuwo*’ and also in this meaning, a widespread Central root  $*z-m-$ , e.g. Tera **zəmi**.

The tables above show two vowel suffixes for the CITATION FORM: **-i** and **-e**. These are predictable variants of an underlying suffix /é/.<sup>108</sup> The suffixes, in turn, condition changes in the root vowels. Following are the relevant rules. (R1-4) are Ebert’s (1979:14-20) “VOK-R1-4”, slightly modified/simplified to account for verbal data (her rules are formulated to account for vowels in all morphological environments, requiring some caveats and additional conditions). (R5) VOWEL ELISION is introduced here to account for CV- roots. Ebert does not formulate a special rule for elision.

(R1) [-high] ASSIMILATION:<sup>109</sup> [-high] → [+high] / [+high]C<sub>0</sub>\_\_\_

(R2) /ə/ ASSIMILATION : /ə/ → [i, u] / \_\_\_C[i, u]

(R3) /a/ ASSIMILATION: /a/ → e / C<sub>1</sub>\_\_\_C<sub>2</sub>e C<sub>1</sub> ≠ /’/ or, /h/

<sup>107</sup> Voicing properties of fricatives in general seem unstable in Kera. Ebert (1979:30-31) discusses variation between **f** and **v**, noting that /v/ is sometimes pronounced as *stimmloser Lenis* [ɣ], sometimes as voiceless [f]. She cites two [f] initial verbs that are treated as Class 2a, **fèrgé** ‘itch’ and **fàrgi** ‘dig’, but which she suggests originally had initial  $*v$ .

<sup>108</sup> Ebert (1979:63) analyzes these as having a final floating H that docks to the **-e** suffix and 3<sup>rd</sup> person pronominal suffixes (**fəl-ú** ‘find him’), but not to other suffixes (**fəl-an** ‘find me’). I’m not sure of the implications of this analysis vs. simply assigning certain suffixes underlying H, as I have done here.

<sup>109</sup> As is the case throughout this book, the symbol ə = IPA [i], i.e. a [+high] vowel. In Ebert’s (1979:18) vowel table, she classifies /ə/ as a mid vowel, i.e. [-high, -low]. The few rather poor quality recordings of Kera available to me are a little ambiguous as to the exact phonetic nature of /ə/—it sometimes sounds high, i.e. [i], sometimes perhaps a bit lower. However, the phonology of Kera makes it clear that it should be classified [+high], as is the comparable vowel in probably all Chadic languages that have a non-low central vowel.

(R4) (optional) /**u, o**/ ASSIMILATION: /**u, o**/ → [i, e] / \_\_\_ '[i, e]

(R5) VOWEL ELISION: /V/ → Ø / \_\_\_ V (V may be [±long])

**Table 45:** Kera vowel suffixes in citation forms

	D1	D2	D3	D4	D5	D6	D7
U. REP.	/dɔs-é/ fill	/nūm-é/ groan	/mən-é/ say	/fal-é/ find	/bù'-é/ ruin	/dò-é/ begin	/bǎ-é/ come
R1	-----	<b>nūm-í</b>	<b>mən-í</b>	-----	<b>bù'-í</b>	-----	<b>bǎ-í</b>
R2	-----	-----	<b>mín-í</b>	-----	-----	-----	<b>bì-í</b>
R3	-----	-----	-----	<b>fél-é</b>	-----	-----	-----
R4	-----	-----	-----	-----	<b>(bì'-í)</b>	-----	-----
R5	-----	-----	-----	-----	-----	<b>d-é</b>	<b>b-í</b>
TONE R.	[dɔs-é]	[nūm-í]	[mín-í]	[fél-é]	[bì'-í] ~ [bù'-í]	[d-è]	[b-ì]

- D3: Compare **vǎg-í** ‘reconcile’, **hǎrg-í** ‘dance’, where R1 applies but R2 does not, in the first case because of the long **ǎ**, in the second because of CC between **ǎ** and the suffix.
- D4: Compare **'áy-é** ‘give’, **hàm-é** ‘eat’, where R3 does not apply because of the word initial **'** or **h**.
- D5: Compare **gùs-í** ‘buy’ and **dòb-é** ‘blur’, where R4 cannot apply because the consonant following the target vowel is not **'**.

In short, Kera does not have lexically specified verb classes in terms of either tone<sup>110</sup> or stem vowel, since both these aspects of verb stems can be predicted on the basis of segmental structure. However, Ebert (1979:60, fn.1), citing Newman’s (1975) reconstruction of Proto-Chadic verbs with cross-cutting lexical tone and vowel classes, suggests that the relationship of suffix vowels and stem vowels may have originally been

<sup>110</sup> Tones of verbs beginning with **s** or **h** cannot be predicted, but this is a general feature of the ambiguous status of these consonants, not particular to verbs.

the opposite of that which seems to be the correct analysis in the modern language. Ebert (1979:18) formulates her VOK-R1 (cf. R1 above) to work both directions, i.e. in some cases suffix vowels assimilate to stem vowels, as formulated for the verbal data here, but in other cases, the stem vowel assimilates to the suffix, e.g. a root like **'ənt-** 'tie up', with root vowel /ə/ and citation form **'intí** by the rules above, has root vowel alternations like the following when direct object pronoun suffixes are added: **'əntəm** 'tied you (m) up', **'inti** 'tied you (f) up', **'úntú** 'tied him up'. It may be that the alternants [í] ~ [é] seen in citation forms (also in verbal nouns) were originally lexically distinctive and conditioned root vowel alternations. Thus, a word like **míní** 'say', now derived from /mən-é/ by R1 and R2, would have originally been \*/mən-i/, which, by root-to-suffix assimilation, would have become \*[mín-i], identical to the current form derived by suffix-to-root assimilation. For root vowel /a/, the modern language actually shows what happens in root-to-suffix assimilations: /a/ → [e] / \_\_Ce by R3 here, e.g. /fal-é/ → [fél-é] 'find' (see above), and /a/ → [ə] / \_\_C[V, +high], e.g. the root /hàm-/ 'eat' → [həmù] 'ate him', [həmì] 'ate them'. Modern Kera thus shows that a construct \*-i class verb \*/fal-i/ would, in principle, be pronounced \*[fəl-i]. What seems to be missing in modern Kera is a case of /C[+high]C-e/ with root-to-suffix assimilation that leaves the suffix /e/ intact. We thus have no Kera-internal evidence for a possible /i/ vs. /e/ suffix contrast when the root vowel is [+high].

## 7.2. Subject agreement and TAMs

Tense, aspect, and mood distinctions are marked primarily by suffixes on the verb and, in some TAMs, by proclitic **a** and/or **sa**. Subject agreement is shown by the following pronouns.<sup>111</sup>

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<sup>111</sup> I generally like to illustrate subject pronouns with a verb, but Ebert does not give a full paradigm with a verb and I have no data of my own to draw on. Page numbers for examples and rules taken directly from Ebert are given in square brackets after the glosses, which I have translated into English for the convenience of the reader.

**Table 46:** Paradigm of Kera subject pronouns

	SINGULAR	PLURAL	
1	<b>ten, n</b>	1 excl	<b>áré</b>
		1 incl	<b>áj</b>
2m	<b>tam</b>	2	<b>aj</b>
2f	<b>te</b>		
3 m	<b>wə (to)</b>	3	<b>ye (té)</b>
3 f	<b>a (tá)</b>		

For first and second persons, these are the independent pronouns. Ebert (1979:130) says that the 1<sup>st</sup> singular **ten** can be shortened to **n** when used as a verbal subject. For third persons, the parenthesized forms (= independent pronouns) are used only for focused subjects and as logophorics, i.e. to show that a referent in an embedded clause is the same as the subject of a superordinate clause.

**wə<sub>1</sub> míntí tó<sub>1</sub> kóré**                    ‘he<sub>1</sub> said he<sub>1</sub> was leaving’ [260]

**wə<sub>1</sub> míntí wə<sub>2</sub> kóré**                    ‘he<sub>1</sub> said he<sub>2</sub> was leaving’ [260]

In describing the Kera TAM system, I will generally follow Ebert’s (1979:74-110) organization, somewhat reinterpreted and renamed by my own understanding of the system as she describes it and attempting to relate it to other Chadic TAM systems.<sup>112</sup> Generalizations as I see them are as follows:

- Aspect neutral: *Basic TAM* (§7.2.1); general truths; no morphological marking
- PERFECTIVE: *PERFECTIVE* and *PERFECT* (§§7.2.2-5); usually single active events, viewed as completed at the time of reference; marked by a verbal suffix **-n**
- SUBJUNCTIVE: *SUBJUNCTIVE* (§§7.2.6-8); as yet uncompleted events that are dependent on some other circumstance (a command, an expression of desire or necessity, etc.); marked by **-la** in affirmative clauses

<sup>112</sup> Ebert (1979:103-110) presents an extensive discussion of conceivable organizational schemata both for Kera TAM forms and for semantic interpretations. The scheme that I present here is my own.

- IMPERFECTIVE: *FUTURE* and *PROGRESSIVE* (§§7.2.10); events viewed as incomplete at the time of reference; periphrastic constructions with a non-finite verb form as head
- IRREALIS: *PERFECT II* (§7.2.5), *SUBJUNCTIVE II* (§7.2.7), *IRREALIS* (§7.2.9); events viewed as hypothetical or “uncompletable”; marked by proclitic **á ± sá**

In her overview, Ebert (1979:103-104) gives a table of verbs from the three tone classes (1, 2a, 2b) showing each TAM marking for the verb with no object and with a 3<sup>rd</sup> masculine singular pronominal object. For each TAM description, I will use the examples from Ebert’s table to illustrate TAM form. In some cases, phonological rules change the surface form from that predicted by the given TAM schema.

### 7.2.1. Basic TAM (= Ebert’s Grundaspekt)

The Basic TAM consists of the verb stem alone in the citation form or with a pronoun suffix.

**Table 47:** Kera verb classes in the basic TAM

	CLASS 1	CLASS 2A	CLASS 2B
STEM	<b>sā-</b> drink	<b>gòld-</b> look for	<b>hàm-</b> eat
NO OBJECT	<b>sé</b>	<b>gòldé</b>	<b>hàmè</b>
3 <sup>RD</sup> M.S. OBJECT	<b>sáw</b>	<b>gùldú</b>	<b>hàmù</b>

Noun object: **a sí (/sũ-/)** **karmə kāyáñ** ‘she raises the orphans’ [74]

The Basic TAM is neutral in terms of time but signals “non-completedness”. It is used as a general present (as in the example above), for statements of general truth, stative verbs referring to current state, and as events in a sequence in a generic description.

**kā kéréñ hām**<sup>113</sup> **dùglà bà** ‘the Keras don’t eat mice’ [74]  
**gìd̀n dəm-an** ‘my stomach aches(to me)’ [74]

<sup>113</sup> The suffix **-é** of the CITATION FORM is elided phrase medially after an open syllable.

**Á jòṅ ájèw hùlùm bà kéréṅ wé Kéra, wə sí ádà, wə mé ádà.**

‘In the past, a Kera was born in Kera, he grew up there, and he died there.’ [74]

### 7.2.2. Perfective I (= Ebert’s *Präteritum I*)

The PERFECTIVE I has the form

$$\text{STEM} + /n/ (+ \text{PRONOUN SUFFIX}) + H^{114}$$

Some phonological rules are needed in addition to the tone and vowel rules discussed earlier. EPENTHESIS rules account for a vowel that breaks up illegal word-final clusters, in this case created by affixing /n/. A NASAL VELARIZATION rule alters /n/ word finally.

EPENTHESIS 1 (INF-R1 [57]):  $\emptyset \rightarrow V_i / C\_C+V_i$  (+ = affix boundary)

EPENTHESIS 2 (INF-R2 [57]):  $\emptyset \rightarrow V_i / V_i C\_C\#$  (# = word boundary)

NASAL VELARIZATION [77]:  $/n/ \rightarrow \eta / \_\_\#$  (# = word boundary)

**Table 48:** The PERFECTIVE I form

	CLASS 1	CLASS 2A	CLASS 2B
STEM	sā- drink	gòld- look for	hàm- eat
NO OBJECT	sáṅ	gòldóṅ	hàmàṅ
3 <sup>RD</sup> M.S. OBJECT	sáṅnú	gòldúnú	hàmnnù

Noun object: **Agèlèm lóṭáṅ<sup>115</sup> nəwri** ‘Agelem beat your sister’ [224]

The PERFECTIVE TAMs refer to punctual events viewed as having been completed at the time of reference. I use “PERFECTIVE” instead of Ebert’s “PRETERITE” because the latter, in its use in European languages, refers to a past *tense*, generally a past

<sup>114</sup> H is a floating H that Ebert affixes to certain TAMs. My interpretation is that the H might be part of the lexical specification of certain affixes rather than a general floating H.

<sup>115</sup> The stem is /lat-/, itself an iterative form of lā- ‘hit, strike’. EPENTHESIS 2 inserts -a-, and the stem vowel dissimilates to -ə- by Ebert’s (1979:20) VOK-R5, /a/ → ə /C[-laryngeal]\_\_Ca.



PERFECTIVE, i.e. a punctual event in *past time*. Nowhere that I can find does Ebert make reference to absolute *time* in referring to this or any other TAM.

Ebert (1979:80) refers to the PERFECTIVE I as the *narrative TAM (Erzählzeit)*, noting that it is the TAM used to carry the storyline forward in historical narrative, tales, and the like. In this use, she likens the PERFECTIVE I to the French *passé simple*, in contrast to the Basic TAM (§4.2.1), which she likens to the French *imparfait*. Although she does not explicitly say so, dialog from texts in Ebert (1975) and many other examples throughout her grammar show that the PERFECTIVE I is the TAM normally used to denote events viewed as punctual and complete in declarative statements, yes/no questions, word questions, and negated PERFECTIVES.

Affirmative: **Aḡ átopóḡ kupúrkī nētíḡ dà.**

‘You (pl.) have brought your goat here.’ [Ebert 1975:88]

Yes/No Q:<sup>116</sup> **Aḡ agunuḡ vew mo?** ‘Have you set a trap?’ [Ebert 1975:94]

**Aḡ agunuḡ vew.** ‘We have set a trap?’

WH-Q: **Mintí lótáḡ nəwri mó?** ‘Who beat your sister?’ [224]

**Ye déḡ ane mó?** ‘Where did they go?’ [225]

Negative: **wə hāmàḡ kúsúkíḡ bà** ‘he did not eat the meat’ [222]

### 7.2.3. Perfective II (= Ebert’s Präteritum II).

The PERFECTIVE II has the form **á** + PERFECTIVE I.

**Table 49:** The PERFECTIVE II form

	CLASS 1	CLASS 2A	CLASS 2B
STEM	<b>sā-</b> drink	<b>gòld-</b> look for	<b>hām-</b> eat
NO OBJECT	<b>á sáḡ</b>	<b>á gòldóḡ</b>	<b>á hāmàḡ</b>
3 <sup>RD</sup> M.S. OBJECT	<b>á sǎnú</b>	<b>á gùldúnú</b>	<b>á hòmnu</b>

<sup>116</sup> This is a yes/no question and answer from a text. The subject pronouns **aḡ** ‘you (pl)’ and **áḡ** ‘we (incl)’ differ in tone, but the text from which the example comes is not marked for tone.

This TAM denotes an event viewed as complete prior to some other event in the context. Ebert (1979:81) likens it to German *Plusquamperfekt*.<sup>117</sup> I admit to having some trouble understanding this function in her narrative examples (page 82). She singles out its use in relative clauses, as in the following:

**Kā gò míntí á bə̀ḡ dè kārāḡ, ye hərə̀y sāmaḡ.**

‘The people who had come with goats, they give [Basic TAM] him back the rope.’ [82]

#### 7.2.4. Perfect I (= Ebert’s Perfekt I)

The Perfect I has the form

STEM + /n/ (+ PRONOUN SUFFIX) (+ NOUN OBJECT) + **né**<sup>118</sup>

**Table 50:** The PERFECT I form

	CLASS 1	CLASS 2A	CLASS 2B
STEM	<b>sā-</b> drink	<b>gòld-</b> look for	<b>hàm-</b> eat
NO OBJECT	<b>saḡ né</b>	<b>gòldòḡ né</b>	<b>hàmàḡ né</b>
3 <sup>RD</sup> M.S. OBJECT	<b>sə̀nu né</b>	<b>gùldùnù né</b>	<b>hə̀mnù né</b>

Ebert (1979:84) describes the PERFECT I as being temporally unmarked, but implying the relevance of the event for the time of reference, similar to English present perfect. She contrasts the PERFECT I and PERFECTIVE I with the following sentences and translations:

<sup>117</sup> In narrative, the Kera PERFECTIVE II seems to function like the simple PERFECTIVE in West Chadic languages that I am familiar with. In these languages, TAMs other than the PERFECTIVE (usually the SUBJUNCTIVE, though in Hausa, the RELATIVE PERFECTIVE) are used to carry the storyline along, and the simple PERFECTIVE indicates a “step back”.

<sup>118</sup> Ebert’s examples all show **né** with a hyphen linking it to the preceding word. Note in the paradigm below, however, that the /-n/ suffix on the verb is realized as [ḡ] when directly followed by **né**, showing that **né** is treated morphologically as a separate word.

Perfect I: **Wə gòldòṅ kaḡ né.** ‘Er hat die Leute gesucht.’ [83]  
 (‘He has looked for the people.’)

PERFECTIVE I: **Wə gòldóṅ kaḡ.** ‘Er suchte die Leute.’  
 (‘He looked for the people.’)

In keeping with the sense of “relevance to the time of reference”, she states [84] that the PERFECT I is obligatory in conditional clauses, i.e. completion of the condition is relevant to the main clause:

**Tam hámàṅ kúsúkíḡ né-ḡ, áḡ kor-la.** ‘If you have eaten the meat, let’s go.’

She states [82] that the PERFECT cannot be used in relative clauses or [83] in negative sentences. It also seems not to be used in WH-questions (though examples on page 228 show that it can be used in yes/no questions). These restrictions are reminiscent of similar restrictions on the distribution of the “totality extension” in some West Chadic languages such as Bole or Ngizim. In Schuh (2005), I characterize this as a mark of *auxiliary focus*, which is excluded from contexts where some other element is focused. Her example [84], **ten hámàṅ-né** ‘ich habe (schon) gegessen’ [‘I have (already) eaten’], with a translation using “already” is also similar to English translations that speakers sometimes give to differentiate verbs with the totality extension from those without.

#### 7.2.5. Perfect II (= Ebert’s Perfekt II).

The PERFECT II has the form **á** + PERFECT I:

**Table 51:** The PERFECT II form

	CLASS 1	CLASS 2A	CLASS 2B
STEM	<b>sā-</b> drink	<b>gòld-</b> look for	<b>hám-</b> eat
NO OBJECT	<b>á saḡ né</b>	<b>á gòldòṅ né</b>	<b>á hámàṅ né</b>
3 <sup>RD</sup> M.S. OBJECT	<b>á sǎnu né</b>	<b>á gùldùnù né</b>	<b>á hámnu né</b>

Like PERFECT I, PERFECT II seems mainly (only?) to be used in conditional clauses. PERFECT II contrasts with PERFECT I in a way parallel to the respective PERFECTIVES, viz. the PERFECT II indicates that the event has been completed prior to the event in the main

clause. As a contrast between PERFECT II vs. PERFECT I, Ebert (1979:87) cites the following, the first from a text, the second an elicited sentence of the same form:

Perfect II: **Wə á sōnənom né-ŋ, ye dé á gàw bàŋ.**

‘If he has bewitched you, they go and call him loudly.’

Perfect I: **Wə sōnənom né-ŋ, ye dé á gàw bàŋ.**

‘If he bewitches you, they go and call him loudly.’

### 7.2.6. Subjunctive I and Imperative (= Ebert’s Optative I)

Ebert’s “optative” has the functions of the TAM usually called “SUBJUNCTIVE” in writings on Chadic, hence my use of the latter term. The SUBJUNCTIVE has the following form:

STEM (+ PRONOUN SUFFIX) (+ NOUN OBJECT) + /la/

/la/ has L tone directly after a L verb stem, H tone after a pronoun object or an indefinite noun object, M elsewhere.

**Table 52:** The SUBJUNCTIVE I form

	CLASS 1	CLASS 2A	CLASS 2B
STEM	<b>sā-</b> drink	<b>gòld-</b> look for	<b>hàm-</b> eat
NO OBJECT	<b>sā la</b>	<b>gòldò là</b>	<b>hàm là</b>
3 <sup>RD</sup> M.S. OBJECT	<b>saw lá</b>	<b>gùldù lá</b>	<b>həmù lá</b>

Indefinite noun object: **wə fāl kā lá** ‘he should find some people’ [88]

Definite noun object: **wə fāl kaŋ la** ‘he should find the people’ [88]

Like SUBJUNCTIVES in many Chadic languages, the SUBJUNCTIVE I is used as a hortative for all persons (including 2<sup>nd</sup>), in purpose clauses, after expressions of necessity or fittingness, and in complement clauses of expressions of desire. The SUBJUNCTIVE I

without an overt subject functions as a singular IMPERATIVE. The plural IMPERATIVE is the SUBJUNCTIVE I with a 2<sup>nd</sup> person plural subject pronoun.<sup>119</sup>

- 1<sup>st</sup> person hortative:      **áj dē la**                      ‘let’s go!’ [91]  
 Singular IMPERATIVE:    **bèṅṅèṅ ku kuliḿ lə wóra**      ‘open the door for me!’ [91]  
 Purpose:                      **Yáw gāṅ Atempersu ... míntí wə dē la á hè cəwa dà ...**  
    ‘The pelican sent Atempersu...so that he go and bring fire...’ [264]  
 Necessity, etc.:              **marya ten kor la dībīnim**      ‘it’s best that I go tomorrow’ [186]  
    **dòólè aṅ bē là**                      ‘you (pl) must come’ [186]  
 Complement of desire:    **Ten gòldé míntí aṅ ayan gis lá, ten aw kin.**  
    ‘I want you to give me a mat, I’m sleepy.’ [92]

The SUBJUNCTIVE I cannot be used in the negative, marked in other TAMs by clause final **bà**, or with the VENTIVE, marked by clause final **dà**. This seems like a strange class of constructions for incompatibility with the SUBJUNCTIVE and may simply be a result of the SUBJUNCTIVE **la**, negative **bà**, and ventive **dà** all vying for the same clause final syntactic slot. This would predict that the ventive cannot be used in negative clauses. Ebert does not explicitly mention such a restriction, but a perusal of a fair number of ventive-marked clauses in her grammar reveals no negatives.

#### 7.2.7. Subjunctive II (= Ebert’s Optative II)

The SUBJUNCTIVE II has the form (á) (sá) + SUBJUNCTIVE I. Either **á** or **sá** or both must be used.

**Table 53:** The SUBJUNCTIVE II form

	CLASS 1	CLASS 2A	CLASS 2B
STEM	<b>sā-</b> drink	<b>gòld-</b> look for	<b>hàm-</b> eat
NO OBJECT	(á) (sá) <b>sā la</b>	(á) (sá) <b>gòldè là</b>	(á) (sá) <b>hàm là</b>
3 <sup>RD</sup> M.S. OBJECT	(á) (sá) <b>saw lá</b>	(á) (sá) <b>gùldù lá</b>	(á) (sá) <b>hèmù lá</b>

<sup>119</sup> The examples above (translatable also as “let him find...”) illustrate 3<sup>rd</sup> person hortatives.

The SUBJUNCTIVE II expresses a unfulfilled exhortation and, in conditional clauses, counterfactual conditions.

**wə (á) (sá) əy solóy lá** ‘he should have given him money’ [92]  
 ‘if only he had given him money’

### 7.2.8. Negative Subjunctive (= Ebert’s Optative II)

As noted above, the SUBJUNCTIVE I (likewise SUBJUNCTIVE II [94]) cannot be used in the negative, marked by clause final **bà** or with the phrase final VENTIVE particle **dà**. Clauses with SUBJUNCTIVE meanings in these contexts use a form **á** + Basic TAM.

**Table 54:** The NEGATIVE SUBJUNCTIVE form

	CLASS 1	CLASS 2A	CLASS 2B
STEM	<b>sā-</b> drink	<b>gòld-</b> look for	<b>hàm-</b> eat
NO OBJECT	<b>á sé</b>	<b>á gòldé</b>	<b>á hàèmè</b>
3 <sup>RD</sup> M.S. OBJECT	<b>á sáw</b>	<b>á gùldú</b>	<b>á hàèmù</b>

Ebert (1979:93, 94) contrasts pairs like the following:

SUBJUNCTIVE I: <b>wə məntu lá</b> ‘he should call him’	Negative: <b>wə á məntú bà</b> ‘he should not call him’
SUBJUNCTIVE II: <b>wə á məntu lá</b> ‘had he only called him’	Negative: <b>wə á á məntú bà</b> ‘had he only not called him’

I suggested in §7.2.6 that the exclusion of SUBJUNCTIVE in these contexts may result from the particles **la**, **bà**, and **dà** all vying for a single morphosyntactic slot rather than the exclusion being conditioned by negative semantics. This is confirmed by the example in §7.2.6 that ends ...**míntí wə dē la**<sub>[SUBJ I]</sub> **á hē**<sub>[NEG SUBJ]</sub> **cəwa dà** ... ‘...that he should go<sub>[SUBJ I]</sub> and bring<sub>[NEG SUBJ]</sub> fire...’. The verbs ‘go’ and ‘bring’ both express purpose and, in principle, should both be SUBJUNCTIVE I, but the second clause ends with the ventive particle **dà**, conditioning the “NEGATIVE” SUBJUNCTIVE.

### 7.2.9. *Irrealis* (= *Ebert's Irrealis*)

The IRREALIS has the form **(á) sá** + Basic TAM.

**Table 55:** The IRREALIS form

	CLASS 1	CLASS 2A	CLASS 2B
STEM	<b>sā-</b> drink	<b>gòld-</b> look for	<b>hàm-</b> eat
NO OBJECT	<b>(á) sá sé</b>	<b>(á) sá gòldé</b>	<b>(á) sá hàèmè</b>
3 <sup>RD</sup> M.S. OBJECT	<b>(á) sá sáw</b>	<b>(á) sá gùldú</b>	<b>(á) sá hèmù</b>

The IRREALIS expresses counterfactuality in main clauses. A counterfactual conditional clause using the SUBJUNCTIVE II (§4.2.7) typically precedes IRREALIS main clauses.

**wə (á) sá bì** ‘he would have come’ [94]

**Ten á jě là**<sub>[SUBJ II]</sub> **akéra, kupúrkí tón sə dǎ**<sub>[IRREALIS]</sub> **bà.**

‘If I had been<sub>[SUBJ II]</sub> at home, the billygoat would not have gone away<sub>[IRREALIS]</sub>.’ [94]

### 7.2.10. *Future and Progressive* (= *Ebert's Futur, Progressiv*)

The FUTURE and the PROGRESSIVE are periphrastic TAMs that use a preverbal particle **bə**, which must derive from the verb **bì** (stem **bǎ-**) ‘come’. (See below for an alternative FUTURE construction.)

FUTURE: **bə** + CITATION FORM (+ PRONOUN SUFFIX) (+ NOUN OBJECT)

PROGRESSIVE: **bə** + VERBAL NOUN (+ PRONOUN SUFFIX) (+ NOUN OBJECT) + /a/

The /a/ of the PROGRESSIVE bears M tone after a definite noun object, H elsewhere. Moreover, the /a/ is elided following a vowel, leaving only its H tone as a trace. The VERBAL NOUN [95] differs from the BASIC FORM (§7.2.1) in having a H on the last syllable in all verb classes. Thus, as Ebert (1979:75) notes, when there is no noun object (and the PROGRESSIVE /a/ is elided by a preceding vowel), the only construction where the two TAMs are distinct is CLASS 2b.

**Table 56:** The VERBAL NOUN form

	CLASS 1	CLASS 2A	CLASS 2B
STEM	<b>sā-</b> drink	<b>gòld-</b> look for	<b>hàm-</b> eat
FUTURE			
NO OBJECT	<b>bə sé</b>	<b>bə gòldé</b>	<b>bə hámé</b>
3 <sup>RD</sup> M.S. OBJECT	<b>bə sáw</b>	<b>bə gùldú</b>	<b>bə hámù</b>
2 <sup>ND</sup> M.S. OBJECT		<b>bə gòldòm</b>	
PROGRESSIVE			
NO OBJECT	<b>bə sé</b>	<b>bə gòldé</b>	<b>bə hámé</b>
3 <sup>RD</sup> M.S. OBJECT	<b>bə sáwá</b>	<b>bə gùldú</b>	<b>bə hámú</b>
2 <sup>ND</sup> M.S. OBJECT		<b>bə gòldómá</b>	

FUTURE + N-DO:                    **wə bə gòldé kásáw**      ‘he will look for millet’ [75]

PROGRESSIVE + def. N-DO: **wə bə jèré kápəŋ a**      ‘he is decorating the tree’ [97]

PROGRESSIVE + indef. N-DO: **wə bə jèré kápəŋ á**      ‘he is decorating a tree’ [97]

Ebert (1979:75) describes a second way of forming the FUTURE, which she says is by far the more used (*bei weitem am gebräulichsten*). This construction places a word **yaŋ**, identified as a loan from Tupuri, after either a Basic TAM or a FUTURE: **bə gòldé kásáw** (FUTURE) = **bə gòldé kásáw yaŋ** (FUTURE + **yaŋ**) = **gòldé kásáw yaŋ** ‘will look for millet’. Undoubtedly, this innovation was motivated by the frequent homophony of the “native” FUTURE and PROGRESSIVE described at the beginning of this section.

Ebert (1975:98) notes that the PROGRESSIVE is actually a locative construction, as shown by the final /a/, found likewise in constructions such as **kérkə hùlúm-a** ‘behind the man’, **kérkə hùlúm-á** ‘behind a man’, with the same tonal alternation of /a/ conditioned by (in)definiteness of objects as in the verbal use. This source for the PROGRESSIVE explains two facts that distinguish it from other TAMs. First, when negated, it uses the discontinuous negative **pāpá...bà** used in non-verbal sentences: **wə pāpá bə hámé bà** ‘he is not eating’ [99] (cf. **tó pāpá pís bà** ‘that isn’t good’ [222]). Second, a progressive meaning can be superimposed on other TAMs by conjugating the verb **jì** ‘do’ in a particular TAM followed by a PROGRESSIVE complement. In this construction, the PERFECTIVE II is used in the PERFECTIVE sense (Ebert 1979:99 fn. 2),



and, understandably, only the “**yaŋ**” FUTURE (see preceding paragraph) is possible. Ebert [99] presents the following examples. The translations are mine.

PERFECTIVE:	<b>á jəŋ bə hámé</b>	‘had been eating’
SUBJUNCTIVE:	<b>jə̀ lə̀ bə hámé</b>	‘should be eating, let...be eating’
NEGATIVE SUBJUNCTIVE:	<b>á jì bə hámé bə̀</b>	‘should not be eating’
IRREALIS:	<b>á sá jì bə̀ hámé</b>	‘would that...be eating’
FUTURE:	<b>jì yaŋ bə̀ hámé</b>	‘will be eating’

## 7 | VERBAL EXTENSIONS

Descriptions of Chadic languages usually have a section devoted to the Tense/Aspect/Mood (TAM) system and a separate section devoted to “extensions”. Such “extensions” comprise verb morphology that signals meaning differences between verb forms that are *not* part of the TAM system. Examination of the types of expressions included among extensions reveals that about the only thing that unites them is the negative characterization that they are non-TAM verb morphology. Some extensions derive verbs that have idiosyncratic semantic and morphological characteristics that call for lexical listing separate from the underived base; some extensions derive bases that are then inflected for TAM but which are so productive morphologically and semantically that they do not call for separate lexical listing; some extensions are more like inflection than derivation in that they interact with syntax and TAM morphology in ways best described by morphosyntactic rules rather than rules of word formation; and finally, cross-linguistically, one language’s bound morphological extension may correspond to another language’s separate word or particle.

### 1. Valence and Valence Marking

#### 1.1. “Neutral” transitivity vs. intransitivity

A pan-Chadic feature of verbal systems is the use of verbs as transitive or intransitive, with the syntactic difference marked simply by using the agent or the patient as the grammatical subject. Verbs using in this, which, in fact, applies to most verbs, are sometimes referred to as *labile verbs*. Hoffmann (1963:115), speaking of Margi (II.a.2) says, “A verb may be transitive or intransitive, according to whether it can or cannot take a direct object. In Margi, the majority of *simple* verb stems seem to be *neutral* in this respect, i.e. they may be used both as transitive and intransitive verbs” (emphasis his). He gives examples such as **jù’wà** ‘melt (tr. or intr.)’, **ɗàl** ‘buy/be bought’. In fact,

Hoffmann’s statement applies to many Chadic languages. For Ron-Bokkos (I.A.4), Jungrathmayr (1970b:118) says, “Manche Verbe sind auch von vornherein neutral und werden erst durch eine bestimmte Konstruktion transitiv, intransitive oder medial.” Languages of the Bole-Tangale (I.A.2), Bade (I.B.1), and North Bauchi (I.B.2) groups likewise treat most verbs as “neutral” in this sense, though verbs used intransitively typically suffix an Intransitive Copy Pronoun (ICP) (§1.2). The following examples show that a bare verb without additional morphological marking can have transitive or intransitive meaning:

Bole:	<b>’yân là Allàh ìwò</b>	‘what Allah <u>has done</u> ’
	<b>kaibònò ìwò</b>	‘the marriage <u>has come to an end</u> ’ (“is done”)
Miya:	<b>nákə can à say-wan sáy</b>	‘this work <u>tired me out</u> ’
	<b>à saya sáy</b>	‘he <u>got tired</u> ’
	<b>món tsiy s-āwas-ay</b>	‘I <u>burned</u> the grass’
	<b>áwásə tsíy say</b>	‘the grass <u>burned</u> ’

Transitive and intransitive semantic pairings are of two main types: (1) Verbs where the object of the transitive sense is made to undergo a change of state whereby the grammatical subject of the same verb undergoes that change of state. The verb in the intransitive sense is sometimes referred to as *unaccusative* (i.e. the “accusative” object is the grammatical subject). The intransitive examples above are of this type. (2) Verbs where the object of the transitive sense is an agent that acts upon itself or for its benefit in the intransitive sense. The verb in the intransitive sense is sometimes referred to as *middle voice* or *mediopassive*, as in the Miya examples just below. The Ron-Bokkos examples from Jungrathmayr (1970b:109) examples illustrate both (1) and (2).<sup>1</sup>

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<sup>1</sup> A third type of intransitive verb, often referred to as *unergative*, has an agentive subject that is not interpretable as the object of an event, e.g. *run, sit down, resign*.

Miya:	TRANSITIVE	<b>món bəsə súw kàbə tuwn-áy</b>	‘I <u>washed</u> my shirt ( <b>kàbə</b> )’
	UNACCUSATIVE	<b>mən bəsu-wan súw</b>	‘I <u>bathed</u> ’ (“wash-ICP”)
Ron:	TRANSITIVE	<b>tì-í fôt đam yá</b>	‘I <u>lost</u> something’
	UNACCUSATIVE	<b>tì-í fôt</b>	‘I <u>am lost</u> ’
	MIDDLE	<b>tì-í fôt-un</b>	‘I <u>hid</u> ’ (“lost-ICP”)

The UNACCUSATIVE example in Miya and the MIDDLE example in Ron-Bokkos bear Intransitive Copy Pronouns (ICP) (**-wan**, **-un** respectively), discussed in the next section.

A type of construction that is not often mentioned in grammars concerns rendering the counterparts of constructions like English *I am reading*, *she sewed all afternoon*, *he smiths for a living*, *when will we eat?* The verbs in these examples are transitive in the sense that there is some implied object, but syntactically, they are used intransitively. In Chadic languages, if a verb with a transitive sense is the syntactic head of a VP, it will be interpreted as having an object, whether overtly expressed or not, e.g. Bole **đinkakkòyi** would be understood as ‘she cooked (some specific but unexpressed object), “she engaged in a general cooking act”’. Chadic languages render expressions like those in English in two ways, exemplified with Bole: (1) the verb “do” is the head of the VP and the event is expressed as a nominal object, e.g. **ii àaru** ‘he sang’ (“he did song”); (2) the relevant verb is the head of the VP, followed by a generic, non-specific object relevant to the event, e.g. **tan ottò** ‘they ate food’, where **ottò** ‘*tuwo*’ is, literally, a particular dish, but where this sentence can be interpreted generically, meaning “they had a meal”.

## 1.2. Intransitive Copy Pronoun (ICP)

The term “Intransitive Copy Pronoun” (ICP) was coined by Newman (1971). ICPs are pronoun suffixes used only with intransitive verbs that reflect person, number, and gender of the subject. ICPs are (semi-)productively used only in “northern” languages of the West Chadic Branch—those in the Bole-Tangale (I.A.2), Bade (I.B.1), and North

Bauchi (I.B.2) subbranches. There are traces in Hausa (I.A.1) and Ron (I.A.4). Outside West Chadic, the only language that I know of with ICPs is Gidar (II.C.1).<sup>2</sup>

Morphologically, ICPs resemble pronominal direct or indirect objects in the sense that they are suffixed to verbs,<sup>3</sup> but at least some languages have distinct paradigms in the three functions. Compare the paradigms for singular persons in Miya in the three functions (Schuh 1998). Verbs are all in the PERFECTIVE.

**Table 1:** Miya suffixed pronouns

	‘X bathed-ICP’	‘he called-DO’	‘he called a boy for-IO’
1 sg.	<b>m̀ǹǹ b̀s̀u-wan s̀ỳ</b>	<b>à zar-wan s̀ỳ</b>	<b>à zar-a-n s̀ẁ v̀rk-áy</b>
2 m.sg.	<b>f̀à b̀s̀ə-k̀u s̀ỳ</b>	<b>à zar-f̀ə s̀ỳ</b>	<b>à zar-a-f̀ə s̀ẁ v̀rk-áy</b>
2 f.sg.	<b>m̀à b̀s̀ə-k̀ən s̀ỳ</b>	<b>à zar-gh̀ən s̀ỳ</b>	<b>à zar-a-gh̀ən v̀rk-áy</b>
3 m.sg.	<b>à b̀s̀ə-t̀a s̀ỳ</b>	<b>à zar-ya s̀ỳ</b>	<b>à zar-a-ỳá s̀ẁ v̀rk-áy</b>
3 f.sg.	<b>à b̀s̀ə-l̀a s̀ỳ</b>	<b>à zar-l̀a s̀ỳ</b>	<b>à zar-a-l̀á v̀rk-áy</b>

Languages differ in the ways that they deploy ICPs. The difference between a verb used intransitively or transitively is often shown by the presence or absence of an ICP, but it is incorrect to view addition of an ICP as a way to *derive* intransitive verbs. In

<sup>2</sup> Frajzyngier (1977:81) cites Tera (II.A.1) and Margi (II.A.2) as having ICPs in examples like Tera **koro-a wà xa var-an gha** ‘the donkey sat himself down’ (Newman 1970:49) and Margi **à-má-ir gó-yà yó** ‘I went away’ (Hoffmann 1963:209). These are not ICPs in the sense of being (semi-)obligatory agreement affixes on intransitive verbs. Tera **var-an** ‘himself’ (lit. ‘his body’) is a reflexive, Margi **gó-ya** ‘mine’ is a genitive pronoun, used elsewhere in alienable possessive constructions.

<sup>3</sup> Jungraithmayr (1970b:109) notes that the ICP might be viewed as a direct object (*es is grundsätzlich zu fragen, ob es sich dabei nicht doch—zumindest ursprünglich—um eine Objektvorstellung handelt*). He rejects this in favor of a MIDDLE interpretation. A strong morphosyntactic reason for accepting this MIDDLE interpretation is the fact that were the subject acting on itself as the grammatical object, it would be expressed as a reflexive not as a pronoun suffix (“I hid myself”). Jungraithmayr (1970b) does not discuss reflexives, but presumably Ron languages are like all other Chadic languages in using something like *head-PRO* or *body-PRO* to mean “one’s-self”.

Kanakuru (Newman 1974) and Pero (Frajzyngier 1977, 1989), both languages of group I.A.2.b, all verbs used intransitively require an ICP.<sup>4</sup>

Kanakuru: **Basha à ga-to mōna** ‘Basha entered-ICP the house’

**nà jaŋ-no** ‘I recovered-ICP’, cf. **nà jaŋi** ‘I cured (him)’

**wò wún jàŋà-wá ù** ‘they didn’t get well-ICP’

**mò kewo-mu** ‘we got down-ICP’ cf. **mò kew pitila** ‘we lowered the lamp’

Pero: **jók bél-k-ée-tò** ‘the chair got broken-ICP’

cf. **nì bélé-kò jírè vúrò-i** ‘I broke the branch off the tree’

**tuk-t-ée-ji** ‘hide-ICP (2 f.sg.)!’ cf. **tukkò jándè** ‘hide the yam’

Miya (I.B.2) (Schuh 1998:178-183) requires ICPs with most intransitive verbs, but there are intransitive verbs with which an ICP cannot be used. Though the latter type are in the minority, there seems to be nothing semantically that would distinguish them from those that require an ICP.<sup>5</sup> There are even homophonous or polysemous pairs, one of which takes an ICP and the other that does not. The only semantic group that systematically disallows ICPs are verbs where the action results in some kind of “product”, such as ‘shout’, ‘cough’, ‘fart’. For intransitive verbs that require an ICP, the ICP is used in all TAMs, affirmative, negative, and in questioned/focused constructions.

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<sup>4</sup> Frajzyngier (1977:75) notes that intransitivity alone does not trigger use of the ICP, citing a pair **yé dígè íccé-k-ée-tò** ‘the interior of the pot dried[-it]’ with an ICP, but **yé dígè ícc-áani** ‘the interior of the pot is dry’ with no ICP. The latter, however, is a stative predicate, marked by the suffix **-áani**, not an active verb. To trigger addition of the ICP, the verb must be an active verb used in an inchoative sense.

<sup>5</sup> This is reminiscent of European languages like French or German that generally use *be* as a PERFECT auxiliary with intransitives (*je suis venu* ‘I came’) and *have* with transitives (*je l’ai cherché* ‘I looked for it’), but some intransitives use *have* (*j’ai courru* ‘I ran’).

**Table 2:** Miya ICPs

Type	ICP	No ICP
MOTION (PERFECTIVE)	<b>à ba-lá say</b> ‘she went’	<b>njó à vár say</b> ‘she ran’
UNACCUSATIVE (PERFECTIVE)	<b>ndùwul ba-tá say</b> ‘the pot broke’	<b>áwásə tsiy say</b> ‘the grass burned’
MIDDLE (PERFECTIVE)	<b>món bəsə-wan súw</b> ‘I bathed’	No clear examples found.
SPEND TIME (PERFECTIVE)	<b>à wasəna-ta sáy</b> ‘he spent a year’	<b>à makə sáy</b> ‘he spent a long time’
POLYSEMOUS (PERFECTIVE)	<b>à na-lən sáy</b> ‘they are ripe’	<b>à naa sáy</b> ‘it is done (well-cooked)’
HOMOPHONOUS (PERFECTIVE)	<b>à piya-lá say</b> ‘she lay down’	<b>à piya sáy</b> ‘she returned’
RESULTING “PRODUCT” (PERFECTIVE)	<b>*à byaara-ta sáy</b>	<b>à byaara sáy</b> ‘he farted’
IMPERATIVE	<b>tsóriy-kà</b> ‘stop!’ (m.sg.)	
IMPERFECTIVE <sup>6</sup>	<b>njè s-áa bəsa-za-y</b> ‘she will bathe’	
NEGATIVE PERFECTIVE	<b>à ’əsə-tà má-w</b> ‘he is not sated’	
QUESTION/FOCUS	<b>à dzar-lən ghajà?</b> ‘when did they disperse?’	

For the languages above, the ICP, when it is used at all, is an obligatory suffix in all morphosyntactic environments. Some languages of group I.A.2.a (Karekare, Ngamo, Bole) and one language of group I.B.1 (Ngizim) show a different distribution for ICPs. In

<sup>6</sup> IMPERFECTIVE is a so-called “nominal” TAM, that uses a nominalized verb form. ICPs in nominalized TAMs take the form of possessive pronouns (cf. **-la** ‘her (ICP)’, **-za** ‘her (possessive, “nominal” ICP)').

these languages, ICPs are always used in conjunction with the so-called TOTALITY extension.<sup>7</sup> In §2, I will argue that this extension would be better characterized as an indicator of AUXILIARY FOCUS. For discussion here, it is sufficient to note that (1) use of this extension is a semantic choice, not a morphosyntactically conditioned one, and (2) that it is precluded from negative TAMs and clauses with questioned or focused constituents. The first dataset below shows verbs without and with ICPs; the second dataset shows that the ICP cannot be used with negative TAMs. All examples are in the PERFECTIVE. The first dataset uses the verb meaning ‘go out’ with 1<sup>st</sup> and 2<sup>nd</sup> person singular subjects, the second dataset uses a 3<sup>rd</sup> masculine singular subject. The TOTALITY extension is in small caps, the ICP is underlined. Data are from Schuh (2005b).

**Table 3:** Presence or absence of ICP in Yobe languages

	KAREKARE	NGAMO	BOLE <sup>8</sup>	NGIZIM
No ICP	<b>nà fātā-kàù</b>	<b>nè hātá</b>	<b>̀n pātā-wò</b>	<b>na vèru</b>
1 sg.	<b>nà fātā-HN-<u>na</u>-kàù</b>	<b>nè hāt-N-<u>nô</u></b>	<b>̀n pātā-jì-<u>no</u></b>	<b>na vèrè-N-<u>gâ</u></b>
2 m.sg.	<b>ka fātā-TI-<u>ka</u>-kàù</b>	<b>kò hata-T-<u>kô</u></b>	<b>ka patā-jì-<u>ko</u></b>	<b>ka vèrè-NĀ-<u>ci</u></b>
3 m.sg.				
No ICP, aff.	<b>mètu-kàù</b>	<b>màt-kô</b>	<b>motu-wò</b>	<b>mètu</b>
ICP, aff.	<b>mètu-TI-<u>n</u>-kì</b>	<b>màt-IN-<u>nî</u></b>	<b>motū-jì-<u>nì</u></b>	<b>mètə-N-<u>gərî</u></b>
No ICP, neg.	<b>mètu-kà bai</b>	<b>màt-ko bù</b>	<b>motū sa</b>	<b>mètə bai</b>
ICP, neg.	<b>*mètu-TI-<u>n</u>-kì bai</b>	<b>*màt-IN-<u>nî</u> bù</b>	<b>*motū-jì-<u>nì</u> sa</b>	<b>*mètə-N-<u>gərî</u> bai</b>

<sup>7</sup> These languages are all in the Potiskum area of Yobe State, Nigeria. In Schuh (2005b) I argue that this deployment of ICPs is an areal innovation. It is shared by geographically neighboring languages of the A (Karekare, Ngamo, Bole) and B (Ngizim) branches, but not by A-branch languages further south. The northern B-branch languages (Bade, Duwai) no longer use a TOTALITY extension, though the -n(ā)- seen in Ngizim TOTALITY is fused as part of Bade ICPs, e.g. **gə vèrə-nā-i** ‘you (m.sg.) went out-nā-ICP’.

<sup>8</sup> Bole uses what was originally a reflexive/reciprocal pronoun, literally “my body”, as the ICP. This is also the case in Kirfi and Gera (Schuh 1978b). Syntactically, however, Bole ICPs behave like those of the other languages discussed here.



Elsewhere in West Chadic, Jungrraithmayr (1970b) notes that a few verbs in Ron-Fyer (50) and Ron-Bokkos (108) can take ICPs. Hausa has traces of ICPs on the verbs ‘go’ and ‘come’ in the lexically frozen IMPERATIVES **yā-kà** ‘come here (m.sg.)!’ **yā-kì** ‘come here (f.sg.)!’, **jè-ka** ‘go on (m.sg.)!’, **jè-ki** ‘go on (f.sg.)!’ (Newman (2000:269) and optionally with all persons in at least PERFECTIVE and SUBJUNCTIVE TAMs, e.g. **yā zō-shi** ‘he has come’, **mù jē-mu** ‘let’s go’ (Newman 2000:479).

Outside West Chadic, the only language that I know of that has “real” ICPs in the sense described in this section is Gidar (II.C.1) (Schuh 1984). In the brief period that I worked on Gidar I found the following verbs allow suffixation of ICPs: **áddá** ‘go’, **ússó** ‘sit down’, **ámdá** ‘return, go back’, **ánzá** ‘run’. They are all *unergative* (see §1.3) and all have the underlying root structure /əCCa/. Here is a full paradigm with the verb ‘run’ in the PERFECTIVE:

**Table 4:** ICPs in Gidar

	SINGULAR	PLURAL
1	<b>nè nzá-w-kà</b>	<b>mè nz-ám-kà</b>
2	<b>kù nzó-k-kò</b>	<b>kù nzó-<i>ŋ</i>-kò</b>
3m	<b>à nzá-n-kà</b>	<b>à nzó-<i>ŋ</i>-kò</b>
3f	<b>tò nzá-t-kà</b>	

The italicized element in 2<sup>nd</sup> and 3<sup>rd</sup> plural are the plural subject agreement affixes used with all verbs, which seem to preempt person specific ICPs. ICPs may not be obligatory. Their presence is possible in other TAMs: **ánshó-kó** ‘run!’, **in tà tá zá-wà** ‘I am coming’.

### 1.3. Causative<sup>9</sup>

CAUSATIVIZING morphology is found in at least West, Central, and East branches of Chadic. In nearly all languages, CAUSATIVE affixation is restricted to deriving transitive verbs from verbs that can only be used intransitively in their basic forms. Affixation of transitive verbs to create pairs such as *buy* → *sell*, *learn* → *teach*, *marry* → *marry off*, found in Hausa, is rare. Deriving transitives by CAUSATIVE affixation applies primarily to *unergative* verbs, that is, intransitive verbs with an agentive subject, such as *go*, *stand up*, *climb*, *disperse*, etc., though there are exceptions, e.g. in some languages, intransitive *be sated* has a CAUSATIVE derived form *feed*, and intransitive *get well*, *recover* has a CAUSATIVE derived form *heal*.

#### 1.3.1. \*-d Causative

It seems possible to reconstruct a CAUSATIVIZING suffix *\*-d* to at least the level of West + Central.

**Table 5:** CAUSATIVE suffix *\*-d*

Branch	Language	INTRANSITIVE		TRANSITIVE	
I.A.1	Hausa	<b>fi</b> ta	‘go out’	<b>fi</b> d-dà	‘remove’
		<b>tsay</b> à	‘come to a stop’	<b>tsai</b> -dà	‘bring to a stop’
1.B.1	Bade	<b>ju</b>	‘go’	<b>jə</b> -dù	‘carry, transport’

<sup>9</sup> Newman (2000:655) has argued that CAUSATIVE as a term for this extension, at least for Hausa, “is “semantically inaccurate at the descriptive level and misleading for comparative and typological purposes” for two main reasons. First, “causative” implies *indirect* causation of an event initiated by an agent, but performed by the causee (*we made the children sit*). This is expressed in Hausa by means of a periphrastic construction using the verb *sâ* ‘cause’. The suffixed verbs discussion in the section involve *direct* intervention of an agent (*we seated the children*). Second, this extension has a variety of functions that are not well-characterized by the term “causative” in either sense mentioned here. Newman has thus replaced CAUSATIVE with EFFERENTIAL to better capture the functions of this extension. Nonetheless, I retain the term CAUSATIVE. This is a familiar term nearly universally used in typological studies to refer to morphology that transitivizes intransitive verbs, the main function of this extension in Chadic languages.

		<b>ərɓu</b>	‘move’	<b>ərɓə-dù</b>	‘shake’
		<b>əkɓu</b>	‘ford’	<b>əkɓə-dù</b>	‘ferry across’
		<b>əzdàvu</b>	‘lodge, stay’	<b>əzdàvə-dù</b>	‘lodge s.o.’
I.B.2	Miya	<b>ba</b>	‘go’	<b>b-ay</b>	‘carry, transport’
		<b>ghəma</b>	‘climb’	<b>ghəm-ay</b>	‘raise’
		<b>la</b>	‘get well, recover’	<b>l-ay</b>	‘heal, cure’
		<b>dzar</b>	‘disperse’	<b>dzar-ay</b>	‘distribute’
I.C.1	Zaar	<b>shii</b>	‘go down’	<b>shíi-r, shi-lár</b>	‘take down’
		<b>ɓup</b>	‘wait’	<b>ɓuɓ-ár</b>	‘wait for s.o.’
		<b>su</b>	‘turn, turn around’	<b>sú-r, su-lár</b>	‘return s.t.’
II.A.4.a	Podoko	<b>ndza</b>	‘sit, stay’	<b>njə-dá-lu njé</b>	‘seat, place on’
		<b>mbávu mbáva</b>	‘arise’	<b>mbévnə-dá-lu mbéve</b>	‘raise’
II.A.5.b	Mofu	<b>mbək</b>	‘remain, be left’	<b>mbək-dá</b>	‘leave s.t.’
		<b>cèn</b>	‘listen’	<b>cènd</b>	‘learn’

### NOTES

Hausa: In addition to using this extension as a transitivizer of intransitive verbs, Hausa uses it fairly productively to change the semantic orientation of transitive verbs, e.g. **naa sàyi dānkali** ‘I bought potatoes’, **naa sai-dà dānkali** ‘I sold potatoes.’ See §8.1 for more detail on Hausa CAUSATIVE morphology.

Miya: Suffix **-ay** < **\*-ad**. The North Bauchi language have undergone a sound change **\*t, \*d > y** when non-initial, cf. PC **\*k-d-m**, Miya **kìyim** ‘crocodile’, PC **\*m-t- > Miya mīy** ‘die’.

Zaar: The suffix has two allomorphs: **-lár** (optionally) with CV roots, **-(a)r** elsewhere. Most verbs taking this suffix are unergative intransitives, but Zaar does use

the suffix to CAUSATIVIZE a few transitives, e.g. **diip** ‘buy’, **diib-ar** ‘sell’. In order to relate Zaar **-r** to **\*-d**, one must assume a change **\*d > r**, perhaps word final. This is a sound change that has taken place independently a number of times in Chadic languages, though I do not have any direct evidence for it in Zaar.

Podoko: Jarvis (1989:95) says, “Le suffixe causatif ne peut s’ajouter qu’à certaines verbes.... Le suffixe causatif **-əd-** s’ajoute directement au thème et est toujours suivi par un autre suffixe.” In all the examples in Jarvis (1989) and Jarvis and Lagona (1989) that I found, the additional suffix is **-l-**, of uncertain meaning.

Mofu: The Mofu morpheme must be related to the others here, but available data make it hard to illustrate. Barreteau (1988b:55) says, “Le causatif **-dá** transitivise un verbe intransitif....” Unfortunately, the only example from Barreteau (1988b), given here, and the second example from Barreteau (1978a:131) do not clearly illustrate this characterization, and the dictionary portion of Barreteau (1988a) does not list derived CAUSATIVES, at least for verbs that are typically transitivized with a CAUSATIVE morpheme, such as *lie* → *lay*, *stop* (intr.) → *stop* (tr.).

### 1.3.2. Other causativizing morphology

CAUSATIVIZING morphology is found throughout the Chadic family, and as shown in the previous section, CAUSATIVE **\*-d** is solidly reconstructable for at least the West and Central branches. Lower level branches or individual languages now, however, mark CAUSATIVE in other ways. In some cases these may trace back to **\*-d**, but in others they must be innovations.

Some languages of the Bole-Tangale group (I.A.2) of West Chadic and at least Mubi in East Chadic form CAUSATIVES with a suffix **\*t**. In the Bole-Tangale languages, the **\*t** CAUSATIVE is found only in the northerly languages (Bole, Ngamo, Karekare), e.g. Bole **ɗaa** ‘climb, ride on’, **ɗaa-tu** ‘lift, raise’. In Schuh (2003b: §3.2) I argue that this is an innovative reinterpretation of a West Chadic suffix that derives verbs from nouns, as in Bole **wònà** ‘dancing, a dance,’ **wòn-tu** ‘shake’. These languages also have a **d** extension, called the ADDITIVE here, which, roughly speaking, adds an argument or an additional activity. In Schuh (2003b:§3.3.3) I argue that this is an innovative reinterpretation of the Chadic **\*d** CAUSATIVE documented above. See §6.1 below for a full description of these extensions in Ngamo.

The most southerly Bole-Tangale languages, Pero and Kanakuru, differ sharply from their northern cousins. These languages have a CAUSATIVE **-n**, which may be a reinterpretation of the VENTIVE **-n** of West Chadic (§3 below), i.e. an agent is interpreted as inducing an action to take place with a particular goal. What is unique in these languages is that the CAUSATIVE is a particle that is separated from the verb by other affixes. For Pero, Frajzyngier (1989:173) gives examples such as **mà ci-kò-n kà la** ‘you have fed the child’ (cf. **cu** ‘eat’), where **-kò-** is the PERFECTIVE marker. Kanakuru (Newman 1974:25) uses an overt CAUSATIVE marker with only four intransitive motion verbs (‘go’, ‘come’, ‘return’, ‘enter’) and retains the ICP (see §1.2), which otherwise is an obligatory extension for intransitives, e.g. **nà ta-no-nu gən pinen** ‘I took a mat’ (cf. **sù tà-wu** ‘they went’ **-wu** = ICP), where **-no-** is the ICP and **-nu** is the CAUSATIVE.

Turning to the Central Branch, one finds reconstructable **\*-d** CAUSATIVE in northwestern Cameroon languages but apparently not in southerly languages. Buwal of the Daba group (II.A.7) has a CAUSATIVE suffix **-za**, called a transitivity suffix by Viljoen (2013:431), e.g. **bay a nda a nda a ndza-za ŋ karawal** ‘the chief went and seated him in a chair’ (cf. **sa ndza á ta pápálàm** ‘I sit on a plank’). Mouchet (1966:80) describes Daba (II.A.7) CAUSATIVE forms with a vocalic suffix **-e**, e.g. **sa-e** ‘make to drink’ (cf. **sa** ‘drink’), **wek-e** ‘fill’ (cf. **wek** ‘be full’). Gude (II.A.8) likewise has a CAUSATIVE suffix **-e**, described and illustrated in §7.2.3 below.

Frajzyngier (2008:169) describes a CAUSATIVE suffix **gà/gò** for Gidar, e.g. **nò nzá-gà-nó-k pársó** ‘I made [**nó** ‘it’] this horse run’. Two features are worth pointing out. First, the **gà** CAUSATIVE must be a suffix inside the VP because the PERFECTIVE suffix **-k**, which is normally the last morpheme in a VP, falls after **gà**. Second, the 3<sup>rd</sup> singular pronoun **nó** co-occurs with the overt noun object, **pársó** ‘horse’. This is similar to Sukur (Sakun), of which Thomas (2014:171) says, “There is no special CAUSATIVE construction in Sakun”, but he goes on to say that verbs “of bodily function like eating and drinking, are rendered CAUSATIVE simply by adding a third argument, e.g. **da nday ná dǵá-ká-m kátǵá da ǵəw** ‘but this person, he didn’t feed [**-ka** ‘it’] the bull’. Seemingly redundant pronouns arguments like this could plausibly be the source of CAUSATIVE affixes.

In the East Branch, Mubi (III.B.1) (Jungrathmayr 2013:85), has a CAUSATIVE suffix **-it**, e.g. **ní wíríy-it** ‘I seated the Sultan’ (cf. **ní wíríy** ‘I sat down’). Most of

Jungraithmayr's example are transitivized unaccusatives, but a couple seem to have a transitive base, e.g. **njó gà jìgèè-w-it káan gàñíné** 'that person who heard those words' (cf. **jègé** 'hear, understand').

Barain (III.B.4) (Lovestrand 2012:126-127), forms CAUSATIVES in one of two ways depending on the base. Lovestrand (page 126) says that the two forms have "no apparent difference in meaning". One changes the root vowel to /i/, e.g. **báató** 'separate', CAUSATIVE **bíító**; **bòtó** 'lose, be sold', CAUSATIVE **bitó**. Some have a suffix **-r**, e.g. **gàasó** 'establish', CAUSATIVE **gàasú-r-o**. Yet others allow either, e.g. **tadó** 'climb', CAUSATIVE **tidé-r-o**; **guso** 'go out', CAUSATIVE **gisú-r-o**. In Lovestrand's table, most of those with the **-r-** suffix also undergo the vowel change. One is tempted to relate both forms to the Mubi **-it**, with the internal **-i-** of Barain resulting from assimilation to an **\*iC** suffix and the **-r-** to a sound change **\*t > r /V\_\_**, but without better knowledge of the comparative picture, this is speculation. Typical of Chadic languages, CAUSATIVE morphology is restricted to a small number of verbs. The verbs that Lovestrand lists are mostly unaccusative ('cool down', 'be dark') or intransitive active ('go', 'come'),

#### 1.4. Detransitivizing morphology with remarks on PASSIVE

By far the most common method of using a verb in an intransitive sense in Chadic languages is described in §1.1, whereby semantic unaccusative and unergative arguments are made the syntactic subjects of a neutral (= labile) verb. Also widespread, especially in West Chadic, are Intransitive Copy Pronouns (ICP), discussed in §1.2). These are non-argument pronouns, which, by definition, are restricted to intransitive verbs and might be viewed as overt markers of intransitivity, but functionally they accompany verbs that are already semantically intransitive, and moreover, they are often restricted to specific verbs rather than being general indicators of intransitivity.<sup>10</sup>

##### 1.4.1. Detransitivizing morphology

1.4.1.1. *Hausa*. Hausa has innovated true overt marking of intransitivity within the Grade system, discussed in Chapter 6, §6.1.1. Grade 3 verbs are intransitive with the

<sup>10</sup> Reflexive and reciprocal pronouns reduce valency and might be considered indicators of intransitivity, but these are true arguments.

final vowel **-a** and the tone pattern LH(L), e.g. **fita** ‘go out’, **hàkurà** ‘be patient’. Grade 7 verbs are intransitive with the final vowel **-u** and the tone pattern ...LH, e.g. **gàmu** ‘come together’, **gùrgùntu** ‘become permanently lame’. The source of these grades is in the verbal class and TAM system, not in a system of reconstructable extensions (Schuh 1977b). Grade 3 verbs derive from original West Chadic disyllabic Class B verbs, with a LH-**a** pattern, seen today, for example, in Bole **pàtā-wò** ‘he went out’. Extending this class to verbs of more than two syllables is an analogical innovation in Hausa. Grade 7 verbs derive from the West Chadic Class A1 and A2 verbs in the PERFECTIVE, as exemplified by Bole A1 **gomu-wò-yi** ‘meet, join’, Bole A2 **kùdùtu-wò** ‘become lame’. In West Chadic, the ...LH-**u** pattern is the West Chadic PERFECTIVE TAM inflection. Hausa no longer marks inflection on verbs (Chapter 6, §6.2). Hausa Grade 7, originally the PERFECTIVE form of neutral (= labile) verbs (§1.1), has become an extension marking intransitivity as follows:

- Stage I: PF: **\*su gàmu** ‘they joined (tr.), they become joined (intr.)’, SJ: **\*su gàmi**  
 Stage II: PF: **\*sun gàmu** ‘they joined (tr.), they became joined (intr.)’, SJ: **\*su gàmu**  
 Stage III: PF: **sun gàmu** ‘~~they joined (tr.)~~, ‘they are joined’ (intr.)’, SJ: **sù gàmu**.

At Stage I, verbs were inflected for TAM and subject agreement was marked by default subject pronoun (Chapter 6, §6.2). At Stage II, verbal inflection was lost and TAM became differentiated by choice of subject pronoun and other preverbal auxiliaries. At Stage III, the PERFECTIVE pattern LH-**u** became exclusively associated with intransitivity, perhaps because of a semantic connection between stativity and PERFECTIVITY.

In modern Hausa, inflecting verbs as Grade 3 and Grade 7 is a productive way to derive intransitive. Grade 3 verbs comprise many apparently underived intransitive verbs of two or more syllables, e.g. **shìga** ‘enter’, **fita** ‘go out’, **nùka** ‘ripen’, **zàbuřà** ‘leap up’, **kùbutà** ‘escape’, **bàlagà** ‘reach puberty’. These must have served as the model for productive formation of Grade 1 transitive ~ Grade 3 intransitive pairs, e.g. **řàzàná** ~ **řàzàná** ‘terrify ~ be terrified’, **zàfàfà** ~ **zàfàfà** ‘heat ~ become hot’, **fusàtā** ~ **fùsàtā**

‘anger ~ become angry’. The bases for these pairing are essentially neutral, i.e. knowing the meaning of one allows one to predict the meaning of the other.

Grade 7 in modern Hausa functions as a true extension that adds properties not necessarily predictable from the base. All Grade 7 forms are intransitive, but it is possible to derive Grade 7 from intransitives. The canonical Grade 7 derived from a transitive “usually has an accompanying connotation that the action was done thoroughly” (Newman 2000:665). Unlike Grade 3 derived intransitives, many Grade 7 verbs have lexically unpredictable meanings. Here are a few Grade 7 verbs:

Actor initiated event:	<b>yārā sun t̄aru</b>	‘the children gathered’
	<b>an tārà yārā</b>	‘one gathered the children’
Thoroughly done:	<b>shìnkāfā t̄a d̄afu</b>	‘the rice is well-cooked’
	<b>an dafà shìkāfā</b>	‘one cooked the rice’
Strengthened intr.:	<b>yā wād̄ātu</b>	‘he truly prospered’
	<b>yā wād̄atà</b>	‘he is properous’
Idiomatic:	<b>ɗan taurī yā t̄amb̄ayu</b>	‘the knife expert is invulnerable’
	<b>nā t̄amb̄ayi ɗan taurī s̄unansà</b>	‘I asked the expert his name’

1.4.1.2. *Ngizim*. The Bade-Ngizim group of West B (I.B.1) has paired transitives and intransitives where the transitive has an abutting CC sequence or a sequence CəC whereas the related intransitive has an internal a.

Ngizim:	<b>ɓ̄əmtu</b>	‘spoil, ruin’	<b>ɓ̄əmətu</b>	‘become spoiled, damaged’
	<b>ḡədu</b>	‘pluck’	<b>ḡədu</b>	‘snap in two (intr.)’
Bade:	<b>əbj̄əmu</b>	‘invert, turn over’	<b>əbj̄əmu</b>	‘become inverted’
	<b>ùgw̄bu</b>	‘moisten’	<b>ùgw̄əbu</b>	‘become wet’

In Ngizim, pairings like these are lexically restricted — most verbs are “neutral” as to transitivity — but in Bade, formation of intransitives in this way is highly productive because of a sound change whereby original \*C<sub>1</sub>əC<sub>2</sub>C<sub>3</sub> roots have undergone a



resyllabification to  $\text{əC}_1\text{C}_2\text{əC}_3$  when  $\text{C}_2\text{-C}_3$  form a licit abutting sequence (Schuh 1978a). This has resulted in many verbs with internal /ə/ that did not exist in proto-Bade-Ngizim, providing a locus for insertion of the intransitivizing **-a-**. Working through a list of transitive verb stems of the shape  $\text{əC}_1\text{C}_2\text{əC}_3$ , my assistant Bala Dagona accepted essentially all intransitive counterparts of the shape  $\text{əC}_1\text{C}_2\text{aC}_3$  as long as he could make semantic sense of them, e.g. **əpsəku** ‘flip, e.g. contents of a calabash’, **əpsaku** ‘be flipped’.

*1.4.1.3. Podoko.* In Central Chadic, Podoko (II.A.4) and Gidar (II.C.1), two languages not close to each other genetically or geographically within the Central Branch, share a remarkable resemblance in marking (in)transitivity. In selected TAMs for selected verbs, intransitives terminate in  $\emptyset$  or **-ə-** whereas transitives terminate in **-a**. In Podoko (Jarvis 1989), a non-suffixed verb in the aorist or perfective ends in **-a** if transitive and usually **-ə** if intransitive although a few intransitives do end in **-a**. In the imperfective, all non-suffixed verbs, transitive or intransitive, end in **-ə**. Speaking of Gidar, Schuh (1984:55) says, “On peut différencier dans l’accompli entre verbes avec un objet défini et ceux sans objet.... On peut employer ces distinctions formelles pour différencier entre interprétation transitive et interprétation non-transitive.”

Podoko:	<b>məts-ə</b>	‘he died (aorist)’
	<b>kəs-a mətsəra</b>	‘they caught the thief (aorist)’
	<b>a<sup>y</sup>kəs-ə mətsəra ta</b>	‘they were catching a thief (imperf.)’
Gidar:	<b>nə b-ə-ka</b>	‘I am replete (perf.)’
	<b>nə sk-a kà</b>	‘I shot (him) (perf.)’
	<b>nə ʒə-ə-kà</b>	‘I got burned) (perf.)’
	<b>nəʒ-a kà</b>	‘I burned it (perf.)’

These languages share the fact that the formal difference between transitive and intransitive shows up only in certain TAMs (in particular, the PERFECTIVE) and only when there is no overtly expressed object. In contrast to Bade-Ngizim languages, which overtly mark intransitive function, it is the transitive use that is overtly marked in the Central languages.

1.4.1.4. *Barain*. In East Chadic, Barain (III.B.4) (Lovestrand 2012:149ff.) has an intransitivizing suffix **-jó**,<sup>11</sup> which, dependent on the verb, functions as passive, reflexive, reciprocal, and (I would add) unaccusative:

Passive translation:	<b>mòosó wòólo-jó</b>	‘the cow has been slaughtered’
Reflexive translation:	<b>kà dèetì kòo-ji</b>	‘he killed himself’
Reciprocal translation:	<b>nándánga páro-jó</b>	‘the children looked for each other’
Unaccusative translation:	<b>gárwí áro-jó</b>	‘the wood burned up’

Though stem vowel changes that overtly mark (in)transitivity are found in three distinct branches of Chadic, these are convergent developments rather than common inheritance. In Bade-Ngizim, the internal **-a-** may be a reflex of a common verbal noun pattern found with most native triconsonantal roots, e.g. Ngizim **kàrmu** ‘chop’, derived verbal noun **kàram** ‘chopping’, representing the effect of the event rather than active application of the event. This type of verbal noun represents the bare stem, without the TAM marking suffix required on finite verbs, necessitating insertion of a copy of the internal stem vowel to break up and elicit word final CC cluster. In the Central and East languages, a likely hypothesis is assimilation to or reduction of an erstwhile pronominal object suffix, though in the absence of broader comparative data, this must remain speculative.

#### 1.4.2. *Remarks on passive*

Cross-linguistically, PASSIVE is a valency lowering process, but unlike detransitivizing morphology such as that described in the previous section, PASSIVE formation is a syntactic process. Dixon (1994:146) defined four criteria for determining whether a construction is a PASSIVE (adapted from Wikipedia, “Passive Voice”):

- (1) It applies to underlying transitive clauses and forms a derived intransitive.
- (2) The entity that is the patient or the object of the transitive verb in the underlying representation becomes the core argument of the clause.

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<sup>11</sup> Lovestrand uses IPA orthography. For purposes of this book, in citing Barain examples, I have replaced his **j**, a palatal stop or affricate, by **j**, and his **j**, the palatal glide, by **y**.

(3) The agent in the underlying representation becomes a *chomeur*,<sup>12</sup> a noun in the periphery that is not a core argument. It is marked by a non-core case or becomes part of an adpositional phrase etc. This can be omitted, but there is always the option of including it.

(4) There is some explicit marking of the construction.

Chadic languages do have constructions that are translatable as English PASSIVE, but structurally, they fail all these criteria. Translation counterparts for English PASSIVES always have active verbs as heads of VPs, though the structural properties of such expressions vary from language to language.

1.4.2.1. *Hausa*. Newman (2000:665-667) analyzes some uses of Grade 7 as “agentless PASSIVE”. Newman does, however, cite sentences like the following with a thematic agent expressed (Newman’s translations):

**jàkín yā kàmu gà Abdù** ‘the donkey was caught (only) by Abdu’  
**wannàn hanyà bā tã bìyuwā gà m̄nyan m̄tōcī**  
 ‘this road is impassable for heavy lorries’

The underlined phrases appear to be the *chomeurs* of Dixon’s criterion 3, but the English translations are misleading. These are adverbial phrases, not semantic agents. The phrase **gà Abdù**, which means something like “at Abdu’s place”, is a locative and would answer a question “where is the donkey?”. The phrase **gà m̄nyan m̄tōcī** can be translated “for heavy lorries”, but the sentence is about the state of the road; lorries is not an agent.

There are other argument against calling Grade 7 a PASSIVE. I cite just one more. Newman (2000:666) gives an example of a commonly used collocation **tã dafà àbinci yā d̄afu** translated ‘she cooked the food (so that) it was it was good and cooked’. The first clause has a transitive verb with a direct object; the second clause then uses that verb as a Grade 7 with the semantic patient as grammatical subject of the Grade 7. The second clause is about the state of the food. This fails the last test mention in criterion 3—there is no option of including an agent in the second clause, which is about the state of the food. Indeed, the sentence **àbinci yā d̄afu** could mean ‘the food self-cooked’, as it is in a

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<sup>12</sup> French *chômeur* = ‘an unemployed person’.

quest folk tale where a girl finds a pot of food cooking by itself. In short, Hausa does not have a PASSIVE.

Hausa translation counterparts for English PASSIVE are active sentences with the following set of impersonal TAM-marking clitics that replace referential subject clitics (see Chapter 6, §6.2 for paradigms of subject clitics): PERFECTIVE **an**, RELATIVE PERFECTIVE **akà**, CONTINUATIVE **anà**, RELATIVE CONTINUATIVE **akè**, SUBJUNCTIVE **à**, POTENTIAL **â**, FUTURE **zā à**, HABITUAL **akàn**. Used with transitive expressions, these can often be translated as passives, e.g. **an sòkè jangàlì** ‘the cattle tax has been rescinded’, more literally, ‘one has rescinded the cattle tax’. Impersonal clitics can also be used with intransitives, as in a common greeting to someone arriving, **an zō?** ‘I see you’ve come’, literally ‘has one come?’.

*1.4.2.2. Ngizim.* Ngizim (I.B.1) expresses impersonal subjects with **nda**, a reduced form of **ndīwa** ‘people’, as an impersonal subject clitic, e.g. **nda kurə mbikda gāda miyagər** ‘one dislikes a snake because of its mouth’. The clitic **nda** has TAM-specific tones and vowel lengths paralleling referential clitics, e.g. PERFECTIVE **a sàná sàmà** ‘one drank up the beer’ (cf. **na sàná sàmà** ‘I drank up the beer’), IMPERFECTIVE **ndā rawà** ‘one will run’ (cf. **nā rawà** ‘I will run’).

*1.4.2.3. Bole.* Bole (I.A.2.a) and other northern Bole-Tangale languages (Ngamo, Karekare) mark plural subjects in the PERFECTIVE with a suffix **-an-**, which can be interpreted as impersonal, e.g. **mon-an-tun bido ga dido kala a ngoro-ni ga ji gamani** ‘one knows (**mon-**) that a monkey has a neck, but one ties (**ngoro-**) him up around the waist’. This is similar to English generic “they” as in “they say...”.

Only PERFECTIVES take the **-an-** suffix, so other TAMs cannot avail themselves of this way of marking impersonal, but in this example, the second clause with the HABITURAL **ngoro-** ‘ties’ must continue the impersonal interpretation. Often, only context suggests whether an expression is understood as impersonal rather than referential. A proverb like **a bine kerwo ga bo aushi sa** ‘one does not wash a fish at a river bank’ in the IMPERFECTIVE **a** 3<sup>rd</sup> person clitic plus IMPERFECTIVE **bine** ‘wash’ could be interpreted referentially as ‘he washes fish at the river bank’ if one were speaking of a known angler.

1.4.2.4. *Miya*. *Miya* (I.B.2.a) requires ICPs with most intransitive verbs. With intransitive verbs, a plural ICP can be used to render an impersonal meaning, e.g. **à bə-lán-suw** ‘one has come’, **á sənà-lən** ‘one will spend the night’. These sentences were elicited using Hausa impersonal subjects, but in another context, they could be interpreted as referential. Transitive verbs, since they cannot take ICPs, have no overt morphology to imply an impersonal interpretation, e.g. **dà sá tál**, which in a referential context could be translated ‘they (known actors) will be drinking beer’ or in a generic context, ‘beer will be being drunk’.

1.4.2.5. *Sukur (Sakun)*. Thomas (2014:162-164) describes an Agentless Passive Stem in *Sukur* (II.A.6). This is marked by an invariable suffix, **-v**. As I understand Thomas’s description, this construction is like those in other Chadic languages in that the core argument is always the semantic patient of an active verb, e.g. **a dafay dǎ-v** ‘the food was cooked (dǎ)’, **a ta-v ka dzək** ‘it (flour) is sufficiently ground (ta)’. The *Sukur* construction fails Dixon’s third criterion for PASSIVE since “the semantic actor is never included in the clause“ (page 164). The **-v** extension would seem to be translatable as English *one* or the Hausa impersonal subject clitics.

## 2. Totality and Partitive

Descriptions of a number of Chadic languages discuss a TOTALITY extension, roughly indicating that an activity is done to completion. For transitives, this usually means that the event affects the entirety of any object(s), often having the effect of adding “up” to an English verb (*eat up* vs. *eat*), with intransitive the effect is often completion without the reversal (*run away* vs. *run*). Existence of TOTALITY extensions has been best described in West Chadic languages, possibly because Hausa, which has a form with the canonical translation, has often been used to elicit verbs with this meaning, but it is not clear that it is possible to reconstruct such an extension with a unified cross-linguistic function.

## 2.1. Totality form and function

### 2.1.1. West Branch

In Hausa, the productive TOTALITY extension is the Grade 4 stem, with final **-ee** and HLH/HLL tones (Chapter 6, §6.1.4). Here are typical examples from Newman (2000:649) contrasting its function with forms from other grades:

Grade 2: **yaa sàyi audùgaa** ‘he bought some cotton’

Grade 4: **yaa sayèe audùgaa** ‘he bought up the cotton’

Grade 1: **naa bugàa shi** ‘I hit him’

Grade 4: **naa bugèe shi** ‘I knocked him down’

A small number of verbs in Hausa, mainly monoconsonantal roots, use an extended suffix **-nyee**, e.g.

**yaa jânyee mootàa** ‘he dragged away the car’

cf. **yaa jaa mootàa** ‘he pulled the car’

**kà shânyee madañaa** ‘drink up the milk’

cf. **kà shaa madaraa** ‘drink some milk’

Newman (1972:12, 2000:648) proposes that it is this nasal that is the reflex of Chadic TOTALITY extension and that the productive modern Grade 4 is a phonological reduction. Comparative evidence may let us go a step further to reconstruct the TOTALITY extension, not as a suffix tightly bound to form a stem, but rather as a more loosely bound clitic or even a postposition. Discussions of the Hausa **-nyee** variant seem never to call attention to the falling tone on the root in forms such as **shânyee** ‘drink up’, but word internal falling tones in Hausa typically reveal a morpheme boundary. In Kanakuru (Newman:1974:77) TOTALITY meaning is expressed by a formative **àne**, which is placed after a direct object nouns, e.g. **à tui kumari àne** ‘he ate up the *tuwo*’ (cf. **à tui-àne** ‘he ate it up’). The Ngizim TOTALITY extension used with overt direct objects likewise is arguably a clitic rather than a suffix (it is homophonous with the preposition **naa** ‘with’), e.g. **na kiidə-naa lùwai** ‘I ate up the meat.’

Using Hausa as a reference point, the separability of Kanakuru **àne** looks anomalous, but evidence from the northern Bole-Tangale languages shows it to be an archaism. In Ngamo, Karekare, and Bole, TOTALITY is now expressed by a suffix **-t-** in all verb forms but one, viz. verbs with a pronominal direct object, where TOTALITY is **-n-**, and in Bole, the **-t-** has been analogically extended even to this construction.<sup>13</sup> Moreover, the **-n-** always forms part of a falling tone syllable, whereas, as in Hausa, a word internal falling tone in these languages usually signals a largish morpheme boundary. The table below contrasts TOTALITY forms in the three languages in four contexts. The verb in the examples is ‘to shoot’. The TOTALITY extension is underlined in each case.<sup>14</sup>

**Table 6:** TOTALITY - PERFECTIVE in three West-A languages

	Ngamo	Karekare	Bole
No overt DO	<b>bàsa-<u>t</u>-kò</b>	<b>bàsaa-<u>sì</u>-kò</b>	<b>bàsa-<u>tù</u>-wò</b>
NounDO (duiker/sheep)	<b>bàsa-<u>t</u>-ko-k bòò’ì</b>	<b>bàsa-<u>kà</u> tàmcì<sup>15</sup></b>	<b>bàsaa-<u>tùu</u> tèmshi</b>
Pronoun IO (for/at her)	<b>bèsèe-too-<u>tì</u></b>	<b>bàsêe-ta-<u>sì</u></b>	<b>bàsaa-taa-<u>tì</u></b>
Pronouns DO (her)	<b>bàsa-<u>n</u>-tò<sup>16</sup></b>	<b>bàsâ-<u>n</u>-ta-kò</b>	<b>bàsaa-taa-<u>tì</u></b>

<sup>13</sup> The historical source of the **-t-** to express TOTALITY is uncertain. These languages have three extensions expressed by **-t-**: CAUSATIVE (§1.3 above), VENTIVE (§3 below), and TOTALITY. The TOTALITY **-t-** may be an innovative reinterpretation of one of these, but all the languages differentiate the three functions in some way.

<sup>14</sup> Another archaism worth pointing out is that pronoun IOs originally formed an IO stem directly with the verb and other suffixes (PERFECTIVE **-ko**, TOTALITY **-ti**) are added. The **-n-** TOTALITY stem with pronoun direct object has been retained in Ngamo and Karekare as a way to distinguish IO stem from DO, whereas Bole has innovated by letting the two fall together as pronominal stem, making IO and DO stems homophonous.

<sup>15</sup> I have underlined the pronominal **-kà-** as the TOTALITY extension, but its function is ambiguous. It could be a reduction of the Bole-Tangale PERFECTIVE marker **-ko**, the TOTALITY extension, or perhaps both through haplology. It is homophonous with the Karekare preposition ‘with’. Karekare has been heavily influenced by Ngizim, and it is possible that the Ngizim **-naa-** pronominal TOTALITY extension, which is homophonous with the Ngizim preposition ‘with’, has been reinterpreted as being the preposition itself.

To summarize, it seems that the West Chadic TOTALITY extension was not originally a stem forming SUFFIX, but rather a separable clitic or postposition that has fused to form a TOTALITY stem.

Functionally, TOTALITY is usually associated with action done to completion in some way, but in at least the northern West Chadic languages, TOTALITY also has a function called *auxiliary focus* in Hyman and Watters (1984). Schuh (2005b) demonstrates this function in several ways. First, verbs in these languages are cited much more often with TOTALITY morphology than would Hausa verbs be cited in Grade 4 as a base form. Second, verbs with the TOTALITY extension are excluded from negative constructions and from constructions with questioned or focused constituents. Here is an example from Bole contrasting a declarative statement with a constituent question. The underlined **-tu-** is the TOTALITY extension:

- ka waa-tùu tèmshi**      ‘you got a sheep’  
**ka waa lè?**              ‘what did you get?’  
**\*kaa waa-tùu lè?**      ‘what did you get?’

In contrast, there are no such contextual restrictions on Hausa Grade 4: it can incorporate TOTALITY semantic into any context. The typical function of auxiliary focus is to place focus on the verb itself, as in neutral declarative sentences. This is a weak type of focus, always overridden by inherently focused elements such as negation or constituent questions. It is widespread in Africa (Hyman and Watters 1984) and is found in other Chadic languages.

The TOTALITY in all the Chadic languages of Yobe State, Nigeria, both those in the Bole group (I.A.2) and Ngizim in the Bade group (I.B.1), ) functions as a mark of auxiliary focus. Ngizim has a TOTALITY suffix used with overt direct objects shown by a suffix **-naa**, which is prohibited in negative context and constituent questions, e.g. **na kiidǎ-naa luwai** ‘I ate up the meat (cf. **na kiidǎ luwai** ‘I ate some meat’, **\*na kiidǎ-naa luwii bai** ‘?’). A feature of all these languages is that that the **-n-** TOTALITY is

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<sup>16</sup> Because of a historical tone change in Ngamo, the Great Ngamo Tone Shift (Schuh:2005b), the falling tone that was originally on the final stem vowel of the verb has been displaced to the pronoun object **-tǎ**.



obligatorily present with intransitive verbs bearing ICPs (§1.2), Ngizim e.g. **màtə-n-garâ** ‘she died’). In Bade, closely related to Ngizim, TOTALITY extension has gone out of active use with transitive verbs, but the **-n-** is retained with ICPs, as in Ngizim, e.g. Western Bade **atu da rawi-n-aara** ‘she ran away’.

Miya (I.B.2), outside Yobe State, has a collocation **-suw-ay** usually cited with verbs in declarative sentences (Schuh (1998:§2) but always absent in constituent questions:<sup>17</sup>

Neutral:	<b>à tabəna súw Ndùwy-áy</b>	‘he abused Nduya’
Questioned object:	<b>à tabəna wêe?</b>	‘who did he abuse?’

Still in West Chadic but geographically and genetically rather distant from the languages mentioned above, an **-n** extension with TOTALITY-like meaning is found in the Ron (I.A.4) languages (data from Jungraithmayr 1971) in at least Ron-Fyer, e.g. **’et-án** ‘eat up’, cf. **’et** ‘eat’.

### 2.1.2. Central Branch

Jarvis (1989:89) describes a contrast in Podoko (II.A.4) between *entier* and *partiel*: “Un verbe perfectif ou aoriste qui est transitif peut être marqué comme entier’ [marked by a suffix **-əl**] ou ‘partiel’ [marked by a suffix **-ad**<sup>18</sup>] par rapport à l’objet direct.”

Entier:	<b>uf-əlá mayá yəwó</b>	‘I heated the water’
Partiel:	<b>uf-ədə mayó yəwó</b>	‘I heated some water’

Without a study of sound changes that have affected Podoko, it is hard to say whether the **-əl-** of Podoko can be related etymological to then **-n-** TOTALITY of West Chadic. A cursory perusal of entries in Jarvis & Lagona (1989) reveals many verb head entries with no suffixes but with examples containing the **-əl-** suffix, suggesting that this suffix may have an auxiliary focus function similar to that describe for West Chadic languages at the

<sup>17</sup> Miya has undergone a sound change non-initial **\*t/d > y**. The **-y** of **-ay** may be cognate with the **-t** discussed above for northern Bole/Tangale languages.

<sup>18</sup> Thomas (2014:120) describes an extension **-ᵐdó** in Sukur that looks to be cognate with the Podoko suffix and that “indicates that the object is not completely affected.” Other languages also have an “anti-totality” extensions with the meaning “do a bit”, but published information on this is somewhat spotty, so I will not discuss it in this chapter.

end of the preceding section, e.g. **dəga** ‘beat’ vs. **a dəg-əla-dəgə baba udzəra məna** ‘the father beat his child’.

Languages of the Bura-Margi group (II.A.2) have a rich set of extensions. Hoffmann (1963:115) identifies unextended verbs with IMPERFECTIVITY and extended verbs with PERFECTIVITY, the latter semantically allied with TOTALITY semantics.<sup>19</sup> Two of the Margi suffixes are candidates for being etymologically related to the nasal suffix reconstructed above for West Chadic, viz. **-nya**, described by Hoffmann (1963:134) as generally being used with verbs of consumption, with a canonical TOTALITY meaning of “consume all”, and **-na**, described by Hoffmann (1963:132) as indicating that the action is done in a direction away, a common function of Hausa Grade 4.

**-nya:**      **sànyà** ‘drink all’      cf. **sà** ‘drink’  
**-na:**      **làna** ‘cut off’      cf. **là** ‘cut (with a knife)’

A problem with connecting the former etymologically to the West Chadic nasal is that Hoffmann (1963:134) says that this suffix is “etymologically the same as the Bura suffix **-mnya**,” which is the Bura-Margi word for ‘mouth’, an etymology that makes sense since the primary use of this suffix is to extend verbs of oral consumption. ‘Cut off’ could have a TOTALITY interpretation—“cut completely through”—or “cut a piece from a whole”. Such ambiguities of interpretation accompany extensions in some languages whereas distinctions of function are sharper in others.

### 2.1.3. East Branch

In Kera (III.A.3) (Ebert 1979:112), a particle **wóra** indicates that the object of transitive verbs or the subject of intransitive verbs has been destroyed or has “disappeared”. Ebert likens the effect of this particle to the German verb prefixes *zer-*, *ver-*, *aus-*, *weg-*:

**wə sáŋ kumáy wóra**      ‘he drank up the beer’  
**wə sòkóŋ kóyáŋ' wóra**      ‘he kicked away the dog’

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<sup>19</sup> Thomas (2014:121) argues that the notion of PERFECTIVITY associated with the presence of an extension is indirect. Referring to extensions in Sukur, Thomas argues that the presence or absence of an extension signal “boundedness” vs. “unboundedness”. He says, “The verbal extensions in Sakun typically associate with a bounded view of an event, yet can occur with imperfective aspectual markers....”

<b>wə bətóŋ kuliŋ wóra</b>	‘he demolished the hut’
<b>koŋ hùmùŋ wóra</b>	‘the rain has stopped’
<b>kuliŋ kúŋ wóra</b>	‘the hut burned up’

Ebert notes that although the semantic effects of **wóra** in sentences such as these correlate with the TOTALITY extension in other languages, this particle is not used in the typical TOTALITY function of indicating “bring a project to completion”, e.g. “finish building a hut”. Such uses do not correspond to the base function of **wóra**, viz. indicating “disappearance” or “destruction”.

## 2.2. Partitive

### 2.2.1. West Branch

In principle, one would expect a PARTITIVE or SEPARATIVE extension to have the opposite effect of TOTALITY, i.e. an action affecting part of an entity as opposed to the entity in its entirety, but as noted in §2.1. it is not always easy to draw this line. The Hausa TOTALITY extension, expressed by Grade 4 verbs (§2.1.1.1) exemplifies this, e.g. **nā shâ-nyē ruwā** ‘I drank up the water’, with canonical TOTALITY meaning, vs. **nā jâ-nyē àkwiyā** ‘I dragged away the goat’, with an apparent “separative” meaning, both expressed by the \*-n- TOTALITY extension, reconstructed in §2.1.1.1 to at least proto-West Chadic.

A canonical PARTITIVE extension is seen in Hausa Grade 2 verbs (Chapter 6, §6.1.1). Grade 2 verbs have the forms LH(L)-**ā** when no object follows, (L)LH-**ē** with pronominal objects, and (L)LH-**i** with nominal objects. They are all transitive, and they comprise many lexically basic verbs, e.g. **nā tàmbayà** ‘I asked’, **nā tàmbàyē shì** ‘I asked him’, **nā tàmbàyi àbōkīnā** ‘I asked my friend’. Some basic Grade 2 verbs could be interpreted as inherently PARTITIVE, e.g. **sākā** ‘release, let go’, **sātā** ‘steal’, but the canonical PARTITIVE function of Grade 2 emerges in changing basic verbs from other grades, especially Grade 1, to Grade 2.<sup>20</sup>

<sup>20</sup> Newman (2000:642) says that the PARTITIVE “clearly was among the inventory of Proto-Chadic extensions”, and suggests that the pre-nominal -i of partitive Grade 2 verbs may be a reflex of \*-ir > \*-iy > -i via a well-know Hausa sound change of non-initial \*r > -y (Newman 1977), an etymology that he relates

**yak yàŋki nāmà** ‘he cut off a piece of meat’

(Grade 1: **yā yankà nāmà** ‘he cut the meat’)

**tā sùssùki hatsī** ‘she threshed part of the grain’

(Grade 1: **tā sussùkà hatsī** ‘she threshed grain’)

A number of the Ron languages (I.A.4) (Jungrathmayr 1970b) have an extension **-ay**, which is particularly well-represented in Ron-Daffo. Jungrathmayr (pages 185–188) gives two primary functions for this extension, **APPLICATIVE** and *konnativ*, which I interpret as **PARTITIVE**. Here are example of verbs with the **PARTITIVE** sense:

<b>bûm</b>	‘help’	<b>búmày</b>	‘help a little’
<b>wet</b>	‘tear’	<b>wetày</b>	‘tear a little’
<b>han</b>	‘cultivate’	<b>hanày</b>	‘cultivate a little’

Some of the words that Jungrathmayr cites as examples of **APPLICATIVE** seem interpretable as **PARTITIVE**, e.g. **shit/shitày** ‘look/catch sight of’, **fwal/fwalày** ‘ask for/solicit from someone’, and some verbs with the **-ay** extension allow two readings, e.g. **toor/toorày** (**APPLICATIVE**) ‘finish sewing for someone’; (**PARTITIVE**) ‘begin sewing’. As an example of what looks like a canonical **APPLICATIVE** **no’/no’ày** ‘tie onto’, Jungrathmayr gives an example **no’ay magîl** ‘tie a rope onto something’. Speculating, if this were interpreted as “add part by tying”, one could envision a path from **PARTITIVE** to **APPLICATIVE**.

Ron-Scha also has a suffix **-ay**, which is less productive and more varied in attested function than the **-ay** of Daffo-Butura but some of Jungrathmayr’s examples suggest functions similar to those of Daffo-Butura **-ay**, e.g. Scha (page 270) **lig/likây** ‘lick/taste’, **tək/təkây** ‘take/take away’.

### 2.2.2. Central Branch

For the Central langue Podoko, in §2.1.2 there is a description of a distinction between **TOTALITY** (Jarvis’s *entier*) and **PARTITIVE** (Jarvis’s *partiel*). Other Central languages have extension with these functions.

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to a **PARTITIVE** extension **-r-** in the Bura group of the Central Branch, illustrated in §2.2.2. I am skeptical of this etymology. Non-initial /r/ in the Bura group normally corresponds to Proto-Chadic \*n. The **-ay** **PARTITIVE** of Ron, discussed just below, does give some credence to a reconstructable \*-y.

Languages of the Bura group (II.A.2), e.g. Margi (Hoffmann 1963:118-149) and Bura (Blench 2010), have a plethora of extensions. These languages have so many extensions and the meanings associated with these extension are so varied, even for a single extension, it is difficult to assign a particular meaning to a particular extension. Here I single out a couple that have a PARTITIVE sense without claiming an etymological relationship to PARTITIVES at a higher level. Hoffmann (pages 119-121) describes a Margi extension **-ari** that indicates that “the action is only done a bit,” e.g. **hàrì** ‘lift up a bit’ (cf. **hə** ‘take one’), **skàrì** ‘wait awhile’ (cf. **skə** ‘wait for’). Hoffmann relates this semantically and etymologically to the Bura extension given as **-(r)ar** in Blench (2010:12), e.g. **nkebirar** ‘slightly press with the fingers’ (cf. **nkeba** ‘press with fingers’, **sharar** ‘alter terms of a contract’ (cf. **shàrá dzi** ‘back a shared contract’).

Wolff (1983:116, 2015b) contrasts two PARTITIVE extensions in Lamang (**-s** and **-ŋ**, e.g. **s-əs-tà** ‘drink and leave a little’ vs. **s-əŋ tà** ‘drink a little but leave most’ (cf. **sa** ‘drink’); **dr-əs-ta** ‘burn part of’ vs. **dr-əŋ-ta** ‘scorch’ (cf. **dra** ‘burn’).

### 3. Ventive and Other Directionals

Extensions adding the notion of directional action are found in all branches of Chadic. For the most part these appear to be independent typological convergences with specific sources reconstructable only at sub-branch levels.

#### 3.1. West Branch

A well-documented extension in West Chadic language has been called VENTIVE in most of the literature. The VENTIVE is sometimes characterized as “something done in the direction of the speaker” (Hodge & Umaru 1963:267; cf. also Abraham 1959:56, Kraft & Kirk-Greene 1973:147, *inter alia*); but this is inaccurate. A more accurate characterization is that of Newman (1974:73): “[The ventive indicates] that the action took place some distance from, in the direction of, or less often, for the benefit of the

speaker.”<sup>21</sup> In Hausa, the canonical VENTIVE meaning is expressed in all contexts by the Grade 6 form of the verb, which has the form STEM-**oo** with all high tone (Chapter 6, §6.1.1). Here are typical examples:

**yaa shigoo gidaa** ‘he came into the house’

cf. **yaa shìga gidaa** ‘he went into the house’

**zân tambayoo sù** ‘I will ask them (and come with an answer)’

cf. **zân tàmbàyee sù** ‘I will ask them’

Looking across the West Branch, however, three suppletive allomorphs emerge: **\*-w**, **\*-n**, and **\*-t**.<sup>22</sup> The table below presents examples from Karekare, Ngamo (both of the I.A.2.a sub-branch), Bade and Ngizim (both of the I.B.1 subbranch), and Hausa (I.A.1). Pf. = PERFECTIVE, Sjn. = SUBJUNCTIVE, Sjn2 = SECOND SUBJUNCTIVE (used in non-2<sup>nd</sup> person exhortations and negative commands), Karekare **as-** ‘pick up’, Ngamo **bisk-** ‘accept, take’, Bade **vər-** ‘go out, exit’, Ngizim **təf-** ‘go in, enter’, Hausa **neem-** ‘seek’ (**\*-n** column, ‘seek for her’):

**Table 7:** VENTIVE in West Chadic languages

	No extension	<b>*-w</b>	<b>*-n</b>	<b>*-t</b>
Karekare	<b>àasu-kò</b>	-----	Pf. <b>às-<u>nee</u>-kò</b>	Sj. <b>as-<u>tu</u></b>
Ngamo	<b>biskâ</b>	-----	Pf. <b>bisk-<u>èe</u>-nô</b>	Sj. <b>bisk-<u>ètù</u></b>
Bade	<b>vèru</b>	Pf. <b>vər-<u>àawo</u></b>	Sj2. <b>dò vər-<u>lìna</u></b>	-----
Ngizim	<b>təfu</b>	Pf. <b>təf-<u>ee</u>w</b>	Sj2. <b>dò təf-<u>lìna</u></b>	-----
Hausa	<b>nèemaa</b>	<b>neem-oo</b>	<b>neem-<u>am</u> mata</b>	-----

<sup>21</sup> Lukas (1971:4) states a similar characterization for Bole: “Die Entfernungserweiterung [ventive] bringt zum Ausdruck, dass das verbal Geschehen entfernt vom Subjekt stattfindet; zuweilen ist auch die Vorstellung von einer nachträglichen Herbewegung zum Sprecher mit einbezogen.”

<sup>22</sup> There is a fourth allomorph, **-àako**, apparently found only in Bole in the FUTURE and HABITUAL TAMs, e.g. PERFECTIVE with no extension **ngor-wòo-yi** ‘he tied (it)’, PERFECTIVE VENTIVE with the Chadic **\*-n** allomorph **ngòr-un-gò-yi** ‘he tied and brought (it)’, but FUTURE **à ngòr-àako-yi** ‘he will tie and bring (it)’. The Bole FUTURE and HABITUAL TAM forms are nominal in origin (Lukas 1970-72, 1971). The **-aako** suffix must have been innovative at a probably individual language/dialect level and can safely be left out of the comparative picture. SUBJUNCTIVE and IMPERATIVE use the **\*-t** allomorph.

In Hausa, the *\*-n*, called *destinative* in Newman (1977) is limited to use with indirect objects of Grade 2 verbs and indicates only dativity without a specific VENTIVE sense. For the other languages, it may be significant that, aside from Karekare, the consonantal suffix is preceded by a long vowel that is not part of the verbal base, suggesting that these may historically be a combination of two affixes. A candidate for the first would be *\*-ai*. In Bade and Ngizim, this diphthong actively alternates with *-ee-* or *-ii-*.

The Ron languages (I.A.4) also show traces of both the *\*-w* and the *\*-n* allomorphs. Ron-Scha has an apparent reflex of the *\*-w* allomorph in a suffix *-o*, characterized by Jungraithmayr (1970b:268) “das sowohl Distanz der Handlung als auch Richtung auf den Sprecher hin zum Ausdruck bringt”, e.g. **bân** ‘jump down (no extension)’, **bân-ó** ‘jump down here’. Ron-Daffo has a suffix that Jungraithmayr explicitly identified with Hausa Grade 6 *-oo* (page 189), e.g. **lân** ‘go up (no extension)’, **lân-na** ‘come in’ (“Hausa **shígó**”). The “Plusquamperfekt I” of Ron-Kulere (page 332) is marked by a suffix *-o* and is defined by Jungraithmayr’s informant as an “answering form”, e.g. **ci** ‘eat (base form)’, **ci-ó/co-ó** ‘eat (Plusquamperfekt I)’. Whether this a phonological convergence of unrelated morphemes is hard to say.

Other languages in West Chadic now use only a single VENTIVE allomorph in all contexts or retain no trace of a VENTIVE extension. Among the Bole-Tangale languages, Pero (I.A.2.b), a Bole-Tangale language belonging to a different group from the languages exemplified in the table, is geographically contiguous to them and has the same distinction of *\*-n* vs. *\*-t* allomorphs (Frajzyngier 1989:111). Kanakuru (Newman 1974), on the other hand, which is in the same group as Pero but is geographically isolated to the east, has only the *\*-t*, with two phonologically conditioned allomorphs, *-tə* used with pronoun objects and *-ru* (< *\*tu* by a regular sound change in Kanakuru) elsewhere, e.g. **à koi** ‘he caught it (no extension)’, **à kòo-tə-né** ‘he caught (and brought) me (VENTIVE + pronoun)’, **à ko-ru** ‘he caught (there and brought it here)—VENTIVE without pronoun. Sub-branches where all traces of a VENTIVE have been lost are languages of the Angas-Goemai group (I.A.3), the North Bauchi group (1.B.2), and the South Bauchi group (I.C).

To summarize the West Chadic picture, there is only one type of extension that adds directional and semantically allied meanings to verbs, viz. the VENTIVE. However, the VENTIVE meaning is realized by three reconstructable allomorphs: *\*-w*, *\*-n*, and *\*-t*, whose distributions vary across languages and within a language by factors such as TAM. The existence of three etymologically unrelated allomorphs is the result of innovative reinterpretation of functionally distinct extensions as expressing a single meaning. The sources of the allomorphs remains speculative.

In Central Chadic languages, discussed in the next section (§3.2), most directional extensions have transparently developed from verbs, nouns, or adverbs; but in West Chadic such sources cannot be identified within the languages, suggesting that VENTIVE expressions were inherited purely as derivation suffixes, not lexical adjuncts. Going back a step, one is tempted to relate the *\*-w* allomorph to Proto-Chadic *\*-bə* ‘come, go’. The *\*-n* allomorph is probably related to *n-* found in some allomorphs of ‘come’ in Bade-Ngizim, e.g. Ngizim *nai* ‘come (SUBJUNCTIVE)’;<sup>23</sup> I can provide no plausible source for the West Chadic *\*-t* VENTIVE allomorph, found only in Bole-Tangale, though it may be worth noting that these languages have three functionally distinct affixes expressed by *-t-*, viz. CAUSATIVE (§1.3.1), TOTALITY (§2.1), and VENTIVE. The Bole-Tangale VENTIVE may have arisen through reinterpretation of one of the other functions.

### 3.2. Central Branch

Whereas in West Chadic, the only extension clearly associated with directionality is the VENTIVE, languages of the Central Branch exhibit a much greater range of directional and locative extensions. The discussion in this section provides examples from different groups and subgroups within Central Chadic. All of the languages are located in northern Cameroon and northeastern Nigeria. Extensions in Gude (II.A.8), spoken further south and straddling the Nigeria-Cameroon border, are discussed in detail in §7.

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<sup>23</sup> In West Chadic, as far as I know, *n-* alone in the meaning ‘come’ is found only in Bade-Ngizim. In Bole-Tangale, ‘come, go’ has a prenasalized *nd*, e.g. Bole *ndii* ‘go’. The Proto-Chadic root for this meaning is *\*d-*. Bole-Tangale *nd-* conceivably arose as a blend of *n-* and *d-*. Outside West Chadic, *\*-n* seems to show up only as a VENTIVE extension, not as an independent word. See Newman (1977:285-287) for examples from the Central Chadic languages Ga’anda, Daba, and Margi.



Margi (II.A.2) has apparent reflexes of the *\*-w* and *\*-n* allomorphs reconstructed in the previous section for West Chadic, though, assuming that the etymological relationship is real, they have shifted somewhat in function. For an extension *-wa*, Hoffmann (1963:149) says “the derivatives in *-wa* mostly indicate that the action is done in the direction ‘into’ something, e.g. *p-wa* ‘pour into’ (cf. *pə* ‘pour’). Newman (1977:287) identifies a Margi extension *-əri* with reconstructed *\*-n*.<sup>24</sup> Hoffmann (1963:143) states that “the derivative suffix *-ri* may be of heterogeneous origin,” and a single function is hard to pin down; but one function is benefactive, an attested function of VENTIVES in West Chadic as well, e.g. *ɲà-rì* ‘to call a person for a person’ (cf. *ɲà* ‘call’). In addition to the two extensions above, whose allomorphs are etymologically related to VENTIVE allomorphs seen in West Chadic, Hoffmann (1963:118-149) lists a number of other extensions that add directional meanings: *-ba* ‘out’, e.g. *kə̀lɔ̀-ba* ‘chase out’ (cf. *kə̀lɔ̀* ‘chase’); *-ia* ‘down’, e.g. *pt-ia* ‘lower’ (cf. *ptə* ‘be insufficient’); *ɲgəri* ‘on top of’, e.g. *sa-ɲgəri* ‘drink after having eaten’ (cf. *sà* ‘drink’). Some of these extensions are transparently related to verbs or nouns, e.g. *ba* < Chadic ‘go’, *ia* related to Bura *hi* ‘earth’, and *ɲgəri* related to Margi and Bura *kər* ‘head’ < Proto-Chadic *\*kən*.

Languages of the Mandara group (II.A.4) are particularly rich in directional affixes. Jarvis (1989:92) lists seven directional extensions for Podoko. She glosses one of the extensions, *<sup>y</sup>atsə-*, as ‘vers ici, centripète’, a canonical VENTIVE function, e.g. *<sup>y</sup>ɲgwad-atsə mayó paná* ‘I tied up the kindling and brought it’ (cf. *ɲgwad-* ‘tie up’). Palatalization, shown by superscript *<sup>y</sup>*, is also a feature of the VENTIVE in Gude (§7.1). The other six extensions are as follows: *ndəl-akwa* ‘jump into’ (cf. *ndəl* ‘jump’, < ?<sup>25</sup>), *ndəl-ədə́* ‘jump out’ (cf. *ndəl* ‘jump’, < *d-* ‘go’), *d-u* ‘climb (up)’ (cf. *d-* ‘go’ < *vəɲw* ‘mouth’), *s-aha* ‘go down’ (cf. *s-* ‘come’ < *ha* ‘until’), *farə* ‘put onto’ (cf. *f-* ‘put, place’, < *harə* ‘on top’), *tə́d-asə* ‘pour under’ (cf. *tə́d-* ‘pour’ < *s-* ‘come’). I give only an example of an extended stem, underlined, compared to the base. See Jarvis (1989:92-95)

<sup>24</sup> Languages of the Bura-Margi group have undergone a regular sound change of non-final *\*n* > *r*.

<sup>25</sup> Hoffmann (1963:150) mentions an affix *-kwa* derived from the Margi adverb *əkwa* ‘in it’. In Margi, this is used only with the root *s-* ‘come’ (*s-kwa* ‘come in’), but Hoffmann mentions use of this affix in other Nigerian Chadic languages. These languages are not particularly close to languages of the Mandara group within Central Chadic, but the identity in form and function seems worth pointing out.

for examples in sentences. For most of these extensions, it is possible to identify plausible etymological sources.

Lamang, also in the Mandara group, broadly defined, has an extensive set of directional extensions. Wolff (1983:109-124, 2015) identifies 17 extensions, most of them with a locative or directional value. I present here a few with the etymological sources that Wolff suggests:

**-ghà** with imperfective motion verbs, **-v̄v** elsewhere, ‘into or towards a populated or sacred place’: **dzá-ghà** ‘going home’. Wolff says that this extension “comes closest to the widespread Chadic VENTIVE,” though it seems more specialized in meaning than canonical VENTIVES. He tentatively relates it to **tóghà** ‘home, compound’.

**-bè** ‘out (of), away (from a populated or sacred place)’: **dzébè** ‘go out, away’. Implied is “movement parallel to the mountain chain”. Wolff tentatively relates this extension to **bàlèkè** ‘outer world’. Another possible source may be the Proto-Chadic verb **\*bə-** ‘go, come’.

**-fé** ‘up, eastward’: **dzé-fé** ‘go up, go eastward’. Implied is going eastward since the mountains lie to the east of Lamang country. Wolff identifies this extension with **fitía** ‘sun’.

**-dé** with IMPERFECTIVE motion VERBS, **-gá** elsewhere ‘down, westward’: **dzé-dé** ‘go down, go westward’. Implied is going westward since the mountains lie to the east of Lamang country. Wolff relates this extension to **dāmbàkè** ‘valley, depression’.

**-v̄v** increasing, adding to the top: **tsùr-àa-tá** ‘sit on top of something’ (**-tá** is the verbal noun suffix).

**-s** adding to the bottom: **drò-s-tá** ‘burn by putting fire to the bottom’. Wolff relates this extension to **stó** ‘bottom’ (**-tá** is the verbal noun suffix).

**-ŋ** action into or within: **dābè-ŋ-tà** ‘follow into’. This is transparently related to the preposition **ŋ** ‘in’ (**-tá** is the verbal noun suffix) and arguably reflects the etymological source of the VENTIVE **\*n-** reconstructed by Newman (1977).

**-ú** benefactive, a common function of the VENTIVE: **dām-ú-tá** ‘pluck and eat’ (**-tá** is the verbal noun suffix). Wolff derives this from **éwé** ‘mouth’ and notes that it is an extension of use with verbs of human consumption, conveying the idea of “immediate consumption”.

The examples here show how cultural and environmental factors can play a role in developing derivational extensions from basic lexical categories.

Barreteau (1978a, 1978b) discusses verbal affixes in Mofu-Gudur (II.A.5). Barreteau (1978b:25) cites two affixes that add directional meanings: **-wà**, ‘*action centripète, reversal of action, for the benefit of the subject*’, e.g. **ver àpor-wà** ‘rain is falling where we are’, and **fá** ‘action on top of’, e.g. **áhèt-fá-ár** ‘*il (se) trouve sur lui (il le rencontre)*’. This is the reconstructable VENTIVE **\*-wa**, found in West Chadic (§3.1) and seen above in Margi. The latter probably derives from Proto-Central **\*f-** ‘put, place’ (cf. Podoko **fa** ‘put’).

Barreteau (1978a) is a statistical study of consonant distribution in Mofu stems in which he finds that the third consonants of verbs are statistically skewed toward a handful of Mofu consonants. (I return to this topic in §4.) Some of these have what could be interpreted as directional or locative, but others are now part of the verb stem and do not add consistent meanings across the erstwhile roots with which they form stems. This suggests that in this group of Central A, the relatively transparent extension systems of the more northerly and westerly groups, such as those in the Mandara and Bura groups, is further eroding such that verb-final consonants can be identified as etymologically separate morphemes only by comparative evidence and statistical skewings. Here are examples of some of the affixes that could plausibly be interpreted as directional or locative. I have taken the liberty of providing my interpretation of the base meanings of the extensions: **-p** ‘action down’, perhaps a doublet with **fá** mentioned above, e.g. **hér-p** ‘step on’ (cf. **hər** ‘hit’); **-b** ‘stick to’, e.g. **kál-b**, ‘coat’ (cf. **kəl** ‘throw’); **-m** ‘reunite’, e.g. **tə-m** ‘bring to the mouth’ from Proto-Chadic **\*m-** ‘mouth’ (cf. **t** ‘cook’); **-t** ‘remove’, e.g. **kál-t** ‘remove bark, crust’ (cf. **kál-b**, ‘coat’ above); **-k** ‘detach, remove’, e.g. **pəf-k** ‘chop in two’ (cf. **pəf** ‘divide up’).

Thomas (2014:120) lists 17 verbal extension for Sukur (Sakun), most of them with directional or locative meanings. As in all the Central Chadic languages, particular extensions are restricted lexically to use with particular verbs and usually have idiosyncratic meanings that cannot be predicted compositionally by knowing the meaning of a root and knowing the meaning of the extension. Likewise, for the most part Sukur and other languages do not allow combinations of extensions. I suggest a couple of

etymons relating these to potentially cognate extensions found in other languages: **-má** ‘up’, **-xá** ‘down’ (cf. Gude **ha** ‘place of’, Tera **ghày** ‘earth’), **-va** ‘out’, **-vá** ‘across’, **-rá** ‘centripetal’, **-ká** ‘VENTIVE’, **-yə** ‘into’, **-ji** ‘to’ (cf. proto-Central \*s- ‘come’), **-<sup>m</sup>ta** ‘to the bush’ (cf. Bura **mtákù** ‘the bush’), **tjiká** ‘spread’, **-j** ‘movement of unspecified direction’.

In contrast to the northerly Central languages spoken near the Cameroon border, the southerly Central languages in Cameroon, including languages of the Daba group (II.A.7) and neighboring Gidar (II.C), have only one or two directional affixes. They all have a VENTIVE, and some have ITIVE (= ALLATIVE = ANDATIVE) function indicating direction away. Daba (Mouchet 1966:84) has a *destinatif* suffix **-eŋ**, which has a BENEFACTIVE meaning, a common function of the VENTIVE, and which Newman (1977) associates with reconstructed \*n- VENTIVE, e.g. **kat tu s-eŋ yim a plis** ‘I had the horse drink water’. Daba also has an ITIVE, called *directif* by Mouchet (1966:85), marked by **-aha/-ehe**,<sup>26</sup> which, based on Mouchet’s examples, indicates ‘going to another place’, e.g. **təvki**l**bi**z**-ehe** ‘*j’irai cultiver*’ (cf. **təvki**l**bi**z**** ‘*je cutiverai*’).

Buwal (Viljoen 2013:422), also of the Daba group, has a BENEFACTIVE suffix **-ene** (called “indirect object” by Viljoen) that can co-occur with an overt indirect object that is also marked by a preposition **ń**, e.g. **sa mal-ene ń ɓaŋgan mana** ‘I pluck (it) for my aunt’ clearly related to the Daba *destinatif* mentioned in the previous paragraph. Buwal, has an additional extension, called VENTIVE by Viljoen, with two forms, **-a** proximal and **-xa** distal. Interestingly, these can co-occur, e.g. **xwa kəm ń mbal-a-xa varvara ń xajak ŋkwa á wata skwaw** ‘you didn’t get to grab land for yourself there in your country at home’.

Gidar (Frajzyngier 2008:196, Schuh 1989:56) has a VENTIVE suffix, which Frajzyngier give as **-i**, but which is realized more often as **-e**.<sup>27</sup> The distribution of these

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<sup>26</sup> Viljoen (2013:163) cites more recent work on Daba that shows three allomorphs for this extension: **-aha** following a consonant, **-ha** after a vowel, and **-a** before a complement.

<sup>27</sup> Frajzyngier (2008) proposes a phonological rule that lowers high vowels after consonant clusters and geminates. Schuh (2010) shows that this cannot be part of Gidar phonology, being contraindicated in examples throughout Frajzyngier (2008), both by examples of high vowels following consonant clusters and by mid vowels preceded by singletons. Mid vowels in Gidar arise from morphological palatalization or labialization of /a/, a widespread phenomenon in Central Chadic (Gravina 2014).

variants is not entirely clear in either reference, but the salient features as described in Schuh are (i) palatal prosody in VENTIVE forms, (ii) “neutral” prosody in non-VENTIVES. I exemplify only the **-e** variant from Schuh (1989:51), e.g. **nì de-k-e** ‘I have come’ (cf. **ədd-a** ‘going’, **nə mbat-kà** ‘I have gone’<sup>28</sup> with a neutral PERFECTIVE suffix **-ka**). Schuh (1989:56) notes that elsewhere palatalization is rare among verb roots that do not have a directional component.

Languages of the Tera group (II.A.1) have only a few extensions, none of which are clearly directional. R. M. Newman (1977:285-289) discusses an extension **ín** in Ga’anda saying, “While **ín** sometimes indicates action ‘toward the speaker’, it is not essentially a locative/spatial extension....” Moreover, Ga’anda **ín** falls late in the sentence, after other material in the predicate, e.g. **é ínúcǎndá wànbǎbá ín** ‘they sent medicine to you’.

Tera (Newman 1970a, field notes) does not have any extensions in the strict sense of the term, i.e. suffixes or clitics attached to the verb. Rather, the meanings typically added by extensions in related Chadic languages are indicated by adverbial particles, of which Tera has just two: **ɓar(a)** and **n(ə)ghà**.

The particle **ɓara**, which optionally drops the final /a/ in non-phrase-final position, is a directional marker primarily indicating action away,<sup>29</sup> e.g.

<b>ɗa</b>	‘run’	<b>ɗa ɓara</b>	‘run away’
<b>làwa</b>	‘grab’	<b>làwa ɓara</b>	‘snatch away’
<b>mbuki</b>	‘throw (at)’	<b>mbuki ɓara</b>	‘throw away’
<b>sàgha</b>	‘lose’	<b>sògha ɓara</b>	‘spend’
<b>masa</b>	‘buy’	<b>masa ɓara</b>	‘sell’

<sup>28</sup> One would like to juxtapose a non-VENTIVE form **?nə ɗa-ka** ‘I went’, but the ‘go/come’ paradigm in Gidar is suppletive, the **ɗ-** root being used for “come”, the **mbát-** root for “go” (Schuh 1989:51).

<sup>29</sup> Kera (III.A.3), a distantly related East Chadic language has a remarkably similar looking extension **wóra**, which indicates “disappearance” or “destruction” (see §2.1.3). Whether the Kera and Tera forms are cognate or whether this is a case of accidental resemblance is an open question.

As indicated above, **bara** is a separable particle and is not attached to the verb. If the verb, is followed by some other element, such as a suffixed subject pronoun or a direct object, **bara** will occur later in the sentence, e.g.

**nji-nu dluá bar bá** ‘don’t (you pl.) eat up the meat!’

eat-you (pl) meat-the away neg

**á ndòla kè mbəɗ-mi bara** ‘he wants us to pour (it) out’

cont-want subjunc pour-we away

**témâ masa pərsə-nánda bara** ‘we sold that horse’

The particle (**nó**)**ghà** is composed of a preposition **nó** ‘to’ plus the adverbial **ghà**. (When added to a word ending in a vowel, the schwa tends to drop and the high tone attaches to the preceding syllable.) Although **ghà** is etymologically related to the noun **ghày** ‘ground, earth’, the usual meaning added by the particle is not directional ‘down’; rather it indicates that the action of the verb is well done, done properly, or done to completion. With some verbs, **nóghà** is almost obligatory with no clear meaning evident.

**xóghà** ‘sit down!’

**wà dəŋ dere ɓaŋa ghà dýine tébər** ‘he put my cap on the table’

**xotl nóghà** ‘press it e.g. cotton, down firmly’

**ŋâ dən nóghà** ‘he built it well’

**wà mbən dla nóghà** ‘he fattened the cow’

**zò mevirá nghà** ‘close the door!’

**nəmáləma ká ghərtor nóghà** ‘the teacher will make you wise (lit. wisen you)’

In some ways, languages of the Tera group seem typologically more allied to West Chadic than to their genetically closer Central Chadic cousins.

One feature of ventives in Central A Chadic worth pointing out is that morphological palatalization is often associated with, though not necessarily restricted to ventive morphology. I tentatively suggest that this an archaism reflecting a reconstructable proto-Central extension something like \***yi-**, which exercised a palatalizing influence. The weak glide subsequently was elided, leaving only its palatal trace. A plausible

etymological source may be found in West Chadic where one of the allomorphs of the suppletive ‘go/come’ paradigm in Bade-Ngizim is **yi** (see, for example, the Ngizim paradigm in Schuh 1981:xxiii). Likewise, in West Chadic the verb ‘do’ can be reconstructed as **\*yi**, and given the flexible semantics of this verb, it is conceivable that we are dealing with a single etymon. Central Chadic languages already mentioned that associate palatalization with the VENTIVE are Podoko (II.A.4.a), Mofu (II.A.5.b), Buwal (II.A.7), Gude (II.A.8), and Gidar (II.C.1). See Gravina (2014) for a survey of palatalization prosody across the entire Central Branch.

Summarizing this section, languages of the A group of the Central Branch share an areal feature of having developed complex systems of directional verbal extensions through reinterpretation and grammaticalization of verbs, nouns, adverbs, and prepositions. This situation contrasts with that of the languages to the west, including all of West Chadic as well as the most westerly and southerly Central languages of the Daba group (II.A.7), Gidar (II.C), and group (II.A.1).

A description of directional/locative marking particles in the Central B language Makary Kotoko (II.B.1), Allison (2012:§16) presents a different situation from that seen in the Central A languages. Allison (pp. 293-294) describes the syntactic function of four locative/directional particles, **he**, **ho**, **yo**, and **ni**. Summarizing Allison, (i) **he** indicates downward action; (ii) **ho** indicates action toward the point of reference, (iii) **yo** indicate action away from the point of reference, (iv) **ni** is used with only four verbs of motion (**dā** ‘go somewhere’, **do** ‘take somewhere’, **fō** ‘run somewhere’, **kə** ‘accompany s.o. somewhere’) when an obligator locative argument is not otherwise overt. According to Allison’s description these are not extension suffixes of the type illustrated for the languages Central A and West Chadic languages, but rather are more like free adverbs that (1) get their meaning from context and the meaning of the base verb and (2) are present only when some other locative expression is not present. I illustrate with **ni** (p. 289):

**ngō ro ē dā ní kabu** ‘when they *left* [there]...’ (no other locative argument)

**ā dā wo ro so kani** ‘he went to the village then... (locative word **wo** present, no **ni**)

Allison does not provide ungrammatical/infelicitous examples, but presumably inserting the locative pronoun **lə** ‘there’ in the first example would result in ungrammaticality, e.g. ...**mú dē lə \*ni ko wu** ‘...I’m not going there’ with a locative word cooccurring with **ni**).

### 3.3. East Branch

Languages of the East Branch do not have elaborate systems of directional/locative extension systems like those in the Central Branch, but VENTIVE and ITIVE (= ALLATIVE) are found in both the A and B subbranches.

Ebert (1979) describes a VENTIVE and an ITIVE in the East A language, Kera (III.A.3). The former is marked by **-dà** from Proto-Chadic ‘go/come’, the latter by **-ná**, identifiable as cognate with the reconstructable VENTIVE (rather than ITIVE) in the West and Central Branches. Ebert (1979:113) likens the function of **-dà** to German *her*. The ITIVE **-ná** expresses distancing (*Entfernung*) from the point of reference. If I understand Ebert’s description, **-dà** and **-ná** can accompany the TOTALITY marker **wóra** (§2.1.3) or another locative word (including nouns referring to a specific location), which they follow.<sup>30</sup>

VENTIVE: **gòogò káláŋ-wár-dà súr-dà** ‘the lion [came] out *there* TOTAL there to him’

VENTIVE with nominal locations: **Hùlùm bə Səsáŋgá, wə bəŋ dà-í, wə bəŋ Péve dà. Hùlùm bə Péve, wə lúŋ dà, wə lúŋ Áw dà, Dòrè dà.**

‘A Səsanga person, when he has come, he has come from *Peve*. A Peve person, he has *mounted* up (and come), he has mounted up and come from *Aw*, from *Dore*.’ [114]

ITIVE: **Kíntí hàŋ gògò WAR-ná kérékə kan ná.** [115]

‘The monkey *took* the lion TOTALITY away above the *water away*’

ITIVE: **hà-n Í WAR-ná gùud-ùm ná** [115] ‘take-me TOTALITY there *behind*-you there’

<sup>30</sup> At least **-dà** can also be used directly with verbs of “movement away” (*Fortbewegung*), e.g. **lúŋ-dà** ‘climb up here’ < **lúŋ** ‘climb out’ (page 113), but cf. ill-formed **\*dég-dà** < **dég** ‘go’. It is unclear to me what differentiates these verbs as semantic classes.



Ebobissé (1979) describes a similar semantic distinction for the East B language East Dangaleat (III.B.1.a), but morphosyntactically it is unlike the systems of suffixal extensions discussed for the West and Central languages and Kera. Rather, directional semantics are indicated by invariant preverbal auxiliaries. The VENTIVE has two allomorphs, **às** from Proto-Chadic \*s- ‘come’, used in the PERFECT and IMPERATIVE, the other /àk/, used in the FUTURE, which fuses with CV subject pronouns to form a monosyllabic CVC auxiliary, e.g. /no ák/ → [nók] ‘I-VENTIVE’, /kí ák/ → [kík] ‘you (m.s.)-VENTIVE’, etc. The ALLATIVE is marked by an invariable preverbal auxiliary **daa** from Proto-Chadic \*d- ‘go’.

Verbs in the PERFECT and IMPERATIVE in directional constructions require a directional form, marked by a final **-a**, plus special tone patterns. Monosyllabic verbs take the form C-**aa**. The FUTURE uses the same form as in non-directional constructions.<sup>31</sup> (See Chapter 6, §2.3.4 for a description of East Dangaleat verb morphology and its TAM system.) Here are examples from Ebobissé (1979:Chapter 5):

- Ventive PEFECT: **ɲa às gídíy-á** ‘he bought’ (cf. **gídíyé** ‘buy, buying’)  
 Ventive IMPER.: **às òɲ t-áa!** ‘come & eat!’ (cf. **téɲ** ‘eat, eating’)  
 Ventive FUTURE: **ɲú-k ròope** ‘we will meet’ (cf. **ròope** ‘meet, meeting’)  
 : **nó-k téɲ** ‘I will eat’ (cf. **téɲ** ‘eat, eating’)  
 Allative PEFECT: **a daa dob-á** ‘he chose’ (cf. **dòbe** ‘choose, choosing’)  
 Allative IMPER.: **kat**<sup>32</sup> **dà-k-gà lówíy-á!** ‘go suck!’ (cf. **lówíyé** ‘suck, sucking’)  
 Allative FUTURE: **ɲu daa tótiré** ‘you will meet up’ (cf. **tòtiré** ‘meet each other’)  
**ni daa téɲ** ‘I will go eat’ (cf. **téɲ** ‘eat, eating’)

<sup>31</sup> It is worth noting that the grouping of PERFECTIVE and IMPERATIVE as having formal properties different from “imperfective” TAMs, such as FUTURE, PROGRESSIVE, and the like is found in languages in all branches of Chadic. The latter often have nominal origins whereas PERFECTIVES, IMPERATIVES, and usually SUBJUNCTIVES have their sources in the verbal TAM system itself. This verbal vs. nominal origin would have had implications for subsequent morphological developments.

<sup>32</sup> The verb **kát(é)** ‘go’ can optionally precede an allative IMPERATIVE.

#### 4. Remnant Suffixes and Chadic Root Structure

Newman (1977:20), referring to his proposed reconstructions of 150 Chadic roots, says, "...we find disconsonantal words to be the norm, monoconsonantal words to be less numerous but still quite common (but mostly with verbs and function words), and triconsonantal words to be rare and limited almost exclusively to nouns." Looking across Chadic lexicons, however, it turns out that tri- and even quadriconsonantal verbs are far from rare. One account of this has been inheritance of triconsonantal roots from Proto-Afroasiatic, with disconsonantalism and monoconsonantalism resulting from erosion of longer roots (Jungraithmayr 1983). Evidence from all branches of Chadic, however, shows an opposite trend, viz. expansion of reconstructable mono- and disconsonantal verb stems by addition of consonantal suffixes. Following Newman (2000, Chapter 76), I refer to these as "remnant suffixes" in that in a large number of cases, their erstwhile suffixal status can be identified in related words without these suffixes (or with other suffixes) and/or statistical skewings of third (and fourth) stem consonants toward specific consonants.

##### 4.1. West Branch

We begin by quoting the first paragraph of Schuh (2003b:71):

"Herrmann Jungraithmayr, in a 1968 conference paper (Jungraithmayr 1970[a]), cites Hausa word sets like *gume* "have an odor", *gumke* "begin to have an odor", *gumRe* "be fully permeated with an odor", quoted from Lemeshko (1967), and suggests that the majority of Early or Proto-Hausa verb roots were of a CVC or CV type. The large number of more complex verb forms in modern Hausa result from augmentation by morphemes whose origin "still lies in the dark of the yet unknown". He further notes that "intensive comparative studies not only within Hausa but also between Hausa and other Chad [sic] languages may help to clarify these rather hidden phenomena" (pp. 84-85). Thirty years later, Newman (2000:Chapter 76) took up such a study "within Hausa".

The current section takes up a comparative study between Hausa and other Chadic languages.

Newman (2000:Chapter 76) describes Hausa verbs that “contain a historically remnant -CV suffix that now functions as a semantically empty, integral part of the verb.” He lists verbs with eight such suffixes along with allied verbs that do not contain the affix in question. I give just one example of each—see Newman pages 695-698 for lists of examples:

**-kà** as in **faskà** ‘rip’ vs. **fasà** ‘break (pot, etc.)’

**-ga** as in **waigà** ‘turn around an look’ = **waiwàyā**;

**-nà** as in **cūnà** < \***cik-nà** ‘sic on’ vs. **cikà** ‘fill’

**-râ/-lâ-l**<sup>33</sup> as in **haurâ** ‘climb over’ vs. **hau** ‘climb, mount’, **ɗallâ** ‘project by springlike action’ vs. **ɗanâ** ‘cock a gun’

**-sa** as in **cūsâ** < \***ciksâ** ‘stuff into’ vs. **cikà** ‘fill’

**-ɗa** as in **cūɗâ** < \***cikɗâ** ‘knead’ vs. **cikà** ‘fill’

**-ta** as in **kaftâ** ‘dig ground for planting’ vs. **kafâ** ‘implant, erect’

There are other consonants that are found in a similar role. In particular **-ɓa** appears with a number of verbs having to do with messiness or sloppiness, e.g. **jāgùɓā** ‘make messy’, **jangwàɓē** ‘be slushy’ (cf. **jagwalgwàlā** ‘make a mess when eating’), **shagwàɓā** ‘spoil a child’. A couple of others are **-tsa** as in **hargìtsā** ‘be muddled up’ (cf. **hàrgàgī** ‘uproar’), **-ma** as in **ruguntsùmā** ‘go off in a group’ (cf. **rugà** ‘rush off’), but eight that Newman lists are lexically the most prevalent.

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<sup>33</sup> Newman gives only **-lâ** for this affix, but the affix was originally **-râ**. The rhotic is phonetically [ɽ], and many words have singleton **-râ** suffix. This rhotic has had a number of outcomes when abutting a following consonant having to do with the next consonant and the time in history. Today, geminate **/-rr-/** is pronounced by holding the tongue in a retroflex position before releasing it as a flap. When followed by a coronal other than **/r/** itself, the older realization is [ll] /, as in the example **ɗallâ** in the text < \***ɗanra**. At an earlier period, an **\*rr** geminate was degeminated, with compensatory lengthening of the preceding vowel, as in **yârā** ‘children’ < \***yârrā**, the plural of **yârò**, cf. **zôbbā** ‘rings’, plural of **zôbè** ‘ring’ from the same class.

Newman does not provide relative statistics for prevalence of particular consonants in particular root positions—the size of the available Hausa lexical material would make this a daunting task. Schuh (2003b) took on a more achievable task to test the reconstructability of remnant suffixes that skew toward particular shapes rather than drawing randomly on the entire consonant inventory. This study drew on databases of 594 verbs in Bole (I.A.2) and 665 verbs in Western Bade (I.B.1) to count the consonants that appear as the first, second, third, and fourth consonants of verb roots. To illustrate, I reproduce here a table of consonant counts from Schuh (2003b:77) for Western Bade. Results are similar for Bole. The rows for the eight consonants that Newman identified a common remnant affixes in Hausa are bold and enlarged:

**Table 8: Root consonants in Western Bade**

Consonant	C1#	C1%	C2#	C2 %	C3#	C3%	C4#	C4%	C3+C4#	C3+C4%
b	30	4.5	26	4.0	6	2.4	0	0.0	6	1.8
ḃ	6	0.9	12	1.8	5	2.0	1	1.2	6	1.8
c	23	3.5	11	1.7	1	0.4	0	0.0	1	0.3
d	25	3.8	26	4.0	8	3.1	0	0.0	8	2.4
<b>ɗ</b>	<b>32</b>	<b>4.8</b>	<b>29</b>	<b>4.5</b>	<b>20</b>	<b>7.9</b>	<b>5</b>	<b>6.1</b>	<b>25</b>	<b>7.4</b>
ɗy	1	0.2	1	0.2	0	0.0	0	0.0	0	0.0
f	13	2.0	10	1.5	2	0.8	0	0.0	2	0.6
g(w)	55	8.3	53	8.2	4	1.6	3	3.7	7	2.1
gh	3	0.5	0	0.0	1	0.4	0	0.0	1	0.3
h(w)	22	3.3	7	1.1	0	0.0	0	0.0	0	0.0
j	14	2.1	4	0.6	0	0.0	0	0.0	0	0.0
ƙ	14	2.1	7	1.1	1	0.4	0	0.0	1	0.3
<b>k(w)</b>	<b>62</b>	<b>9.3</b>	<b>62</b>	<b>9.5</b>	<b>18</b>	<b>7.1</b>	<b>3</b>	<b>3.7</b>	<b>21</b>	<b>6.3</b>

l	20	3.0	20	3.1	1	0.4	0	0.0	1	0.3
m	35	5.3	57	8.8	19	7.5	3	3.7	22	6.5
<b>n</b>	<b>26</b>	<b>3.9</b>	<b>46</b>	<b>7.1</b>	<b>12</b>	<b>4.7</b>	<b>1</b>	<b>1.2</b>	<b>13</b>	<b>3.9</b>
ny	1	0.2	0	0.0	0	0.0	0	0.0	0	0.0
p	35	5.3	30	4.6	3	1.2	0	0.0	3	0.9
<b>r</b>	<b>43</b>	<b>6.5</b>	<b>104</b>	<b>16.0</b>	<b>13</b>	<b>5.1</b>	<b>3</b>	<b>3.7</b>	<b>16</b>	<b>4.8</b>
<b>s</b>	<b>56</b>	<b>8.4</b>	<b>24</b>	<b>3.7</b>	<b>9</b>	<b>3.5</b>	<b>1</b>	<b>1.2</b>	<b>10</b>	<b>3.0</b>
<b>t</b>	<b>46</b>	<b>6.9</b>	<b>30</b>	<b>4.6</b>	<b>98</b>	<b>38.6</b>	<b>45</b>	<b>54.9</b>	<b>143</b>	<b>42.6</b>
ɫ	34	5.1	13	2.0	10	3.9	0	0.0	10	3.0
v	13	2.0	16	2.5	3	1.2	0	0.0	3	0.9
w	21	3.2	30	4.6	4	1.6	2	2.4	6	1.8
<b>y</b>	<b>2</b>	<b>0.3</b>	<b>20</b>	<b>3.1</b>	<b>13</b>	<b>5.1</b>	<b>5</b>	<b>6.1</b>	<b>18</b>	<b>5.4</b>
z	33	5.0	12	1.8	3	1.2	1	1.2	4	1.2
No. of verbs	665		650		254		73		327	

The skewings match closely with the prediction that suffixes would come from a limited set of phonological shapes, perhaps originally associated with particular meanings, not from a random selection of shapes drawing on the entire phonological inventory. Moreover, the consonants that skew highest as C3—those that, by and large, would appear in remnant affixes—jibe closely with the consonants that fall in the inventory of the remnant affixes identified in Newman (2000). Looking just at labials, /**b**, **f**, **p**/, **v**/ all are relatively common in C1 and C2 but much less so in C3, e.g. 30 verbs have **b** as C1, 26 verbs as C2, but only 6 as C3. None of the Hausa suffixes listed by Newman have a labial.<sup>34</sup> One can contrast this with **ɗ** as C3, one of the consonants found

<sup>34</sup> In the database from which Newman 2007 was compiled, there are only 25 verbs with **b** as the final consonant, only one of which where the **b** is plausibly part of a remnant affix, viz. **kwārɓabā** ‘pester’. Others with more than two consonants are reduplicants based on diconsonantal stems (**gididdibā** ‘slice’) or Arabic loans (**wājabā** ‘be incumbent’). There are 98 verbs with **b** as C1, showing that it is not a rare consonant as such.

in Hausa remnant affixes, where the numbers of **ɗ** in Bade are closely matched for C1-C3 (32 **ɗ** in C1, 29 in C2, C2, 20 in C).

As one might expect, there are some differences from Hausa. In Hausa, **s** is common, but in Bade the number of **s** in C3 is skewed low compared to other positions (56 in C1, 24 in C2, 9 in C3). On the other hand, Bade has a fair number of **ɓ**, a consonant not found in Hausa, in all positions (34 C1, 13 C2, 10 C3). There is some evidence that Proto-Chadic **\*ɓ** > **s** in Hausa (PC **\*ɓa** ‘cow’, Hausa **sâ** ‘ox’), perhaps accounting both for the apparent high number of **s** in Hausa remnant affixes as well as difficulty in finding reflexes of PC **\*ɓ** in Hausa—**\*ɓ** is doubly hidden by a **\*ɓ** > **s** sound change and by the fact that reflexes of **\*ɓ** are in formatives that are not easily identifiable as having a cognate in Hausa.

To conclude this section of remnant affixes in West Chadic, here are examples from Bade:

<b>-ɗ-:</b>	<b>əgbəɗu</b>	‘pound in mortar’	cf. <b>əbú</b> ‘split in two’
<b>-k-:</b>	<b>tlərku</b>	‘tear off (leaf from stem)’	cf. <b>tləru</b> ‘separate thing from group’
<b>-m-:</b> <sup>35</sup>	<b>pərdəmu</b>	‘disperse in disorder’	cf. <b>ərdəgu</b> ‘escape’
<b>-n-:</b>	<b>əskunu</b>	‘increase’	cf. Hausa <b>sākè</b> ‘do again, change’
<b>-r-:</b>	<b>əkəru</b>	‘finish’	cf. Bole <b>tākā</b> , ‘finish’
<b>-s-:</b>	<b>dənsu</b>	‘lean thing against’	cf. <b>dənu</b> ‘stoop over’
<b>-t-:</b>	<b>əzgətu</b>	‘pierce’	cf. Bole <b>zūkā</b> ‘prod, poke into’
<b>-ɫ-:</b>	<b>əɗuwətɫu</b>	‘become tired’ (see comment on <b>ɓ</b> above)	
<b>-y-:</b>	<b>rəkwayu</b>	‘become thin’	cf. Bole <b>rùkku</b> ‘become thin’

Also singled out for Hausa was **-b-**, found in a number of verb having to do with messiness, e.g. Bade **ərtəbu** ‘disintegrate due to overcooking’, **ɓəkùbu** ‘pound to make slushy’.

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<sup>35</sup> As noted above, Newman did not include **-ma** among his remnant affixes in Hausa, but there is some evidence for it.

## 4.2. Central Branch

A perusal of lists of common verbs in Central Chadic languages such as Podoko, Mofu, Bura, Gude, Tera, and others reveals that majority of verbs in these language are diconsonantal. Monoconsonantal verbs are not uncommon, but the number will be limited by the number of consonants available—between 25-35 in a language—and no language uses all the available consonants as the basis for verb roots. It turns out that triconsonantal roots are also fairly well-represented. Barreteau (1978a), in a study of verb root structure in Mofu-Gudur (II.A.5.b), gives the following counts for numbers of consonant for 810 verbs (page 119, Table 3): 35 monoconsonantal, 505 diconsonantal, 265 triconsonantal, 5 quadriconsonantal.

Of particular interest in Barreteau’s study is the distribution of specific consonants. The introductory paragraph in his §4.2 cited several Hausa verbs based on a root **gum-** associated with “odor”. Barreteau found similar paradigms in Mofu-Gudur, such as the following, base on the root **r** ‘pile up, pack tightly’:<sup>36</sup> **rəḅ** ‘push in to sand’, **rəṽ** ‘transplant’, **rəḏ** ‘pile a powder with the hand’, **rəc** ‘stuff into’, **rəɪ** ‘pile up with the hand’, **rəh** ‘fill, sate’.

Making counts similar to those for Bade in Table 8 above, Barreteau (1978a:116-117, his Tables 1-2) counted the numbers of individual consonants as the first and last consonants of verbs. Here is a table of the counts for verbs with 30 or more tokens and 4% or more verbs with particular consonants in initial and final positions:

**Table 9:** Root consonants in Mofu-Gudur

<b>C1</b>	# TOKENS	%TOKENS	<b>C-FINAL</b>	# TOKENS	% TOKENS
b	30	3.7	c	30	3.9
h	31	3.8	t	33	4.3
j	33	4.1	s	36	4.6

<sup>36</sup> The translations are mine. Barreteau’s transcription shows preceding and following floating tones that associate to prefixes and suffixes when they are present. I have omitted these floating tones.

d	33	4.1	w	40	5.2
w	34	4.2	ɓ	42	5.4
g	38	4.7	h	43	5.5
p	38	4.7	ɬ	45	5.8
k	39	4.8	k	49	6.3
s	44	5.4	l	54	7
c	51	6.3	r	83	10.7
t	56	6.8	ɗ	98	12.6

The respective distributions are consistent with the prediction that the final consonants are reflexes of a limited number of affixes, not a random selection from the full consonant inventory. The tokens of C1 are relatively evenly distributed, with only three having above 5%, whereas eight of the final consonants have over 5%. Of equal interest are the consonants themselves in comparison with the distribution of consonants found in remnant affixes in West Chadic: **ɗ**, **r**, **l**,<sup>37</sup> **k**, **ɬ**, **s**, and **t** are well-represented as candidates for remnant affixes in both groups. Discussion of West Chadic also suggested suffixal status for **ɓ**, bolstered by Barreteau's counts for Mofu-Gudur (only 2.5% for C1, but 5.41% for C<sub>final</sub>). Of equal interest is the identity of consonants that are found as C1 but not C<sub>final</sub>. Voiced obstruents are well-represented in C1 but do not appear as C<sub>final</sub> (aside from **g** in West Chadic). Labials in general, other than **ɓ**, are not found as C<sub>final</sub> in West Chadic and low frequency in Mofu-Gudur: **p** (21, 2.7%), **f** (25, 3.2%). Here are examples of verbs from his pages 125-139 bearing each of the final consonants in the table above. My characterization of meaning components are highly abbreviated from Barreteau's and where Barreteau provides polysemy, I have selected only the first specified meaning:

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<sup>37</sup> It is doubtful that **\*-la** is a reconstructable reflex of a remnant affix in West Chadic. Mofu, on the other hand, has probably inherited **\*-ra** < **-la** via a sound change **\*r** > **l**.



<b>c</b>	‘cut, pierce’	<b>t́rc</b>	‘cut har’
<b>t</b>	‘action on a surface’	<b>kwólt</b>	‘remove bark, crust’
<b>s</b>	‘crumble, crush’	<b>hwóms</b>	‘crush, crumble’
<b>w</b> <sup>38</sup>	‘do roughly, destroy’	<b>kósw</b>	‘plait badly’
<b>b</b>	‘be sticky’	<b>kwólb</b>	‘coat’
<b>h</b>	‘make incisions’	<b>ílh</b>	‘pierce a surface’
<b>ɫ</b>	‘step on, crush’	<b>bádɫ</b>	‘knock out’
<b>k</b>	‘detach, remove’	<b>pádk</b>	‘cleave’
<b>l</b>	‘gather, collect’	<b>cákwál</b>	‘pick (fruits) by shaking’
<b>r</b>	‘scratch’	<b>táhr</b>	‘plow, dig’
<b>ɖ</b>	‘put in’	<b>lórɖ</b>	‘enter with difficulty’

Although there is a correlation between the consonants found in remnant affixes in the West and Central branches, meaning correlations are questionable. Newman (2000:694) is explicit in saying that “the -CV suffixes...now function as semantically empty integral part of the verb”. Most of Barreteau’s characterization cover a broad range, in some cases with little in common. For example, his full characterization for **ɖ** is “(1) faire entre qqch. gros dans qqch. petit, tasser, presser, froisser, mâcher, écraser, allonger, élargir; (2) extraire, vider, arracher, retirer, fractionner, fendre; (3) rouler, enrouler, se replier”. One has the impression that there never has been a set of affixes with explicit functions, comparable to derivational affixes such as CAUSATIVES (§1.3) and VENTIVES (§3). As Jungrathmayr (1970a: 84) put it, these suffixes are morphemes whose origin “still lies in the dark of the yet unknown”.

### 4.3. East Branch

Ebobissé (1978) provides a list of 938 verbs in East Dangaleat (III.B.1.a) categorized by root structure, facilitating study of the distribution of consonants. I did not make exact counts of the number of verbs for each root structure, but the following figures will give

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<sup>38</sup> The glide **w** is well-represented in Mofu-Gudur. In the West Branch it is well-represented in the Bade group (I.B.1), e.g. W. Bade **màdūwu** ‘squeeze juice out’ (cf. **m̄dū** ‘knead’), **m̄cūcūwu** ‘suck’ (cf. **m̄cīyu** ‘make a sucking sound in annoyance’), though not in Hausa (I.A.1) or the Bole-Tangale group (I.A.2).

an idea of distribution of root types: there are 8 monoradical verbs, 11.5 pages of biradical verbs (CVCV, CVVCV), 11 pages of triradical verbs (CVCCV, CVCVCV, CVVCVCV), 7 pages of quadriradical verbs of various configurations, and 3 quinquiradical verbs. In order to keep things under control, I focus on the distribution of consonants in 283 triradical verbs: 121 CVCCV verbs and 162 CVCVCV verbs.<sup>39</sup>

Citing data from Ebobissé, Jungraithmayr (1985) has questioned the assertion of Newman (1977:20) that “...biradical [Chadic verbs are] the norm, monoradical [verbs ] are] less numerous but still quite common ..., and triradical [verbs are] rare ....” Looking first at biradical vs. triradical verbs, Jungraithmayr found 209 biradical verbs in Ebobisse’s lexicon vs. 397 triradical verbs—a preponderance of 65.52% triradicals.<sup>40</sup> What simply counting consonants does not reveal, however, is the distribution of the consonants themselves. Distribution of consonants in triradical verbs in West Chadic (§4.1) and Central Chadic (§4.2) does not show a random selections from the consonant inventory for C1, C2, and C3. Whereas the consonants appearing in C1 and C2 looks random, C3 tends to skew toward particular consonants.

In order to test whether this scenario would play out in East Chadic, I make counts of the specific consonants in positions C1, C2, and C3. To keep things under control, I counted consonants in the 283 triradicals from Ebobisse’s list—121 CVCCV verbs and 162 CVCVCV verbs. The table below shows the distribution of individual consonants in the respective positions:

**Table 10:** Root consonants in East Dangaleat verbs<sup>41</sup>

C	C1 CVCC	C1 CVCVC	C2 CVCC	C2 CVCVC	C3 CVCC	C3 CVCVC	Pct C1	Pct C2	Pct C3	
w	2	5	11	11			2.47%	7.77%	0.00%	

<sup>39</sup> Newman (1977) uses the terms *monoconsonantal* and *diconsonantal* in referring to verbs with one and two root consonants respectively, whereas Jungraithmayr (1983) uses *monoradical* and *biradical* respectively. To keep terminology consistent, I adopt Jungraithmayr’s terminology as being the standard in comparative Afroasiatic studies, substituting these terms where called for without comment.

<sup>40</sup> Counts from Mokilko, Mubi, Migama, and Bidiya reveal similar or greater preponderance of triradicals.

<sup>41</sup> [Editor’s note: Some of the cells in the table contain colored fonts, the significance of which is not evident. I have left them as found in the original.]

ḅ	3		2	3		1	1.06%	1.77%	0.35%	
ṭ			7	4		1	0.00%	3.89%	0.35%	
z	4	3	1	3	1		2.47%	1.41%	0.35%	
d	8	14	1	15	2		7.77%	5.65%	0.71%	
b	6	8		11	4		4.95%	3.89%	1.41%	
dy	3	3		2	4		2.12%	0.71%	1.41%	y
ṅ	1	1	1	2	1	4	0.71%	1.06%	1.77%	
t	7	10	2	9	8		6.01%	3.89%	2.83%	
dṽ	1	2		5	6	3	1.06%	1.77%	3.18%	y
n	4	8	7	1	3	7	4.24%	2.83%	3.53%	
ty	1	4	2	6	9	2	1.77%	2.83%	3.89%	y
m	2	2	4	8	4	8	1.41%	4.24%	4.24%	
p	5	6	6	9	12	1	3.89%	5.30%	4.59%	
g	8	12		17	12	2	7.07%	6.01%	4.95%	
s	14	13	1	11	13	1	9.54%	4.24%	4.95%	
k	15	16	2	26	14	2	10.95%	9.89%	5.65%	
ḏ	3	4	5	5	10	7	2.47%	3.53%	6.01%	
ny	1	1	1	1	8	10	0.71%	0.71%	6.36%	y
y	3		5	3	1	24	1.06%	2.83%	8.83%	
l		3	19	6	5	35	1.06%	8.83%	14.13%	
r	1	6	49	4	4	54	2.47%	18.73%	20.49%	
#V s	121	162	126	162	121	162	75.27%	101.77%	100.00%	

The distribution is far from random: **l** and **r** together account for over 34% of C3 whereas they account for only about 3.5% of C1.<sup>42</sup> Five consonants (**k**, **ḏ**, **ny**, **y**, **l**, **r**) account for 61.5% of C3. Aside from **ny**, these are consonants that also have relatively high frequency as C3 in West and Central languages, which is consistent with the hypothesis that they are not originally root consonants, but are reflexes of a limited number of erstwhile affixes. Conversely, there are consonants that are relatively common

<sup>42</sup> Together, they do account for a relatively high 27% of C2.

as C1 and C2, but much less so as C3, e.g. **b**, **d**, **t**. In short, the East Dangaleat data is consistent with a reconstruction of a preponderance of biradical basic roots with triradicalism, from a historical perspective, being, largely derived.

Most of Jungraithmayr (1983) is devoted to questioning reconstruction of monoradical roots as basic to the Proto-Chadic lexicon. The evidence for reconstructing monoradical roots is uncontroversial. Languages in every branch of Chadic have monoradical verbs. Nearly all the monoradical East Dangaleat verbs Ebobissé (1979) have monoradical cognates throughout Chadic, e.g. ‘drink’: East Dangaleat (III.B.1.a) **se-ŋ**, Kera (III.A.3) **se**, Bura (II.A.2) **sa**, Podoko (II.A.4) **sa**, Tera (II.A1.) **za**, Bole (I.A.2.a) **sā**, Miya (I.B.2.A) **sa**, Hausa (I.A) **shā**. It would be remarkable if these languages—genetically and geographically distant from each—other, independently converged to develop *\*sV-* (in most cases *\*sa* roots) from multiconsonantal forms. Forms like Mubi (Jungraithmayr 2013) **tii/tiyá/túwáà** are suffixed forms with epenthetic glides preventing vowel hiatus. East Chadic languages generally mark TAMs with suffixes added to root, as in Dangaleat (Chapter 6:§ 2.2.4), sometimes blending with the vowel of the root, giving the impression of biconsonantalism.

## 5. Summary of the Sources and Development of Verbal Extensions

In this chapter, the term “verbal extension” is used to refer to verbal affixes that function other than as markers of lexical verbal class, agreement morphology, or TAM marking, topics covered in Chapter 6. This section summarizes three functional categories of such affixes and, where possible, reconstructs them.

### 5.1. Affixes related to syntax

Section 1 discusses extensions relating to syntactic structure and interpretation of verbs as they formally relate to syntax. Valency changing morphology adds or decreases the number of arguments that a verb may take.

CAUSATIVE morphology (§1.3) adds an argument, by far the most common function being to change an unaccusative base to a transitive, e.g. Podoko **ndza** ‘sit, remain’, **njə-dá-lu njé** ‘seat’. A CAUSATIVE suffix *\*da* can be reconstructed for at least the West and Central branches. Overt marking of intransitivity is fairly widespread. One

manifestation is the INTRANSITIVE COPY PRONOUNS (ICP), §1.2, which is obligatorily affixed to (a subset of) intransitive verbs in some languages. Some languages have morphology to detransitivize a basic transitive stem (§1.4), e.g. Ngizim **ɣ̀əm̀tu** ‘spoil, ruin’, **ɣ̀əm̀àtu** ‘become spoiled, damaged’. Cross-linguistically, PASSIVE is a valence changing process, but no Chadic language, to my knowledge, has either PASSIVE verb morphology or a PASSIVE syntactic process. Semantic reading comparable to PASSIVE is always expressed by active verbal constructions of various types, among them being impersonal subject pronouns, such as French *on* or German *man* or expressions similar to impersonal *they* in English.

An extension referred to as the TOTALITY extension (§2.1), found in languages of at least the West and Central branches, indicates that an action is thoroughly done, typically affecting the totality of objects of a transitive verb, e.g. Ngizim **na kiidə-naa luwai** ‘I ate up the meat (cf. **na kiidə luwai** ‘I ate some meat’). There is good evidence for reconstructing \*n as marking TOTALITY. In West Chadic, the distribution of TOTALITY morphology suggests that it has a function to mark *auxiliary focus*, i.e. focus on the verbal event itself in the absence of another locus of focus, such as a questioned constituent or negation. There is some evidence for a similar function in at least Podoko in Central Chadic.

## 5.2. Locative and directional extensions

Languages in all branches of Chadic have affixal morphology related to direction of movement or location of activity. In languages of the West and East branches, the main or only directional/locative extension is the VENTIVE (§3), an extension indicating that an event was initiated at place different from the affected point of reference, e.g. Hausa **zân tambayoo sù** ‘I will ask them (and come with an answer)’ (cf. **zân tàmbàyee sù** ‘I will ask them’). There are at least two reconstructable allomorphs, \*n and \*w. In modern languages, the VENTIVE often has a benefactive sense, e.g. Margi **ɲà-rì** ‘to call a person for a person’ (cf. **ɲà** ‘call’). An ITIVE extension, showing action moving away is found in some East Branch languages (§3.3).

Central languages spoken in northeastern Cameroon and northwestern Nigeria along the Cameroon border have developed elaborate systems of extensions expressing location

and direction (§3.2). Many, if not most, extensions in languages with elaborate extension systems are idiosyncratic to those languages, but it is possible to identify a number of recurrent ones where one can identify plausible Proto-Chadic and/or proto-Central etymons. Here are a few. I present them as single consonants without committing to level of reconstruction, exact meaning, or distribution of the languages discussed: **b/w** ‘come, go’, often marking ventive; **s** ‘come’; **d** ‘go’; **f/p** ‘put’, often marking “down”; **n** ‘go, come’, found in West Chadic as a verb, but in Central usually as a preposition or simple an extension; **ha/xa** ‘place’, or possibly home, one’s area or land; **m** ‘mouth’, which adds various meanings idiosyncratic meanings depending on the language; possibly **gw/kw** ‘belly’, associated with ‘in, into’.

### 5.3. Remnant affixes

In all branches of the Chadic family it is possible to document the historical extension of verb bases by addition of what we are calling *remnant affixes* that now “function as a semantically empty, integral part of the verb” (Newman 1977). These can be recognized in two primary ways: (1) in some cases, the affixes add a semantic component to simpler bases; (2) more commonly, final consonants of longish verbs skew toward particular consonants rather than coming from a random selection of the full consonant inventory, leading to a hypothesis that these consonants are associated with a limited set of *morphemes* rather than being otherwise meaningless *phonemes*.

Of comparative Chadic interest is the fact that largely the same inventory of consonants is associated with remnant affixes from Chadic branch to branch. Among them are **r**, **l**, **y**, **k**, **t**, **s**, **ɬ**, **ɗ**, and maybe **w**, **m**, and **ɓ**. Of perhaps equal interest are the consonants that figure among those that are rarely if every identified as candidates for remnant affixes. These include the labials **p**, **b**, **f**, **v**, and voiced obstruents in general, which can be contrasted with their voiceless counterparts at the same places of articulation: **d**, **g**,<sup>43</sup> **z**, **ʒ**.

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<sup>43</sup> Newman (2000) includes **g** as one of the consonants associated with remnant affixes in Hausa, but its status is questionable as a remnant affix, and in Bade (see table in §4.1) **g** is low frequency in C3.

## 6. Ngamo

Ngamo has four types of morphological expression that can be grouped under the heading “extensions”: *causative*, *ventive*, *totality*, and *additive*. In terms of function and rules of morphological formation, however, these do not comprise a unified group. Verbs formed by *causative* morphology must be listed as lexical items separate from their bases. *Ventive* morphology would be classified as “derivational” by most criteria (it creates stems that are then inflected for TAMs, ventive meaning is typical of derivation rather than inflection), but ventive stem formation is 100% productive in form and meaning, hence ventive stems would not be listed in a lexicon separate from their bases. *Totality* and *additive* extensions have primarily inflectional rather than derivational characteristics. They are subject to various syntactic conditions and restrictions, and they interact morphologically with other inflectional morphemes, esp. pronoun clitics.

### 6.1. Causative

CAUSATIVE derived verbs are formed by a suffix **-t-** added to a base. Unequivocal causatives are all transitive verbs derived from intransitive bases, i.e. Ngamo does not use causative derivation to add arguments to transitive verbs. Pairs of transitive verbs that can have an affected patient as subject or indirect object either use the root in the same form in both functions (e.g. ‘learn’ vs. ‘teach’) or use unrelated roots (e.g. ‘buy’ vs. ‘sell’, ‘go out’ vs. ‘take out’):

[Yaya dialect]<sup>44</sup> **nì shùtî-n-ko-tî, si ke shùtî-t-kò**      ‘I taught him and he learned’

**Sàuna kàja sòtò** vs.      **àn bo’ota sòtò bò’ota sòtò kì Sàunâ**

‘Sauna bought bean cakes’      ‘the bean cake seller sold bean cakes to Sauna’

**hâtâ**      ‘he went out’ vs.      **hò’ò-kô /hòd-kô/**      ‘he took (it) out’

Most verb roots that can be used intransitively or transitively take no morphological causative marking. This is particularly the case for verbs with non-active patients where the result of the action leaves the patient in a resultant state (*unaccusative* verbs).

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<sup>44</sup> Gudi uses the same root (**shüt-**) and it is glossed as both ‘teach’ and ‘learn’ in the lexicon, but I seem to have no Gudi examples in the two contexts.

<b>zòrì <u>bat</u>-kô</b>	‘the rope <u>broke</u> ’
<b>nè <u>bat</u>-ko-k zòrì</b>	‘I <u>broke</u> the rope’
<b>gyàbì <u>fòy</u>-in-nî</b>	‘the pot <u>broke</u> ’
<b>nè <u>foi</u>-ko-k gyàbì</b>	‘I <u>broke</u> the pot’

**Ham, na huk-in-ni elii, ishe worshi bu.**

‘Water, if it spills on the ground, it is not possible to collect it back up.’

**Ngoi, na huk-e-no zumennoi, ne huk-e-ni yedini.**

‘Someone, if he pours out my *kunu* on me, let me pour out his milk on him.’

Because of these limitations on the use of causative marking, it turns out to not be lexically particularly common. I did not explicitly check its productivity, but in a lexicon containing nearly 650 verbs, only 14 transitive **-t**-derived verbs are transparently related to existing intransitives. There are, however, 25 or so additional verbs of interest that have a **-t**- suffix. I give representative examples of each type in the table below:

**Table 11:** Ngamo CAUSATIVES with related intransitives

<b>màtâ</b>	repeat; transform	<b>mâ</b>	go back; turn into
<b>ďâtâ</b>	put onto, lift onto	<b>ďâ</b>	climb, mount
<b>ùrtâ</b>	take down a load	<b>ùr-kô</b>	get down, descend
<b>gòmâtâ</b>	join, put together	<b>gòm-kô</b>	meet, come together
<b>kòltâ</b>	heat up	<b>kòl-kô</b>	be hot
<b>gànd âtâ</b>	lay down	<b>gàndâ</b>	lie down
<b>bùnkâtâ</b>	hide (tr.)	<b>bùnkâ</b>	hide (intr.)

**-t-** SUFFIX, NO INTRANSITIVE COUNTERPART WITHOUT SUFFIX

<b>làktâ</b>	scatter, disperse (intr., tr.)		
<b>yàbtâ</b>	spoil, ruin (intr., tr.)		



<b>dòltâ</b>	drip; pour in drops		
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## VERBS DERIVED FROM NOUNS

<b>dèitâ</b>	tend animals	<b>dèyì</b>	grazing, foraging
<b>yìntâ</b>	care for a sick person	<b>yìnô</b>	nursing a sick person
<b>mùrtâ</b>	cause problems	<b>mùrè</b>	poverty

Most verbs in first group represent the canonical function of the **-t-** transitivity suffix, viz. converting *unergative* intransitives to transitives (the one exception being **kòltâ/kòl-kô** ‘heat up/be hot’). Since addition of the causativizing suffix adds a consonant to the stem, causativized A1 verbs become lexical Class A2, i.e. verbs whose stems are longer than CvC- (v = short vowel).

The second group comprises verbs that appear to have the **-t-** suffix, but which can be used either intransitively or transitively and have no counterpart roots (in current data) without **-t-**.<sup>45</sup> Note that the second and third examples, and arguably the first, are like ‘break (rope)’, ‘break (pot)’, ‘spill/pour’ cited above, where the non-active patient is transformed by the action. Comparative data from Bole suggest that use of the **-t-** transitivity suffix with such verbs has been sporadic. Most do not use the transitivity suffix in transitive uses, a small number do use the transitivity suffix (**kòltâ/kòl-kô** ‘heat up/be hot’), and some have been lexicalized with the originally transitivity suffix (the second group in the table).

In the third group, **-t-** turns a *noun* that represents an activity or a state into a transitive verb. The functional similarity between  $\text{NOUN} \rightarrow V_{\text{TRANSITIVE}}$  and  $V_{\text{INTRANSITIVE}} \rightarrow V_{\text{TRANSITIVE}}$  is obvious, and in modern Ngamo, it would seem reasonable to have a single suffix, /t/\_{\text{TRANSITIZER}} suffix that could operate on either verbs or nouns. Comparative evidence, however, suggests that this represents syncretism of historically separate

<sup>45</sup> Bole has a verb **jàbbu** ‘be spoiled; spoil’, which probably comes from the **yàb-** root of Ngamo, but without the **-t-** suffix. Like Ngamo **làktâ** ‘disperse (intr., tr.)’, the Bole cognate, **lèkitu**, has the **-t-** suffix and can be used both intransitively and transitively. I have not found a cognate for Ngamo **dòltâ**.

suffixes. In both Hausa and the Bade-Ngizim languages, the transitivizing suffix is **-d-**, but the NOUN → VERB derivational suffix is **-t-**, e.g. Hausa **tsayà** ‘stop’ → **tsai-dà** ‘bring to a stop’, but **tsòrò** ‘fear’ (N) → **tsòr-àt-ā** ‘frighten’. This **\*d** “transitivizer” vs. **\*t** “verbalizer” distinction must be the reconstructed situation, since it is unlikely that Bade-Ngizim and Hausa, which are only distantly related, would have innovated such a distinction independently. The path for the distinct suffixes to have fallen together syncretically is the similarity in function, alluded to just above, and the phonological similarity (alveolar stops differing only in voice). As far as I can tell, this innovation has affected only the “northern” Bole-Tangale languages: Karekare, Ngamo, and Bole.<sup>46</sup> This innovation parallels an apparently related innovation in these languages, viz. the development of an *additive* extension, marked by **/-d-/** (§2.4), also exclusive to Yobe State Chadic languages. The source of this extension may, in turn, be the historical causativizing **\*d** suffix.

## 6.2. Ventive

Ngamo has a completely productive process of *ventive* stem formation, i.e. stems that represent an act that was initiated at a point remote from a place of reference (generally the location of the speaker) with effect at the point of reference.

**Dakarak badī nzuni hete riya.**

‘On the next day they went out<sub>SUBJUNCTIVE</sub> into the bush.’

**Badī wuya, sai shapsu hete-tu a ramte zugonsu.**

‘When night ended, both of them came out<sub>VENTIVE SUBJUNCTIVE</sub> and readied themselves.’

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<sup>46</sup> Data from Tangale (Jungraithmayr 1991) and Kanakuru (Newman 1974) reveal nothing like this situation. In fact, I can find nothing at all in these references suggesting the use of alveolar stop suffixes for either causativization or NOUN → VERB derivation. Miya (Schuh 1998) has a suffix **-ay**, which transitivizes intransitives. A couple of equivocal examples in available data suggest that **-ay** also forms verbs. However, in Miya we cannot tell whether these are or are not reflexes of different suffixes, since non-initial **\*d** and **\*t** have both become **-y-** in certain environments.

**Si me turum ko ki tomiya, na duko lu, a anshe ta, “I! Ne dukko!”<sup>47</sup>**

‘He, the lion, at any time, if he kills<sub>PERFECTIVE</sub> an animal, he says, “Hooray! I have killed<sub>PERFECTIVE</sub> it!”’

**Bolo si kullum, a duk-no milla bidanshe’e, a ndishe a ishe luma banonni,**

‘Moreover he always, when he killed<sub>VENTIVE PERFECTIVE</sub> the monkey children, he would come and make *miya* at his house.’

The first two examples contrast non-ventive and ventive uses of the motion verb **hàtâ** ‘exit’. In the first, the perspective is the place from which the participants left, in the second, it is from outside the house from which they exited. The second pair contrasts non-ventive and ventive uses of **dùkô** ‘kill’. The first takes no particular perspective about the location of killing. The second might be translated “kills and brings”, i.e. the killing took place with the intention of bringing the spoils. Note that **a ndishe**, from the root **ndu-** ‘go/come’, is translated ‘comes’ and context shows that it involves motion toward the place of reference, but the verb is not ventive in form. The verb is in the Habitual TAM, which, as noted elsewhere, is not compatible with a morphologically ventive stem.

The ventive is marked by suppletive morphemes and morpheme alternates conditioned by TAM and by the presence of pronominal suffixes. As a baseline, Table 1 (Ngamo) shows a verb in each verb class and in each TAM in three environments: Ø object, 3<sup>rd</sup> singular feminine indirect object (‘to her’), and 3<sup>rd</sup> singular feminine direct object (‘her’). Except for verbs with the *totality* extension, the DO forms in the table are used with noun as well as pronoun objects. I will refer to this table in discussing the *ventive*, the *totality*, and the *additive*.<sup>48</sup>

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<sup>47</sup> I have written “**ne dukko**” as it appears in the transcription of the folktale from which this example comes. This is probably a transcription error or a typo. The root is **duk-** and **-ko** is the Perfective suffix. This should surface as **ne duko**, as it does in the preceding clause.

<sup>48</sup> In discussing morphological form, I will say little or nothing about tone. Gudi Ngamo, as noted elsewhere (Chapter 5), has undergone the Great Ngamo Tone Shift (GNTS), which has displaced original tonal domains to the right. This has greatly complicated the comparative tonal picture with what amounts to low level details of minimal interest in the bigger picture.

**Table 12:** Ngamo unextended verbs in all TAMs

CL.	OBJ	PERFECT.	SUBJUNC.	FUTURE	HABITUAL	SG. IMP.	
A1	Ø	<b>ngàrkô</b>	<b>à ngàrí</b>	<b>à ngarâi</b>	<b>à ngàrshê</b>	<b>ngàrí</b>	‘tie’
	DO	<b>ngàrko tê</b>	<b>à ngàr tê</b>	<b>à ngara tê</b>	<b>à ngàrshè tê</b>	<b>ngàr tê</b>	
	IO	<b>ngàrtò</b>	<b>à ngàrtò</b>	<b>à ngartò</b>	<b>à ngàrshentò</b>	<b>ngàrtò</b>	
A2	Ø	<b>biskâ</b>	<b>à biskê</b>	<b>à biskà</b>	<b>à biskà</b>	<b>biskî</b>	‘accept’
	DO	<b>biska tê</b>	<b>à biskè tê</b>	<b>à biskà tê</b>	<b>à biskà tê</b>	<b>biskî tê</b>	
	IO	<b>biskètò</b>	<b>à biskètò</b>	<b>à biskètò</b>	<b>à biskantò</b>	<b>biskètò</b>	
B	Ø	<b>bàsâ</b>	<b>à bèsê</b>	<b>à besè</b>	<b>à bèsê</b>	<b>bisì</b>	‘shoot’
	DO	<b>bàsa tê</b>	<b>à bèsè tê</b>	<b>à besè tê</b>	<b>à bèsè tê</b>	<b>bisì tê</b>	
	IO	<b>bèsètò</b>	<b>à bèsètò</b>	<b>à besètò</b>	<b>à bèsentò</b>	<b>bèsètò</b>	
C	Ø	<b>yùkô</b>	<b>à yôi</b>	<b>à yìnà</b>	<b>à yìshê</b>	<b>yûi</b>	‘poke’
	DO	<b>yùko tê</b>	<b>à yò tê</b>	<b>à yìna tê</b>	<b>à yìshè tê</b>	<b>yù tê</b>	
	IO	<b>yìtò</b>	<b>à yìtò</b>	<b>à yītò</b>	<b>à yìhentò</b>	<b>yìtò</b>	
D	Ø	<b>wâ</b>	<b>à wê</b>	<b>à wènà</b>	<b>à wèshê</b>	<b>wî</b>	‘get’
	DO	<b>wa tê</b>	<b>à wè tê</b>	<b>à wèna tê</b>	<b>à wèshè tê</b>	<b>wì tê</b>	
	IO	<b>wètò</b>	<b>à wètò</b>	<b>à wētò</b>	<b>à wèshentò</b>	<b>wètò</b>	

Here are the same verbs with the *ventive* extension:

**Table 13:** Ngamo VENTIVE extension in all TAMs

CL.	OBJ	PERFECT.	SUBJUNC.	FUTURE	HABIT.	SG. IMP.	
A1	Ø	<b>ngàrnô</b>	<b>à ngàrtû</b>	<b>à ngàrtû</b>	(no ventive, see above)	<b>ngàrtî</b>	'tie'
	DO	<b>ngàrno tê</b>	<b>à ngàrtu tê</b>	<b>à ngàrtu tê</b>		<b>ngàrti tê</b>	
	IO	<b>ngàrintò</b>	<b>à ngàritò</b>	<b>à ngàritò</b>		<b>ngàritô</b>	
A2	Ø	<b>biskênô</b>	<b>à biskètû</b>	<b>à biskètû</b>		<b>biskètî</b>	'accept'
	DO	<b>biskèno tê</b>	<b>à biskètu tê</b>	<b>à biskètu tê</b>		<b>biskèti tê</b>	
	IO	<b>biskèntò</b>	<b>à biskètò</b>	<b>à biskètò</b>		<b>biskètô</b>	
B	Ø	<b>bèsènô</b>	<b>à bèsètû</b>	<b>à besètû</b>		<b>bèsètî</b>	'shoot'
	DO	<b>bèsèno tê</b>	<b>à bèsètu tê</b>	<b>à besètu tê</b>		<b>bèsèti tê</b>	
	IO	<b>bèsèntò</b>	<b>à bèsètò</b>	<b>à besètò</b>		<b>bèsètô</b>	
C	Ø	<b>yănô</b>	<b>à yîtû</b>	<b>à yîtû</b>		<b>yûtû</b>	'poke'
	DO	<b>yāno tê</b>	<b>à yîtu tê</b>	<b>à yîtu tê</b>		<b>yîti tê</b>	
	IO	<b>yìntò</b>	<b>à yītò</b>	<b>à yītò</b>		<b>yītô</b>	
D	Ø	<b>wènô</b>	<b>à wètû</b>	<b>à wètû</b>		<b>wètî</b>	'get'
	DO	<b>wèno tê</b>	<b>à wètu tê</b>	<b>à wètu tê</b>		<b>wèti tê</b>	
	IO	<b>wèni</b>	<b>à wètò</b>	<b>à wètò</b>		<b>wètô</b>	

The VENTIVE has two suppletive allomorphs: /n(u)/ in the Perfective, /tu/ elsewhere. The ventive morpheme is always next to the verb stem and any inflectional affixes follow it. Phonologically conditioned variants of these base allomorphs result from addition of inflectional affixes. Here are some underlying and surface forms of some A1 verbs where the surface forms are at variance from what might be expected simply by affixes the base allomorphs. Other verb classes undergo parallel phonological processes:

- (1) PERFECT., Ø OBJ.: /ngàr-nu-kô/ → [ngàr-nô]
- (2) a. PERFECT., 3<sup>RD</sup> F.S. IO: /ngàr-n-tò/ → [ngàr-i-n-tò]  
 b. PERFECT., 3<sup>RD</sup> M.S. IO: /ngàr-n-nì/ → [ngàr-ī-nì]
- (3) PERFECT., PL. SUBJ.: /ngàr-àn-nu-kô/ → [ngàr-à-nô]
- (4) a. SUBJUNC., 3<sup>RD</sup> F.S. IO: /à ngàri-t-tò/ → [à ngàr-ī-tò]  
 b. SUBJUNC., 3<sup>RD</sup> F.S. IO: /à ngàri-t-nì/ → [à ngàri-n-nì]

The parenthesized (**u**) of the Perfective allomorph /n(u)/ never shows up, but I have included it to account for the Ø object ventive suffix **-nô** in the Perfective in (1). I am assuming that this is the same conflation of the Perfective suffix **-ko** with stem-final vowels in other Perfectives, e.g. in the Class B unextended verb **bàsâ** < \***bàsa-kò** ‘he shot’. Before other suffixes, this (**u**) is elided. The **-u** of the “elsewhere” allomorph /tu/ is also elided when a suffix is added, as in (3-4), but it does show up when it is stem final.

Other allomorphs of the ventive can be accounted for by two phonological rules:

DEGEMINATION + LENGTHENING:  $V_i C_i - C_j V \rightarrow V_i V_i - C_j V$

where  $C_i$  and  $C_j$  are “sufficiently similar”

/t/ ASSIMILATION: /t/ → [n] / \_\_ -[+nasal]

(optional) →  $C_i / \_ - C_i$  ( $C_i \neq [+nasal]$ )

DEGEMINATION + LENGTHENING states that when two consonants are “sufficiently similar” and come together across an affix boundary, the first is deleted, with compensatory lengthening of the preceding vowel. This process is described in detail in Schuh (2005a). For our purposes, we can say that two nasals are “sufficiently similar” as are two [+coronal, -voice] obstruents. In (2a), an **-i-** is epenthesized to break up the cluster /-rnt-/, and the [n] allomorph of the Perfective ventive appears before the **t** of the suffix pronoun **-tò**, but in (2b), where the IO pronoun begins in a nasal, the rule operates (cf. /ngàr-n-mù/ → EPENTHESIS → ngàr-i-n-mù → [ngàr-ī-mù] ‘he tied and brought for

us’). This rule also applies in the Perfective with a plural subject, which requires a suffix **-an-**, as in (3).<sup>49</sup>

In (4a), we see the DEGEMINATION + LENGTHENING rule operating when the /t/ allomorph of the ventive comes before the **t** of the suffix **-tò**.<sup>50</sup> In (4b), the /t/ ventive precedes **n** of the suffix **-nì**. These consonants are not “sufficiently similar” enough to form an environment for the rule. However, /t/ ASSIMILATION comes into play, so that /à ngàri-t-nì / → [à ngàri-n-nì] ‘that he tie and bring for him’, with a surface sequence [in-ni], which is exactly the input for DEGEMINATION + LENGTHENING! Such surface *opacity* is handled in standard linear generative phonology by applying the rules in counter-feeding order, DEGEMINATION + LENGTHENING >> /t/ ASSIMILATION.

There are a few further remarks worth making. First, interactions with the ventive show that IO pronouns, but not DO pronouns, are inflectional suffixes. In the Perfective, the morpheme order is VERB STEM-VENTIVE-PERFECTIVE DO (/ngàr-nu-ko têt/ → [ngàrno têt]) but VERB STEM-VENTIVE-IO (/ngàr-n-tò/ → [ngàr-i-n-tò]), with the IO pronoun actually preempting the Perfective suffix. Likewise, the phonological processes described above, which apply across affix boundaries but not word boundaries, apply only between the ventive suffixes and IO pronouns.

Second is the question of why there are two suppletive ventive suffixes. The answer must be that the two base allomorphs /n(u)/ and /tu/ were originally separate morphemes with different functions. All the Bole-Tangale languages that have a ventive at all have basically the same suppletion and distribution, so evidence for the sources will have to come from outside this group. So far no such evidence is available.<sup>51</sup>

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<sup>49</sup> When a Perfective verb in the ventive has both a plural subject and an indirect object suffix, the plural subject suffix is suppressed, e.g. (nzùni) ngàr-i-n-tò ‘they tied and brought for her’, not \*(nzùni) ngàr-àn-n-tò/ → \*(nzùni) ngàr-à-n-tò], with automatic shortening of the compensatorily lengthened vowel in a closed syllable. This form would be homophonous with the non-ventive with a plural subject, so it may be that plural subject marking is sacrificed in order to preserve ventive marking.

<sup>50</sup> I am assuming that the **-i** preceding the ventive allomorph is a Subjunctive stem vowel, though it could be epenthetic as in the Perfective.

<sup>51</sup> The Bade-Ngizim group has ventives, but this group, too, has TAM-conditioned suppletion, which is different from that of Bole-Tangale! One of the Bade-Ngizim allomorphs is /n/, clearly cognate with the Bole-Tangale form, but its distribution is different from that in Bole-Tangale.

Finally, it seems worth pointing out that Class B and D verbs (those with **-a** stem vowels in the Perfective), have front vowels in their ventive forms, even though the ventive morphemes themselves do not include front vowels—arguably no vowels at all. This is reminiscent of Gude, where a primary feature of ventives is morphological palatalization of roots.

### 6.3. Totality

#### 6.3.1. Totality form

Below is a table of verbs bearing the TOTALITY extension. These should be compared to the unextended verbs in Ngamo illustrated in Table 12.

**Table 14:** Ngamo TOTALITY extended verbs in all TAMs

CL.	OBJ	PERFECT.	SUBJUNC.	FUTURE	HABITUAL	SG. IMP.	
A1	Ø	<b>ngarkò</b>	<b>à ngàrtì</b>	<b>à ngartì</b>	<b>à ngàrshenti</b>	<b>ngàrtì</b>	‘tie’
	DO	<b>ngàrintô</b>	<b>à ngàrintò</b>	<b>à ngarintò</b>	<b>à ngàrshentò</b>	<b>ngàrintò</b>	
	IO	<b>ngàrtòtí</b>	<b>à ngàrtòtí</b>	<b>à ngartòtí</b>	<b>à ngàrshentòtí</b>	<b>ngàrtòtí</b>	
A2	Ø	<b>biskitkò</b>	<b>à biskití</b>	<b>à biskití</b>	<b>à biskanti</b>	<b>biskití</b>	‘accept’
	DO	<b>biskintô</b>	<b>à biskintò</b>	<b>à biskintò</b>	<b>à biskantò</b>	<b>biskintò</b>	
	IO	<b>biskètòtí</b>	<b>à biskètòtí</b>	<b>à biskètòtí</b>	<b>à biskantòtí</b>	<b>biskètòtí</b>	
B	Ø	<b>bàsatkò</b>	<b>à bàsàtí</b>	<b>à basàtí</b>	<b>à bèsentì</b>	<b>bisìtí</b>	‘shoot’
	DO	<b>bàsantô</b>	<b>à bàsàntò</b>	<b>à basàntò</b>	<b>à bèsentò</b>	<b>bisintò</b>	
	IO	<b>bèsètòtí</b>	<b>à bèsètòtí</b>	<b>à besètòtí</b>	<b>à bèsentòtí</b>	<b>bèsètòtí</b>	
C	Ø	<b>yutkò</b>	<b>à yùtí</b>	<b>à yūtì</b>	<b>à yìshenti</b>	<b>yùtí</b>	‘poke’
	DO	<b>yintô</b>	<b>à yùntò</b>	<b>à yuntò</b>	<b>à yìshentò</b>	<b>yuntò</b>	
	IO	<b>yitòtí</b>	<b>à yitòtí</b>	<b>à yītòtí</b>	<b>à yī-shentòtí</b>	<b>yitòtí</b>	
D	Ø	<b>watkò</b>	<b>à wātí</b>	<b>à wātí</b>	<b>à wèshenti</b>	<b>wití</b>	‘get’



	DO	<b>wantô</b>	<b>à wàntò</b>	<b>à wantò</b>	<b>à wèshentò</b>	<b>wintò</b>	
	IO	<b>wètôfí</b>	<b>à wètôfí</b>	<b>à wētôfí</b>	<b>à wèshentôfí</b>	<b>wètôfí</b>	

With noun direct objects, totality-extended verbs use the  $\emptyset$  object form with a cliticized **-k**: Perfective **ngarko-k tèmshì**, Subjunctive **à ngàrti-k tèmshì**, Future **à ngàrti-k tèmshì**, Habitual **à ngàrshenti-k tèmshì** ‘he tied/might tie/will tie/ties a sheep’. All other verbs, extended and unextended, use the same form for pronoun and noun direct objects.

The totality extension has two suppletive and mutually exclusive allomorphs:

**/n/**:<sup>52</sup> affixed to all verb stems before pronoun direct objects, e.g. Perfective **ngàrintô**

**/ti/** elsewhere: → [t] /V\_\_-SUFFIX (**bàsatkò**)

→  $\emptyset$  /C\_\_-SUFFIX (**ngar $\emptyset$ kò**)

→ [ti] word final

Only two kinds of suffixes can follow the **/ti/** allomorph: Perfective **-ko** and Intransitive Copy Pronouns (ICP). ICPs are found in a number of Chadic languages. In some languages, such as Kanakuru (Newman 1974) and Miya (Schuh 1998), they are obligatory suffixes to intransitive verbs, but in Ngamo (also Karekare and Bole), the ICP can be used *if and only if* the totality is also used. Here is the ICP paradigm in the Perfective and the Subjunctive with the Class A2 verb **hìndâ** ‘stand up’:

<sup>52</sup> As shown in Chapter 6, §4.3.4, stems of Ngamo verbs in the Habitual add **-n-** before any suffix. Since there will always be at least one suffix on verbs bearing the totality extension, all Habitual verbs with this extension have a stem ending in **-n-**. A Habitual totality verb like **à ngàrshentò** ‘he ties her’ must be underlyingly **/à ngàr-she-n-n-tò/**, where the first **/-n-/** belongs to the Habitual stem and the second **/-n-/** is the “n” allomorph of the totality extension. Ngamo does not allow CCC clusters, so the **/-n-n-/** is reduced to **[-n-]**. This reduction takes place before the DEGEMINATION + LENGTHENING rule presented in §2.2, as shown when the DO pronoun begins in a nasal: **/à ngàr-she-n-n-ni/**, **/nn/** REDUCTION → **à ngàr-she-n-ni**, DEGEMINATION + LENGTHENING → **[à ngàr-shē-ni]** ‘he ties him’.

**Table 15:** Ngamo ICP paradigms

	PERFECTIVE		SUBJUNCTIVE	
	SINGULAR	PLURAL	SINGULAR	PLURAL
1	<b>nè hìndî-n-nô</b>	<b>mù hìndâ[n]-mû</b>	<b>nè hìndî-[n]-nò</b>	<b>mù hìndî-[n]-mù</b>
2 (m.)	<b>kò hìndî-t-kô</b>	<b>ngù hìndâ[n]-kû</b>	<b>kò hìndî-t-kò</b>	<b>ngù hìndî-t-kù</b>
2 (f.)	<b>shì hìndî-î-shî</b>		<b>shì hìndî-î-shî</b>	
3 (m.)	<b>hìndî-n-nì</b>	<b>hìndân-sû</b>	<b>à hìndî-n-nì</b>	<b>à hìndî-î-sù</b>
3 (f.)	<b>hìndî-î-tô</b>		<b>à hìndî-î-tò</b>	

The rules DEGEMINATION + LENGTHENING and /t/ ASSIMILATION needed for the allomorphs of the ventive in §2.2 also apply here: the /t/ of the ventive suffix is “sufficiently similar” to **sh**, **t**, and **s** to trigger the former rule with 2f, 3f, and 3pl ICPs; /t/ assimilates to **n** and **m**, triggering the latter rule with 1sg, 3m, and 1pl ICPs.<sup>53</sup> Note that the underlying alveolar place of articulation of /t/ shows up on the surface through non-assimilation of the output of /t/ ASSIMILATION to place of articulation of a following consonant, shown by the phonetic brackets in the table, e.g. **ngù hìndâ[n]-kû** ‘you (pl) stood up’. In a *root*-internal -NC- sequence, the N must always agree in point of articulation with the following C (there are words like [kùŋkâ] ‘insect’, but none like \*[kunka]). In the Perfective with plural subjects, there is a plural agreement suffix **-an-**, e.g. ‘you (pl.) stood up’ is underlying /ngù hìndî-an-t-kû/. The totality /t/ is suppressed because of the impossible -CCC- sequence, but its effect is present in the unassimilated nasal of the plural suffix **-an-**.

To summarize, the interaction of totality with post-verbal pronouns, there are three kinds of pronoun suffixes: DO, IO, ICP. With the totality extension they behave in distinct ways. DO is suffixed *after* the totality allomorph /n/ (**bìski-n-kô** ‘he accepted you (m.s.)’). ICP is suffixed *after* the totality allomorph /t/ (**kò hìndî-t-kô** ‘you stood up-you (m.s.)’). IO is suffixed directly to the TAM stem, *before* the totality allomorph /ti/

<sup>53</sup> Totality /t/ optionally assimilates to /k/ in 2m and 2pl ICPs, e.g. **kò hìndî-t-kô** = **kò hìndî-k-kô** ‘you (m.s.) stood up’

(**bìskè-kò-tí** ‘he accepted for you (m.s.)’). With DOs, both noun and pronoun, totality-marked verbs are unique: all other verbs forms treat DOs as external to the verb (there is no morphology marking noun DOs, and pronoun DOs are expressed as independent pronouns); totality marks noun DOs with a clitic **-k** (see above) and pronoun DOs are suffixes. With IOs, totality-marked verbs show, as pointed out elsewhere, that VERB+PRO IO forms a morphological IO stem, to which other affixes are added.

### 6.3.2. Totality function

The earliest use of “totality” for a verbal extension that I have been able to find is in Lukas (1971), where, in describing Bole, he applied the term *Totalitätserweiterung* to the morphological expression that is comparable to the Ngamo forms being described here.<sup>54</sup> The term “totality” implies that an action has been done to its logical conclusion or has been done to all objects.

(1) **A hado, a hado, bolo ha’ako-k zorik gam ye’e a bidā-ti-k gam ki ton zoris’e.**

‘He was chewing and chewing, and finally he chewed through that rope of the ram and unleased the ram from within the rope.’

(2) **nami a bidē lamba’i a ha’a-ti** ‘then he unwrapped the *lamba*, and ate it up’

(3) **Nduko njina roi’ye, sorom mati-n-ni a ho’yi-n-ni zugoni.**

‘When he went under the tree, *sorom* he died and dried up next to it [the tree].’

(4) **Biya esha sun ngoi matko ka’anni bu kaba ki “bo’oto”.**

‘People do not call the name of a person who has died directly, just with “the late”.’

Examples (1-2) contrast the verbs **hà’akô /hàḏkô/** ‘eat (something that has to be chewed), chew’ and **bidā** ‘release, untie, undo’ in unextended and totality-extended forms. In (1), ‘chew’ first indicates a progressive activity<sup>55</sup> followed by the same verb in a totality-extended Perfective, indicating that the act has been done to completion. In (2), the same verb with a totality-extended Subjunctive indicates complete eating. In (1), the totality-extended Perfective of ‘release’ indicates completion of freeing the ram. In (2),

<sup>54</sup> The two languages share cognate /t/ allomorphs, and functionally, the way they use totality morphology is identical.

<sup>55</sup> The verb form **hàḏò** is a derived verbal noun. This usage is an alternative to the inflectional Habitual TAM.

the unextended Subjunctive of the same verb is not laying stress on the completion of the unwrapping—indeed, the eating could have take place after only partially unwrapping.

Examples (3-4) show totality-extended intransitive verbs (as noted above, the totality with intransitives requires an ICP). The verb ‘die’, since, by its very meaning, signals “completion”, typically is totality-marked, as in (3). In (4), however, the verb is unextended. Here, as the English present perfect translation suggests, the interest is on the ongoing state of being dead, not on completion of an event. In (3), the verb ‘dry up’ is an intransitive marked for totality.

It is examples such as these that have led to use of the label “totality”. Likewise, in elicitation through Hausa, one can usually successfully elicit totality-marked forms with Hausa Grade 4 verbs (§5.3), of which Newman (2000:648) says, “...the action of the verb has affected the totality or multiplicity of the object(s) or has affected them in such a way as to emphasize the intensity or finality of the action.” These criteria are misleading, however, in that they fail to explain the full range of behaviors of totality-extended vs. non-totality extended verbs.

In Schuh (2005b), I argued that in Bole-Tangale and Bade-Ngizim languages of Yobe State, Nigeria, the so-called “totality” form is not a *derivational* extension that adds meaning to a verb stem, but rather is part of the *inflectional* system whose function is to mark AUXILIARY FOCUS (Hyman & Watters 1984), i.e. it shows focus as connected to the event indicated by the verb and its associated TAM. I here mention two types of evidence for this hypothesis: citation forms and syntactic environments that preclude use of totality-extended verbs.

Though, as noted above, Hausa Grade 4 will usually elicit a totality form in Ngamo, the correspondence is not symmetrical. In fact, both transitive and intransitive verbs in Ngamo more often than not are cited with totality morphology regardless of the form of the Hausa verb.<sup>56</sup> Also, when a speaker is asked to give the Hausa equivalent of a

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<sup>56</sup> It would be difficult to demonstrate this claim from my own field data, since my field notes were filtered through some knowledge of the language. The lists in Kraft (1981) do give us a way to confirm the claim, however. These lists were collected from dozens of Chadic languages by a team of field researchers who had no knowledge of the individual languages. They therefore had no choice but to write down exactly

totality-extended verb, the response will generally be the normal citation form of that verb in Hausa, not a Grade 4, e.g. if asked to translate **wa-t-kò** ‘he got<sub>TOTALITY</sub> (it)’, the response in Hausa would be **yā sāmù**, with the unmarked Hausa form, not Grade 4 **\*yā sāmè**. If Ngamo “totality” morphology marks auxiliary focus, it makes sense that this form would be the canonical citation form since it is the verb itself that is being focused!

A more important indicator that Ngamo totality is inflectional rather than derivational is syntactic environments where it is **DISALLOWED**. First, use of totality morphology in a *negative clause* results in ungrammaticality. Assuming that totality morphology does carry an implication of finality or completedness, certain verbs are virtually always used with totality morphology in affirmative clauses. This is the case, for example, with the verbs ‘kill’ and ‘die’, and most stative verbs prefer totality morphology. Such verbs can only be used with the unextended form in negative environments. The first example below describes a cultural belief, with verb ‘kill’ in both clauses, the first negative, the second affirmative (the TAM is Habitual in both clauses). The other sentence pairs contrast affirmative and negative clauses. Totality morphology in the negative clauses would be ungrammatical in all cases.

**Biya dukshe makunzu a bei kori bu baya a dukshentik kelu kori.**

‘People don’t kill a house snake on a farm because that kills the spirit of the farm.’

(YNg)<sup>57</sup> **mati-n-nu-kò** ‘he died’ **matkò bù** ‘he didn’t die’  
**mànō-ti Audù** ‘he knows Audu’ **màni Audù bù** ‘he doesn’t know Audu’

Second, totality morphology is disallowed in WH-questions. Examples (a-b) below show totality-extended verbs with a direct object noun and pronoun respectively. Examples (c-d) show comparable sentences with a questioned subject (postposed in Ngamo) and a questioned object (*in situ* in Ngamo) respectively. Use of totality morphology in both cases results in ungrammaticality.

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what their informants said. In the Ngamo list of 81 verbs, 62 transitive verbs were cited with totality morphology and only 3 without, and all 16 intransitive verbs were cited with totality morphology.

<sup>57</sup> These examples are from the Yaya dialect. I seem not to have elicited comparable examples from Gudi.

a.	Totality+N DO	<b>moiko-k tèmshi</b>	‘he saw a sheep’	
		(unex.) <b>mòiko tèmshi</b>		
b.	Totality+pro DO	<b>mòyi-n-kó</b>	‘he saw you (ms)’	
c.	Q subj, pro DO	<b>mòiko ko-i ló?</b>	‘who saw you?’	<b>*moyi-n-ko lo?</b>
d.	Q DO	<b>kò moikò lò?</b>	‘who did you see?’	<b>*ko moiko-k lo?</b>

There is no semantic reason for excluding totality marking from these environments: Hausa Grade 4 verbs can appear in any syntactic environment; Baby Bear can certainly say, “Who ate up my porridge?”, and Goldilocks could lie, saying, “I didn’t eat up your porridge!” If, however, totality morphology is playing the inflectional role in the syntax of marking auxiliary focus, this would explain, as suggested above, the preference for marking verbs this way in citation form but its exclusion from negatives and WH-questions. Clauses normally allow only one item to be focused. It is a well-known cross-linguistic fact that negation attracts focus, and WH-questions place focus on the questioned item.<sup>58</sup> The “strong” focus on negation and question words thus preempts the rather “weak” auxiliary focus afforded by totality morphology.

## 6.4. Additive extension

### 6.4.1. Additive form

Below (Table 16) is a table of verbs bearing the ADDITIVE extension. These should be compared to the unextended verbs in Table 12 and to verbs with the totality extension in Table 14.

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<sup>58</sup> One would also expect totality morphology to be excluded from clauses with focused constituents. Ngamo, like other Chadic languages of Yobe State, Nigeria, marks focus only for subjects, which are postposed. There is no overt marking of focus for any other syntactic function. I did not explicitly check for exclusion of totality morphology for subject or pragmatic focus in Ngamo, but other languages, such as Bole and Ngizim, do exclude totality morphology from these environments.

**Table 16:** Ngamo ADDITIVE extended verbs in all TAMs

CL.	OBJ	PERFECT.	SUBJUNC.	FUTURE	HABITUAL	SG. IMP.	
A1	Ø	<b>ngargò</b>	<b>à ngàrdì</b>	<b>à ngardi</b>	<b>à ngàrshendi</b>	<b>ngàrdî</b>	‘tie’
	DO	<b>ngargo tê</b>	<b>à ngàrdì tê</b>	<b>à ngardi tê</b>	<b>à ngàrshendi tê</b>	<b>ngàrdi tê</b>	
	IO	<b>ngàrtòdí</b>	<b>à ngàrtòdí</b>	<b>à ngartòdí</b>	<b>à ngàrshentòdí</b>	<b>ngàrtòdí</b>	
A2	Ø	<b>bìskidgò</b>	<b>à bìskidî</b>	<b>à biskidî</b>	<b>à bìskandi</b>	<b>bìskidî</b>	‘accept’
	DO	<b>bìskidgo tê</b>	<b>à bìskidi tê</b>	<b>à biskidi tê</b>	<b>à bìskandi tê</b>	<b>bìskidi tê</b>	
	IO	<b>bìskètòdí</b>	<b>à bìskètòdí</b>	<b>à biskètòdí</b>	<b>à bìskantòdí</b>	<b>bìskètòdí</b>	
B	Ø	<b>bàsadgò</b>	<b>à bàsàdí</b>	<b>à basàdí</b>	<b>à bèsendi</b>	<b>bis□dí</b>	‘shoot’
	DO	<b>bàsadgo tê</b>	<b>à bàsàdi tê</b>	<b>à basàdi tê</b>	<b>à bèsendi tê</b>	<b>bis□di tê</b>	
	IO	<b>bèsètòdí</b>	<b>à bèsètòdí</b>	<b>à besètòdí</b>	<b>à bèsentòdí</b>	<b>bèsètòdí</b>	
C	Ø	<b>yudgò</b>	<b>à yùdí</b>	<b>à yūdi</b>	<b>à yìshendi</b>	<b>yùdí</b>	‘poke’
	DO	<b>yudgo tê</b>	<b>à yùdi tê</b>	<b>à yūdi tê</b>	<b>à yìshendi tê</b>	<b>yūdi tê</b>	
	IO	<b>yitòdí</b>	<b>à yitòdí</b>	<b>à yītòdí</b>	<b>à yìshentòdí</b>	<b>yitòdí</b>	
D	Ø	<b>wadgò</b>	<b>à wàdí</b>	<b>à wādi</b>	<b>à wèshendi</b>	<b>wìdí</b>	‘get’
	DO	<b>wadgo tê</b>	<b>à wādi tê</b>	<b>à wādi tê</b>	<b>à wèshendi tê</b>	<b>wīdi tê</b>	
	IO	<b>wètòdí</b>	<b>à wètòdí</b>	<b>à wētòdí</b>	<b>à wèshentòdí</b>	<b>wètòdí</b>	

The allomorphy for the ADDITIVE extension is similar to that for the TOTALITY (§2.3.1): /di/ → [d] /V\_\_-SUFFIX (**bàsadgò**), → Ø /C\_\_-SUFFIX (**ngarØgò**), → [di] word final.

Aside from /d-/ vs. /t-/, there are two main differences between ADDITIVE and TOTALITY allomorphy. First, with direct objects, the ADDITIVE works like all verb forms other than the TOTALITY: the ADDITIVE extension “closes” the verb form and a direct object (noun or pronoun) is a separate word (an independent pronoun in the case of DO pronouns). Second, the ADDITIVE /d/ causes voicing of a following Perfective suffix /ko/

→ [go], and for A1 verbs, this voicing is, itself, the indicator of the presence of the ADDITIVE, since the additive /d/ is deleted from the CCC cluster arising from C<sub>ROOT</sub>-**d**<sub>ADDITIVE</sub>-[go]<sub>PERFECTIVE</sub>.

#### 6.4.2. Additive function

Lukas's (1971:8-11) description of verbal extensions in Bole is the first mention of an ADDITIVE extension in a Chadic language. The Bole ADDITIVE is essentially identical in function and largely identical in form to the Ngamo ADDITIVE. Lukas refers to it as the *repetitive extension* (*Wiederholungserweiterung*) based on the fact that it can indicate “do again”, but as Lukas himself shows (1971:11), it covers a much broader semantic range than this. The term ADDITIVE was coined in Gimba (2000) for Bole, based on the idea that this extension “adds” some element to the sense of the base verb. In effect the ADDITIVE is a “pro-adjunct”, i.e. it indicates that the event includes a component other than or in addition to subject, object, or indirect object. This “component” may be that the event itself repeats a previous event. This usage was the motivation for Lukas's term for the extension. Here are some examples:<sup>59</sup>

##### Repetition

**moya gam yi-ni-di gopshi belder! a ngata-di eli burum-burum!**

‘here’s the ram he deals him another blow *belder!* and he falls on the ground again *burum-burum!*

**Yo’oto taka bu i-d-go yo’oto.**

‘One [thing] hasn’t come to an end and one does another one [of the same kind].’

**Bolo a moi-di si bu.** ‘They wouldn’t see him again.’

##### Locative

**sai a gune-n-ni a dei-di doi’e** ‘then he ran away and left the horse there’

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<sup>59</sup> These examples come from texts and other sentences provided by informants in contexts where the focus of the examples was not on the additive. A good way to elicit the additive in Bole is in relative clauses with relativized adjuncts (instrument, locative, time, etc.). I elicited relative clauses of these types in Ngamo, but generally informants did not volunteer structures with the additive, and I did not test to see whether the additive would be natural or grammatical in such clauses.



Instrument/accompaniment

**Andi uskai yo’oto a gamano nami ne piti-di ka monansui’e, shap a maptisu.**

‘There’s a certain medicine with me, I’ll sprinkle [with] it on that shit of theirs, all of them will die.’

Manner

**Amma haiko, ki ka wayo, a tuga-di hara a sheke doni,**

‘But the squirrel, through a ruse, poked [by the ruse] a thorn into the foot of his horse.’

Time

**Ngù ishe enìnkù ngù tùngan-di sūno àkà miyà?**

‘While you were talking, with respect to what did you mention [then] my name?’

As often as not, the ADDITIVE seems redundant (the ADDITIVE refers to an adjunct that itself is mentioned) or it seems to have a vague “because of it” meaning, without reference to any previously mentioned or implied adjunct.

**erin kas-di uska a kanni** ‘let me pour some medicine on it’

(the location **a ka-n-ni** ‘on it’ is explicit)

**Wonas na Abare ino weno oyum, Dimza na inom a se-di jibo.**<sup>60</sup>

‘The dance that Abare does and gets money for, if Dimza does it, he’ll experience a beating [because of it].’

**Ngoi na idani gerai a zalshen-di belenni ki kalau.**

‘If a person has deep-set eyes, he is quick to cry [because of it] (lit: he begins his crying early [because of it]).’

**Kò ngarko koros ye ki kà miya? Là on-di hà m bà!’**

‘Why did you tie it so tightly? Give it a little slack! [lit: A little give [there] water indeed!]

The historical source of this extension is not clear. It seems to be unique to Bole-Tangale of Yobe State, Nigeria, though the Bade-Ngizim languages of the area have a

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<sup>60</sup> The verbs **i-no** ‘do’ and **we-no** ‘get’ are VENTIVE (§2.2) Perfectives. The **-m** of **i-no-m** is a topic marker.

similar structure used in a more limited function as a “pro-instrument”. In Schuh (2003b) I suggest that there may have been something like the following chain shift. The double-headed, double-shafted arrow is meant to indicate that one shift may have triggered the other, but the direction of triggering is not obvious (PWC = proto-West Chadic, BT = Bole-Tangale):

$$\text{PWC */t/}_{\text{VERBALIZER}} > \text{BT /t/}_{\text{CAUSATIVE}} \Leftrightarrow \text{PWC */d/}_{\text{CAUSATIVE}} > \text{BT /d/}_{\text{ADDITIVE}}$$

I do not have a great deal of confidence in this proposal, but if support were to be found elsewhere (say, parallel typological shifts in other languages), it would explain, at the same time, (i) why Bole-Tangale has /t/ rather than rather than expected /d/ as a CAUSATIVE morpheme and (ii) why an ADDITIVE extension seems not to be found outside this limited area.

### 6.5. Combinations of extensions

The VENTIVE can be combined with either the TOTALITY or the ADDITIVE extension. The TOTALITY and ADDITIVE are mutually exclusive. The table below shows the Class B verb **bàsâ** ‘shoot’ in the Perfective with all possible extension configurations and with Ø object, pronoun direct object, and pronoun indirect object. (The pronouns are 3<sup>rd</sup> feminine singular).

**Table 17:** Ngamo combination of extensions

	UNEXT.	VENTIVE	TOTALITY	ADDITIVE	VENT+TOT	VENT+ADD
Ø OBJECT	<b>bàsâ</b>	<b>bèsènô</b>	<b>bàsatkò</b>	<b>bàsadgò</b>	<b>bèsenkò</b>	<b>bèsengò</b>
PRO-DO	<b>bàsa tê</b>	<b>bèsèno tê</b>	<b>bàsantô</b>	<b>bàsadgo tê</b>	<b>bèsentô</b>	<b>bèsengo tê</b>
PRO-IO	<b>bèsètò</b>	<b>bèsèntò</b>	<b>bèsètôtî</b>	<b>bèsètôdî</b>	<b>bèsèntôtî</b>	<b>bèsèntôdî</b>

All forms with the ventive extension have the /n/ morpheme characteristic of the VENTIVE in the Perfective as well as the stem vowel change /a/ → [e] for Class B verbs in the VENTIVE. The VENTIVE always falls next to the verb stem (ROOT+STEM VOWEL), i.e. a VENTIVE stem is formed, to which other suffixes are added. Types of object affixation are chosen depending on the “outer” extensions, i.e. direct object pronouns take the form

of affixes in all the TOTALITY extended forms, VENTIVE or not, whereas direct object pronouns take the form of independent pronouns elsewhere. Indirect object pronouns come directly after the verb stem (VENTIVE or not), with TOTALITY and ADDITIVE suffixes following.

As illustrated in Table 2 (Ngamo) in §2.2, the VENTIVE in TAMs other than Perfective is expressed with a suffix /tu/. Addition of this suffix is obscured by phonological rules when another suffix is added. With no extension other than the ventive, the only suffixes are indirect object pronouns (Future à **besètù** ‘he will shoot (it) and bring it’ vs. / à **bese-t-tò**/ → à **besètò** ‘he will shoot and bring for her’—cf. unextended form with IO, à **besètò**, which, on the surface, differs from the ventive in tone). I was not able to check the full range of non-Perfective TAMs with combinations of VENTIVE + TOTALITY / ADDITIVE,<sup>61</sup> but the few forms that I have suggest that the latter extension suffixes always either blend with or preempt the VENTIVE suffix /tu/. Presence or absence of VENTIVE is shown by tone, and for Classes B and D (the classes with stem vowel -a), by the /a/ → [e] vowel change: Future VENTIVE+ TOTALITY +DO (Class D verb) à **we-n-tò** ‘he will get and bring her’ (cf. TOTALITY only à **wa-n-tò** ‘he will get her’ and VENTIVE only à **wètù tê** ‘he will get and bring her’); Future VENTIVE+ TOTALITY+IO (Class D verb) à **wètòfí** ‘he will get and bring for her’ (cf. TOTALITY only à **wa-n-tòfí** ‘he will get for her’ and VENTIVE only à **wètò** ‘he will get and bring for her’); Future VENTIVE+TOTALITY (Class A1 verb) à **ngarintò** ‘he will tie and bring her’ (cf. TOTALITY only à **ngarintò** ‘he will tie her and VENTIVE only à **ngàrtu tê** ‘he will tie and bring her’).

As noted above, TOTALITY and ADDITIVE are mutually exclusive. This is not because of some kind of semantic clash—the respective meanings have little to do with each

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<sup>61</sup> Eliciting all the possible combinations of TAMs, extensions, with and without DO and IO for five verb classes proved extremely tedious, frustrating, and time consuming for both the informants and me. It took literally years of working with the same speakers to finally get the information presented in this section on Ngamo. I focused on getting forms with one extension at a time, which was hard enough. Trying to get combinations of extensions was a nightmare. There are no direct translations in either Hausa or English for any of these, and speakers are not used to thinking of their verb forms as combinations of discreet, concatenated elements. They use what sounds like the right verb form at the right time; they don’t go off to their lexicons, find the pieces, and make up the forms from scratch. With thousands of pages of texts, all the relevant forms might have shown up, but obviously, collecting forms this way was impractical.

other—but rather, in many configurations, they would occupy the same slot in the verb morphology, e.g. **bèsètòtí/dí** ‘he shot for her (tot/add)’, but **\*bèsè-tò-tí-dí**. Because of this, they are mutually exclusive even when they would not be vying for the same spot. With noun direct objects, for example, totality is marked by a clitic **-k** whereas the object directly follows the verb with the additive. Nonetheless, it is not possible to create an utterance of the form VERB+ADDITIVE+TOTALITY NOUN-DO: TOTALITY only **bàsatko-k bò’i** ‘he shot a duiker’, ADDITIVE only **bàsadgo bo’i** ‘he shot a duiker again’, but not ADDITIVE+TOTALITY **\*bàsadgo-k bò’i**.

## 7. Gude

Like many languages in the Central branch, Gude is rich in extensions that alter the base meaning of the verb in one way or another. Hoskison (1983:94) lists 13 verbal extensions, noted as E1, E2...E13. One, “iterative action”, refers to pluractional verbs, which are covered in Chapter 8. There seem to be some dialect differences between Hoskison’s and my sources. For the most part, I will use my own understanding of the organization of the system and illustrate with data that I collected, referring to Hoskison’s description where relevant.

I divide the discussion into three main sections: *ventive*, *stem suffixes*, and *locative suffixes*. In a fourth section, I will briefly mention a few suffixes listed by Hoskison that I did not explicitly study and that are not well represented in my data.

### 7.1. Ventive

Many West and Central Chadic languages have an extension that is usually referred to as the VENTIVE (from Latin *venire* ‘to come’). The function of this extension may vary slightly from language to language, but it can generally be characterized as referring to an event that was initiated at a place other than the location where it has effect. The default is the location of the speaker. For example, in Gude, where Hoskison (1983:97) refers to this extension as “motion to speaker”, the verbs **ànnà-na** ‘go back, return’ vs. VENTIVE of the same root **ànnya-n** ‘come back, return’ both refer to “returning”, but the latter is understood as ending up at the location of the speaker; **ɗər-ən** ‘buy’ is neutral as to the

location of the buying event whereas the ventive **'yira-n** means 'buy something and bring it'.

Unlike other extensions, which take the form of suffixes, the VENTIVE forms a special stem distinct from the lexical stem classes discussed in Chapter 6. The VENTIVE stem has two features: a palatalized root and a stem vowel **-à**, which remains unchanged in all TAMs. Palatalization is similar to that of PERFECTIVE stems of Ø stem class verbs discussed in Chapter 6, §5.2.1, viz. root vowels /ə/ and /a/ are usually fronted to [i] and [e] respectively and one or more root consonants are palatalized. The following rules describe consonantal palatalization. (See Table 18 below for examples.) Hoskison (1983:83, 98) notes that there is some optionality in PERFECTIVE stems for the second and third bullet points, whereas at least one of these palatalizations must be applied in VENTIVE stems.<sup>62</sup>

- Coronal [+strident] /ts, dz, s, z/ → [c, j, sh, zh]
- Coronal stops /t, d, dʰ/ → [ky, gy, 'y]
- Other consonants are realized with palatal co-articulation of the base consonant, e.g. **by, ly, ky**, etc.

The table below compares unextended stems of verbs from each lexical verb class to the same verbs with the VENTIVE stem (see Chapter 6, §5.1 for discussion of lexical verb classes). The form to the left of the slash is the verbal noun for both unextended and VENTIVE forms. For the unextended verbs, the form to the right of the slash is the PERFECTIVE stem, which is palatalized for Ø stem verbs and which changes the final vowel of **a** stem verbs to **i** without palatalization. For the VENTIVES, the form to the right of the slash is the form used in all TAMs except PROGRESSIVE and FUTURE, which use the verbal noun.

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<sup>62</sup> Counterintuitively, the VENTIVE stem vowel **-a** is always pronounced [a] despite the obligatory palatalization of the root.

**Table 18:** Unextended and VENTIVE stems in Gude

CLASS	BASE MEANING	UNEXTENDED/PERF.	VENTIVE/PERF.
Ø-n-H	‘increase’	<b>tsakən/cak</b>	<b>cakan/cakà</b>
	‘flay, skin’	<b>təfən/tif</b>	<b>kyifyan/kyifà</b>
Ø-n-L	‘look for’	<b>’àlən/’àly</b>	<b>’àlyan/’àlyà</b>
	‘learn’	<b>dəzgunən/jəgwìny</b>	<b>jəgunyan/jəgùnyà</b>
Ø-na (all L)	‘draw water’	<b>gəna/ gyì</b>	<b>gyan/gyà</b>
	‘jump’	<b>ləfna/li’y</b>	<b>li’yan/li’yà</b>
	‘enter’	<b>dəmənna/gyim</b>	<b>gyìman/gyìmyà</b>
a-n-H	‘drink’	<b>san/si</b>	<b>shan/shà</b>
a-n-L	‘chase’	<b>səban/səbi</b>	<b>shìban/shìbà</b>
	‘push’	<b>dàllan/dàlli</b>	<b>dàllyan/dàllyà</b>
a-na (all L)	‘swallow’	<b>ndàna/ndi</b>	<b>ndyan/ndyà</b>

I seem not to have elicited any VENTIVES for **a-n-H** or **a-na** verbs with roots having more than one consonant, but the VENTIVE is so productive and so regular that one can predict VENTIVES for verbs such as **pəran/pəri** ‘ransom, redeem’ (predicted VENTIVE **piryan/piryà**) and **kùlana/kùli** ‘fall down’ (predicted VENTIVE **kùlyan/kùlyà**).

## 7.2. Stem suffixes

The extensions described below in §§7.2.1–3 (= extensions E6, E7, E13) are productive in that they seem to be fairly freely combinable with basic roots. On the other hand, it is difficult to pin down a specific meaning component that is associated with each occurrence of the affix, and moreover, there seem to be major dialect differences between Hoskison’s and my data in the affects of these affixes. I refer to these three extension affixes as “stem suffixes” because they are mutually exclusive and are always the last suffix of a stem before TAM inflections.

### 7.2.1. *-kki* Totality extension<sup>63</sup>

This suffix corresponds to Hoskison’s E7, which, in the dialect that he describes, is pronounced **-gi-**.<sup>64</sup> This suffix has the vowel **-i-** in the verbal noun and all TAMs.<sup>65</sup> Hoskison (1983:101) characterizes the meaning as “do completely”, and I refer to it as the TOTALITY extension because I was relatively successful in eliciting it using the Hausa Grade 4, which indicates “do to completion”. Here are some pairs that I elicited:

<b>kə ’yir-ī sukuŋwa</b>	‘I bought some sorghum’
<b>kə ɗərək-k-ī sukuŋwa</b>	‘I bought up the sorghum’
<b>kə ɓi-c zála</b>	‘he cracked the stick’
<b>kə ɓəkká-c zala</b>	‘he broke the stick in two’
<b>kà san-yi mbàla</b>	‘I’ll drink some beer’
<b>kà sakin-yi mbàla</b>	‘I’ll drink up the beer’
<b>àdəm ɗáfna</b>	‘eat some <i>tuwo!</i> ’ (plural imperative)
<b>àdəkkím ɗáfna</b>	‘eat up the <i>tuwo!</i> ’

Sometimes in elicitation, however, unextended and extended forms were given as equivalent (**bu’un** = **bù’əkkín** ‘winnow using wind’), and in the lexicon, paired base verbs and verbs with the **-kki-** extension often do not clearly show a “totality” distinction:

<b>nəngəna</b>	‘espy, see from a distance’
<b>nəngəkkín</b>	‘look back, look aside’
<b>tsan</b>	‘build a fence’
<b>tsakkín</b>	‘block a road’

<sup>63</sup> Hoskison (1983) does not mark gemination. Although he concedes that it does exist, he claims that it is predictable. By contrast, I have marked gemination everywhere that I heard it, including in the extensions discussed in this section and the next.

<sup>64</sup> For the dialect that Hoskison (1983) describes, this suffix is thus homophonous with the “locative suffix” **-gi-**, described in §7.3.3 below. Hoskison (p. 101) gives forms like **haɗa-tə-gi-** ‘fix up’ which would be a combination of the **-ttə-** suffix described in §7.2.2 with his **-gi-** suffix (otherwise apparently equivalent to my **-kki-**). Nowhere in my data do these suffixes co-occur, nor do any other suffixes follow **-ttə-**.

<sup>65</sup> This suffix blocks palatalization in the PERFECTIVE TAM but not in VENTIVE stems.

### 7.2.2. *-ttə* extension

This suffix formally corresponds to Hoskison’s E6 *-tə-* ‘cause to happen’, for which he gives pairs such as **rəbə** ‘get wet’ vs. **rəbə-tə-** ‘make wet’. In the dialect that I studied, both meanings of this verb are expressed by the base form **rəbən**, and in fact the only verb pair in my data where the *-ttə-* extension acts as a transitivizer or causative is **əbburən** ‘have enough to eat, be sated’ vs. **əbbūrəttən** ‘feed (an animal)’. Most such pairs related semantically in this way use the *-ē-* extension discussed below in §7.2.3. I did not test the effect of the *-ttə* suffix by eliciting pairs of base verb vs. base verb + *-ttə*, but there are quite a few such pairs of verbs in my lexical data. It is hard to pin down a clear semantic relationship. Here are a few such pairs.

<b>lùwna</b>	‘get, receive’
<b>lùwuttən</b>	‘seize by force’
<b>mbudǎn</b>	‘uproot, extract, pull out’
<b>mbùdǎttən</b>	‘lift off the ground’
<b>tsan</b>	‘build a fence’
<b>tsattən</b>	‘screen off, fence in’

### 7.2.3. *-ē* Causative extension

This suffix formally corresponds to Hoskison’s E13 *-ee-*, which he says (page 103) “does not appear to alter the meaning of the verb in a predictable way”. In my data, however, the *-ē* extension functions fairly consistently as a CAUSATIVIZER/TRANSITIVIZER. I did not explicitly test roots for use with this extension, but I collected 29 verbs cited with an *-ən* verbal noun. Ten of these are transitive verbs paired with unextended intransitives of related meaning, and three others can roughly be understood as having a causative relation to a related unextended verb. The remainder either do not bear an easily definable relation to the unextended form or have no unextended counterpart in my data.



**Table 19:** Gude verbs with CAUSATIVE extension

RELATIONSHIP	UNEXTENDED		-ē- EXTENSION	
transitivizer	<b>dàb àna</b>	‘taste good’	<b>d àbēn</b>	‘suit, befit’
	<b>gwàṅna</b>	‘be bent’	<b>gwàṅēn</b>	‘bend’
	<b>màd àna</b>	‘stand up’	<b>màdēn</b>	‘lift’
	<b>’ùmb àna</b>	‘hide (intr.)’	<b>’ùmbēn</b>	‘hide (tr.)’
	<b>zu’un</b>	‘metamorphose’	<b>zù’wēn</b>	‘turn into s.t.’
“causativizer”	<b>kārən</b>	‘carry’	<b>kārēn</b>	‘accompany’
	<b>təkən</b>	‘divide’	<b>təkēn</b>	‘separate out’
miscellaneous	<b>gùṅna</b>	‘join’	<b>gùṅwēn</b>	‘get, receive’
	<b>ùlāna</b>	‘collapse’	<b>ùlēn</b>	‘sag, lean over’
	no unex. form		<b>nēn</b>	‘see’
	no unex. form		<b>tləkēn</b>	‘send’

Verbs with the -ē extension keep this vowel in all TAM forms, and PERFECTIVE stems are not palatalized, e.g. **zù’wēn** ‘turn into something’, PERFECTIVE stem **zù’we**, not \***zhù’wē**, as would be expected if palatalization were applied. Hoskison (1983:104) notes that this extension does not co-occur with any other extensions, including the VENTIVE. This holds true for my data, though I did not test it.

Another feature of this extension pointed out by Hoskison (1983:104) is that objects are introduced by the preposition **ka**, which elsewhere is a marker of indirect objects, e.g. **kə təkē-ny ka bagīnā-k-y** ‘I separated out my sheep (from a larger flock)’, **kə dābē kəbēn ka-c** ‘this gown looks good on him/suits him’. This feature of the causative construction has a counterpart in Hausa Grade 5 (see §8.1.1).

### 7.3. Locative suffixes

Following Hoskison (1983:94), I refer to these as “locative suffixes” because of their formal connection to locative prepositions or adverbs.<sup>66</sup> For his extensions E3-5 he

<sup>66</sup> Hoskison does not include the -pā- extension among his locative suffixes, though it is related to a locative word (§7.3.1).

defines the meaning of the extensions in locative terms. However, verbs with these suffixes seem all to have highly lexicalized meanings, often making a semantic connection to their sources difficult to discern.

### 7.3.1. *-pā* “down” (= E8)

This extension derives from the locative adverb **pà** ‘at the base of, down, under’, and a few of the verbs that bear this extension show a “downness” relation to the unextended base, sometimes apparently redundantly.<sup>67</sup> Hoskison describes the suffix as “not productive”, but a fair number of verbs bear it. My data contains 15 and Hoskison lists several others. Here are a few examples of unextended verbs paired with counterparts extended with **-pā-**.

<b>kan</b>	‘put on (clothes)’	<b>kapān</b>	‘put down’
<b>tan</b>	‘excrete faeces’	<b>tapān</b>	‘defecate’
<b>vùgədən</b>	‘bang down a load’	<b>vùgədəpān</b>	‘bang down a load’
<b>pərən</b>	‘untie’	<b>pərpān</b>	‘spread a mat’
<b>gwàzna</b>	‘mix dry substances’	<b>gwàzəpān</b>	‘tamper, fiddle with’

This extension retains the final **-ā-** in all TAMs. Stems with this extension are not palatalized in the perfective, e.g. **nəngəna** ‘espy, watch over’ with perfective **nìŋg**, but extended **nəngəpān** ‘greet’ with perfective **nəngəpà**.

### 7.3.2. *-gər* “motion down or in” (= E3)

This extension is related to the locative adverb **dà-gər** ‘downward, below, opposite the direction in which one is facing’. My lexical material shows only four examples of this extension, but Hoskison’s discussion and examples suggest that it is fairly productive. Hoskison’s semantic characterization generally coincides with the few examples in my data.

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<sup>67</sup> Hoskison (1983:101) states the function of this extension as “do completely (?)”. I don’t see this as a consistent meaning component of verbs with this extension in either his or my data.

<b>dəmənà</b>	‘enter’	[H] <b>dəmægər-</b> <sup>68</sup>	‘go in’
<b>ndərən</b>	‘climb’	[H] <b>ndərægər-</b>	‘climb down’
<b>jìman</b>	‘come down’	<b>jìmagərən</b>	‘come/go downhill’
<b>tsan/tsī</b>	‘tear, tear off; split wood’	<b>tsagərən/cagər</b>	‘slit, cut a slit’

The third example, **jìman**, is a VENTIVE stem, which retains both its tone and stem vowel when the **-gər** extension is added. In the fourth example, a verb of the **a-n-H** lexical class, the PERFECTIVE, as expected for **a-stem** verbs, adds the vowel **-i** and the stem is not palatalized. When the **-gər-** extension is added, the verb becomes a  $\emptyset$  stem, which palatalizes in the PERFECTIVE (**cagər**), but the H tone on the root of the base verb is retained, creating a HL stem tone pattern, which does not exist in unextended verbs.

### 7.3.3. **-gì** “motion up or out” (= E4)

This extension is related to the locative adverbs **gì** ‘in, inside an area or a thing that is not a container’, **aggì** ‘outside’, **dàggì** ‘above, the direction in which one is facing’. Hoskison implies that this suffix is fairly productive and gives examples such as **dəmə-** ‘go in/out’ vs. **dəməgì-** ‘go out’ (cf. **dəmægər-** ‘go in’, with the **-gər** suffix). I found only two lexicalized examples with the suffix: **ənnəvəgin/ənnəpàgin** ‘take back’ from base **ənnənà** ‘go back’, and **dərgin/dəramagin** ‘sell’ from base **dərən** ‘buy’. In these examples, the suffix seems to have a causativizing function, and in the first example, it is used in combination with suffixes **-v-** (§7.3.4) ~ **-pā-** (§7.3.1), while in the second it is optionally used in conjunction with the suffix **-ma-** (§7.4.2). The **-gì** suffix blocks palatalization of the root in the PERFECTIVE, e.g. **dəragy** ‘sold’, not **\*yirigy**, with palatalization.

### 7.3.4. **-v** “motion to a specific place” (= E5)

This extension is related to the locative adverb **dà-v** ‘over there’. I have very few examples of this suffix. Hoskison implies that the **-v-** suffix is also fairly productive and gives examples such as **dəməvə-** ‘go in or out (to that place)’ from base **dəmə-** ‘go in/out’. Some of my few examples suggest an APPLICATIVE meaning, e.g. **ngərván** ‘put a

<sup>68</sup> In my data, **dəmənà** is defined as ‘go in’ and **dəməkkín**, with the **-kki** extension, as ‘go out’.

load on an animal’ from base **ngərən** ‘pick up’, **nyì ’anyav ka-c zu’wa** ‘I tied a rope on him’ from base **’anyin** ‘tie’.

#### 7.4. Miscellaneous extensions

Hoskison mentions four further extensions, three of which appear in an example or two in my data.

##### 7.4.1. **-sh** *reciprocal* (E9)

Hoskison (1983:102) describes a suffix **-shi** that marks a reciprocal action between plural subjects, e.g. **ngərə** ‘marry’, **ngərə-shi** ‘marry each other’, **fa** ‘hear’, **fa-shi** ‘hear each other’. I did not elicit any data on reciprocals (or reflexives), but I have found one example in my data, viz. **pushashən/pushash** ‘resemble (each other)’, with no unextended base form attested.

##### 7.4.2. **-ma** *“(take away) by theft”* (E12)

Hoskison states that this extension is not productive and lists five verbs that have it, e.g. **lū** ‘take’, **lū-ma** ‘take by theft, steal’, **hərə** ‘steal’, (seemingly redundantly) **hərə-ma** ‘steal’. I recorded only one verb with this suffix and only in combination with **-gi**, **ḏərəmagin = ḏərgin** ‘sell’ from **ḏərən** ‘buy’. Hoskison gives **ḏərə-ma** ‘get rid of by selling off (no theft involved)’ [his gloss].

##### 7.4.3. **-ān** *“pause and do”* (E11)

Hoskison (1983:103) says that this suffix “indicates that some other contextually specified action is temporarily suspended before the action of the verb is performed. The final vowel of the verb root is always lengthened before this suffix. It never combines with any other extension or with incorporated indirect object pronouns.... It is completely productive.” Hoskison give the following examples and translations: **kə sānə-ci** ‘he stopped what he was doing, drank, and then continued’, **kə tsəbənə-ci** ‘he stopped what he was doing, ate something, and then continued’. I found only two examples of this extension in my elicited data: **mbəḏānən** ‘remain over, be left’, related to **mbəḏen** ‘reduce’, and **zānən** ‘forget’, without a known related unextended form. Because this

extension requires context for its use, it is not surprising that it would not come up frequently in elicitation based on wordlists.

#### 7.4.4. *-ci* “do a little” (E10)

Hoskison (1983:102) gives a few examples such as **ḃə-ci** ‘break off a little’. I did not record any verbs with this suffix, though **ḃàtsəna** ‘break off’ may be relatable to **ḃina** ‘break (a stick)’ through a (non-productive) suffix **-ts-**, of which **-c-** would be the palatalized counterpart.

### 7.5. Interaction of extensions with TAMs and with each other

In this section, I summarize some of the interactions between extensions and TAMs and between extensions themselves.

Below are two paradigms from my data. The first shows the verb **’anyin** ‘tie’ with all the extensions except **-gi** and those listed in §7.4. This shows that these extensions are relatively productive and also shows some meaning outcomes of adding the extensions. The TAM is Perfective with a focused subject (**nyi** ‘I’). The second paradigm shows the verb **hərən** ‘steal’ with the ventive, **-kki**, and **-ttə** extensions, demonstrating the combinability of these extensions.

verbal noun: <sup>69</sup>	<b>’anyin</b>	‘tie’
unextended:	<b>nyi ’any</b>	‘I tied’
<b>-kki:</b>	<b>nyi ’anyəkki</b>	‘I tied (it) and put (it) down’
<b>-ttə:</b>	<b>nyi ’anyətt</b>	‘I tied’
<b>-ē:</b>	<b>nyi ’anyē</b>	‘I tied partially’
<b>-pā:</b>	<b>nyi ’anyəpā</b>	‘I tied (it) and laid (it) on the ground’
<b>-gər:</b>	<b>nyi ’anyəgər</b>	‘I tied (it) down there’
<b>-v:</b>	<b>nyi ’anyav ka-c zu’wa</b>	‘I tied the rope on him’
verbal noun:	<b>hərən</b>	‘steal’

<sup>69</sup> This root is lexically palatalized. Hoskison (1983:158) also cites it as such but notes a non-palatalized variant **anə** found in the “upper dialect”.

unextended:	<b>kə hyir-kì</b>	‘she stole’
ventive:	<b>kə hyira-ky</b>	‘she stole and brought’
<b>-kki:</b>	<b>kə hærkkí-ky</b>	‘she stole all’
ventive+ <b>-kki:</b> <sup>70</sup>	<b>fi’yakkín</b>	‘bring out many things’ < <b>fəḏən</b> ‘collect and remove’
<b>-ttə:</b>	<b>kə hærtə-kì</b>	‘she stole all’
ventive+ <b>-ttə:</b>	<b>kə hyirattə-ky</b>	‘she stole all and brought’

There are a few restrictions and caveats with interactions between extensions and TAMs. The PERFECTIVE stem for unextended Ø stem verbs requires palatalization of the root. However, all the extension suffixes with the exception of **-gər** block palatalization of the root, as seen in the paradigm immediately above for the **-kki** and **-ttə** extensions (see also discussion under the individual extensions).

The SINGULAR IMPERATIVE adds the suffix **-ū** to unextended verbs and verbs with the VENTIVE extension, but this suffix is omitted with extension suffixes. The plural IMPERATIVE suffix **-m** is retained, however.

**Table 20:** Extensions and imperatives

SG. UNEXT.	PL. UNEXT.	SG. VENTIVE	PL. VENTIVE	SG. + SUFFIX	PL. + SUFFIX	
<b>dəm̀ù</b>	<b>dəm̀əm</b>	<b>gyim̀ō</b> <sup>71</sup>	<b>gyimam</b>	<b>gyimakkì</b>	<b>gyimakkím</b>	‘enter’
<b>ngər̀ū</b>	<b>ngər̀əm</b>	<b>ngir̀ō</b>	<b>ngiram</b>	<b>ngirat</b>	<b>ngirattəm</b>	‘pick up’

Hoskison (1983:86) notes that PROGRESSIVE and FUTURE, the TAMs that use verbal nouns as their stems, cannot take suffix extensions, e.g. **agi tləba-nə nə Musa yā-kī** ‘Musa is sweeping his compound’, with the unextended verbal noun **tləba-nə**, but \***agi tləba-gi-nə nə Musa yā-kī**, with the **-gi-** (= **-kki** in the dialect that I worked on) extension. Hoskison further points out that this is strange inasmuch as verbal nouns can

<sup>70</sup> I did not elicit **hərən** ‘steal’ with ventive+**-kki**. The example shows this combination with of verb of the same lexical class.

<sup>71</sup> Gude has a regular phonological rule /a-ū/ → [ō].

be formed from extended verbs, i.e. the verbal noun [H] **tləba-gi-nə** (**tləbakkín** in the dialect that I worked on) ‘sweeping up’ is well-formed.

Turning to interactions between extensions, the VENTIVE, which forms its own stem type, can combine with most suffix extensions. Hoskison (1983:95), however, states that **-ē** (§7.2.3) and the suffixes discussed in §§7.4.2-4 cannot be used with VENTIVE stems. One feature of the VENTIVE is palatalization of the root, and when suffixes are used with VENTIVE stems, the root remains palatalized. This is contrast to PERFECTIVE TAM stems, where, as noted above, suffixes block palatalization of the root.

Combining of extension suffixes is quite restricted. In the table below, I have listed the only combinations attested in my data, and these combinations occur with only one verb each. My observations on combining extensions do not entirely coincide with Hoskison’s, but given the small amount of available data and likely dialect differences, I will not discuss this further.

The table below summarizes the restrictions as discussed here. “(H)” indicates a restriction noted by Hoskison which I cannot exemplify from my data. “?” indicates that information is not available.

**Table 21:** Restrictions on extensions

	Palatalized in PERFECTIVE	Used with VENTIVE	Used with other suffixes	Used with im- PERFECTIVE (H)
<b>-kki</b>	no	yes	no	no
<b>-ttə</b>	no	yes	no	no
<b>-ē</b>	no	no	no	no
<b>-pā</b>	no	yes	-pā-gi	no
<b>-gər</b>	yes	yes	no (H)	no
<b>-gi</b>	no	yes?	-pā/-v/-ma-gi	no
<b>-v</b>	no	yes?	-və-gi	no
<b>-ma</b>	no	no (H)	-ma-gi	no
<b>-ān</b>	no	no (H)	no (H)	no

## 8. Hausa

Hausa has been used to illustrate a number of extensions throughout this chapter as well as in Chapter 6. This section summarizes Hausa extensions under three headings, adding information that did not arise in the more general discussion.

### 8.1. Extensions inherited from Proto-Chadic

In standard descriptions, Hausa has seven endings that comprise the verbal grade system of Parsons (1960b), described in Chapter 6, §6.1.1. Three of the Hausa grades are plausible reflexes of reconstructable extensions found elsewhere in Chadic. These are CAUSATIVE, VENTIVE, and TOTALITY.

#### 8.1.1. Causative

The CAUSATIVE of Hausa is Grade 5, which has two allomorphs, **-dà** and **-as**. The latter is usually pronounced **-aĩ** or even **-aG**, i.e. complete assimilation to the next consonant. The **-dà** allomorph is reconstructable to at least the level of proto-West plus probably proto-Central as well (§1.3.1). The **-as** allomorph has no obvious counterparts outside Hausa.<sup>72</sup> Distribution of the allomorphs is summarized in the table below, illustrated with the base **tsay-** intransitive ‘come to a halt’, CAUSATIVE ‘bring to a halt’. (The alternation between /**tsay**/ and /**tsai**/ seen in the table is due to a regular phonological rule affecting glides that can be ignored here.) The direct object (DO) is illustrated with 3<sup>rd</sup> feminine singular pronouns: **-ta** is a bound suffix, **ita** is the independent pronoun. Noun objects would behave syntactically like the independent pronoun.

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<sup>72</sup> Hodge (1971) has linked Hausa **-as** with an Afroasiatic CAUSATIVE \*s, which is productive in Berber e.g. Tamazhaq **əsləm** ‘become a Muslim’, **s-əsləm** ‘Islamicize’. This proposal is unsustainable. Aside from the fact that no other Chadic language, as far as I know, has an **-s** marking CAUSATIVE, there is no obvious way to relate a prefixed formative, as in Berber, to the suffixed formative in Hausa.



**Table 22:** Allomorphs of the Hausa CAUSATIVE

<b>tsayà</b> ‘come to a stop’	NO OBJECT	DO	VN
<b>-dà</b> suffix	<b>tsai-dà</b>	<b>tsai-dà ta</b>	<b>tsai-dà-wā</b>
<b>dà</b> preposition	<b>*tsai (dà)</b> → <b>tsay-aĩ</b>	<b>tsai dà ita</b>	<b>*tsayà-wā dà</b> → <b>tsay-âĩ-wā</b>
<b>-aĩ /-as</b>	<b>tsay-aĩ</b>	<b>tsay-âĩ dà ita</b>	<b>tsay-âĩ-wā</b>

There are really two separate **da**'s, a true suffix and the preposition **dà**. The suffix is used in conservative western and northern dialects and is integrated into the morphology of the verb, lengthening the vowel before personal pronominal suffixes and adding the verbal noun suffix **-wā** directly to the CAUSATIVIZED verb. A hypothesis relating the two is that Hausa inherited the suffix **-dà** from its PC ancestor, then dialectally reinterpreted the suffix as the homophonous multifunctional preposition **dà**, which takes nouns and independent pronouns as complements, and, not being morphologically part of the verb, could not add the noun-forming suffix **-wā**. Alongside the **da** CAUSATIVE was an **-as** construction of similar function. This construction requires preposition **dà** with objects.<sup>73</sup>

The heterogeneity in form for Grade 5 is reflected in heterogeneity in function. Newman (1983) has proposed the term EFFERENTIAL for Grade 5 to capture a concept of “action directed out and away” (Newman 2000:655). This is seen in constructions such as **jēfaĩ** ‘throw away’ (cf. **jēfà** ‘throw’) alongside the function of transitivity unaccusative verbs **batã** ‘lose’ (cf. **batà** ‘get lost’), with concept of “having the action move away from the subject toward the patient” (Newman 2000:656).

### 8.1.2. Ventive

Three reconstructable allomorphs for the VENTIVE in West Chadic were discussed above in §3.1: **\*w**, **\*n**, and **\*t**, the first two of which have been inherited into Hausa. The

<sup>73</sup> The overall picture of Grade 5 morphology is much more complicated than the picture presented here. There is, for example, a suffix **-shē** used with pronominal object suffixes as an option to the forms in the table, e.g. **nā tsai-shē tà** ‘I stopped her.’ See Newman (2000:651-655) for details.

reflex of \*w is Hausa Grade 6, which has a suffix -ō with all high tones, e.g. **shigō** ‘come in’ (cf. **shiga** ‘go in’). The functions and examples of the VENTIVE in Hausa are in §3.1

The Hausa reflex of the \*n VENTIVE is called *destinative* in Newman (1977), following Mouchet (1966). This extension is discussed in §3.1 as it relates to its reflex in Central languages in §3.2. In Hausa this reflex is limited to marking indirect objects of mainly Grade 2 verbs, e.g. **nēm-am matà** ‘seek for her’ (cf. **nēmā** ‘seek’).

### 8.1.3. Totality

A TOTALITY marker \*n can be reconstructed to at least proto-West and proto-Central (§§2.1–2). The Hausa reflex is Grade 4, which, as a productive extension, has the form HL-è, e.g. **nā bugè shi** ‘I knocked him down’ (cf. **nā bugà shi** ‘I struck him’). The Proto-Chadic \*n TOTALITY shows up as a suffix -nyē found mainly with monoconsonantal roots, e.g. **nā shânyē ruwā** ‘I drank up the water’ (cf. **nā shā ruwā** ‘I drank water’). In §2.1.1, I present several pieces of evidence, comparative and internal to Hausa, that the \*n TOTALITY was originally a separate clitic, not a suffix, and in Chapter 6, §6.1.2, I proposed that the canonical Grade 4 final -ē form was originally a nominal form, still found as a productive deverbal nominal forms, one of whose manifestations is a LH-e stative form, termed Verbal Adverbial Nouns of State (VANS) by Parsons (1981), e.g. **à tsàye** ‘stopped, standing’ (cf. **tsayà** ‘come to a halt’). The -nyē suffix appears to be a blend of PC TOTALITY \*-n and the stative sense of deverbals ending in -ē with elision of the -n- in longer verbs.

## 8.2. Innovation of extensions through reinterpretations

The other four of the grades in the Hausa grade system contain innovative extensions not originally part of a proto-(West)Chadic extension system. These are Grade 1 APPLICATIVE, Grade 2 PARTITIVE, Grade 3 INTRANSITIVE, and Grade 7 MIDDLE or MEDIOPASSIVE.

### 8.2.1. Applicative [section yet to be done]

Disyllabic Grade 1 verbs have the shape HL-à, e.g. **dafà** ‘cook’; longer verbs have the shape ...HLH-ā, e.g. **karāntā** ‘read’.

Some Grade 1 verbs are basic. Others seem to be APPLICATIVE as a result of reinterpretation of forms that were not originally part of an extension system.

RGS: This section discusses only the grade system and its derivational properties. Remnant affixes are discussed in the general section on Chadic extension typology, this chapter §4.

## 9. Kera

Ebert (1979:111-116) describes three particles that she refers to as *extensions* (*Erweiterungen*) and that correspond functionally, at least in part, to extension affixes in other Chadic languages. In Kera, constructions using these particles have the following syntax:

VERB STEM (+ NOUN DO) (+ **né**<sub>PERFECT</sub>/**la**<sub>SUBJUNCTIVE</sub>) + **wóra** (**dà/ná**) (+ NOUN IO)

### 9.1. “Totality” extension *wóra*

The particle **wóra** indicates that the object of transitive verbs or the subject of intransitive verbs has been destroyed or has “disappeared”. She likens the effect of this particle to the German verb prefixes *zer-*, *ver-*, *aus-*, *weg-*. Examples here are from pages 111-112. All are in the Perfective I.

<b>wə sáŋ kumə́y wóra</b>	‘he drank up the beer’
<b>wə sòkóŋ kóyáŋ' wóra</b>	‘he kicked away the dog’
<b>wə bə̀tə́ŋ kulíy wóra</b>	‘he demolished the hut’
<b>kóy hùmùŋ wóra</b>	‘the rain has stopped’
<b>kulíy kúŋ wóra</b>	‘the hut burned up’

**Ye ðupuŋ kumə́y né wóra á kaŋ́, ye ís bə̀ hàmé.**

‘When they had poured out<sub>PERFECT</sub> the beer to the people (**á kaŋ́**), they began eating.’

Ebert (1979:112) notes that although the semantic effects of **wóra** in sentences such as these correlate with the TOTALITY verbal extension in other languages, this particle is not used in the typical totality function of indicating “bring a project to completion”, e.g.

“finish building a hut” (or, presumably, application to the totality of objects, such as “buying up all the eggs”, etc.). Such uses do not correspond to the base function of **wóra**, viz. indicating “disappearance” or “destruction”.

## 9.2. “Ventive” *dà* and “itive” *ná*

These particles have opposite meanings and thus are mutually exclusive; however, they can be used along with the totality particle **wóra**. Ebert (1979:113) likens the function of the particle **dà** to German *her*. It’s meaning corresponds closely to VENTIVE verbal affixes in other Chadic languages, viz. with verbs of motion, the end point of the movement is the point of reference, and with verbs not expressing motion, the effect of the action is at the point of reference. The following examples [113] with Ebert’s German translations in parentheses indicate the effect of the Totality and Ventive with the verb **kélé** ‘enter’. TAM is Perfective I.

**Table 23:** Kera verbs with extensions

NO EXTENSION	TOTALITY	VENTIVE	TOTALITY + VENTIVE
<b>kóláŋ</b> went in ( <i>ging hinein</i> )	<b>kóláŋ wóra</b> went out ( <i>ging hinaus</i> )	<b>kóláŋ dà</b> came in ( <i>kam herein</i> )	<b>kóláŋ wár-dà</b> came out ( <i>kam heraus</i> )

**Hùlùm bə Səsáŋgá, wə bəŋ dà-ŋ, wə bəŋ Péve dà. Hùlùm bə Péve, wə lúŋ dà, wə lúŋ Áw dà, Dòrè dà.**

‘A Səsanga person, when he has come, he has come from Peve. A Peve person, he has mounted up (and come), he has mounted up and come from Aw, from Dore.’

**tókáŋ dà** ‘harvested and brought here’

**A míntí ye gòldò gùdbùl dà á írkú'ŋ.**

‘She said they should bring a chair for the guest.’

In contrast to **dà**, with a *ventive* sense, is **ná** with an *itive* sense, i.e. motion or effect away from the place of reference. Like **dà**, **ná** can be used in combination with Totality **wóra**.

**Kíntí hàn gògò war-ná /wóra ná/ kérékə kan ná.**

‘The monkey took (/hè/ ‘take, carry’) the lion away above the water.’

**Hà-n í war-ná /wóra ná/ gùud-ùm ná.** ‘Take-me there behind-you.’

These examples illustrate a few further features of these particles. First, though Ebert does not mention this, the particles apparently are repeated after each relevant complement (see the repetition of **dà** after **Áw** and **Dòrè** in the first example of **dà** and in both examples of **ná**). Second, **dà/ná** are mutually exclusive with the Subjunctive particle /**la**/ if they would otherwise come together (**hàw dà!** ‘bring it here!’, **hàw là!** ‘take it!’, but \***hàw là dà!** [116]). The example of **dà** beginning “**A míntí...**”, which is in the Subjunctive, also illustrates this. However, if the Totality marker intervenes, Subjunctive /**la**/ can be used, as in the last example above, where it has the form [**lò**].

## 8 | Pluractional Verbs

### 1. Pluractionality

Newman (1980:13) coined the term *pluractional* to refer to morphological modification of a verb that indicates that the action of the verb takes place multiple times in a single “event group”.<sup>1</sup> Roughly speaking, pluractionality is to verbs as plurality is to nouns, and some languages even have verbal and nominal morphology that parallels the semantic connection. Section 1.1 discusses the meaning of pluractionals, and §1.2 discusses the morphological exponents of pluractionality found in Chadic languages.

Many—perhaps most—Chadic languages have relatively regular processes for forming pluractional verbs. Here are examples from languages of each of the major subgroups. As these examples show, pluractional morphology across Chadic is quite varied. Pluractional morphology for each of these languages is covered in §1.2:

Karekare (West-A):	<b>bàsā-</b>	→ <b>bàsàsā-</b>	‘shoot’
Miya (West-B):	<b>dzar</b>	→ <b>dzāra</b>	‘disperse’
Margi (Central-A):	<b>fiku</b>	→ <b>fifiku</b>	‘whistle’
Gude (Central-A):	<b>ndərən</b>	→ <b>ndōrən</b>	‘mount/copulate (animals)’
Lele (East-A):	<b>boy</b>	→ <b>poy</b>	‘break’
Mokilko (East-B):	<b>wīlǎ</b>	→ <b>wīlǎtē</b>	‘slaughter’

Before continuing, let us delimit *pluractionals* within the larger category of *plural verbs*. Newman (1990:53) distinguishes two types of plurality as applied to verbs:

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<sup>1</sup> Wolff (2001) is an expansive comparative study of pluractionality in Chadic. Newman (2012) is a recent overview of pluractionality as a widely occurring linguistic phenomenon in the languages of the world.

*inflectional concord* between a verb and a plural subject<sup>2</sup> and *derived plural verb stems* indicating semantic plurality. The first is an obligatory part of the inflectional system, similar to subject agreement affixation. A few Chadic languages have concord of this type. For example, in Karekare (West A) **nà/ka/ci/Ø àsu-kò** ‘I/you(m)/you(f)/he ~ she took (it)’ require the simple verb stem **àsu-**, whereas **mu/ku/Ø às-an-kò** ‘we/you(pl)/they took (it)’ require the plural subject agreement affix **-an-**. Any other configuration would be ungrammatical. In general, both singular and plural subjects are compatible with a pluractional stem, e.g. **nà àsàsu-kò** ‘I repeatedly took (it)’, **mu àsàs-an-kò** ‘we repeatedly took (it)’. As discussed in §1.1.2, there is a strong (in some cases, obligatory) correlation in many Chadic languages between a pluractional verb with a (semantically) plural subject and/or object. However, even languages that show this correlation usually also use pluractionals to indicate multiplicity of action regardless of the plurality of the arguments. That is, semantic pluractionality is paramount, and the correlation with plurality in arguments is epiphenomenal.

Within pluractionals in the sense just defined, Newman (1990:84) further distinguishes two categories: *iterativity*, i.e. repetitiveness of action (‘I kept banging the nail’), and *pluractionality* proper, i.e. multiple effects on arguments (‘I (successively) gave candy to the young kids who came by’). A few Chadic languages, e.g. Kera, do make such a distinction morphologically, and Newman (1990:84) states that “the formative for the iterative in PC can be reconstructed with confidence as a suffix \*tV.” I do not find the evidence for this compelling. Nearly all Chadic languages that have productive pluractional-forming processes use the same form for multiple action of any kind, whether iterative or successive. I discuss the \*tV suffix that Newman mentions in §1.2.3.

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<sup>2</sup> This statement applies to *nominative-accusative* languages, where subjects of intransitive and transitive verbs have the same grammatical status. All Chadic languages are of this type. In *ergative-absolutive* languages, where subjects of intransitives are grouped grammatically with patients of transitive verbs, inflectional concord would be with subjects or patients depending on the verb.

## 1.1. Pluractional verb functions

## 1.1.1. Multiplicity of action

Newman (1990:54-58) quotes statements about pluractional function from descriptions of 30 Chadic languages. The following statement about Hausa pluractionals, from Parsons (1981:206), quoted by Newman (1990:90), covers essentially all the functions that emerge from the sources that Newman quotes:

“Verbs with reduplicated roots [= pluractionals—RGS]... express *plurality of action*, i.e. one actor, or a number of actors doing the same thing to a number of objects, either simultaneously or in succession; or a number of actors doing the same thing to the same object severally and/or in succession; or else one actor doing the same thing to the same objects several times over... With intransitive verbs it adds a notion either of multitude and/or succession, ... or sometimes of distribution in space....”

The table below, from Schuh and Gimba (n.d.), contrasts these pluractional functions with non-pluractional counterparts. See §1.2.1.2 for a description of Bole pluractional morphology.

**Table 1:** Functions of Bole pluractionals

	NON-PLURACTIONAL	PLURACTIONAL
1. One subject repeatedly doing the same action	<b>ñ duru-wò</b> ‘I jumped’	<b>ñ du-duru-wò</b> ‘I repeatedly jumped’
2. One subject repeatedly doing the same action to the same object	<b>ita bìna-k kùḍa</b> ‘she washed the pot’	<b>ita bì-bìna-k kùḍa kala kut-tù bìnè</b> ‘she washed the pot over and over, but it would not get clean’
3. One subject acting iteratively on several objects	<b>òn-su gōrò!</b> ‘give them a kola!’ <b>kère uwwà!</b> ‘slaughter goats!’ <b>kòni dāndè!</b> ‘take the children!’	<b>ò-’òn-su gōrò!</b> ‘give each of them a kola!’ <b>kèrre uwwà!</b> ‘slaughter each goat!’ <b>kò-gì-ni dāndè!</b> ‘take each of the children!’



4. Several subjects acting one by one	<p><b>uwwa pète-n ko gà bònò</b> ‘goats came out of the house (as a group)’</p> <p><b>màte ma-n bònò</b> ‘they went back home’</p>	<p><b>uwwa pètte-n ko gà bònò</b> ‘goats came out of the house one after another’</p> <p><b>màte mà-mà-’’an bònò</b> ‘they went back home one after another’</p>
5. Several subjects acting iteratively on the same object	<p><b>yàbbi à jì dòbbà tītòkì</b> ‘the chickens are pecking the bug’</p> <p><b>yàbbi sa-n àmma</b> ‘the chickens drank water’</p>	<p><b>yàbbi à jì dò-dòbbà tītòkì</b> ‘the chickens kept pecking the bug’</p> <p><b>yàbbi sà-’’an àmma</b> ‘the chickens repeatedly drank water’</p>
6. Several subjects acting iteratively on several objects	<p><b>màte kòna-n kùlinshe</b> ‘they picked up calabashes (in a bunch)’</p>	<p><b>màte kò-kò-gì-na-n kùlinshe</b> ‘they picked up calabashes in turn’</p>

A number of the sources quoted by Newman (1990:54-58), either in the quote itself or in Newman’s summary of the quote, list *habitual* as one of the semantic categories that pluractionality expresses, e.g. Dghwede (Frick 1978:30) “the action takes place several times, either done by one person repeatedly or *habitually* ...”, Kapsiki (Smith 1969:111) “[pluractionals] usually denote *habitual* action ...” [italics mine]. When actual uses are examined, it turns out that pluractionals rarely, if ever, are used to indicate “habit”, i.e. recurrent events happening at disconnected times. The canonical use of a pluractional refers to an “event group”, i.e. repetition of an event within an internally connected time and place. I therefore suspect that in at least some of these statements, the word “habitual” crept in because of its implication of repetitiveness, not because use of pluractionals to denote habituality were actually observed.

Ekkehard Wolff, in a number of papers over the years, beginning with Wolff (1979), has proposed functional shifts in Chadic languages between pluractionality as a derivational category to durative/habitual as an inflectional category. A possible example would be Ron “Habitative stems”, but I have this only from secondary sources (Newman 1990).

Plausible as such functional shifts seem, Wolff has not documented clear examples where such shifts have taken place, and my observations from West Chadic suggest that these languages have maintained a rather rigid division between their derivational and their inflectional categories.

[RGS] Note written August 16, 2016: I seem to have written this before writing the chapter on TAM systems. In that chapter, I explicitly propose that the “imperfective” in Ron is originally the pluractional, reinterpreted as a TAM marker. Paul seems also to have also proposed this, though we proposed it independently.

### 1.1.2. *Semantic congruity between pluractional verbs and arguments*

Many descriptions of pluractionality in Chadic languages draw attention to the following connection:

pluractional *intransitive* verb ↔ plural *subject*

pluractional *transitive* verb ↔ plural *object*

Pero (West-A): “There are two main functions of plural [i.e. pluractional] verbs in Pero. One is to indicate that the intransitive subject is plural and the other is to indicate that the patient of a transitive verb is plural” (Frajzyngier 1989:84). However, on page 86, Frajzyngier adds, “There is a third function...and that is simply of indicating an action performed many times. It is very likely that historically this was the primary function of plural verbs.”

Sura (West-A): “Die Bedeutung dieses Stammes [i.e. pluractional—RGS] ist mannigfaltig; meistens weist seine Anwendung auf ein pluralisches Objekt hin, manchmal—vor allem bei intransitiven Verben—auf ein pluralisches Subjekt, nicht selten kann es auch eine iterative Handlung bedeuten” (Jungraithmayr 1964:31).

Margi (Central-A): “The reduplicated verb stems usually indicate iterative, intensive, or extensive action. They may also point to the plurality of the subject (if intransitive verbs) or of the object (if transitive verbs)” (Hoffmann 1963:160).

Lele (East-A): “The verbal plural codes plurality of action, plurality of intransitive subject, and plurality of the transitive object. If the object is marked for plural, the verb must have a plural suffix.... [O]ne cannot use a plural subject with the singular form of [an intransitive] verb.... The plural forms of the verb cannot be used with explicitly

singular subjects even if the intended meaning involves intensive [action]” (Frajzyngier 2001:126-127).

Following Newman (1990:84), I refer to this pattern as *semantic congruity*. A number of writers have made an unfortunate terminological choice, calling this an *ergative* pattern.<sup>3</sup> Ergativity is a feature of syntactic systems that can be defined as follows:<sup>4</sup>

“An ergative language maintains a syntactic or morphological equivalence (such as the same word order or grammatical case) for the object of a transitive verb and the single core argument of an intransitive verb [usually marked in *absolute* case—RGS], while treating the agent of a transitive verb differently [in particular, marking it with *ergative* case—RGS].”

In no significant sense does the pattern observed in Chadic languages conform to ergativity by this definition. First, the correlation of nominal plurality and verbal pluractionality in this pattern is one of a *semantic* property of the argument not a *grammatical* function. In an ergative-absolutive system, arguments will be marked according to function regardless of semantic properties.<sup>5</sup> Second, the *real* agreement pattern in all Chadic languages, esp. between subject agreement markers and grammatical subject, is nominative-accusative, i.e. they are the same between subject of intransitive and agent of transitive. Finally, in only a handful of languages is the correlation of argument plurality and verbal pluractionality a *grammatical agreement* pattern. In Newman’s (1990:54–58) survey of statements about pluractional function from descriptions of some 30 languages —see list at the end of this chapter—, only two of those languages—Kanakuru and Kera—state that the correlation is a grammatical requirement limited to plurality of arguments. From descriptive statements, there seems to be a range of how strictly languages obey the correlation, ranging from near absolute adherence to a strong tendency, to a “preference”, but nearly all languages seem to use

<sup>3</sup> Frajzyngier (1984) has gone so far to use the behavior of pluractional verbs as one piece of evidence for reconstructing Proto-Chadic as having had ergative syntax rather than nominative-accusative syntax as is found in all modern Chadic languages. I discuss this idea, which I reject, elsewhere.

<sup>4</sup> [http://en.wikipedia.org/wiki/Ergative-absolutive\\_language](http://en.wikipedia.org/wiki/Ergative-absolutive_language)

<sup>5</sup> There are mixed systems that, for example, treat nominal arguments differently from pronouns or that differ according to tense or aspect. The statement here would apply to the part of the system that is ergative-absolutive.

pluractional verb forms to indicate repeated action regardless of plural marking on arguments. Moreover, in Kanakuru and Kera plural argument ↔ pluractional verb agreement is limited to a small number of lexically specified verbs, suggesting that the “agreement” is now really a selectional restriction on certain verbs (something like *fressen* ‘to eat’ in German requiring a non-human subject, or, as I will suggest for Kanakuru, like subject number agreement with English *was/were*) rather than agreement of an argument with verbal pluractionality.

It is not difficult to understand how languages could develop the *semantic congruity* between plural arguments and pluractional verbs, either through parallel innovation or areal spread. One path would be avoidance of ambiguity. Consider the following Hausa examples (Hausa is a language in which verbal pluractional marking, indicated by reduplication, has no grammatical correlates):

- awākī sun fitō** ‘the goats came out (as a group)’  
**awākī sun firfitō** ‘the goats came out (one by one)’  
**iskā yā karyà rāssan bishiyār** ‘the wind snapped off the tree branches (in one gust)’  
**iskā yā kakkàryà rāssan bishiyār** ‘the wind snapped off the tree branches (one by one)’

All the sentences here are grammatical, regardless of reading, but the parenthesized disambiguations would probably be the preferred first readings by Hausa speakers. In real world situations, my guess is that it would more frequently be the case that events such as those in these examples involve individual arguments being affected separately than plural arguments being affected as groups. The pluractional verbs (those unambiguously denoting individual events) would thus be more frequent in discourse, and such frequency effects are well-known to be a path toward grammaticalization. In short, I agree with the statement by Frajzyngier (1989:86), cited above, that “action performed many times... was [historically] the primary function of plural verbs”, and that the semantic congruity of pluractional verbs with argument number is a natural development that one could expect to happen over and over independently.

## 1.2. Exponents of pluractional morphology

Newman (1990:Chapter 3) sets out five exponents of pluractional formation that can be observed in Chadic languages:

1. CV(C) reduplicative prefixation, e.g. Hausa **tàmbayà/tàn-tàmbayà** ‘ask’, Margi **pàtlè/pà-pàtlè** ‘break (pot)’
2. (V)C(V) reduplicative suffixation, e.g. Ngizim **vàrkù/vàrk-àk-u**<sup>6</sup> ‘shoot’, Lamang **sula/sul-al-a** ‘fry’
3. Gemination, e.g. Bole **mòtu-/mò-tt-u** ‘die’, Migama **māto/ma-tt-o** ‘die’
4. Internal vowel change (“ablaut/apophony”), e.g. Angas **pùs/pwas** ‘shoot’, Bachama **pír/pyér** ‘thatch’
5. Suffixation, e.g. Ron-Kulere **mot/mót-áy** ‘die’, Mokilko **wâldu/wâldî-tu** ‘slaughter’

Types (1, 2) are well-attested in West Chadic and Biu-Mandara languages, but rarely, if at all, in East Chadic. (Newman gives a single verb from Mokilko and a questionable case from Kera, see §4 below). Type (3) is found only in Bole-Tangale languages of West Chadic and in East Chadic-B languages. Type (4) is found in all three major branches, though in West Chadic it is primarily restricted to “southern” languages (Ron, Angas-Goemai, South Bauchi). Newman presents examples of type (5) for all three major branches, but I will suggest that apparent suffixes in West Chadic languages are innovations. A suffix \***t** is well-attested in East Chadic.

### 1.2.1. West Chadic

Newman (1990) gives examples of all five types of pluractional formation for West Chadic languages. I will present evidence that modern processes of *gemination* (3), *suffixation* (5), and probably *internal vowel change* (4) in West Chadic languages all have

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<sup>6</sup> I give the morpheme breaks implied by Newman (1990:66). I present another view below.

their source in reduplication. Moreover, I will present evidence that reduplication in proto-West Chadic must have been of type (2), i.e. for West Chadic at least, I take a position exactly opposite that of Newman (1990:86), who says,

“In Chadic, it turns out that only *prefixed* reduplication was used for pluractional formation. Scattered present-day languages employ *suffixed* reduplication for this purpose, but it was clearly not a feature of PC.”

*1.2.1.1. West Chadic-B languages.* I begin with languages from the Bade-Ngizim group, which present a fairly clear picture and a sort of prototype for what we might reconstruct for proto-West Chadic. I refer to the verb classes as described in Chapter 6, §1.1:

Class A1 = CVC-Ø/-ə/-u

Class A2 = bases longer than CVC + -Ø/-ə/-u

Class B = CVC-a

Class C = C-i/-u

Class D = C-a

**Table 2:** Ngizim<sup>7</sup>

		BASIC <sup>8</sup>	PLURACTIONAL	
A1	CəCu	<b>vəru</b>	<b>vəràru</b>	‘go out’
	CaCu	<b>màsu</b>	<b>màsàsu</b>	‘buy’
A2	CVCCu	<b>ɗə̀bdu</b>	<b>ɗə̀bdàdu</b>	‘sell’
	“long”	<b>dàgàmu</b>	<b>dàgàmàmu</b>	‘fall’
	CVVCu	<b>kàsu</b>	<b>kàsəsu</b>	‘sweep’
B	CaCa	<b>gàfa-w</b>	<b>gàfəfu</b>	‘catch’
C/D	Ca	<b>va-w</b>	<b>vàvu</b>	‘shoot’

<sup>7</sup> Newman (1990:102-106) describes what was known about Ngizim pluractional formation at the time, based mainly on data gleaned from Schuh (1981). Newer data from Ngizim as well as comparative data from Bade clarify some of the questions that were left open in Newman’s discussion.

<sup>8</sup> I sometimes refer to the non-pluractional verb as “basic”, other times as “simple”. They mean the same.

The forms here represent what seems to be the modern productive pattern for Ngizim. The primary pattern here is what Newman (1990:65) calls “reduplication to the right”. If one uses the first verb as an example and extrapolates from Newman's informal statements, his analysis would be as follows:

$/v\grave{a}ru/_{\text{PLURACTIONAL}}$ , DOUBLE FINAL C  $\rightarrow v\grave{a}r-r-u$ , INSERT a  $\rightarrow [v\grave{a}r-\grave{a}-r-u]$

That is, the reduplication is to the right and a vowel **-a-** is inserted before the reduplicated **-r-**. In contrast, my intuition in confronting Ngizim and Bade pluractional formation is that the reduplication is *infixal*. That is, my analysis would be the following:

$/v\grave{a}ru/_{\text{PLURACTIONAL}}$ , INFIX FINAL C  $\rightarrow v\grave{a}-r-ru$ , FORM Ca SYLLABLE  $\rightarrow [v\grave{a}-r\grave{a}-ru]$

That is, the reduplicant is an *infix* CV syllable built from the final C. If one considers the Class D example, **v\grave{a}vu** ‘shoot (pluractional)’, I tend to think that most linguists would say that this has been formed by *prefixing* **Ca-** (where C is the only root consonant). Ngizim has many (semi-)frozen pluractionals like **\text{f}\grave{a}\text{f}\grave{a}ru** ‘peel off’, which is clearly related to **\text{f}\grave{a}ru** ‘share out, divide’, and which, again, I think the first reaction of most linguists would be that the former has a reduplicative *prefix* **\text{f}\grave{a}-** that the latter lacks. My suggested derivation makes for a consistent analysis of pluractionals, viz. preposing of a CV syllable.

All these pluractionals are like Escher prints or African polyrhythmic drumming. That is, they can be simultaneously perceived and interpreted in at least two ways:  $[v\grave{a}r\grave{a}ru] = /v\grave{a}r-\grave{a}r-u/$  or  $/v\grave{a}-r\grave{a}-r-u/$ , and neither is obviously right or wrong! In a linguistic analysis that uses rules to derive surface forms from underlying forms, one must make a choice, but this is almost surely not the way Ngizim speakers create pluractionals on the fly. My best guess is that they have a mental global template into which they substitute the appropriate segments from a specific lexical item, but who knows? For my purposes, I will adopt my intuition that pluractional formation consists

of *infixing* or *prefixing* a CV syllable, fully realizing that there are alternatives that are, perhaps, equally valid.<sup>9</sup>

Using the *infix* syllable analysis, the general rule for the data in the table above is

“Infix -C<sub>FINAL</sub> V- before C<sub>FINAL</sub>.” (V = **a** or **ə** depending on root structure)

For most root types, V = **a**, but for **CaCa** (Class B) and **CVVCu** (Class A2 with a long root vowel), the vowel is **ə**. The description of the Bade data below suggests that these latter cases are an archaism in Ngizim and that Ngizim has innovated in two ways. One is to expand the class of cases where V = **a** and the second is to always choose C<sub>FINAL</sub> as the base for reduplication.

**Table 3:** Western Bade

		BASIC	PLURACTIONAL	
A1	CəCu/əCCu	<b>vəru</b>	<b>fàvəru</b>	‘go out’
		<b>əfku</b>	<b>fàfku</b>	‘enter’
	CaCu	<b>màsu</b>	<b>màsəsu</b>	‘buy’
A2	CVCCu	<b>kàrmu</b>	<b>kàràrmu</b>	‘chop’
	“long”	<b>tlərgədu</b>	<b>tlərgàgdu</b>	‘destroy’
	CVVCu	<b>mètu</b>	<b>mètətu</b>	‘glance’

<sup>9</sup> My intuition that pluractional formation consists of adding a CV *syllable* is so strong that I have been repeatedly surprised when others did not share this the same intuition. This has happened on three separate occasions that I can recall. One was in reading Newman’s (1990) account. A second was during a seminar presentation on the Bade data below, when a graduate student suggested **-aC-** insertion, and a third was in my undergraduate course on morphology, when I gave the Bade data as an analysis problem, and a student came up with the **-aC-** solution (and this was after I had used a *syllable*-doubling analysis to illustrate reduplication!). I have assumed that my intuition arises from my having a human brain, which cross-linguistic evidence suggests has a preference for affixes to be syllables on their own, not split across syllables, but I guess human brains can differ in this respect!



B	CaCa <sup>10</sup>	<b>gàfu</b>	<b>gàfəfu</b>	‘catch’
C/D	Ca	<b>vǒ /vǎ-w/</b>	<b>vəvo</b>	‘shoot’

Cutting directly to the chase, the rule for pluractional formation in Bade is the following:

BADE PLURACTIONAL FORMATION:  $(CV)C_nV \rightarrow (CV)-C_n\mathfrak{a}-C_nV$   
 $\dots C_{n-1}C_nV \rightarrow \dots -C_{n-1}\mathfrak{a}-C_nV$  elsewhere  
 where  $V \neq \mathfrak{a}$ , “n” = number of stem consonants

That is, for stems with only one consonant OR CVC- stems with a *lexical vowel*, infix a syllable consisting of the last consonant +  $\mathfrak{a}$  before the last consonant; otherwise, infix a syllable consisting of the penultimate consonant +  $\mathfrak{a}$  before the penultimate consonant. The vowel [ $\mathfrak{a}$ ] is *non-lexical*: its placement (and also its phonetic relation) is predictable base on syllable structure.<sup>11</sup>

The main difference between Bade and Ngizim is that Ngizim always bases its reduplicant on  $C_{FINAL}$ , whereas Bade does this only for CVCV ( $V \neq \mathfrak{a}$ ) and CV roots, whose reduplicant is  $C\mathfrak{a}$ . Elsewhere in Bade, the reduplicant is always based on the penultimate consonant and has the shape **Ca**. The explanation for Bade’s double strategy seems to be avoidance of stems of the shape CVCVC- where  $V \neq \mathfrak{a}$ , i.e. stems comprising all lexical vowels. There are no native verb roots of this type. Indeed, there are no native underived verbs that have lexical vowels in syllables other than the first. This suggestion

<sup>10</sup> Bade dialects have shifted most original Class B verbs to Class A1. The speaker from whom I collected this data has done this with the root **gàf-** ‘catch’. Other Western Bade speakers with whom I worked have **gàfo** < /gàfa-w/.

<sup>11</sup> See Schuh (1978a) for a discussion of vowels and syllables in Bade and Ngizim. Ngizim differs from Bade in that Ngizim syllabifies the first C of a root by inserting  $\mathfrak{a}$  after it if there is no lexical vowel while Bade allows C1 and C2 to abut if the sequence is legal, then inserts prothetic  $\mathfrak{a}$ , e.g. Ngizim **dəgà**, Bade **ədəgà** ‘arrow’ but **vəru** ‘go out’ in both languages, since **v+r** cannot abut. Once initial syllabification is done, both languages work through the word inserting  $\mathfrak{a}$  wherever an illegal consonant sequence would otherwise occur.

does not account for why monoconsonantal roots reduplicate with ə, i.e. why is the pluractional of **vǒ** ‘shoot’ **vǎvo** rather than **\*vǎvo**, as in Ngizim.<sup>12</sup> I have no good answer other than noting the root consonant of a monoconsonantal root is C<sub>FINAL</sub>, and other verbs with Cə reduplicants also base the reduplicant on C<sub>FINAL</sub>.

Between Bade and Ngizim, Bade must be the more conservative, i.e. Ngizim has innovated by choosing C<sub>FINAL</sub> as the basis of the reduplicant for all verbs, not just CVC-roots where V is a lexical vowel. Evidence that Ngizim is innovative is the existence of a large number of frozen pluractionals that have the Bade pattern:

Ngizim frozen pluractionals:	<b>càcpu</b>	‘collect, gather’
	<b>dàdgu</b>	‘beat, thrash’
	<b>tàtəmu</b>	‘pick beans, pluck’
	<b>dəgàgəru</b>	‘pound floor to harden’
	<b>jəkəkəfu</b>	‘(child) climb on one’s lap’
	<b>səkəkəwiyu</b>	‘spend time’

On the face of it, it looks like modern Ngizim has simplified matters: it should be an easier strategy to locate the final consonant for reduplication than to work back from the end in order to locate the penultimate consonant. On the other hand, this “simplification” has introduced an element of complexity, viz. choice between **Ca** vs. **Cə** reduplication cannot be determined purely on phonological grounds as it can in Bade. In Ngizim, Class A1 **CaCu** verbs must now be distinguished from Class B **CaCa** verbs: Class A1 **màsu** ‘buy’ → **màsàsu** whereas Class B **gàfa-w** ‘catch’ → **gàfəfu**, with the archaic **Cə** reduplicant.

One final remark is in order for Bade. Note that when the resultant pluractional has the form CV<sub>1</sub>C(ǎ<sub>2</sub>)C-, V<sub>1</sub> is always long, e.g. **gàfu** ‘catch’ → **gàfəfu** even though lexical

<sup>12</sup> When Ngizim reduplicates monoconsonantal verbs, it shifts them to Class A1, e.g. **vǎvu** with final **-u**, which comprises by far the largest number of CVC- roots. Bade shifts them to Class B, which is the CVC-**a** class paralleling the C-**a** monoconsonantal class.

V<sub>1</sub> is short. In Schuh (2002), I proposed that this has a metrical explanation, i.e. Bade in particular and (West) Chadic languages in general have a preference for alternating syllable weight within words. By lengthening the first syllable of the reduplicated form, this preference is satisfied. Comparing Ngizim and Bade in terms of Optimality Theoretic phonology, FAITHFULNESS to lexical vowels outranks ALTERNATING WEIGHT in Ngizim, whereas in Bade, the opposite is the case.

I turn now to Miya, a language of the North Bauchi group, which, by the classification of Newman (2013a) is part of West Chadic B along with Bade-Ngizim.

**Table 4:** Miya

		BASIC	PLURACTIONAL	
A1	CəC(ə)	<b>tsər</b>	<b>tsatsəra</b>	‘stop’
B	CəCa	<b>bəta</b>	<b>babəta</b>	‘untie’
A1	CaC(ə)	<b>ɓal</b>	<b>ɓāla</b>	‘break (rope)’
		<b>kafə</b>	<b>kāfa</b>	‘send’
A2	CVC(ə)C(ə)	<b>tsəryə</b>	<b>tsarya</b>	‘step on’
		<b>dadəmə</b>	<b>dadəma</b>	‘repair’
C/D	Ca	<b>pə</b>	<b>pəpa</b>	‘collect’

Pluractional formation of A1 and B roots with ə as their first and only vowel, and monoconsonantal roots<sup>13</sup> look like Bade, i.e. pluractionals of roots of these types are compatible with rules  $C_{n-1}əC_n \rightarrow C_{n-1}a-C_{n-1}əC_n a$  and  $Ca \rightarrow Cə-Ca$ <sup>14</sup> respectively, which are very much like the Bade rules above. CaC roots where  $V \neq ə$  form their pluractionals

<sup>13</sup> All historical Class C roots in Miya except for the highly irregular **bə** ‘go’ have shifted to the Class D **Ca**. A parallel shift has taken place in Bade and Ngizim, where the only Class C root is **ju** ‘go’. The shift must be convergent, not a shared innovation, because the Class C vs. D distinction has been retained in Duwai, which is in the same genetic group as Bade and Ngizim.

<sup>14</sup> All pluractionals take **a** as their stem vowel. Newman (1990:78) interprets this as a pluractionality element, but this vowel is an inflectional affix playing no direct role in marking pluractionality.

by lengthening the root vowel (**bal** → **bāla**).<sup>15</sup> In Schuh (2002) I suggest the following historical derivation for pluractionals of this type (“>” = a shift to an unattested historical change, “→” = the shift to the attested form):

$$C_1\mathbf{a}C_2- > C_1\mathbf{a}-C_2\mathfrak{a}-C_2- > C_1\mathbf{a}-C_2-C_2- \rightarrow C_1\bar{\mathbf{a}}C_2-$$

This, too, looks very much like the Bade rule proposed above, the difference being that Bade stops at stage 2 ( $C_1\mathbf{a}-C_2\mathfrak{a}-C_2-$ ). Stages 3-4 syncopate the  $\mathfrak{a}$ , simplify the geminate, and compensatorily lengthen the preceding vowel. Similar processes are attested in other West Chadic languages, and Miya has no geminate consonants, making the derivation all the more plausible.

The longest native roots that I attested in Miya are A2 roots with three consonants. Like Bade (and many other West Chadic languages), such roots can have at most one lexical vowel, and it must be in the first syllable. A2 roots form their pluractionals by replacing the initial root vowel with /**a**/ and shifting the class stem vowel to **-a**. In Schuh (2002), I propose the following historical derivation, slightly modified here, for these pluractionals (I omit the change of stem vowel class here as well as  $\mathfrak{a}$  between  $C_1$  and  $C_2$ , whose presence is phonologically predictable):

$$C_1\mathfrak{a}C_2C_3- > C_1\mathfrak{a}-C_2\mathbf{a}-C_2C_3- > C_1\mathbf{a}-C_2\mathbf{a}-C_2C_3- > C_1\mathbf{a}-C_2-C_2C_3- \rightarrow C_1\mathbf{a}C_2C_3-$$

Parallel to the derivation for  $C_1\mathbf{a}C_2-$  roots proposed above, stage 1 looks exactly like the Bade rule, which infixes a **Ca** syllable based on the penultimate consonant. Stage 3 is the most speculative: it proposes that the vowel of the first syllable assimilates to the **a** of the reduplicated syllable. If this is accepted, however, the remaining stages, which syncopate the vowel of the medial syllable and simplify the resulting geminate are natural. Unlike  $C_1\mathbf{a}C_2-$  roots, the vowel in the pluractional does not lengthen because, as in most Chadic languages, long vowels are disallowed in closed syllables. The fact that

<sup>15</sup> Miya has only three native underlying vowels: / $\mathfrak{a}$ , **a**,  $\bar{\mathbf{a}}$ / (Schuh 1998). All verbs with long  $\bar{\mathbf{a}}$  in their roots are arguably pluractionals. Thus, the only relevant vowels for verb roots are / $\mathfrak{a}$ , **a**/.

the vowel does not lengthen in **dad̩əma** ‘repair (many)’ probably is a matter of analogy with pluractionals of other CVCC- roots.

To summarize the situation for West Chadic B languages, Bade appears to have a system very close to what we would like to reconstruct: pluractionals are formed by preferably affixing a **Ca** syllable based on the penultimate consonant, where the affixed syllable will surface as a *prefix* for CVC- roots but as an *infix* for longer roots. However, **Cə** infixing based on the final consonant is preferred if **Ca** affixation would create a CVCVC- stem pattern ( $V \neq \text{ə}$ ), which is not a possible lexical pattern. If my hypotheses about the history of Miya pluractionals are accepted, these processes fully account for pluractional forms in Miya. Ngizim has innovated by choosing the final, rather than the penultimate consonant in all cases as the base for the pluractional reduplicant.

*1.2.1.2. Bole-Tangale languages.* Although the Bole-Tangale languages are diverse in the way they form pluractionals and superficially appear to be quite different from the West Chadic B languages, historically all their pluractional types can be traced to a source very much like the one that I proposed for Group B languages: infixation of a syllable based on a consonant late in the root. This seems to have been  $C_n$  for Bole-Tangale rather than  $C_{n-1}$  as I proposed for West Chadic B.

The Bole-Tangale languages, as a group, are the best-documented languages in the Chadic family. Comparative evidence makes it possible to do a fair job of reconstructing the original historical picture and trace the developments that have led to the patterns in the modern languages. In pluractional formation, if one moves north to south, the languages have drifted further and further from the original system, but the overall picture is fairly clear. Table 5 shows pluractional formation in Karekare, illustrated with Perfective stems, which always bear one or more suffixes.

**Table 5:** Karekare Pluractionals with Perfective stems

		BASIC	PLURACTIONAL	
A1	CVCu	<b>ràku-</b>	<b>ràkàku-</b>	‘chase’
B	CVCa	<b>fàtā-</b>	<b>fàtātā-</b>	‘go out’

A2	CVCCu	<b>ḏīnku-</b>	<b>ḏīnkàku-</b>	‘cook’
	CVVCu	<b>mètu-</b>	<b>mètàtu-</b>	‘die’
	“long”	<b>ḏībàtu-</b>	<b>ḏībàtātu-</b>	‘sell’
C	Cu	<b>tū-</b>	<b>tàyàyu-</b>	‘eat ( <i>tuwo</i> ) <sup>16</sup>
D	Ca	<b>sā-</b>	<b>sàyàyu-</b>	‘drink’

The modern productive method of pluractional formation in Karekare is the most straightforward of any of the languages discussed in this chapter.<sup>17</sup> I propose the following two stage process:

(1) MONO-C ROOTS: change the stem vowel to **ā** and add **-y-** to the stem (/tū/ → tā-y-)

(2) PLURACTIONAL FORMATION: infix **-C<sub>n</sub>a-** before C<sub>n</sub>

(/ḏīnku-/ → ḏīn-kà-ku-, / tā-yu-/ → tàyà-yu-)<sup>18</sup>

**Table 6:** Ngamo Pluractionals with Perfective stems

		BASIC	PLURACTIONAL	
A1	CVC	<b>sàl-kô</b>	<b>sàsl-â = sàkl-â</b>	‘build’
B	CVCa	<b>bàs-â</b>	<b>bàps-â = bàks-â</b>	‘shoot’

<sup>16</sup> The Hausa word *tuwo*, which I use throughout as an untranslated cultural term, refers to the staple grain food (often in the form of a ball) which is normally eaten with *miya* ‘sauce, stew’.

<sup>17</sup> There are a few verbs in Karekare that appear to be frozen pluractionals where the infix is formed on C<sub>1</sub> and is inserted after the first syllable: **fàfàmu** ‘shake’, **tītàku** ‘sift’. In current data, there are only 10 such verbs, all but two with long **ā** in the first syllable. I am not sure what to make of these. There are also frozen pluractionals of the pattern illustrated in the table, e.g. **ràbàbu** ‘scratch (an itch)’, so it is not the case that we can make a clear division here between an archaic pattern and a modern, productive pattern.

<sup>18</sup> Verbs other than those with monoconsonantal roots retain the stem vowel of their underlying class. Thus, Class B verbs retain final **-a**, creating a Class B2 (stems longer than CVC- with stem vowel **-a**) that does not exist lexically. For monoconsonantal stems, step (1) creates CVVC- stems and these stems are conjugated as Class A2 accordingly.

A2	CVCCa	<b>bisk-â</b>	<b>bìbisk-â</b>	‘accept’
	CVVCa	<b>jìb-â</b>	<b>jìjìb-â</b>	‘beat, strike’
	“long” (a)	<b>bìrwànt-â</b>	<b>bìbìrwàntâ</b>	‘rotate’
	“long” (b)	<b>gèlàmp-â</b>	<b>gèglàmp-â</b>	‘lick’
C	Cu	<b>tù-kô</b>	<b>tìky-â</b> (*tìty-â)	‘eat ( <i>tuwo</i> )’
D	Ca	<b>ɗ-â</b>	<b>ɗàɗy-â = ɗàky-â</b>	‘climb’

Note: (-**kô** = Perfective suffix for A1/C verbs; -**â** = Perfective suffix for A2/B/D verbs.)

I describe Ngamo pluractional formation in detail in §2. I briefly introduce Ngamo data here because it is crucial to understanding Bole, presented immediately below. The facts are these:

CVC- roots: infix  $C_1$  or **-k-** before  $C_2$

C- roots: add **-y-** and infix  $C_1$  or **-k-** before **-y-** (=  $C_2$  of the pluractional stem)

longer roots: double  $C_1V_1$ ; syncopate the second  $V_1$  in an open syllable

**/gèlàmp-â/ → gè-gè-làmp-â → [gè-g-làmp-â]**

In CVC- roots (= Class A1 and B), essentially every root allows infixation of  $C_1$  or **-k-** as alternatives.  $C_1$  more often than not is phonologically altered when it comes in contact with  $C_2$ . In the table, the underlying /b/ of **bàs-â** is devoiced. Nasals and prenasalized stops all become the corresponding voiceless obstruents (**mat-** → **mapt-** ‘die’, **nzar-** → **nzasr-** ‘drip’, etc.). My historical interpretation is that  $C_1$  infixation and consequent assimilations led to a heterogeneous looking pattern for pluractionals and moreover made the relationship between the base and its pluractional non-transparent. In order to create a uniform looking pattern, Ngamo has generalized **-k-** from verbs that had an initial velar to all verbs.<sup>19</sup>

<sup>19</sup> In a database of 534 verbs, 110 (over 20%) of CVC- bases begin in a velar, which would always become [k] in the pluractional.

Ngamo prepares monoconsonantal roots for pluractional formation exactly like Karekare: a CVC- stem is created by adding *-y-*. The regular Ngamo infixation of  $C_1$  or *-k-* pattern then applies. Longer roots all double  $C_1V_1$ .

In Ngamo, all pluractional formation can now be viewed as *doubling*  $C_1$ . In CVC- stems (CVC- roots and CV-*y-* stems based on monoconsonant roots), the most straightforward analysis is to copy  $C_1$  as an infix. In pluractionals formed with *-k-*, this is the only possible analysis: a “**k**” that is not part of the base pops up in the middle of the pluractional.  $C_1V_1$  doubling in Class A2 stems is ambiguous between prefixation and infixation. In fact, pluractional like **gè-g-làmp-â** ‘lick (many)’ would appear to have infixed  $C_1$  exactly like CVC- stems. It is only the fact that, for A2 verbs,  $C_1V_1$  doubling and  $C_1$  “infixation” are in complementary distribution that we would like to have a single analysis for the two.

My interpretation of Ngamo, based on the comparative perspective provided by the other Bole-Tangale languages, is that pre-Ngamo originally added a syllable of the form  $*C_{n-1}V_x$  ( $V_x$  = a fixed vowel, like *-a-* in Karekare or a base vowel, as in Ngamo A2 verbs). Then, because of syncopation of  $*V_x$ , leading to the sequence  $-VC_{n-1}C_nV-$ , pluractional formation was reinterpreted as infixation of  $C_{n-1}$ . Finally, the process was further simplified by building the reduplicant on  $C_1$  rather than rather than  $C_{n-1}$ .

**Table 7:** Bole Pluractionals with Perfective stems

		BASIC	PLURACTIONAL	
A1	CVCu (-gi-)	<b>’yuru-wò</b>	<b>’yògìr-an-gò</b> <b>’yo’yuru-wò</b>	‘stop’
	CVCu (gem)	<b>pod’u-wò-yi</b>	<b>pòd’du-wò-yi</b> <b>popod’u-wò-yi</b>	‘remove’
B	CVCa (-gi-)	<b>’àlā-wò-yi</b>	<b>’àgìlā-wò-yi</b> <b>’à’àlā-wò-yi</b>	‘carry’
	CVCa (gem)	<b>pàtā-wò</b>	<b>pàtt-an-gò</b> <b>pàpàtā-wò</b>	‘go out’



A2	CVCCu	<b>zìrǎu-wò-yi</b>	<b>zìzìrǎu-wò-yi</b>	‘tighten’
	CVVCu	<b>dìru-wò-yi</b>	<b>dìdìru-wò-yi</b>	‘thresh’
	“long”	<b>’ùmbùlu-wò-yi</b>	<b>’ù’ùmbùlu-wò-yi</b>	‘throw at’
C	Cu	<b>tī-wò-yi</b>	<b>tà’-an-gò-yi</b> <b>tītī-wò-yi</b>	‘eat ( <i>tuwo</i> )’
D	Ca	<b>ǎ-wò</b>	<b>ǎ’-an-gò</b> <b>ǎǎ-wò</b>	‘climb’

Notes: **-wò** = Perfective suffix; **-yi** =  $\emptyset$  object suffix for transitives; **-an** is plural agreement.<sup>20</sup>

Bole has two pluractional formation processes (see especially Gimba 2000):

- (1) Prefix  $C_1V_1$  to any based, regardless of structure.
- (2) CVC- roots: infix **-gi-** before  $C_2$  OR geminate  $C_2$   
C- roots: change the stem vowel to **-a-** and add **-’-** (geminate glottal stop)

Type (1) is completely productive and can apply to any verb. It is the only process available for A2 verbs, but it can apply to all other verbs, including those for which type (2) is available.<sup>21</sup> Type (2) applies only to verbs lexically specified to accept such pluractionals. Most CVC- roots that have type (2) pluractionals allow only one of the two alternatives, but a few allow either, e.g. **kàrà-** ‘slaughter, sacrifice’ has both **kàgìrà-** and **kàrrà-**. Gimba (2000) notes that the infixed **-gi-** type is used only with roots where  $C_2$  is a sonorant or /ǎ/, but some roots of this form also allow the geminate type (such as the verb **kàrà-** just mentioned). Pluractional types (1) and (2) are functionally a little

<sup>20</sup> Because the infixed **-gi-** and *geminate* types require a plural argument, intransitives would not be natural without a plural subject, and Class C and D seem unnatural in all cases without a plural subject. The examples here are all in the Perfective, which requires a suffix **-an-** when the subject is plural. This is not a feature specific to pluractionals.

<sup>21</sup> Type (1) can even apply to stems formed through type (2), e.g. **konu-** ‘pick up’, type (2) → **kò-gì-nu-**, type (1) → **kò-kò-gì-nu-**.

different. Type (2) requires a plural argument: intransitives, such as **'yògìr-an-gò** ‘come to a stop’, require plural subjects; transitives are usually used with plural objects, but they are acceptable with plural subjects and singular or mass objects.

Viewed historically, type (1) is innovative. Type (2) reflects the original pattern. Both variants of type (2) pluractionals historically come from infixation of a \*CV syllable. Based on evidence from Karekare and Tangale and from frozen Bole pluractionals, I believe the \*C was \*C<sub>n</sub>, i.e. the final consonant, and \*V was probably epenthetic \*i/u (which modern Bole uses in more or less complementary distribution). Taking the verbs ‘carry’ and ‘go out’ from the table above, the historical derivation would have been the following:

**'àlā-** > \***'à-lì-lā-** → **'à-gì-lā-** ‘carry’

**pàtā-** > \***pà-ti-tā-** → **pà-t-tā-** ‘go out’

The geminate type is straightforward: the vowel of the reduplicated syllable was syncopated, resulting in juxtaposition of two C<sub>n</sub>'s. Ngamo helps us understand the infixated **-gi-**. Parallel to my suggestions for Ngamo, infixation of a different syllable for every verb resulted in a heterogeneous looking pattern, so Bole generalized a velar consonant as the “C” of the CV pluractional morpheme.<sup>22</sup> Gemination through assimilation and infixation of **-gi-** were probably at one time in either free variation or phonological complementary distribution, but today particular verbs have, for the most part, lexicalized one or the other.

Monoconsonantal verbs with pluractionals of type (2) have followed the gemination path. As in other Bole-Tangale languages, pluractionals had to be built on CVC- stems. Monoconsonantal roots added a “dummy” consonant to create a pluractional stem from which they built their pluractionals.<sup>23</sup> The derivation for ‘climb’ in the table above would

<sup>22</sup> We can't be sure whether generalization of a velar in the pluractional forming syllable began in the common ancestor of Bole and Ngamo or resulted from areal spread. Many Ngamos are bilingual in Bole and Ngamo, and undoubtedly, some villages that are, today, Bole speaking were at one time Ngamo speaking.

<sup>23</sup> Comparative evidence suggested that the stem building consonant was originally \*y. Bole dialects differ in whether they use y or ' as a hiatus breaker.

thus be /**dā**/, STEM FORMATION > **dā'-a-**, REDUPLICATION > **dā-'i'-a-**, SYNCOPATION → **dā-'-a-** (with vowel shortening in the now closed root syllable).

A2 verbs today allow only C<sub>1</sub>V<sub>1</sub> prefixation as a means of pluractional formation. The hypothesis that Bole pluractional formation was originally done by infixing C<sub>n</sub>V predicts that there should be verbs with at least three root consonants that are plausibly frozen pluractionals that either incorporate an infix C<sub>n</sub>V syllable or that have a geminate consonant or a **-gi-** syllable before the last consonant. In fact, there are many such verbs of the latter two kinds. Here are some examples:

<b>kùsshìmu-</b>	‘wad up’	<b>bàrgìlu</b>	‘sprain’
<b>lòkkìdù-</b>	‘be entangled’	<b>dìnkìdù</b>	‘be crowded’ <sup>24</sup>
<b>njùd̀d̀ùru</b>	‘purse the lips’	<b>rìnkìbu</b>	‘be distressed’

Not surprisingly, there are also many verbs of the form C<sub>1</sub>C<sub>2</sub>C<sub>2</sub>**u-** that are frozen pluractionals of CVC roots.<sup>25</sup> **bòkku-** ‘burn’, **gòjju-** ‘buy’, **kùnnu-** ‘thank’, etc. There are also many triconsonantal stems where C<sub>2</sub> is **g** or **k**. In this case, it is usually not certain whether these are triconsonantal roots whose C<sub>2</sub> happens to be a velar or whether they are frozen pluractionals of the infix type: **bùkùlu-** ‘roll along’, **dìgìmu-** ‘feel lethargic’, **mòkìtu-** ‘get wet’.

**Table 8:** Tangale Pluractionals

		BASIC	PLURACTIONAL	
A1	CVCi	<b>peyi</b>	<b>peid̥e</b>	‘shoot’
		<b>podì</b>	<b>pod̥e</b>	‘take out’

<sup>24</sup> Some Bole dialect infix **-ki-** rather than **-gi-**. These may at one time have been free or conditioned variants.

<sup>25</sup> Such verbs are so common in Bole that it appears that once the pluractional sense was lost from many of these verbs, the pattern became extended for stylistic reasons.

B	CVCe (RED)	<b>kawẹ</b>	<b>kawuẁẹ</b>	‘fry’
	CVCe (-p-)	<b>kote</b>	<b>kopte</b>	‘begin’
A2	CVVCe (RED)	<b>kuule</b>	<b>kuulule</b>	‘miss’
		<b>saabe</b>	<b>saabuẁẹ</b>	‘become thin’
	CVVCe → CVC <sub>vi</sub> e	<b>pẹdẹ</b>	<b>pẹtẹ</b>	‘support’
		<b>kaaze</b>	<b>kase</b>	‘fell’
C	<b>Caa</b>	<b>saa</b>	<b>saabuḍẹ = saadẹ</b>	‘eat’
D	<b>Cee</b>	<b>(y)ẹẹ</b>	<b>(y)ẹẹbuḍẹ</b>	‘drink’

The Tangale data in the table above are all from Jungrathmayr (1991:40-42).<sup>26</sup> All the plural types in the table involve internal changes or suffixes. Similarly, Kidida (1993:34) mentions pluractionals as being marked by a suffix **-ud**. In addition Kidida (1993:29) separately describes prefixal reduplication of verbs, saying, “...verbs are reduplicated to show intensity.... For instance, from **mál-**, **dób-**, and **sabt-**, we derive **má-mál-** ‘to beat repeatedly’, **dó-dób** ‘to call repeatedly’, and **sa-sabt** ‘to ruin repeatedly’.” Jungrathmayr (1991) does not mention prefixal pluractionals at all. With one exception (**tible** ‘to cut, to cut short’), all the verbs for which Jungrathmayr discusses pluractionals have CV(V)CV stems. On the other hand, looking through the verbal entries in his dictionary, which list, among several other forms, the pluractional forms of verbs, most CVCCV verbal entries do not include a pluractional, and those that

<sup>26</sup> Tangale, unlike any other Chadic language, has [ATR] vowel harmony. The vowel /a/ and vowels written with dots are [-ATR], others are [+ATR]. I have interpreted Jungrathmayr’s verb classes in terms of the Lukas A1/A2/B/C/D system. Jungrathmayr lists verbs by their stem vowels in the Aorist rather than the Perfective, which has a suffix **-ko** before which stem vowels are syncopated. Abstracting away from vowel harmony, CVC- stems end in either **-i** or **-e**, longer stems all end in **-e**. This corresponds to the breakdown in terms of class in other Bole-Tangale languages: A1 subjunctives end in **-i**, A2 and B end in **-e**. Cognates to monoconsonantal C verbs in other languages end in **-aa** in Tangale, D verbs end in **-ee**.

do list one of the types in the table. These facts lead me to believe that Tangale is similar to Bole, i.e. CVC- roots have pluractionals that tend to be idiosyncratic whereas longer stems predictably prefix  $C_1V_1$ , allowing omission of pluractional forms in Jungraithmayr's dictionary entries and the perfunctory statement by Kidda.

Tangale non-prefixal pluractional formation is more varied and seemingly lexically more idiosyncratic than in the other languages examined here. In the table above, I have not included all the types that Jungraithmayr lists, but the table does include what seem to be the most common types. My conclusion will be that, despite its modern complexity, the Tangale system has its source  $*C_nV$  infixation.

Two types in the table readily lend themselves to this interpretation. The Class B CVCe (RED) and A2 CVVCe (RED) types actually exhibit  $C_nV$  reduplication (abstracting away from voicing in the later case—cf. also **kwaage/kwaaguke** 'scrape', matching **-g-** and **-k-**). The A2 CVVCe  $\rightarrow$  CVC<sub>v</sub>ie type correspond to Bole  $C_1C_2C_2u-$  stems. Tangale has generally voiced intervocalic singleton obstruents. The shortened vowel in the pluractional and the "devoicing" of  $C_2$  points to an original geminate, which resisted voicing and conditioned shortening of the preceding vowel, then underwent degemination: **\*kaase**, VOICING ~ PLURAC GEMINATION > **kaaze** ~ **kaasse**, SHORTENING > **kasse**, DEGEMINATION  $\rightarrow$  **kase**.

Many verbs, particularly A1, but also many A2 and B, add a suffix **-de**. As noted above, Kidda indicates this suffix as **-ud**, correctly recognizing that the final **-e** is a verb-stem suffix, not part of the pluractional marker. In addition to the A1 examples in the table, one finds verbs such as Class B **kwake/kwakde** 'scratch', **mile/milude** 'spend a long time' and Class A2 such as **kaaze/kaazude** 'fell' (an alternate form to the pluractional in the table), **leere/leerde** 'become accustomed'. The source of this "suffix" is surely the generalization of the consonant **-d-** from verbs where  $C_2$  actually *was* **-d-**. A similar account applies to the type in the table listed as B CVCe (**-p-**) pluractionals, which are also found with some A1 verbs (**edi/epte** 'eat (something

crunchy)’) and A2 verbs (**paade/papte** ‘buy’). These are similar to the infix **-k-** Ngamo and the infix **-gi-** Bole verbs, except that an infixed labial was extended in Tangale rather than an infixed velar as in Ngamo and Bole.

Monoconsonantal roots suffix **-bude** or just **-de**, like most A1 verbs. The disyllabic suffix appears to be a combination of the infix **-p-** ( $\rightarrow$  [b] between vowels) and the suffix **-de**, i.e. (accepting the hypothesis in the preceding paragraph) a composite both of whose parts come historically from reduplicative infixes. Preference for the disyllabic suffix for monoconsonantal roots probably results from matching a CVCuCe template, which is by far the most common shape for pluractionals in terms of lexical frequency.

In short, comparative evidence shows that Tangale pluractional formation, as complex as it appears to be, with a mixture of apparent reduplications, suffixes, and infixes, can be interpreted historically as having its source in the single process of  $*C_nV$  infixation.

**Table 9:** Pero Pluractionals

			BASIC	PLURACTIONAL	
(1)	C-	CV-yy-	<b>cí</b>	<b>cíyyò</b>	‘eat’
			<b>cé</b>	<b>céyyò</b>	‘drink’
(2)	CV(V)C	CVG <sub>2</sub> -	<b>lónvò</b>	<b>lóffò</b>	‘beat’
			<b>lóoyò</b>	<b>lókkò</b>	‘hang’
(3a)	CVC-	CVG <sub>1</sub> uC <sub>2</sub> -	<b>tánù</b>	<b>táttúnù</b>	‘run’
(3b)	CV(V)C-	CVG <sub>2</sub> uC <sub>2</sub> -	<b>dáafò</b>	<b>dáffúvò</b>	‘apply cream’
			<b>fóojò</b>	<b>fóccújò</b>	‘push’
(3c)	CVC-	CVG <sub>2</sub> ur/j-	<b>céyò</b>	<b>cékkúrò</b>	‘lose’
			<b>ívù</b>	<b>íffújò</b>	‘catch’
(3d)	CVVC <sup>-27</sup>	CV’uC <sub>2</sub> -	<b>túulò</b>	<b>tú’úlò</b>	‘scatter’

<sup>27</sup> Frajzyngier gives a couple of examples with geminate C<sub>2</sub> rather than a long root vowel.

(3e)	CVCC-	CVCCur/j-	<b>fúndò</b>	<b>fúndúrò</b>	‘cook’
			<b>báddò</b>	<b>báddúrò</b>	‘finish’
			<b>ám̀b̀ò</b>	<b>ám̀b̀új̀ò</b>	‘climb’
			<b>cébb̀ò</b>	<b>cébb̀új̀ò</b>	‘plant’

Note: G<sub>1</sub>, G<sub>2</sub> = geminate versions of C<sub>1</sub>, C<sub>2</sub> respectively

Data are from Frajzyngier (1977), reorganized for the discussion here. The types designated (1, 2) will look familiar from the discussion above. Type (2) verbs, from CVC- roots, form their pluractionals by gemination of C<sub>2</sub>, which, by the hypotheses advanced above, comes from infixing a C<sub>2</sub>V<sub>x</sub> syllable with syncopation of V<sub>x</sub> (\***lofo** > **lofufo** > **loffo**); monoconsonantal stems, i.e. type (1) in the table, create a CVC- stem by adding **-y-**, then follow the pattern of type (2).

The remainder of pluractional types, designated as subtypes of (3) in the table, all have the templatic shape CVCC**u**C**o**. This will be recognized as being nearly identical to the CVC**u**C**e** template of Tangale mentioned above, the difference being that Tangale usually has a medial singleton C whereas Pero has CC (either a geminate or a consonant sequence).<sup>28</sup> I will not go through each type in detail, but the general picture seems to be that Pero has inherited the West Chadic CV infixation rule followed by syncopation of the V, accounting for the geminates in most of the subtypes of (3). However, in order to make pluractional verbs “longer”, Pero has taken the step of either adding a suffix built on a base consonant (types 3a, b, d) or adding a suffix **-ro** or **-jo** (types 3c, e).<sup>29</sup> The latter suffixes, which Frajzyngier points out are in near complementary distribution (**-ro**

<sup>28</sup> For type (3d), Frajzyngier writes a singleton glottal stop, a representation that I have followed here. My guess is either that glottal stop cannot be geminated, or, more likely, that the glottal stop *is* geminated, but that medial glottal stop is always supplied by rule (i.e. it is not a lexical consonant phoneme) and is always inserted as a geminate.

<sup>29</sup> I accounted for Tangale pluractionals referring only to CV infixation and suffix formation by extending non-reduplicative consonants. It may be, however, that Pero, with its medial geminates, represents the earlier stage. As I noted, Tangale has degeminated originally geminate consonants. Thus, Tangale verbs like **kuule/kuulule** ‘miss’ may have originally had pluractionals with geminates, e.g. \***ku(u)llule**, which looks like Pero type (3b). Arguing against this account is the fact that Tangale has long vowels in such forms, which should have been shortened before geminates.

following a coronal, **-jo** elsewhere), come from the process, now familiar from Ngamo, Bole, and Tangale, of extending a selected consonant, which originally was reduplicative, to other environments.

I conclude this discussion of Bole-Tangale languages with a brief note on Kanakuru. Kanakuru has basically given up on pluractional verbs (not a bad move, considering the complexity that has evolved in pluractional formation in Kanakuru's close cousins, Tangale and Pero). Newman (1974:72) lists exactly seven verbs with pluractional forms distinct from non-pluractional counterparts: **goowè/goopè** 'pass by', **ḍòwe/ḍòpe** 'tie', **ḍùì/ḍupè** 'shoot', **pui/pùpe** 'get out', **pùule/pùpùle**<sup>30</sup> 'disrobe', **muri/mutè** 'die', **pòri/pòḍe** 'go out, take out'. These verbs are pluractionals only in a historical sense. In modern Kanakuru, they are lexicalized forms whose use is syntactically conditioned by the presence of a plural argument.<sup>31</sup>

These verbs all form their pluractionals synchronically by "hardening" the medial consonant. The source of these pluractional forms is historically transparent. Taking **muri/mutè** 'die' as an example, the historical derivation of the pluractional is as follows. Singleton **\*t** > **r** /V\_\_V in the non-pluractional; the base Class A1 CVC-**i** shifts to Class A2 ending in **-e**.

**\*muti** , pluractional reduplication > **mututè**, syncopation > **muttè**, degemination → **mutè**

*1.2.1.3. Hausa.* Here, drawing on Newman (1989), I present one fact about Hausa that supports reconstruction of pluractional formation in West Chadic as being marked by infixal or suffixal reduplication built from the end rather than prefixal reduplication built from the beginning.

<sup>30</sup> This verb is the last remnant in Kanakuru of the common Tangale and Pero template CV(V/C)CuCV.

<sup>31</sup> The Kanakuru situation finds a parallel in English *was/were*. Both of these past tense forms trace their source to proto-Germanic *\*wesanan*, with *\*s* > *r* in *were* by Verner's Law. Today they are simply a lexically listed pair, the first requiring a singular subject, the latter a plural subject.



Hausa pluractional formation today is unequivocally prefixing. All verbs, no matter the length, prefix  $C_1V_1C_2$ , with regular alternations affecting  $C_2$  when it abuts with  $C_1$  of the base.<sup>32</sup>

<b>fita</b>	→ <b>fit-fita</b>	→ <b>fīř-fita</b>	‘go out’
<b>rāzàná</b>	→ <b>rāz-rāzàná</b>	→ <b>rar-rāzàná</b>	‘terrify’

Like other Chadic languages, Hausa has many frozen pluractionals, i.e. verbs recognizable as pluractional in form but without an existent simple base: **bab-bàkē** ‘singe’ but no \***bake**, **dā-bil-bilā** (or **dābil-bil-ā**) ‘trample’ but no \***dābila**. Of interest is the second example, where the root has three (or more) consonants. The reduplicative pattern can be interpreted as infixation or suffixation (see discussion of the Escherian nature of such reduplicants), but *not* as prefixation. Though a dictionary reveals many items of this pattern, it is not used as a productive means of pluractional formation in modern Hausa. Newman (1989:38) says, “When one looks at frozen pluractionals of three syllable stems, one finds that all of them, without exception, manifest suffixal reduplication.” That is, the pattern seen in the prefixal pluractional of ‘terrify’ above must be innovative. As Newman argues, the innovative prefixal pattern for “long” verbs must have arisen through reinterpretation of pluractionals of CVC- roots, such as ‘go out’, which can be interpreted either as prefixation (**fīř-fita**) or suffixation (**fīř-fit-a**). Reinterpretation as prefixation must have been facilitated in Hausa by the fact that reduplication involves  $C_iVC_j$  where  $C_j$  is always phonologically altered, i.e. there is a tendency to think of the base of a pluractional as being the unaltered part (**-fit-** in our example) rather than the altered part (**fīř-** in our example).

#### 1.2.1.4. West Chadic languages with pluractionals marked by internal vowel changes

All geographically southern West Chadic languages share *internal vowel change* as their most common type of pluractional formation, i.e. Newman’s type 4 listed in §1.2.

<sup>32</sup> Hausa is unique among Chadic languages, as far as I know, in reduplicating CVC rather than CV as its productive method of pluractional formation.

Some languages also use suffixing. It seems that none use reduplication as a regular process.<sup>33</sup> These languages are in the South Bauchi, Ron, and Angas-Goemai groups, which do not form a genetic unit. Ron and Angas-Goemai are West Chadic A languages and hence group genetically with the Bole-Tangale languages, which I hope to have demonstrated above can trace all pluractional formation to CV reduplication, where C was probably the final consonant of the root. Newman (1977) classifies the South Bauchi languages as West Chadic B.<sup>34</sup> This group includes North Bauchi and Bade-Ngizim, which also trace all pluractional formation to CV reduplication, perhaps where C = the penultimate root consonant. The classification of South Bauchi languages is not entirely clear, but what is clear is that they are not genetically close to Ron and Angas-Goemai. The fact that the “southern” West Chadic languages, which do not form a genetic group, are related to languages that unequivocally use (and undoubtedly have always used) reduplication as their only pluractional formation process, suggests that use of internal vowel change for pluractional formation represents a shift away from reduplication and is an areal phenomenon associated with other typological shifts that distinguish these languages from the “northern” West Chadic cousins.

**Table 10:** “Southern” West Chadic Pluractionals

Group	Language	SIMPLE	PLURACTIONAL	
ANGAS-GOEMAI	Sura	<b>tù</b>	<b>twa</b>	‘kill’
		<b>pùs</b>	<b>pwas</b>	‘shoot’
		<b>pùt</b>	<b>pwat</b>	‘go out’
		<b>nughul</b>	<b>nwaghal</b>	‘sprain’

<sup>33</sup> Some languages (possibly limited to Angas-Goemai) have suppletive pluractionals, e.g. Sura **ná/liyap** ‘see’, Angas **ďàp/ghèr** ‘pick up’. Although the source of suppletion in pluractional formation and the etymological sources of the verbs themselves would be of comparative interest, I will not pursue it further here.

<sup>34</sup> In a more recent classification, Newman (2013) questions whether South Bauchi should be included in West-B or whether it constitutes an independent third subbranch within West Chadic.

	Angas	<b>lè</b>	<b>là</b>	‘give birth’
		<b>pùs</b>	<b>pwás</b>	‘shoot’
RON	Scha	<b>shum</b>	<b>shwàm</b>	‘catch’
		<b>ci</b>	<b>cyan</b> <sup>35</sup>	‘eat’

A lot of work is needed on the Ron languages to understand what is going on. By J.’s description, several have both pluractionals and “habitative” stems. The relationship between “habitatives” and commonalities of “real” pluractionals across the group needs further study.

**Table 11:** South Bauchi (Zaar) Pluractionals

Group	Language	SIMPLE	PLURACTIONAL	
SOUTH BAUCHI	Zaar	<b>vyer</b>	<b>vyár</b>	‘insult’
		<b>nyol</b>	<b>nywál</b>	‘leave, go’
		<b>kír</b>	<b>kír</b>	‘run’
		<b>kəp</b>	<b>káp</b>	‘plant’

I believe that internal vowel changes in these languages have their source in reduplication, i.e. that historically speaking, pluractional formation by internal vowel change is innovative and cannot be reconstructed as a phenomenon distinct from reduplication. Modern “southern” West Chadic languages have generally apocopated word final stem vowels, and often they have lost reconstructable final consonants as well, making it impossible, from evidence internal to the languages, to see how they have arrived at their current pluractional configurations. The discussion of Miya in §1.2.1.1 gives a prototype of how this typological shift in pluractional formation could have come

<sup>35</sup> The apparent **-an** suffix here is almost surely grammaticalization of the plural subject suffix **-an-** that is still in active use in the northern Bole-Tangale languages. See the discussion of Bole in §1.2.1.2, where some pluractionals essentially cannot be cited without this suffix because they require plural subjects.

about. Miya CaC- roots form their pluractionals by lengthening **-a-**, e.g. **kafə** → **kāfə** ‘send’. In Bade, C<sub>1</sub>aC<sub>2</sub>- roots form their pluractional by infixing C<sub>2</sub>ə, e.g. **masu** → **māsəsu** ‘buy’.<sup>36</sup> My proposal was that the Miya form came from **\*kafəfə** > **\*kaffə** > **kāfə**. By this hypothesis, vowel changes to mark pluractionality came originally from internal vowels that were introduced by a **\*Ca** reduplicative infix. Phonological reductions left the vowel and/or the lengthening of a vowel by compensatory lengthening as the mark of pluractionality.

Some of the “southern” West Chadic languages mark pluractionality with suffixes. I believe that these suffixes all have their historical source in reduplication or in sources not directly related to pluractional formation *per se*. Here are some cases of suffixes marking pluractionality:

**Table 12:** Pluractional suffixes in southern West Chadic languages

	SIMPLE	PLURACTIONAL	
Sura (Angas-Goemai)	<b>mùt</b>	<b>murap</b>	‘die’
Angas (Angas-Goemai)	<b>mùt</b>	<b>mwàrp</b>	‘die’
Bokkos (Ron)	<b>cu</b>	<b>cwáay</b>	‘eat’
Zaar (South Bauchi)	<b>nat</b>	<b>nadón</b>	‘tie up’

The **-p** suffix in Sura, seen also in Angas in the verb ‘die’, has always looked mysterious. Wolff and Gerhardt (1977), suggest that this somehow arose through contact with neighboring Benue-Congo languages. Newman (1990:81) suggests that it comes from **\*t**, which he reconstructs as a pluractional-marking suffix for Chadic. Discussion of the Bole-Tangale languages in §1.2.1.2 provides the obvious source: the Sura and Angas suffix **-p** is a remnant of the extension of a particular consonant from an originally reduplicative affix added to stems that did not contain that consonant. Thus, some ancestor of Sura/Angas must have had **\*mutatV** > **\*mutapV** (by extension of **\*p** from

<sup>36</sup> Recall that the lengthening of the root vowel in the pluractional in Bade is an innovation specific to Bade related to achieving alternating syllable weight, not part of the pluractional formation process *per se*.

verbs that actually reduplicated **p**) > **murap/mwarp** by weakening of the medial \***t**, apocopation of the final vowel and, in Angas, spreading of the vowel **a** to the root and subsequent deletion from the erstwhile reduplicative affix.

There is probably a lot more to say about “suffix” consonants in Angas-Goemai languages. More data and study are needed. One particularly needs to incorporate information about Goemai pluractionals from Hellwig (2011:175 ff).

The source of the **-ay** suffix in the Ron languages (at least **-ay** associated with pluractionality) also emerges from the discussion of Bole-Tangale languages in §1.2.1.2. In those languages, monoconsonantal roots cannot be reduplicated for pluractionality. Rather, these root must first create a “pluractionalizable” stem, which, in most languages and probably reconstructable for West Chadic A, is done by adding **-(a)y-**, e.g. Karekare **tū-** > **t-āy-** → **tā-ya-y-u** ‘eat’. This “**ay**”, originally restricted to monoconsonantal roots, is now the mark of pluractionality in at least some Ron languages, and having been analyzed as such, has been extended to longer stems.

The **-n** suffix seen with some verbs in Zaar is innovative as a mark of pluractionality. In footnote 33, I suggested that an **-n** seen on some pluractionals in Ron languages is a reflex of plural subject agreement, still seen in the Bole-Tangale languages. It is possible that the **-n** of Zaar pluractionals also derives from the ubiquitous **n** as a Chadic plural marker, though the connection cannot be as direct as in the Ron case, since West Chadic B languages do not mark verbs for plural subjects. My preference is to treat the Zaar pluractional **-n** as an innovation, so far unexplained, but it certainly is not a reflex of a general pluractional suffix from a deeper historical level.

#### *1.2.1.5. Conclusion for West Chadic pluractional formation.*

##### **RGs: NEED TO FILL IN PROSE FOR THE BULLET POINTS**

- contrary to Newman’s (1990) proposal for Chadic as a whole, all evidence points to infixation/suffixation, *not* prefixation, as the original formation
- suffix or infix is a matter of interpretation and language
- there are no non-reduplicative suffixes: apparent suffixes are extension of original reduplicants or “augments” on C- verbs to prepare stems for pluractional formation
- “ablaut”, likewise, is not reconstructable, but is a remnant of infixation/suffixation

- iconicity of reduplication has been widely sacrificed
  - regularity: easier to affix a single consonant
  - simplicity/contraction: easier to change a vowel than add a syllable
- productivity and frozen pluractionals [originally planned as a separate section §1.3]: frozen pluractionals are widespread, sometimes reflecting a productive process, sometimes giving an idea about earlier pluractional processes
- noun plurals and verbal pluractionals: morphological counterpart to syntactic X-bar theory
- the parallel seems questionable: probably just a preference for suffixation and parallel iconicity of reduplication with multiplicity
  - noun pluralization is not popular, esp. in Bole-Tangale, which has complex pluractional formation
  - noun plurals usually have their own suffixes

### 1.2.2. Central Chadic

#### SUGGESTED LANGUAGES TO LOOK AT

- Podoko pluractionals Jarvis (1989:77-78)
- Tera: something from Paul?
- have a good close look at Margi; did I collect anything on Bura?
- Gude: described below

### 1.2.3. East Chadic

- see Kera below for East-A
- study the sources for East-B

## 2. Gude

Pluractional marking of verbs is productive in Gude and, for the most part, formally predictable. Hoskison (1983:96) says that “it is used with a plural subject, as in [kə mātə tī ‘they died’], or with a singular subject when the action of the verb is performed repeatedly”. Although there may be a tendency to use a pluractional when

intransitive verbs have plural subjects, this is not a grammatical requirement as it is in some Chadic languages. I elicited many examples of intransitive verbs with plural subjects where my informant provided non-pluractional forms.

Hoskison (1983:96-97) gives a series of four rules for building pluractional stems. I repeat these here (minimally modified), along with his examples. (# = word boundary, + = morpheme boundary.)

R1: REDUPLICATION OF MONO-C ROOTS:  $\emptyset \rightarrow C_1V_1 / \# \_ \_ C_1V_1+$

R2: VOWEL LOWERING:  $V \rightarrow [-\text{high}] / \#C \_ \_ C[V, -\text{high}]$

R3: VOWEL LENGTHENING:  $V \rightarrow [+long] / \#C \_ \_ C$

R4: (optional) REDUPLICATION:  $\emptyset \rightarrow C_1 \left[ \begin{array}{c} V_1 \\ -\text{long} \end{array} \right] / \# \_ \_ C_1 \left[ \begin{array}{c} V_1 \\ +\text{long} \end{array} \right] C_2$

**la-n** ‘cut’: (R1) /la-/  $\rightarrow$  la-la- (R2) vacuous (R3) la-la-  $\rightarrow$  [laa-la-]

**sàba-n** ‘chase’: (R1) NA (R2) /sàba-/  $\rightarrow$  sàba- (R3) sàba-  $\rightarrow$  [sàaba-]  
optional (R4) sàaba-  $\rightarrow$  [sàsàaba-]

**kùlà-na** ‘fall’: (R1) NA (R2) /kwàlà-/  $\rightarrow$  kwàlà- (R3) kwàlà-  $\rightarrow$  [kwàalà-]  
optional (R4) kwàalà-  $\rightarrow$  [kwàkwàalà-]

**dzə̀b̀ə̀-na** ‘stab’: (R1) NA (R2) NA (R3) /dzə̀b̀ə̀-/  $\rightarrow$  [dzə̀ə̀b̀ə̀-]  
optional (R4) dzə̀ə̀b̀ə̀-  $\rightarrow$  [dzə̀dzə̀ə̀b̀ə̀-]

I did not elicit data on pluractional formation except for some verbs with special pluractionals, discussed below, and Hoskison gives only the verbs listed above as examples of regular pluractional formation. We are thus left with a number of questions about pluractional formation that neither Hoskison nor I answered by direct testing. However, we can indirectly answer some of these questions. In native words, Gude does not have a lexical distinction between long and short vowels, but there are numerous verbs with long vowels that are not paired with roots having similar meanings, but with short vowels. It is a common phenomenon in Chadic languages to develop “frozen” pluractionals, i.e. verbs that have been lexicalized in pluractional form while the

historical base form has been lost. With this background, we can safely assume that native verbs with long vowels are all pluractional in origin. Here are some examples from lexical data, with verbal nouns to the left of the slash, perfective forms to the right, and an assumed base in parentheses. In a few cases, there actually exists a plausible base; items preceded by a question mark have the form of the assumed base, though it has not been attested in available data.

- (1) Ø-n-H (CVC): **fādən/ fā'y** ‘sharpen to a point’ (**?fādən**)  
**ndərən/ngyīr** ‘copulate by animals’ (**ndərən/ ngyīr** ‘mount’)
- (2) Ø-n-L (CVC): **'àtlən/'àtl** ‘grind lightly’ (**?'àtlən**)  
**fēdən/fi'y** ‘roll up’ (cf. **fədən/fi'y** ‘gather up’)
- (3) Ø-na L (CVC): **ḃàrna/byàr** ‘show’ (**?ḃàrna**)  
**sərna/shìr** ‘fry’ (**?sərna**)
- (4) a-n-H (C): **tsātsan/tsātsi** ‘split wood’ (**tsan/tsi** ‘split wood’)
- (5) a-n-H (CVC): **nānan/nāni** ‘refuse’ (**?nənan/nəni ~ ?nanan/nani**)  
**ḃànan/ ḃàni** ‘count’ (**?ḃənan/ ḃəni ~ ? ḃànan/ ḃàni**)
- (6) a-na-L (C) **bāban/bābi** ‘inform’ (**bàna/bi** ‘say, tell’)
- (7) ventive: **lānyán/ lānyà** ‘cut off, intercept’ (**?lanan/lanyà < ?lan**)

Here are some points regarding pluractional forms that can be drawn from this data:

- Stem vowel classes (Ø stems and a stems): Pluractionals have the same stem vowel classes as non-pluractionals, and insofar as confirming data exists, they retain the stem classes of their bases (see the derivations above and items (1, 4, 6)).
- Tone classes: Pluractionals show a lexical contrast between H and L stems, and insofar as confirming data exists, they retain the stem tone of the base (compare items (1) and (2), assuming that the non-pluractional meaning ‘gather up’ is the base for the pluractional form meaning ‘roll up’).



- Perfective stems: Pluractionals retain the same processes for perfective stem formation as non-pluractionals, viz. palatalization of Ø stems and final **i** without palatalization for **a** stems (compare perfective stems for items (1-3) vs. (4-6)). All pluractionals with [ɛ̃] in the pluractional base have [ĩ] in the perfective. This is in contrast with non-pluractionals, which vary between [ə] and [i].
- Verbal noun classes: There are both **n** and **na** verbal nouns among Ø stem pluractionals (compare (1-2) with (3)), though with available data, we cannot affirm that a pluractional always has the verbal noun class of its base. However, I have found no examples of **na** verbal nouns among pluractional **a**-stems (4-6), and in fact, the pluractional in (6), which has an **n** verbal noun, has an existing base with a **na** verbal noun. The same may hold for **dzànan/dzàni** ‘insult, abuse’, of which the base may be the non-pluractional **dzàna/dzi** ‘make a bang, beat a drum’.
- Ventives: Item (7) shows that ventive stems may serve as bases for pluractionals.

Hoskison (1983:7) notes that non-pluractional verbs that begin with /ə/ have special pluractionals. He provides a list of 14 verbs of this type, and I found at least one in addition to those that he lists. All but a couple of these occur in my data with the same pluractionals that he provides. All but one of these verbs (**ə̀ttsàna** ‘roast, burn’ in the table below) have Ø stems.<sup>37</sup> All of them, including **ə̀ttsàna**, have Ø stem pluractionals and long /ɛ̃/ in their pluractional base.<sup>38</sup> The unusual feature of these pluractionals is that they introduce an initial consonant that is absent in the base. They can be divided into four groups according to the initial consonant that appears in the pluractional. As above, the verbal noun is to the left of the slash, the perfective to the right. The meaning is given only for the base since, for the most part, pluractional semantics is predictable for these verbs.

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<sup>37</sup> All but two also have **na** verbal nouns.

<sup>38</sup> Unlike regular pluractionals, where long [ɛ̃] in the base alternates with long [ĩ] in palatalized perfectives, these irregular pluractionals usually retain [ɛ̃], the two exceptions being those with initial **m-** in the pluractional.

**Table 13:** Gude Pluractional formations

INITIAL C IN PLURACTIONAL	BASE VERB	PLURACTIONAL	BASE MEANING
<b>h-</b>	<b>əbburən/əbbwìr</b>	<b>həbərən</b> /(not elicited)	‘have enough to eat’
	<b>əddəna/əggyì</b>	<b>hədən</b> /(not elicited)	‘grind; blow’
	<b>əjjəna/əjjì</b>	<b>həjən</b> /(not elicited)	‘etch; pour’
	<b>əttsàna/əttsi</b>	<b>hətsən</b> /(not elicited)	‘roast; burn’
<b>k</b>	<b>əssəna/əsshì</b>	<b>kəshən/kəsh</b>	‘catch’
<b>ng</b>	<b>əlləna/əll</b>	<b>ngələn/ngəl</b>	‘pull’
	<b>əntləna/əntlì</b>	<b>ngətlən/ngətl</b>	‘break rope, pluck’
	<b>əntəna</b> /(not elicited)	[H] <b>ngətə</b>	‘pinch off a piece’
<b>m</b>	<b>ənnəna/ənnyì</b>	<b>mənən/mīny</b>	‘go back, return’
	<b>əntəna/ənkyì</b>	<b>mətən/mīky</b>	‘die’

Pluractionals with initial **h-** or **k-** have non-pluractional counterparts with geminate base consonants; pluractionals with initial **ng-** or **m-** have non-pluractional counterparts with NC (or, in the case of ‘pull’, **-ll-**, undoubtedly derived from the cross-linguistically common assimilation /nl/ → [ll]). In the case of the two words with **m-** pluractionals, the pluractional shows the etymologically original initial consonant: Bura (Central-A) **mti**, Bole (West-A) **motu** ‘die’; Bura **mw-ari** (**-ari** is a derivational extension), Bole **mā-** ‘return’. It seems reasonable to assume that the other pluractionals might also reveal etymological consonants “hidden” through syncope followed by assimilation of original \*C<sub>1</sub> to C<sub>2</sub>. Among Hoskison’s and my lists of “special” pluractionals, I have found the following etymons: Gude **əttsàna/hətsən**, Bura **ptsà** ‘roast, burn’; Gude **əntləna/ngətlən**, Bura **ntlə-mtà** (**-mta** is a derivational extension) ‘break rope’, Gidar **əngkùwa** ‘break stick’; Gude **əssəna/kəshən** ‘catch’, Tera **kəsi** ‘catch, hold’, Bade **əksu** ‘seize (in wrestling)’.

The etymological evidence suggests that nasal \*C<sub>1</sub> other than \***m**- has neutralized to **n**- ~ **ng**-, and obstruent \*C<sub>1</sub> has usually neutralized to geminate<sup>39</sup> ~ **h** in most cases, with a couple having **k**- in the pluractional.<sup>40</sup>

### 3. Kera

In contrast to most Chadic languages, Kera does not mark pluractionality “iconically” by reduplication of syllables or segments (“doubling” vowels to create long vowels or consonants to create geminates). Most Kera pluractionals add a consonantal suffix. One sub-class devoices initial voiced obstruents.

In principle, Kera distinguishes three kinds of pluractionality: (1) plurality: involvement of more than one subject (for intransitives) or more than one object (for transitives); (2) iterativity: iteration of action by one or more subjects and/or affecting one or more objects; (3) habituality: repetition of the same action over time. With respect to these distinctions, verbs fall into four morphological classes.

Number-sensitive verbs: These are lexically marked and, in effect, have two lexical forms: *singular stem* used to indicate a single event involving a single argument (singular subject for an intransitive, singular object for a transitive); *plural stem* that is obligatorily used for plural subject of an intransitive and for plural object of a transitive. The plural stem is also used for iterativity or habituality. Plural stems are distinguished from singular stems in two ways: initial voiced obstruents are devoiced and most verbs

<sup>39</sup> Hoskison (1983:9, 21) states that although Gude does have phonetic geminate consonants, they are not phonologically contrastive with singletons. They are restricted almost entirely to the environment /#ə\_\_\_. These pluractionals suggest that this co-occurrence restriction is not an accident, probably stemming from the historical sequence of changes *syncope* → *assimilation* → *ə-prothesis*. There are, however, words like **ədda** ‘dog’ that should have an etymological singleton (cf. Bole **àdà** ‘dog’). My guess is that once Gude had developed a repertoire of əcc... words (cc = geminate) through the historical process outlined here, other words with a single root consonant in the environment /#ə\_\_\_ developed gemination as well by phonological analogy, accounting for the apparently regular environmental distribution of geminates and absence of singletons in this environment.

<sup>40</sup> Hoskison includes one other **k**- pluractional: **ətsə’u/kətsə’u** ‘strain’. This root does not appear in my data. A possible cognate is Bura **nts-àri** (-**ari** is an extension suffix) ‘press down on’, **nei** ‘strain, filter’, but this would predict a Gude pluractional with initial **ng**-.

with singular CV stems add a suffix **-p-** (or, for one verb, **-k-**). Ebert (1979:70) lists 13 verbs that distinguish singular and plural stems. This seems to be an exhaustive list from her lexicon.<sup>41</sup> The table below shows selected examples illustrating the two formal processes, followed by examples of use [71].<sup>42</sup> To the left of the slash is the uninflected stem, to the right the citation form.

**Table 14:** Kera verbs with plural stems

SINGULAR STEM	PLURAL STEM	
<b>dàr-/dèrè</b>	<b>tar-/téré</b>	‘lay, lay out’
<b>gàr-/gèrè</b>	<b>kar-/kéré</b>	‘plant’
<b>bàrg-/bàrgé</b>	<b>parg-/párgé</b>	‘tear out, pull out’
<b>gà-/gè</b>	<b>kā-/ké</b>	‘throw, throw down’
<b>lū-/lí</b>	<b>lup-/lúpí</b>	‘climb’
<b>sō-/sé</b>	<b>sop-/sópé</b>	‘swell’
<b>và-/vè</b>	<b>fak-/féké</b>	‘put down’

**wə káràŋ** (\*gèràŋ) kápàŋ wāɗe ‘he planted four trees’

cf. **sə gèràŋ** kápàŋ ‘he planted a tree’

**ye tópon** (\*dòŋ) áská ‘they caught fish (several in a net)’

**wə bì ké so kampə wāɗe ádàwrá** ‘he came and threw millet to the ground 3 times’

<sup>41</sup> All the number-sensitive stems listed in Ebert (1979) have entries in her dictionary (1976) that include both singular and plural stem. Ebert also has verbal entries such as **dam-/dèmè** ‘thatch’, for which she does not list a plural stem **\*témé**, with devoicing, and verbs such as **sù-/sì** ‘fling’, for which she does not list a plural stem **\*sòpè**, with a **-p-** suffix. Presumably she would have given plural stems if they existed.

<sup>42</sup> All the number sensitive verbs listed are transitive and hence cannot illustrate the claim that plural stems are required with intransitives having plural subjects. This restriction is seen below with the verb **fé** ‘stand up’.

**Gàdàrè hùlù gè mē-méñ..., ye tóṗ kāráj dà.**

‘The friends of the deceased, they catch and bring<sup>43</sup> goats.’

In the third to the last example, as Ebert (1979:71) points out, the word **áská** ‘fish’ is singular in form but plural in reference, showing that plural agreement is semantic, not formal. The second to the last example, with both singular subject and singular object, illustrates the plural stem with an iterative sense; the last example, describing a ritual, illustrates habituality (though in this case, the plural stem would be required anyway because of the plural object).

Distinct plural and iterative stems: Two verbs distinguish plural agreement from iterativity. One is intransitive, the other transitive [69]:

SINGULAR STEM	PLURAL STEM	ITERATIVE STEM	
<b>fā-/fé</b>	<b>fak-/féké</b>	<b>pət-/pítí</b>	‘stand up’
<b>hà-/hè</b>	<b>tak-/téké</b>	<b>hùm-/hùmì</b>	‘pick up, take’

**púr fáj apóya** ‘the boy stood up’ (**apóya** ‘upward’)

**kañ pótáj (\*fáj) apóya** ‘the people stood up (all at the same time)’

**kañ fókáj apóya** ‘the people stood up (one after the other)’

**a hāj tórtó nātáj** ‘she picked up her knife’

**a hùmùñ (\*hāj) kətártáw nātáj** ‘they picked up their knives (all at the same time)’

**a təkáj kətártáw nātáj** ‘they picked up their knives (one after the other)’

<sup>43</sup> The ventive particle **dà** contributes the meaning “...and bring”.

Distinct habitual and plural action stems: One verb, **hè-/hí** ‘spend the night’, has a stem **hè-ti** specifically indicating a habitual activity contrasting with **hiti**, which indicates other types of plural action.

Habitual: **Kul bà míntí hùlùm bà mē-méñ á jèñ bà hèti<sub>BASIC TAM</sub> gîdù-ñ, ye hà-w wára.**

‘The huts in which the dead person spends the night, they destroy them.’

Iterative: **Wə hètəñ<sub>PERFECTIVE I</sub> wāde gîdè kápáña.**

‘He spent four nights in the bush.’<sup>44</sup>

The first example seems to doubly mark habituality, both with the habitual stem **hè-ti** and the use of the Basic TAM. Presumably, such marking is obligatory for this verb. The verb **hà-/hè** in the last clause, which, with the Totality particle **wára** means ‘destroy, wipe out’, is in the Basic TAM without plural marking, showing that overt morphological marking is not a grammatical requirement in general.

Iterative marking by suffix -t-: Aside from verbs discussed in the preceding paragraphs, which have distinct forms that differentiate types of pluractionality, verbs are marked for general pluractionality with a suffix **-t-**.

**Table 15:** Kera verbs with "iterative" stems

SINGULAR STEM	PLURAL/ITERATIVE STEM	
<b>ɗal-/ɗéle</b>	<b>ɗalt-/ɗálté</b>	‘begin’
<b>gòb-/gòbé</b>	<b>gòbt-/gòbté ~ gòbdé</b>	‘bow’
<b>hàm-/hàmè</b>	<b>hàmt-/hàmté</b>	‘eat’
<b>hèrg-/hèrgí</b>	<b>hèrg-t-/hèrgítí</b>	‘dance’
<b>kū-/kí</b>	<b>kūt-/ktí</b>	‘burn’
<b>lā-/lé</b>	<b>lāt-/láté</b>	‘spend a year’

<sup>44</sup> The gloss in Ebert (1979:73) has “...three nights...”, but this was a slip since **wāde** means ‘four’.

<b>lā-/lé</b>	<b>lat-/lété</b>	‘hit’
<b>wā-/wí</b>	<b>wət-/wítí</b>	‘flog’
<b>bā-/bì</b>	<b>pāt-/pátí</b>	‘come’

Addition of the **-t-** suffix calls for some phonological adjustments, such as the optional voicing assimilation of the /t/ to a preceding voiced obstruent, as in ‘bow’, and epenthesis to break up CCC clusters, as in ‘dance’. Some verbs with CVV- stems shorten the vowel in pluractionals, as in ‘hit’ and ‘flog’. The verb ‘come’ devoices the initial consonant, but unlike the number-sensitive stems above, the pluractional is not required with plural subjects acting as a group, e.g. **ye bāṅ dūḡḡ** ‘they came (as a group) at night’ vs. **ye pātāṅ dūḡḡ** ‘they came numerous times at night’. The iterative suffix can be doubled if the result would not be more than three syllables (**hāmṭété** = **hāmṭé**, **kútítí** = **kútí**). The suffix **-t-** can also be added to number-sensitive stems ending in **-p-**, resulting in a stem with only iterative meaning, e.g. **lū-/lí** ‘climb’ → **lup-/lúpí** ‘several climb at once’ → **lúptí** ~ **lúptítí** ‘climb repeatedly’.

Ebert’s description implies that stems formed with the suffix **-t-** can be used in either iterative or habitual meaning, though all her examples drawn from texts are habitual, e.g.

**ye hāmṭé dūḡlā** ‘they eat mice, they are mouse eaters’

## 5. Hausa (not done yet)

- what is reduplicated?
- where does the reduplication take place? Newman (1989) says CVC- redup a recent innovation.
- all frozen pluractionals (those that have no non-plurac counterpart) are reduplicated to the right
- Caa redup and gemination
- p. 42: One can spot frozen pluractionals of \*CVC- roots by lack of gemination (sunsuna, *not* \*sussuna), since in productive formations, gemination is preferred

- see C1VG- reduplication explains bibbi, etc. but how were monoverbs pluractionalized earlier? Answer: languages like to “prepare” monoC stems by adding a consonant, say, a glide; Hausa added a geminate.

### List of languages with pluractionals, from Newman, pp. 54-58

Languages showing pluractionality but not number agreement:

Bachama, Bidiya, Bole, Daba, Dangaleat (“integrated into TAM system”--???), Dghwede, Ga’anda, Gude (see quote from Hoskison, beginning §3 below), Hausa, Kapsiki, Lamang, Mandara (*pace* Frajzyngier in *AuU*), Miya, Mofu, Musgu, Pa’a, Somrai, Sura, Zulgo

Languages showing agreement:

Kanakuru—pl. agr. w. objects, 7 verbs (Newman, p. 56);

Kera (two kinds of stems)

Lele (“ergative” agreement, but also repeated action)

Margi (only “point to” “ergative” agreement)

Podoko (probably not, but there are suppletive pluractionals)

Zaar (Caron, supersedes N.’s ref. to Schneeberg), p. 214

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## 5. Ngamo

Plug In of Ngamo pluractional paper (2009)

*Editor’s Note:* The following paper was completed in 2009. It was made openly available on the author’s UCLA website, but was never formally published. It is reproduced here as written, including the appendixes and the references, with the original formatting and line spacing preserved.



**PLURACTIONAL VERB MORPHOLOGY  
IN GUDI NGAMO<sup>45</sup>**

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### 1. Background

Ngamo is a Chadic language spoken in northeastern Nigeria in Yobe State. It is a member of the West Chadic branch of the Chadic family (Newman 1977). Its closest nearby relatives are Bole and Karekare. All are members of the Bole-Tangale group of languages. Ngamo has two major dialects, Gudi and Yaya. This paper describes the morphology of pluractional verbs in the Gudi dialect.

Pluractional verbs indicate plural action of some kind: several subjects performing the same action repeatedly (*the children kept jumping*), one or more subjects performing an action on several objects (*the teacher(s) returned all the assignments to each of the students*), or combinations of such actions. Among Chadic languages, and languages of many other families, a common way to indicate pluractionality is to reduplicate part or all of a the verb. Ngamo does mark pluractionality by reduplication with some verbs, as in **hìndâ** ‘he stood up’, **hìhìndâ** ‘he kept standing up’, but for many verbs pluractionality is marked by infixing a consonant into the verb root. The form that consonant takes is the main topic of this paper.

A few notes on phonology and orthography are called for. Ngamo is a tone language. It has two level tones, high and low, plus a falling tone, which can appear only on utterance final syllables in the Gudi dialect. Low tone is marked with a grave accent (**à**), falling tone is marked by a circumflex accent (**â**), and syllables bearing high tone are unmarked for tone. Ngamo has distinctive vowel length. Long vowels are marked with a

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macron ( $\bar{a}$ ). The only valid syllable types in Ngamo are CV (V = long or short) and CVC. Long vowels are excluded from closed syllables. The segmental representation is the standard orthography being developed for Ngamo as part of the Yobe Languages Research project. Features to be noted: **y** = IPA [j], **sh** = IPA [ʃ], **c** = IPA [tʃ], **j** = IPA [dʒ] ' = IPA [ʔ], **nd** and **ng** [ŋg] at the beginning of a word are prenasalized units, but medial in a word, the syllable boundary falls between the nasal and the stop.

## 2. Verb Classes and Pluractional Verb Morphology

**2.1. Verb classes and citation forms.** Verbs in Ngamo, and most other Bole-Tangale languages, fall into four classes defined by a combination of stem shape, tense marking affixation, and tones.<sup>46</sup> The citation forms for verbs in this paper will be the perfective as it appears with a third singular subject, where there is no overt agreement marking for subject. Tones of verbs are predictable based on stem type and tense. I will mark tone but will not comment on it since it plays no role in pluractional morphology.

Class A1: CVC- stem shape in perfective; overt perfective suffix **-ko**, e.g. **ngàr-kô** 'tie'

Class A2: CVC-, CVCC-, and any longer stem shapes in the perfective; perfective ends in **-a** in the completive, e.g. **bisk-â** 'accept, take'

Class B: CVCa- stem shape in the perfective; no overt perfective suffix other than the stem vowel **-a** (which is replaced by other vowels in other tenses), e.g. **bàsâ** 'shoot'

Class C: **Cu-** stem shape in perfective; overt perfective suffix **-ko**, e.g. **tù-kô** 'eat'

Class D: **Ca-** stem shape in perfective; no overt perfective suffix other than the stem vowel **-a** (which is replaced by other vowels in other tenses), e.g. **sâ** 'drink'

Verbs are inflected to mark tense/aspect/mood (TAM), singular vs. plural subject, pronominal objects, and extensions (morphemes that indicate features such as action done thoroughly, action initiated at a distance, and a couple of other features).

Pluractional morphology creates stems that are inflected like any other verb, so to

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<sup>46</sup> This classification system was first proposed by Lukas (1971-72) for Bole, but it applies equally well to Ngamo.

keep things simple all verbs cited in this paper will be perfective aspect with unexpressed third singular subject, no overt objects, and no extensions.

**2.2. Pluractional Class A2 verbs.** Pluractional formation of Class A2 verbs (those with CVC-, CVCC-, and longer stems) is straightforward and regular. C<sub>1</sub>V<sub>1</sub>- is reduplicated and prefixed to the stem. If V<sub>1</sub> is long in the stem, it is short on the reduplicative prefix.<sup>47</sup>

(1)	Base form	Pluractional	
	<b>hìndâ</b>	<b>hìhìndâ</b>	‘stand up’
	<b>biskâ</b>	<b>bìbìskâ</b>	‘accept, take’
	<b>’ùrtâ</b>	<b>’ù’ùrtâ</b>	‘unload’
	<b>dòndâ</b>	<b>dòdòndâ</b>	‘sew’
	<b>sàrnâ</b>	<b>sàsàrnâ</b>	‘send’
	<b>jìbâ</b>	<b>jìjìbâ</b>	‘beat, strike’
	<b>tùbâ</b>	<b>tùtùbâ</b>	‘push, send’
	<b>hòtâ</b>	<b>hòhòtâ</b>	‘break off (bark from a tree, etc.)’
	<b>sâlâ</b>	<b>sàsâlâ</b>	‘pare, peel’
	<b>ndàkbâ</b>	<b>ndàndàkbâ</b>	‘pound a wet substance’
	<b>ngòldâ</b>	<b>ngòngòldâ</b>	‘bend’

It is worth noting that in the last two examples, the reduplicated syllable has the prenasalized consonant as its onset (rather than just the nasal or the stop). As noted in §1, prenasalized sounds are treated as phonological units only at the beginning of a word. In the middle of a word, the syllable boundary falls between the nasal and the stop. Thus, **zìngâ** ‘peep, peer’ is a Class A2 verb, showing that the first syllable is **zin-**, not **\*zìng-**, in which case the perfective would be Class A1 **\*zìng-kô**. Phonologically, then, the

<sup>47</sup> The translations are the non-pluractional base meaning. The pluractional translation would vary depending on how the verb was used (one subject performing the same action repeatedly, several subjects performing the same action once, etc.).

syllabification of ‘pound a wet substance’ is **ndàn.dàk.ḡâ**, but morphologically the breakdown is **ndà-ndàkḡ-â**.

The words in (1) would all have disyllabic stems, i.e. the CVC- or CVCC- base plus a stem vowel, giving Cṽ.CV or CVC.CV. In such Class A2 stems, the initial syllable is necessarily always *heavy* (Cṽ- or CVC-). Class A2 also includes all stems that have three or more syllables, and in these longer stems, the initial syllable may be *heavy* or *light*. Pluractional formation differs depending on weight of the first syllable.

(2)	Base form	Pluractional	
(a)	<b>bìrwàntâ</b>	<b>bìbìrwàntâ</b>	‘rotate’
	<b>kòmḡàtâ</b>	<b>kòkòmḡàtâ</b>	‘soak’
	<b>dìdàntâ</b>	<b>dìdìdàntâ</b>	‘shake’
(b)	<b>kàràntâ</b>	<b>kàkràntâ</b>	‘read’
	<b>kùhâtâ</b>	<b>kùkhâtâ</b>	‘partially cook’
	<b>gèlàmpâ</b>	<b>gèglàmpâ</b>	‘lick’
	<b>gòlàntâ</b>	<b>gòglàntâ</b>	‘coax’

The verbs in (2a) have a heavy initial root syllable, and they form their pluractionals like those in (1), by reduplicating the first CV-, where the V is a short version of the initial vowel of the base. The verbs in (2b) have a light first syllable. There are two ways to interpret their pluractionals: either they reduplicate the initial CV, then syncope the vowel of the base; or they infix the initial consonant after the first CV of the base. I favor the second interpretation because of the way verbs of Classes A1 and B form pluractionals, to be discussed in the next section. Infixation of C<sub>1</sub> in the verbs in (2b) gives a unified account of pluractional formation for all verbs that refers only to the weight of the initial syllable of the base: if the first syllable of the base is heavy, prefix C<sub>1</sub>ṽ<sub>1</sub>, otherwise, infix C<sub>1</sub>. The “prefixation with syncope” account would introduce a

third method of pluractional formation used only with stems of > 3 syllables where the first syllable is light.<sup>48</sup>

**2.3. Pluractional Class A1 and Class B verbs.** Class A1 and Class B verbs share the fact that they have  $C_1VC_2$ - roots, i.e. a short vowel flanked by single consonants. Rather than forming their pluractionals with a *prefix* consisting of a reduplicated syllable, they *infix* a consonant before  $C_2$ . The basic process is to infix  $C_1$  immediately before  $C_2$  to create a  $C_1VC_1C_2$ - pluractional stem, e.g. A1 **sàl-kô** ‘build’ → **sàsl-â**. In (3) and later tables, I list representative examples. Appendix I has a list of all the A1 and B verbs for which I elicited pluractional data.

(3)	Base form	Pluractional	
A1	<b>hòi-kô</b>	<b>hòpy-â</b>	‘break’
	<b>tòb-kô</b>	<b>tòtḃ-â</b>	‘pierce’
	<b>sàl-kô</b>	<b>sàsl-â</b>	‘build’
	<b>shìr-kô</b>	<b>shìshr-â</b>	‘steal’
	<b>kòs-kô</b>	<b>kòks-â</b>	‘gather up’
	<b>làp-kô</b>	<b>làlf-â</b>	‘answer’
	<b>yàm-kô</b>	<b>yàym-â</b>	‘carve wood’
B	<b>rùb-â</b>	<b>rùrb-â</b>	‘scratch (an itch)’
	<b>kàb-â</b>	<b>kàkb-â</b>	‘swell’

The pluractionals will be recognized as having Class A2 stem shape, and indeed, pluractionalized A1 verbs follow Class A2 inflectional patterns. In the examples, note that the base of an A1 verb has the perfective suffix **-ko**, but the pluractional has the final

<sup>48</sup> It turns out that all the trisyllabic A2 verbs with a light initial syllable that I checked have an initial velar, so one cannot be sure whether the second consonant of the pluractional is an infixed copy of  $C_1$  or whether the initial consonant of the pluractional is a prefixed copy of  $C_1$ . For a verb like **rùbùtâ** ‘write’, the analysis of a likely pluractional **rùrbùtâ** would be equally indeterminant. The verb **tùklàntâ** ‘poke in the ribs’ looks like a lexicalized pluractional of a non-existent **\*tùlàntâ**, with an infixed **-k-**, which is an alternative for all A1 and B verbs (see §2.3). If, in fact, this is a lexicalized pluractional, it supports the infixation account for the verbs in (2b).

–a used with A2 verbs. Underived Class B verbs have stems with final –a, as do their pluractionals. These Class B verbs, too, appear to have shifted to Class A2. However, other conjugational forms show that pluractionals of Class B verbs retain Class B features. Verbal nouns of underived and pluractional Class B verbs have final –e, and internal root /a/ assimilates to this as in **dàmâ** ‘sweep’, **dèmè** ‘sweeping’, pluractional verbal noun **dètmè** ~ **dèkmè**. Most Class A1 verbal nouns end in –a and Class A2 verbal nouns end in –a or –u (**nàm-kô** ‘pick up’, **nàmà**, pluractional verbal noun **nànmà/nànmù** ~ **nàkmà/nàkmù**<sup>49</sup>). Subjunctives of Class B verbs, underived and pluractional, likewise end in –e and assimilate internal /a/ in their subjunctive forms, e.g. **hât-â** ‘go out’ with subjunctive **ne ndalo hete** ‘I want him to go out’, pluractional **ne ndalo hekte** ‘I want them to go out’. Class A1 subjunctives end in –i (**ngàrî** ‘tie (sjn)’) and Class 2 end in –e but do not assimilate internal /a/ (**bàrtê** ‘seek out (sjn)’). Finally, singular imperatives of all verbs end in –i. Class B verbs, underived and pluractional, assimilate root internal /a/ to this vowel, other verb classes do not, e.g. Class B **bàs-â** ‘shoot’, **bìsî** ‘shoot!’, pluractional **bìpsî**, but Class A1 **ngàrî** ‘tie!’ and Class A2 **bàrtî** ‘seek!’. Pluractionals thus create a “Class B2” with CVCC-a stem structure, which does not exist as a lexical underived class.

When C<sub>1</sub> is infix, more often than not, it is subject to phonological variation. The word **hòi-kô** → **hòpy-â** in Table (3) shows one such case of variation for the voiceless labial obstruent /f/. Word initial and intervocalically, this phoneme is usually pronounced [h], though it is sometimes heard as a bilabial fricative [ɸ], esp. before [a]. Preconsonantly, however, it is always [p]. Postconsonantly, it is normally [p] after a stop and [ɸ] after other consonants (see examples in Appendix I).

With a couple of exceptions to be discussed, stops and nasals are realized as the corresponding voiceless stops when infix, as C<sub>1</sub> in pluractionals. The phoneme [w] also behaves in this way.

<sup>49</sup> I did not actually elicit this form, but there are many parallel forms in the current lexical database, e.g. the lexicalized pluractional **tàksâ** ‘hobble an animal’s front feet’ has verbal nouns **tàksà** ~ **tàksù**.

(4) Base form	Pluractional	
<b>bìd'-â</b>	<b>bìpɗ'-â</b>	‘wash’
<b>màt-kô</b>	<b>màpt-â</b>	‘die’
<b>mòi-kô</b>	<b>mòpy-â</b>	‘see’
<b>wàl-kô</b>	<b>wàpl-â</b>	‘skin, flay’
<b>/dùk-kô/ [dùkô]</b>	<b>dùtk-â</b>	‘kill’
<b>zòp-kô</b>	<b>zòsf-â</b>	‘put, place’
<b>ndàr-kô</b>	<b>ndàtr-â</b>	‘split wood’
<b>nzàr-â</b>	<b>nzàsr-â</b>	‘leak, drip’
<b>jùr-â</b>	<b>jùshr-â</b>	‘make a notch’
<b>gùn-â</b>	<b>gùkn-â</b>	‘run’
<b>ngàr-kô</b>	<b>ngàkr-â</b>	‘tie’

When  $C_1$  is /b/ I have transcribed [p], consistent with the pattern in (4), e.g. **ɓàl-kô** → **ɓàpl-â** ‘split (a gourd)’, but when  $C_1$  is /d/ I have transcribed [ɗ], e.g. **/ɗàk-kô/** → **ɗàɗk-ô** ‘for termites to cover something with a crust’. Both these outcomes seem anomalous. Ngamo does allow syllable final [b], e.g. **jòbtô** ‘woman’s wrapper’. On the other hand, underlying /V<sub>i</sub>ɗC<sub>j</sub>/ is usually realized as [V<sub>i</sub>'V<sub>1</sub>C<sub>j</sub>], e.g. **/sùd'-kô/** → [sù'ù-kô] ‘feed’ (cf. **sùd'à** ‘feeding’). More data from more verbs from more speakers may clarify the situation, or at least confirm that the transcriptions here are correct.

When  $C_1$  is a modal (= non-glottalized) obstruent, the resulting internal sequence –  $C_1C_2$ – created by pluractional infixation fairly closely follows the regular lexical phonotactics of Ngamo:

- Modal obstruent sequences agree in voicing, **ùskà** ‘medicine’ (\*uzka), **gàzgò** ‘excrement of animals’ (\*gasgo), **lùgdê** ‘gourd ladle’ (\*lukde), though [-voice][+voice], seems marginally acceptable as in the loanword **Supdù** ‘Saturday’
- Otherwise, syllable-final obstruents are devoiced, e.g. **màsni** ‘counting’ (but no \*màznì), **dìklì** ‘cornstalk bed’ (but no \*dìgli).

In pluractionals, if  $C_1$  is a voiced obstruent and  $C_2$  is a voiced obstruent or a nasal (the class [-approximate, +voice]),  $C_1$  retains its voicing, e.g. **bìd-â** → **bìbd-â** ‘step on’, **dàm-â** → **dàdm-â** ‘sweep’ (as distinct from lexical roots, such as **dàtmà** ‘wood stack’).<sup>50</sup> Otherwise, a voiced obstruent  $C_1$  is devoiced, e.g. **bìd’-â** → **bìpd’-â** ‘untie’, **nzàl-kô** → **nzàsl-â** ‘pour through hole’. Voiceless  $C_1$  remains voiceless everywhere, even before a voiced obstruent, e.g. **tùg-â** → **tùtg-â** ‘stab’.

Nasals as  $C_1$  in pluractionals behave in a special way. Within roots, nasals can appear before any sound, e.g. **tèmkâ** ‘sheep (pl.)’, **gòm-rò** ‘okra’. In pluractionals, however, /m/ is always infixated as [p]. The lexicon is such that it is not clear that a rule [+nasal] → [-voice] can be extended beyond the labial. There is no velar nasal phoneme, and there are only two relevant verbs with /n/ as  $C_1$  are **nàs-kô** ‘spend time’ and **nàm-kô** ‘pick up’. For the former, speakers rejected both **\*nàts-â** (devoiced infixated /n/) and **\*nàns-â** (unchanged infixated /n/), and for the latter, they allowed only **nànm-â** as a dispreferred option to **nàkm-â** (see below for infixated **-k-**). Prenasalized consonants as  $C_1$  could be considered “nasals” for purposes of infixation. Gudi Ngamo does not have prenasalized /mb/—original **\*mb** has become /m/ —, but initial /nd, nz, ng/ become the corresponding voiceless obstruents **-t-**, **-s-**, **-k-** when infixated in pluractionals (see examples in (4) and in Appendix I).

While the basic process for pluractional formation of Ngamo verbs of Classes A1 and B is infixal reduplication of  $C_1$ , Ngamo (both Gudi and Yaya dialects) also allow an alternative default pluractional infix **-k-**. The default **-k-** is, in principle, a default replacement for any  $C_1$ . In some cases, it is obligatory. The examples in (5) repeat most of the roots from (3) and (4) with infixated **-k-** in place of a copy of  $C_1$ .

(5)	Base form	Pluractional	
	<b>hòi-kô</b>	<b>hòky-â</b>	‘break’
	<b>tòb-kô</b>	<b>tòkb-â</b>	‘pierce’

<sup>50</sup> An apparent exception to retention of underlying voicing of infixated  $C_1$  before a nasal is **gùn-â** → **gùkn-â** ‘run’. As we will see below, infixated **-k-** is a possible alternative for all infixated pluractionals, and this **-k-** is never voiced (except in **tùg-â** → **tùgg-â** ‘stab’, where the sequence **\*-kg-** would be essentially unpronounceable). **Gùkn-â**, with infixated **-k-** seems to preempt the similar **\*gùgn-â**.



<b>sàl-kô</b>	<b>sàkl-â</b>	‘build’
<b>shìr-kô</b>	<b>shìkr-â</b>	‘steal’
<b>kòs-kô</b>	<b>kòks-â = C<sub>1</sub> infix</b>	‘gather up’
<b>làp-kô</b>	<b>làkp-â</b>	‘answer’
<b>jùr-â</b>	<b>jùkr-â</b>	‘make a notch’
<b>yàm-kô</b>	<b>yàkm-â</b>	‘carve wood’
<b>rùb-â</b>	<b>rùkb-â</b>	‘scratch (an itch)’
<b>bìd-â</b>	<b>bìkd-â</b>	‘wash’
<b>màt-kô</b>	<b>màkt-â</b>	‘die’
<b>mòi-kô</b>	<b>mòky-â</b>	‘see’
<b>wàl-kô</b>	<b>wàkl-â</b>	‘skin, flay’
<b>zòp-kô</b>	<b>zòkp-â</b>	‘put, place’
<b>ndàr-kô</b>	<b>ndàkr-â</b>	‘split wood’
<b>nzàr-â</b>	<b>nzàkr-â</b>	‘leak, drip’
<b>gùn-â</b>	<b>gùkn-â = C<sub>1</sub> infix</b>	‘run’
<b>ngàr-kô</b>	<b>ngàkr-â = C<sub>1</sub> infix</b>	‘tie’

Words that have a velar as C<sub>1</sub> will have an infix **-k-** in any case, which would be indistinguishable from the default **-k-**. Words whose C<sub>1</sub> is a laryngeal (/ʔ/ or /h/) allow only infixed **-k-**. Of verbs with initial [h], the only one that I have found where the [h] is treated as phonemic /h/ rather than /f/ is the one in (6)—see remarks following (3).<sup>51</sup>

(6)	Base form	Pluractional	
	<b>’àn-kô</b>	<b>’àk-nâ (*’à’n-â)</b>	‘say’
	<b>’òp-kô</b>	<b>’okp-â (*’o’p-â)</b>	‘dig’
	<b>/hàd-â/</b>	<b>hàkd-â (*hàhd-â)</b>	‘eat (meat)’

<sup>51</sup> The only relevant verbs with initial [h] for which I did not check pluractionals are **hàl-â** ‘happen’ and **hìr-â** ‘drop, let go’. Both these have etymological initial \*f and hence probably form pluractionals with infixed [p].

Above I said that any Class A1 or B verb could infix **-k-** “in principle” regardless of what  $C_1$  is, but there are constraints, some lexical, some related to particular consonant combinations. Here are some such constraints:

- Avoidance of homophony: There are homophonous roots **hùl-kô** (1) ‘boil’ and (2) ‘abuse, denigrate’. The former allows only **hùkl-â** as a pluractional and the latter only **hùpl-â**. In fact, all examples of ‘abuse’ that I have found in texts have the pluractional form, even though in most cases the context is not obviously pluractional in meaning. This suggests that this verb has become lexicalized in its pluractional form to keep it distinct from ‘boil’. Pluractionalizing ‘boil’ as **hùpl-â** would defeat the purpose of this functional lexicalization. Another example of homophony avoidance is **hàt-â** ‘go out’, which has only the pluractional **hàkt-â**. A pluractional form **hàpt-â** would be homophonous with a Class A2 verb meaning ‘lift’, borrowed from Kanuri **haptə**. (Alternatively the initial **h-** in this word could be an underlying laryngeal, which would require **-k-**, but its cognates in other languages have labials, e.g. Bole **pàtā-wò**.)
- Undesirable consonant sequences: For a Chadic language, Ngamo is unusually non-restrictive in the consonant sequences that it permits, but the pluractionals **\*tàtɗ-â** (from **/tàɗ-kô/** ‘hit’), **\*ɗàɗl-â** (from **ɗàl-kô** ‘swallow’), and **\*nàts-â** (from **nàs-kô** ‘spend time’) were rejected. Only the infixed **-k-** pluractional was acceptable for these verbs. In all these cases, infixation of  $C_1$  results in a sequence of coronal sounds that present some sort of articulatory conflict. There do not seem to be any roots that would create comparable sequences at other points of articulation by infixing  $C_1$ , e.g. a hypothetical verb “**hòb-kô**” that would give the medial pluractional sequence **/pɓ/**.
- Geminate **-kk-**: By and large, Ngamo avoids geminate consonants. There are few, if any, native Ngamo roots with internal geminates. Schuh (2005) describes some ways in which Ngamo “repairs” cases where geminates would result from morpheme juxtapositions. One such case is seen in the word for ‘kill’ in (4), where the geminate **-kk-** that would result from juxtaposition of the root **/duk-/** and the

perfective suffix **-ko** is degeminated to give [**dùkô**]. I elicited pluractionals for five verbs with root final **-k-** and one with root final **-g-** (see Appendix I). Of these, three were deemed acceptable with infix **-k-**, e.g. /**mòk-kô**/ → [**mòkô**] ‘carry’ with pluractional **mòkk-â**, though **tùg-â** ‘stab’, with **-g-** as  $C_2$ , required voicing assimilation, giving [**tùgg-â**]. The geminate **-kk-** is tolerated since if the **-k-** were degeminated, the verb would not be recognizable as a pluractional with the canonical CVCC- stem shape—\***mòk-â** would look like a simple Class B verb. However, three of the velar final stems with infix **-k-** pluractionals were deemed marginal or unacceptable, e.g. ?**bòkk-â** ‘burn’ from /**bok-**/. My interpretation is that there is a conflict between avoidance of geminates and overt pluractional marking. Except for verbs with an initial velar or laryngeal, there is always an alternative to infixing **-k-**, viz. infixing  $C_1$ , and this alternative gives a straightforward way to resolve the conflict.

**2.4. Pluractional Class C and Class D verbs.** Verbs of Classes C and D have a single root consonant. Like verbs in Classes A1 and B, Class C and D verbs form their pluractionals by infixation. Since there is no infixation site in the root, C and D verbs use a pluractional stem formed by adding **-y-**. Examples in (7) are representative. All the C and D verbs for which I elicited pluractional data are listed in Appendix II.

(7) Base form	Pluractional ( $C_1$ infix)	Pluractional ( <b>-k-</b> infix)	
<b>tù-kô</b>	* <b>tùty-â</b>	<b>tùky-â</b>	‘eat’
<b>’ì-kô</b>	* <b>’ì’y-â</b>	<b>’ìky-â</b>	‘do’
<b>m-â</b>	<b>màpy-â</b>	<b>màky-â</b>	‘return’
<b>ď-â</b>	<b>ďàďy-â</b>	<b>ďàky-â</b>	‘mount, climb’
<b>s-â</b>	* <b>sàsy-â</b>	<b>sàky-â</b>	‘drink’

Class C verbs apparently allow only the **-k-** infix option. I was not able to elicit any verbs of this class with infix  $C_1$ . Class D verbs, on the other hand, allow both the infix  $C_1$  and infix **-k-** variants. When  $C_1$  is infix, the facts regarding the phonological realization of the infix are the same as for Class A1 and B verbs. Of the

Class D verbs I checked, only **sâ** ‘drink’ was explicitly rejected with C1 infixation. Pluractionals of Class C verbs become Class A2, e.g. the verbal noun of **tiky-â** is **tikyà**, one of the normal patterns for A2. Pluractionals of Class D may also become A2, but I was not able to directly check the crucial forms for indicating class.<sup>52</sup>

### 3. Issues

The facts of Ngamo pluractional formation raise at least two general issues. First, pluractional formation across Chadic and more generally in languages of the world is marked by reduplication of part or all of the verb. The motivation for this is iconic—morphological repetition mirrors repetition of action. What, then, is the source of the non-iconic **-k-** infix as a marker of pluractionality? Second, why does Ngamo have two types of pluractional reduplication: prefixation for A2 verbs and infixation for all others?

The answer to the first question is that infixed **-k-** is an innovation with its origin in infixal reduplication. Just running one’s eyes over the first and second columns of the verbs in the Appendices, one can see that infixation of  $C_1$  has the effect of obscuring the base form since the reduplicative outcome changes the overall appearance of the root. Looking down the column with infixed **-k-**, however, one’s eye easily extracts the recurrent **-k-**, facilitating recognition of the root. It seems that pluractional formation is being restructured with an alternative based on pluractionals of roots with initial velars, which are among the more common consonants in Ngamo.<sup>53</sup> Ngamo thus has replaced/is replacing the iconicity of reduplication as a way to mark pluractionality with a morphological strategy that facilitates both production and comprehension. As an aside, one should point out that the infixation strategy is found throughout West Chadic and

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<sup>52</sup> One such crucial form is the verbal noun, where Class A2 will end in **-a** or **-u** with all low tones, whereas Class B and “B2”—see comments following (3)—end in **-e** and stem internal **a** → **e**. I did not elicit verbal nouns for any pluractionals of Classes C or D. In a text message, using the Hausa form **rurufewa** ‘closing’, I asked Jibir Audu Janga Dole whether the verbal noun of **hàkyâ** ‘he closed (pluractional)’ is “**hakya**” (the likely A2 form) or “**hekye**” (the likely B2 form), and his response was **hakya**, i.e. he implicitly rejected **hekye**. Shift of pluractionalized Class D verbs to Class A2 is also made credible by the fact that Class D verbs that are causativized with a suffix **-t-** shift to Class A2, e.g. the causative of **ďâ** ‘mount’ is **ďât-â** ‘lift onto’ with the typical A2 verbal noun **ďâtù**.

<sup>53</sup> At the writing of this paper, there were 534 verbs in Gudi Ngamo data, of which 110—over 20%—begin in a velar consonant.

must have been inherited by Ngamo from its ancestor. Bole, a fairly close relative of Ngamo, still has remnants of infixation, including default infixation of a velar, e.g. Bole **pàtā-wò** ‘he went out’ with pluractional **pàttā-wò** < \***pàptā-wò** or \***pàktā-wò**, **’yuru-wò** ‘stop’ with pluractional **’yògìru-wò**.<sup>54</sup> However, in Bole these infixed pluractionals are all lexicalized, often with specialized meanings. The productive pattern for pluractional formation is CV prefixal reduplication for all verbs, e.g. **’yo’yuru-wò** ‘stop repeatedly’. That is, assimilations of infixed C<sub>1</sub> and analogical extension of the velar infix have obscured the iconic nature of reduplicative infixation, and Bole has moved back in the direction of an iconic method of marking pluractionality.

The second question raised here is why there are two strategies for pluractional formation. In Schuh (2009) I describe another reduplicative process in Ngamo that we can illustrate with the words **shòhò** ‘wood’, **shòshohò** ‘wood-like, woodish’ and **gòshò** ‘stone’, **gògòshò** ‘stone-like, stonish’. This pattern reduplicates the first CV of the base to create an adjective-like word meaning something like English “X-ish”. Of interest here is the fact that if the first syllable of the base is light (CV, where V is a short vowel), the reduplicated syllable has a long vowel, but if the first syllable of the base is heavy (CVC or CV where V is a long vowel), the reduplicated syllable has a short vowel. The result is a pattern of alternating heavy and light syllables. Sensitivity to syllable weight and more particularly, a tendency to favor alternating syllable weight in a word is pervasive in West Chadic.<sup>55</sup>

The two reduplication patterns in Ngamo pluractional formation are another manifestation of this. Canonical A2 verbs have a heavy first syllable. C<sub>1</sub>V<sub>1</sub> reduplication, where V<sub>1</sub> in the reduplicant is short, will assure that the reduplicated verb stem for nearly all A2 verbs will metrically be LIGHT-HEAVY. On the other hand, B verbs will always have a light first syllable and A1 verbs, more often than not, will also. (The citation form used in this paper, such as **màt-kô** ‘die’, with the **-ko** perfective suffix has a heavy stem syllable, but many if not most A1 forms will have a vowel-initial suffix resulting in a light stem syllable, e.g. **mà.t-àn.-kô** ‘they died’.) Prefixing C<sub>1</sub>V<sub>1</sub> would

<sup>54</sup> See Gimba (2000) for details of Bole pluractional formation and function.

<sup>55</sup> The importance of syllable weight and its effect on morphology in Chadic languages was first discussed in Newman (1972).

thus usually result in two consecutive light syllables. One might ask why pluractional verb forms do not adopt the strategy of “-ish” reduplicants mentioned in the previous paragraph, varying syllable weight of the reduplicant prefix depending on the weight of the verb stem syllable. As reasonable and symmetrical as this may seem, Ngamo speakers have inherited the language from previous generations, including an infixing method for pluractional formation. Ngamo speakers may some day go the route that Bole speakers have gone, and revise their entire pluractional forming paradigm, but as of yet, they remain faithful to their history.

#### 4. Conclusion

This paper described two processes for verbal pluractional formation, both reduplicative. The class of verbs with a heavy stem syllable prefixes a copy of the initial CV. All other verbs infix a consonant before C<sub>2</sub>. The infixed consonant may be C<sub>1</sub>, usually phonetically altered in some way, or a default **-k-**. The latter is obligatory for verbs with an initial laryngeal and an option for all other verbs, subject to lexically specific restrictions. I speculated that the **-k-** is a historical analogical extension from verbs whose C<sub>1</sub> is a velar. This extension has been motivated by a tendency toward morphological uniformity. I further speculated that the choice of pluractional formation depending on stem shape is part of a tendency in West Chadic languages to achieve alternating syllable weight where morphology makes this possible.

#### REFERENCES

- Gimba, Alhaji Maina. 2000. “Bole verb morphology.” PhD dissertation, UCLA.
- Lukas, Johannes. 1970-72. “Die Personalia und das primäre Verb im Bolanci (Nordnigerien),” *Africa und Übersee* 54:237-286, 55:114-139.
- Newman, Paul. 1972. “Syllable weight as a phonological variable.” *Studies in African Linguistics* 3:301-324.
- Newman, Paul. 1977. “Chadic classification and reconstructions.” *Afroasiatic Linguistics* 5(1):1-42.

Schuh, Russell G. 2005. "Degemination, compensatory lengthening, and gemination in Gudi Ngamo." In Jeffrey Heinz, Andrew Martin, and Katya Pertsova (eds.), *Papers in Phonology 6*, pp. 1-11. UCLA Working Papers in Linguistics, 11. Los Angeles: UCLA Department of Linguistics.

Schuh, Russell G. 2009. "-ish Reduplication in Gudi Ngamo." In Samuel Gyasi Obeng (ed.), *Topics in Descriptive and African Linguistics: Essays in Honor of Distinguished Professor Paul Newman*, pp. 81-95. Munich: LINCOM Europa.

## APPENDIX I

**List of All Class A1 and B Verbs  
for Which Pluractional Forms Were Elicited**

These tables list all the Class A1 and Class B verbs for which I collected pluractional data, arranged by the initial consonant of the verb. The left-hand column is the non-pluractional citation form for the perfective with a singular third person subject. The second column is the pluractional with C<sub>1</sub> infix, often phonologically altered. The third column is the pluractional with infix -k-. Speakers were not always equally happy with both pluractional alternatives, but except for cases where speakers flatly rejected or expressed strong reservations about a form, I have made no attempt indicate degrees of acceptability, working under the assumption that there will be variability for individual speakers, individual lexical items, and context. I should note that in my notes I listed the first form volunteered first, and for the majority of words, this was the form with -k-.

- \*WORD in a cell indicates that the form that would fill the cell was explicitly rejected
- ?WORD in a cell means that the speaker did not flatly reject the form but found it questionable
- ? in a cell indicates that I did not elicit the form and the speaker did not volunteer it
- Some cells have an underlying form in // followed by the citation form in []. The latter results from regular phonological processes. The segments seen in the underlying form account for the pluractional as well as other verb forms.

## Initial labials

h < *p	hòi-kô	hòpy-â	hòky-â	‘break’
	/hòɸ-kô/ [hò’ò-kô]	hòpɸ-â	?	‘remove’
	hùl-kô	hùpl-â	*hùkl-â (cf. ↓)	‘abuse, denigrate’
	hùl-kô	*hùpl-â (cf. ↑)	hùkl-â	‘boil’
	hàt-â	(hàpt-â ‘lift’)	hàkt-â	‘go out, exit’
	<hr/>			
b	bìd-â	bìbd-â	bìkd-â (*bìgd-â)	‘step on’
	/bùɸ-kô/ [bù’ù-kô]	bùpɸ-â	bùkɸ-â	‘wash’
	/bòk-kô/ [bòkô]	bòpk-â	?bòkk-â	‘burn, roast’
	bàs-â	bàps-â	bàks-â	‘shoot’
	bìɸ-â	bìpɸ-â	bìkɸ-â	‘untie’
	bìn-â	bìbn-â	bìkn-â (*bìgn-â)	‘bathe’
<hr/>				
ɓ	ɓàl-kô	ɓàpl-â	ɓàkl-â	‘split (a gourd)’
	ɓàt-kô	ɓàpt-â	ɓàkt-â	‘cut off, snap (rope)’
<hr/>				
m	màs-kô	màps-â	màks-â	‘count’
	màt-kô	màpt-â	màkt-â	‘die’
	/mòk-kô/ [mòkô]	mòpk-â	mòkk-â	‘carry, transport’
	mòi-kô	mòpy-â	mòky-â	‘see’



	màɸ-kô <sup>56</sup>	mòpɸ-â	màpɸ-â	‘make a small hole’
	mùn-kô	mùpn-â	mùk-nâ	‘wrap up’
w	wâl-kô	wàpl-â	wàkl-â	‘skin, flay’
	/wòɸ-kô/ [wò’ò-kô]	wòpɸ-â	wòkɸ-â	‘cook’
	wùs-kô	?	wùks-â	‘release’
<b>Initial alveolars</b>				
t	tòb-kô	tòtɸ-â	tòkɸ-â	‘pierce’
	tàm-kô	tàtm-â (*tadm-â)	tàkm-â	‘show’
	/tad-kô/ [tà’à-kô]	*tadɸ-â	tàkɸ-â	‘hit, strike’
	tùn-kô	tùtn-â (*tùdn-â)	tùkn-â	‘weave <i>faifai</i> ’
	tùg-â	tùtg-â	tùgg-â (*tùkg-â)	‘stab’
d	/dùk-kô/ [dùkô]	dùtk-â/dùdg-â <sup>57</sup>	?	‘kill’
	dàm-â	dàdm-â	dàkm-â	‘sweep’
ɸ	ɸèi-kô	ɸèɸy-â	ɸèky-â	‘sit down’
	/ɸàk-kô/ [ɸàkô]	ɸadɸ-â	?ɸakk-â	‘plaster over’
	ɸâl-kô	*ɸadɸl-â	ɸàkl-â	‘swallow’
nd	ndâr-kô	ndàtr-â	ndàkr-a	‘split wood’
	ndùw-â	ndùdw-â (?ndùtw-â)	ndùkw-â	‘mix into liquid’
s	sâl-kô	sàsl-â	sàkl-â	‘build’
z	zòp-kô	zòsf-â	zòkp-â	‘put, place’
nz	nzàb-kô	nzàsɸ-â	nzàkɸ-â	‘skewer’
	/nzàk-kô/ [nzàkô]	nzàsk-â	*nzàkk-â	‘extract’
	nzâl-kô	nzàsl-â	nzàkl-â	‘pour through hole’
	nzàr-â	nzàsr-â	nzàkr-â	‘leak, drip’
n	nàs-kô	*nàns-â/*nàts-â	nàks-â	‘spend time’
	nàm-kô	nànm-â	nàkm-â	‘pick up, take’
r	rùb-â	rùrb-â	rùkb-â	‘scratch (an itch)’
	/ròk-kô/ [ròkô]	ròrk-â	ròkk-â	‘drive off’
l	làp-kô	làlf-â	làkp-â	‘answer’
<b>Initial alveopalatals/palatals</b>				
c, nj <sup>58</sup>				
j	jùr-â	jùshr-â	jùkr-â	‘make a notch’
sh	shìr-kô	shìshr-â	shìkr-â	‘steal’
	shòb-kô	shòshɸ-â	shòkɸ-â	‘moisten’

<sup>56</sup> One would expect the pronunciation [mà’akô] as is normally the case when syllable final /ɸ/ abuts a following consonant, but this pronunciation was rejected for this word.

<sup>57</sup> Etymologically, the root for ‘kill’ is \*duk-. For this verb, there are alternative verbal nouns dùkà ~ dùgà. The etiology of these alternatives is the fact that the /k/ ~ /g/ distinction is neutralized before the commonly occurring perfective suffix -ko. It looks as if the root alternatives have been extended to the pluractional stem. If C<sub>2</sub> = /k/, the pluractional is dùtk-â, if C<sub>2</sub> = /g/, the pluractional is dùdg-â.

<sup>58</sup> There are no Class A1 or B verbs with initial c or nj in Gudi Ngamo.

'y	'yùr-â	'yù'yùr-â <sup>59</sup>	'yùkr-â	'strain, filter'
y	yàm-kô	yàym-â	yàkm-â	'carve wood'

**Initial velars**

k	kòs-kô	kòks-â	=	'gather up'
	kàb-â	kàkb-â (*kàgb-â)	=	'swell'
	/kùd-kô/ [kù'ù-kô]	kùkd-â	=	'refuse'
g	gòp-kô	gòkp-â	=	'bump against'
	gùn-â	gùkn-â	=	'run'
	gàd-â	gàkd-â	=	'pass, pass by'
	gìs-kô /gis- ~ giz-/ <sup>60</sup>	gìks-â ~ gìgz-â	=	'forge, smith'
	gàl-â	gàkl-â	=	'gather, collect'
ng	ngàr-kô	ngàkr-â	=	'tie'
	ngàm-kô	ngàkm-â	=	'fill'
	ngàt-â	ngàkt-â	=	'fall'

**Initial laryngeals<sup>61</sup>**

'	'àn-kô	*	'àkn-â	'say'
	'àt-kô	*	'àkt-â	'bite'
	'òl-kô	*	'òkl-â	'throw'
	'òp-kô	*	'òkp-â	'dig'
	'ùr-kô	*	'ùkr-â	'descend, get down'
	'ah-â	*	'àkh-â <sup>62</sup>	'open'
h <sup>63</sup>	/hàd-kô/ [hà'â-kô]	*	hàkd-â	'eat (meat)'

<sup>59</sup> 'y is the palatal counterpart of **ɸ** and **ɗ**. As with **ɗ**, an epenthetic vowel is inserted with this sound abuts another consonant.

<sup>60</sup> Comparative evidence shows that the root of this word was \***giz-**, a root that still shows up in the verbal noun **gizò** 'smithing'. However, it has been reanalyzed as /**gis-**/ in productive inflectional forms, e.g. singular imperative **gisî**, exactly the opposite reanalysis seen for the root \***duk-** discussed in a previous footnote. Like that root, the alternative roots still show up in alternative pluractionals. These seem to be the only two roots that show an alternation because of historical reanalysis. No Class B verbs have done this, probably because in Class B verbs, C2 will always be intervocalic *except* in pluractionals, protecting the voicing distinction. Only one modern Class A1 verb has a "stable" voiced obstruent as C2, viz. **bàd-kô** 'be fond of'. Voiceless C2 in some verbs may have originally have been voiced. One case is **gòp-kô** 'hit, strike', where C2 is voiceless in all forms, but in Yaya Ngamo, it is voiced (Yaya verbal noun **gòba**).

<sup>61</sup> All syllables must have an onset, and for words that would otherwise begin with a vowel, the onset is a glottal stop. The glottal stop does show up as the consonant in prefixal reduplication as in **'ùrt-â** 'unload', pluractional **'ù'ùrt-â**.

<sup>62</sup> This form is surprising, because medial **h** is usually an allophone of /**f**/ before a vowel, whereas the allophone after a stop is usually [**p**]—see the word for 'answer' above. It appears that this word may be become lexicalized with medial /**h**/ even though this sound would have been inherited as a phoneme from proto-Bole-Tangale. The morphology of verbs is such that the only environment where the **-h-** would ever come next to a consonant is in the pluractional.

<sup>63</sup> Phonetically, the initial sound of this word, which comes from an initial laryngeal (cf. Karekare **hàdɸu** or possibly a velar (cf. Bole **ngadɸu**), is indistinguishable for [**h**] that comes from \***f**—cf. /**hòd-kô**/ [**hò'ò-kô**] 'remove' above with Bole **podɸu**. However, Ngamo seems to have kept track of the original sound, since a pluractional \***hàpd-â**, with an infix labial, is not possible.

## APPENDIX II

## List of Pluractionals for Class C and D Verbs

See comments at the beginning of Appendix I for notational conventions.

## Class C

tù-kô	*tìty-â	tìky-â	‘eat’
ndù-kô	*	ndùky-â	‘go’
rù-kô	?	rìky-â	‘enter’
nù-kô	*nìny-â	nìky-â	‘get ripe’
jù-kô	*	jùky-â	‘migrate’
ì-kô	*	ìky-â	‘do’
yù-kô	*	yìky-â	‘poke’

## Class D

hâ	hàpy-â	hàky-â	‘close’
bâ	bàpy-â	bàky-â	‘beat (drum)’
mâ	màpy-â	màky-â	‘return’
đâ	đàđy-â	đàky-â	‘mount, climb’
sâ	*sàsy-â	sàky-â	‘drink’
zâ	zàsy-â	zàky-â	‘put, place’
nzâ	nzàsy-â	nzàky-â	‘pull’
kâ	kàky-â	=	‘transplant’
wâ	ʔ <sup>64</sup>	wàky-â	‘get’

<sup>64</sup> I did not check this verb in the field. In a text message to Jibir Audu Janga Dole, I asked whether the pluractional of **wâ** is “**hapy**”, “**haky**”, or something else. He responded with only **haky**, implicitly rejecting the alternatives that I suggested.

## 9 | Pronouns, Agreement, and Anaphora

[not yet done]

- pronominal distinctions (gender in 2<sup>nd</sup> & 3<sup>rd</sup> person singular; excl. vs. incl. 1<sup>st</sup> plural)
- subject agreement (clitics rather than affixes), none in 3<sup>rd</sup> person?, plural agreement
- indirect objects: incorporation into “IO stems”
- direct objects: morphological differences from IO
- anaphoric types
  - reflexive and reciprocal (based on ‘head’ and/or ‘body’)
  - ICP (treated in Chapter 7)
  - anaphoric “thing”
- logophorics: Zime, Lele, Kera, Tangale, Mupun, Mushere

*Editor’s Note:* There have been innumerable studies of pronominals in Chadic, some on individual languages, especially Hausa, some of a typological/comparative nature, including comparisons with Afroasiatic. Schuh’s plan for this chapter was to summarize the known facts, covering the major branches of the family, and to offer insightful generalizations and analyses. In the absence of the chapter, here is a selected list of publications on the subject:

- Blazhek, Václav. 1995. The microsystem of personal pronouns in Chadic, compared with Afroasiatic. In *Studia Chadica et Hamitosemitica: Akten des Internationalen Symposiums zur Tschadsprachenforschung*, ed. by Dymitr Ibrizimow and Rudolf Leger with the assistance of Gerald Schmitt, pp. 36–57. Cologne: Rüdiger Köppe.
- Burquest, Donald A. 1986. The pronoun system of some Chadic languages. In *Pronominal Systems*, ed. by Ursula Wiesemann, pp. 77–101. Tübingen: Gunter Narr.
- Colombel, Véronique de. 1998. Les pronoms dans une dizaine de langues des monts du Mandara. *Linguistique Africaine* 21: 95–110.
- Ditteimer, Clarissa, Dymitr Ibrizimow, and Karsten Brunk. 2004. Les pronoms en tchadique: vue d'ensemble. In *Systèmes de marques personnelles en Afrique*, ed. by Dymitr Ibrizimow and Guillaume Segerer, pp. 55–96. Leuven/Louvain: Peeters.
- Frajzyngier, Zygmunt. 1977. On the intransitive copy pronouns in Chadic. In *Papers from the Eighth Conference on African Linguistics*, ed. by Martin Mould and Thomas J. Hinnebusch, pp. 73–84. Los Angeles: Department of Linguistics, UCLA.
- Hellwig, Birgit. 2011. The semantics of copy pronouns in Goemai. In *Copy Pronouns: Case Studies from African Languages*, ed. by Anne Storch, Gratien G. Atindogbé, and Roger M. Blench, pp. 65–79. Cologne: Rüdiger Köppe.

- Kraft, Charles H. 1974. Reconstruction of Chadic pronouns I: Possessive, object, and independent sets – an interim report. In *Third Annual Conference on African Linguistics*, ed. by Erhard Voeltz, pp. 69–94. Bloomington: Indiana University.
- Leger, Rudolf, and Ulrike Zoch. 2011. Intransitive Copy Pronouns in Chadic. In *Copy Pronouns: Case Studies from African Languages*, ed. by Anne Storch, Gratien G. Atindogbé, and Roger M. Blench, pp. 11–46. Cologne: Rüdiger Köppe.
- Newman, Paul. 1980. *The Classification of Chadic within Afroasiatic*. Leiden: Universitaire Pers.
- Parsons, F. W. 1961. The operation of gender in Hausa: The personal pronoun and genitive copula. *African Language Studies* 2: 100–124.
- Pawlak, Nina. 1997. Demonstratives and pronouns in grammatical systems of Chadic. In *Langues et contacts de langues en zone Sahelo-Saharienne: 3e Table ronde du réseau diffusion lexicale*, ed. by Sergio Baldi, pp. 133–142. Naples: Istituto Universitario Orientale, Dipartimento di Studi e Ricerche su Africa e Paesi Arabi.
- Shay, Erin. 2008. Coding the unexpected: Subject pronouns in East Dangla. In *Interaction of Morphology and Syntax: Case Studies in Afroasiatic*, ed. by Zygmunt Frajzyngier and Erin Shay, pp. 85–105. Amsterdam: John Benjamins.
- Tourneux, Henry. 2004. Les marques personnelles en kotoko et en mafa/wandala (langues tchadiques de la branche centrale). In *Systèmes de marques personnelles en Afrique*, ed. by Dymitr Ibriszimow and Guillaume Segerer, pp. 199–212. Leuven/Louvain: Peeters.
- Van Antwerp, Alanna. 2003. *A Study of the Reference Systems of the Chadic Languages: A Preliminary Typology*. M.A. thesis, University of Colorado.

## 10 | Nominal Gender, Number, and Determiners

### 1. Gender and Number

In Chadic languages, MASCULINE, FEMININE, and PLURAL are mutually exclusive categories, not independent variables. This system was undoubtedly inherited from proto-Afroasiatic. Marking gender distinctions in the plural, as in Semitic and Berber is clearly a more recent innovative overlay (Schuh 2003a:57). This chapter combines discussion of gender, number, and determiners for two reasons: first, agreement with determiners is often the best diagnostic for the lexical gender or number of a word; second, many Chadic languages have developed affixes that derive historically from determiners and that are an obligatory feature of the citation forms of nouns. Nominal plural morphology, which is a separate issue from the grammatical category of plural, is covered in Chapter 11. Where relevant, features of adjective agreement are mentioned, but full discussion of adjectives and constructions containing adjectives is described elsewhere.

### 2. Morphological Formatives for Determiners

Schuh (1983a:158) reconstructed five bases for Proto-Chadic determiners. Two of those, \***d** and \***i**, are less widely found than the others. Those that are distributed across all Chadic groups and are even found at higher levels in Afroasiatic are the following:

- \***n** MASCULINE and PLURAL; most languages that retain \***n** in both functions differentiate the functions in formatives that are combined with **n**-
- \***t** FEMININE
- \***k** gender/number neutral determiner functions in most languages; MASCULINE and/or PLURAL in East Chadic (usually differentiated by the accompanying vowel)

The first two form an **n/t/n** ‘masculine/feminine/plural’ pattern that Greenberg (1960) proposed for proto-Afroasiatic. The **\*k** is found throughout Chadic and outside Chadic in at least Cushitic. The table below illustrates these formatives from two languages in each of the three largest groups of Chadic. In some of these languages, the formatives have shifted function. In particular, East Chadic has innovated by shifting the original gender/number neutral **\*k** to MASCULINE/PLURAL relegating **\*n** to other determiner functions. Many Central Chadic languages have shifted the original gender/number-marking functions of the demonstrative bases to non-gender-related deictic distinctions (proximal vs. distal and the like).

**Table 1:** Chadic determiners

(a) **\*n** MASCULINE (> non-gender sensitive determiner in Central and East Chadic)

West Chadic	Hausa	<b>ràgō</b> ‘ram’	<b>ràgō-n</b> ‘the ram’
	Miya	<b>mbàrgu</b> ‘ram’	<b>ná-kən mbàrgù</b> ‘this ram’
Central Chadic	Bura	<b>takù</b> ‘horse’	<b>takù nì</b> ‘this horse’
	Gidar	<b>ďáf</b> ‘man’ <b>ďák</b> ‘woman’	<b>ďáf ən-ka</b> ‘this man’ <b>ďák kó-n-kə</b> ‘this woman’
East Chadic	Kera	<b>həlgó</b> ‘woman’	<b>həlgó-ŋ</b> ‘the woman’
	Mokilko	<b>kùlé</b> ‘man, male human’	<b>kùlé ’ényó</b> ‘the man’

(b) **n** PLURAL (**\*n** masc./pl. not differentiated in Central Chadic)

West Chadic	Hausa	<b>tumākī</b> ‘sheep (pl)’	<b>tumākī-n</b> ‘the sheep (pl)’
	Miya	<b>təmawkwìy</b> ‘sheep (pl)’	<b>níy-kin təmawkwiy</b> ‘these sheep’
Central Chadic	Bura	<b>takwēri</b> ‘horses’	<b>takwē nì</b> ‘these horses’
	Central Chadic languages seem not to use an “n” determiner base specifically for plural. The Bura <b>nì</b> is used indifferently for singular (gender neutral) and plural.		

East Chadic	Kera <sup>1</sup>	<b>keeɲe</b> (m) ‘wet’	<b>keeɲe-ŋ</b> (pl) ‘wet’
	Mokilko	<b>dám̀bàmi</b> ‘sheep (pl)’	<b>dám̀bàmi</b> <b>’éníyó</b> ‘these sheep’

## (c) \*t FEMININE

West Chadic	Hausa	<b>tunkìyā</b> ‘ewe’	<b>tunkìya-ř</b> (< *t) ‘the ewe’
	Miya	<b>tómáku</b> ‘ewe’	<b>tá-kən</b> <b>tómáku</b> ‘this ewe’
Central Chadic	Bachama	<b>(dùwée</b> (m) ‘horse’)	<b>dùu-tō</b> ‘mare’
	Mulwi	<b>muni</b> ‘woman’	<b>múní tí nà</b> ‘this woman’
East Chadic	Kera	<b>(keeɲe</b> (m) ‘wet’)	<b>teeɲa</b> (f) ‘wet’
	Mokilko	<b>’éròwó</b> ‘woman’	<b>’éròwó</b> <b>’óttíyó</b> ‘this woman’

## (d) \*k (shifted to masculine and plural marking in East Chadic)

West Chadic	Hausa <sup>2</sup>	<b>rānā</b> ‘sun; day’	<b>rāna-g-ga</b> ‘this/that day’
	Miya	<b>mbərgu</b> ‘ram’	<b>mbərgu ká</b> ‘the ram’
Central Chadic	Gude	<b>raha</b> ‘axe’	<b>raha-kī</b> ‘the axe’
	Gidar	<b>ďáf</b> ‘man’ <b>ďák</b> ‘woman’	<b>ďáf ən-ka</b> ‘this man’ <b>ďák kó-n-kə</b> ‘this woman’
East Chadic	Kera	<b>(teeɲa</b> (f) ‘wet’)	<b>keeɲe</b> (m) ‘wet’
	Dangaleat	<b>bùuri</b> ‘lion’	<b>bùur ǎŋ-ka</b> ‘this lion’

<sup>1</sup> A plural suffix \*-n can also be reconstructed for Chadic. In many cases, including the Kera example here, it is not obvious whether n affixes associated with plurals are cases of determiner agreement or plural morphology.

<sup>2</sup> The determiner ga illustrated here is generally used only in Western (more conservative) dialects. Standard Kano Hausa uses nan, based on the \*n formative in this determiner function.



Several other determiner bases are found in languages that are distantly enough related to each other that the bases are either candidates for being reconstructed at relatively deep levels or they represent convergent innovations involving elements that were not originally determiner bases but were somehow allied with deixis or determination in ways that supported such innovations.

**\*i:** reconstructed in Schuh (1983a:158) as a gender-neutral definite determiner; possibly allied to 3<sup>rd</sup> masculine singular verb agreement prefixes in Berber and Semitic and in Hausa (e.g. Hausa **yà tàfi** ‘he should go’)

West:	Kanakuru	<b>tóró</b> ‘farm’	<b>tóró-ì</b> ‘the farm’
	Ron-Bokkos	<b>fukwàp</b> ‘door’	<b>fukwàp-i</b> ‘the door’
	Zaar	<b>tíim</b> ‘sheep’	<b>tíim-i</b> ‘the sheep’
East:	Dangaleat	<b>àkò</b> ‘fire’	<b>àko-i</b> ‘the fire’

**\*s:** possibly allied to 3<sup>rd</sup> masculine singular pronouns with an “s” base, as in Hausa **shī** ‘him (independent pronoun)’, Ngamo **si’i** ‘him’ (independent pronoun), Miya **nuw-sə/tuw-sə** ‘his (masculine/feminine possessed thing)’

West:	Ngamo	<b>tèmsihì</b> ‘ewe’	<b>tèmsihí-s ’è</b> ‘the ewe’ <sup>3</sup>
	W. Bade	<b>(m-co</b> ‘this one (f)’)	<b>m-so</b> ‘this one (m)’
	Zaar	<b>tâəm</b> ‘sheep’	<b>tâəm-ês</b> ‘the sheep’
Central:	Gude	<b>raha</b> ‘axe’	<b>raha-tsa</b> ‘that axe (in Q)’
	Gidar	<b>ďáf</b> ‘man’	<b>ďáf ás-kà</b> ‘that man’
		<b>ďák</b> ‘woman’	<b>ďák kə-s-ká</b> ‘that woman’
East:	Mokilko	<b>dámú</b> ‘ram’	<b>dám-ísá</b> ‘ewe’

<sup>3</sup> This is specifically a feminine formative in Ngamo, which is surprising if the source is a *masculine* pronoun! An *s* feminine also shows up in Ron-Bokkos in genitives, e.g. **bàkàm-às-un** ‘my knife (f)’ (cf. **cèm-àm-in** ‘my occiput (m)’)

**\*d̥:** listed among reconstructed determiner bases in Schuh (1983a:158), basically following Newman’s (1977a:33) reconstruction of **\*d̥-** ‘this, that, the’; though definite determiners based on “**d̥**” are found here and there in Chadic, I am skeptical that such a base dates to Proto-Chadic. In Schuh (1983a:fn. 3), I suggested that its source may be in an *indefinite* (but *specific*) determiner based on the number ‘one’ (cf. Hausa **d̥aya**, Bade **gàd̥e**, Dangaleat **kèed̥y**, maybe Musey **d̥ew**)

West:	Hausa	<b>biyu</b> ‘two’	<b>biyu d̥î-n</b> ‘the two’
Central:	Ga’anda	<b>naf-</b> ‘man’	<b>naf-d̥a</b> ‘the man’
East:	Mokilko	<b>’à’ú</b> ‘water’	<b>’à’ú d̥oŋ</b> ‘the water’

### 3. Parameters for Definite Determiners

A typical Chadic definite determiner system differentiates four categories:

PREVIOUS REFERENCE (PRM)      PROXIMAL DEIXIS      DISTAL DEIXIS      “KNOWN” DEIXIS

Every Chadic language seems to have something that could be called a PREVIOUS REFERENCE MARKER (PRM). Descriptions sometimes refer to the PRM as a “definite article”, but this term risks being misleading, given the differences in meaning and distribution of PRMs vs. typical definite articles of European languages. While the meaning and discourse distribution of PRMs may differ slightly from language to language, certain features hold for most, if not all Chadic languages:

Meaning: The PRM, as the term implies, indicates that the referent is known from previous discourse. The PRM is never used for uniques (*‘the sun’*, *‘the king’*) or generics (*‘the viper is a venomous reptile’*, *‘she went to the store’*). The specific referent need not have been mentioned if its existence has been implied from discourse, as in the following Miya example (Schuh 1998:222), where *meat* has not been mentioned, but its existence is implied by slaughtering a *bull*:

***Lembi ba na d-ē pār-uwsə ka washasham fərfəðə. Kuma kwā biy pəra ka, ... tɫən jiy dzararē tliwiy-ka.***

‘The *bull* that they will slaughter [is] one of eight years. And when they have slaughtered it, ...they distribute *the meat*.’

Conditioned by pragmatics: Neither syntax nor semantics require marking a referent with the PRM. This is in contrast to definite articles in European languages, for example, where use or omission of articles, depending on the context, can result in ungrammaticality or sharp meaning differences.

Form: PRM’s are always clitics or suffixes. They are usually neutral for gender and number, even in languages that distinguish gender and number in demonstratives.

Examples are presented in a table below.

Most, if not all Chadic languages make a PROXIMAL ~ DISTAL distinction in demonstratives, roughly translatable as English ‘this/these’ ~ ‘that/those’ when referring to physical distance from a reference point. Many languages have another demonstrative series, called “KNOWN” DEIXIS in the Table 2 below. Grammars typically designate this as “known”, “previously mentioned”, and the like. In my own work I have sometimes translated this form with the colloquial English “this here/that there”, while making no claim to semantic exactitude. Jaggar and Buba (1994) have argued convincingly for a distinction between NEAR SPEAKER ~ NEAR HEARER ~ SPEAKER/HEARER DISTAL.<sup>4</sup> Since the semantics of definite determiners has come in for little discussion, and since the facts surely vary from language to language, I confine the remainder of the discussion here to forms of definite determiners without making claims regarding cross-linguistic equivalence.

Below is a table of the PRM and demonstrative forms from several languages: W. Bade (West); Bole (West), Kilba (Central), Ga’anda (Central), and Lele (East). Some of these are repeated elsewhere in this chapter. Hausa will be discussed in §10.

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<sup>4</sup> Jaggar & Buba (1994) further distinguish SPEAKER/HEARER DISTAL ~ SPEAKER/HEARER REMOTE. See Jaggar (2001:323) for a summary.

**Table 2:** PRM and related demonstratives

CITATION	PRM	PROXIMAL	DISTAL	“KNOWN”
W. Bade <b>gwàmā-n</b>  <b>təmàku-n</b>  <b>təmàkunə-n</b>	<b>gwàmā-w</b> the ram <b>təmàku-w</b> the ewe <b>təmàkunu-w</b> the sheep (pl)	<b>gwàmà-msō</b> this ram <b>təmàku-mcǒ</b> this ewe <b>təmàkunə-mdo</b> these sheep	<b>gwàmà-msi</b> that ram <b>təmàku-mci</b> that ewe <b>təmàkunə- mdi</b> those sheep	<b>gwàmà-msənò</b> the known ram <b>təmàku-mcənò</b> the known ewe <b>təmàkunə-mdənò</b> the known sheep (pl)
Bole <b>gam</b>  <b>təmshi</b>  <b>temka</b>	<b>gam yê</b> the ram <b>təmshi yê</b> the ewe <b>temka yê</b> the sheep (pl)	<b>gam emè</b> this ram <b>təmshi oshè</b> this ewe <b>temka mairê</b> these sheep	<b>gam amā</b> that ram <b>təmshi oshā</b> that ewe <b>temka mairā</b> those sheep	<b>gam emèyê</b> this known ram <b>təmshi oshèyê</b> this known ewe <b>temka mairêyê</b> these known sheep <b>gam amâyê</b> that known ram <b>təmshi oshâyê</b> that known ewe <b>temka mairâyê</b> those known sheep
Kilba <b>ki</b>	<b>ky-ari</b> <sup>5</sup> the house	<b>ki nà =</b> <b>ki nannà</b> this house	<b>ki ndà =</b> <b>ki ndandà</b> that house	<b>ki ngà =</b> <b>ki ngəngà</b> that known house

<sup>5</sup> I have generated this form. I worked less on Kilba than some related languages and did not collect nouns with the PRM, nor does Mu'azu (2009) include any examples. The Kilba word for 'house' is **ki**, and the forms for 'the house' in closely related Bura and Margi are **kiy-ari** and **ky-ari** respectively.

Ga'anda <sup>6</sup>				
<b>naf</b>	<b>naf-an</b> the man	<b>naf-dí</b> that man <b>naf-dí-ya</b> this man near	<b>naf-dí</b> that man <b>naf-dí-yu</b> that man far	<b>naf-ɗa</b> the known man <b>naf-ɗa-en-ya</b> this here said man
Lele				
<b>bayndí</b>	<b>bayndí-ŋ</b> the person	<b>bayndí kààŋ</b> this person	<b>bayndí koloŋ</b> that person	<b>bayndí kóŋ</b> the known person
<b>tòrò</b>	<b>tòrò-ŋ</b> the chicken	<b>tòrò táàŋ</b> this chicken	<b>tòrò toloŋ</b> that chicken	<b>tòrò tóŋ</b> the known chicken
<b>kòrà</b>		<b>kòrà káŋnyé</b> these chickens	<b>kara koloŋgé</b> those chickens	<b>kòrà káŋnye</b> the known chickens

The three-way demonstrative distinction is marked in a number of ways. *Addition of a particle* to one of the other demonstratives is one frequently used way. The “KNOWN” category sometimes adds something that resembles the PRM (Bole, Ga'anda). Bade and Ngizim add **-no** to form the “KNOWN” demonstrative. When the particle-addition method is used, there is a potential four-way division of determiners. In Bole, for example, the PRM can be added to either the proximal or distal demonstratives. Hausa, which uses tone to create deictic distinctions, can apply tonal distinctions to both the proximal and distal forms to create a four-way distinction, e.g. **ʔnàn** ‘this (near me)’, **ʔnán** ‘this (near you, or known)’, **ʔcàn** ‘that (there)’, **ʔcán** ‘that (yonder)’.

As noted above, *different determiner bases* have sometimes shifted to take on different deictic functions (Margi, Kilba, Gude). In languages that mark deictic differences in this way, the feminine **\*t** often takes on the distal function (Margi, Kilba, and also Hausa).

Particularly in West Chadic, *vowel differences* are used to distinguish proximal and distal (Bade, Bole, Ngamo). This is probably what accounts for the different dialectal

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<sup>6</sup> Data are from R. M. Newman (1971a:87-89). Because of the theoretical framework (statement in terms of rules that generate determiners rather than pragmatics/semantics) it is hard to be exactly sure how the forms line up with the other languages, but the point is that Ga'anda, like the other languages here, has a definite determiner system of (at least) four dimensions.

forms of the Hausa copula, **nā/tā** vs. **nē/cē**, where some dialects have grammaticalized the distal demonstratives as a copula and others the proximal.

#### 4. Agreement Patterns

Gender remains a robust category in languages in every branch of the Chadic family. In languages that retain grammatical gender, it invariably aligns with natural gender for humans and most larger mammals and birds, but for other referents, grammatical gender is often revealed only by agreements that the nouns trigger, most notably in pronouns, determiners, and constructions allied to determination, such as genitives and relative clauses. For many, perhaps most, Chadic languages that retain grammatical gender, nouns themselves have no overt gender marking.

##### 4.1. Agreement for gender and number

Compare the nouns from Western Bade and Miya, two West-B Chadic languages, in their citation forms and in forms modified by gender/number sensitive demonstratives.

**Table 3:** Bade and Miya demonstratives

Western Bade (I.B.1)

MASCULINE			FEMININE		
Citation	‘this...’		Citation	‘this...’	
<b>mānyəmən</b>	<b>mānyəmə-msō</b>	boy	<b>kazàmən</b>	<b>kazàmə-mcō</b>	young woman
<b>arkən</b>	<b>arkə-msō</b>	bowstring	<b>ḡgàsən</b>	<b>ḡgàsə-mcō</b>	spear
<b>baltén</b>	<b>balte-msó</b>	morning	<b>därten</b>	<b>darte-mcō</b>	midnight
PLURAL					
Citation	‘these...’		Citation	‘these...’	
<b>mānyāmon</b>	<b>mānyāmo-mdō</b>	boys	<b>kazàmàmon</b>	<b>kazàmàmo-mdo</b>	young women

## Miya (I.B.2)

MASCULINE			FEMININE		
Citation	‘this...’		Citation	‘this...’	
<b>mbərgu</b>	<b>nákən mbərgù</b>	ram	<b>támáku</b>	<b>tákən tāmáku</b>	ewe
<b>wàkə</b>	<b>nákən wákə</b>	a lie	<b>pàkə</b>	<b>tákən pákə</b>	arm; wing
<b>vìyáyúw</b>	<b>nákən víyayúw</b>	fireplace	<b>lǝrkáy</b>	<b>tákən lǝrkáy</b>	calabash
PLURAL					
Citation	‘these...’		Citation	‘these...’	
<b>mbərgwágwàw</b>	<b>níykin mbərgwá-gwàw</b>	rams	<b>támakwìy</b>	<b>níykin tāmakwìy</b>	these ewes

The table for Miya shows plural agreement with plural nouns for the animates ‘ram’ and ‘ewe’. For inanimates, grammatical gender trumps plural morphology, however. Agreement is with the lexical gender, not with the morphological plurality (Schuh 1989). Compare the singular forms in the table for ‘fireplace’ and ‘calabash’ with **nákən víyayùwáwàw** ‘these fireplaces’, **tákən lǝrkàyáyàw** ‘these calabashes’, with pluralized nouns but with the masculine and feminine forms of the demonstratives respectively

Gender and number revealed by agreement rather than by the form of the noun itself can be found in other branches of Chadic. In Zime from the Masa Branch, the definite marker varies depending on gender or number of the head noun, and in Lele, demonstratives and linking forms used with adjectives vary in a similar way.

**Table 4:** Zime (IV.A.1)

MASC	<b>bùbà tíme</b>	ram	<b>bùbà-tíme ná</b>	the ram
FEM	<b>yá-tíme</b>	ewe	<b>yá-tíme ra</b>	the ewe
PLURAL	<b>bùbà-tíme kí</b>	rams	<b>bùbà-tíme kí ná</b>	the rams
	<b>yóko-tíme kí</b>	ewes	<b>yóko-tíme kí ná</b>	the ewes

**Table 5:** Lele (East-A)

MASC	<b>kùsá</b>	fish	<b>kùsá kâŋ</b>	this fish	<b>kùsá go gòmýe</b>	big fish
FEM	<b>kùlbá</b>	cow	<b>kùlbá tâŋ</b>	this cow	<b>kùlbá do kúrá</b>	good cow
PLURAL	<b>kòsé</b>	fish (pl)	<b>kòsé kâŋ</b>	these fish	<b>kòsé go gòmýé</b>	big fish (pl)
	<b>kòlbé</b>	cows	<b>kòlbé kâŋ</b>	these cows	<b>kòlbé go kúrá</b>	good cows

#### 4.2. The lexical category “collective”

Agreement patterns with nouns in all Chadic languages that retain grammatical gender can be categorized as MASCULINE, FEMININE, and PLURAL, but a fourth lexical category, COLLECTIVE, is also fairly widespread in Chadic. Generally speaking, nouns in the collective category pattern with singulars morphologically, but they engender plural agreements. These are usually words that would be categorized as “mass” nouns in English, such as *water*, *rice*, *sand*, etc., but in Chadic languages with a lexical collective category, membership in that category cannot be automatically determined on a semantic basis. The following paragraph from Jungraithmayr (1970b:102) regarding Ron-Bokkos exemplifies the situation:

“Viele Nomina mit singularischer Gestalt, aber pluralisch-kollektivischer Bedeutung—z.B. Flüssigkeiten: **sháá** Urin, **wásh** Blut, oder in Mengen gegebenen Größen: **hay** Guineakorn, **wòm** Yams, oder Zusammengesetztes: **cijàŋ** Gesäß, Hintern, werden in der Genitivreaktion sowie in der Pronominalkonkordanz wie Plurale behandelt. Es gibt aber auch Begriffe und Dinge, die nach unserer Vorstellung recht wohl unter die obigen Definitionen fallen, jedoch als Singulare gelten und entsprechend konstruiert werden; z.B. **mbórét** f. Knochenmark, **kápòrok** f. Bohne(n), **’áfùt** f. Asche, **’àhor** f. Gras (zum Dachdecken,) **shala’** m. Futtergras.”

Kera and Western Bade have similar systems. In Western Bade, collectives have citation forms that look like masculine singulars, but the agreements are the same as those used with morphologically plural count nouns.



**Table 6:** Western Bade collectives

Western Bade		CITATION	THIS/THESE	
SING. MASC.	monkey	<b>ə̀vjaan</b>	<b>ə̀vjàa-msô</b>	this monkey
PLURAL	monkeys	<b>ə̀vjàgèetənən</b>	<b>ə̀vjàgèetənê-mdô</b>	these monkeys
COLLECTIVE	meat	<b>sàasaan</b>	<b>sàasâa-mdô</b>	this meat

As in Ron, the collective class includes nouns that would generally be treated as mass nouns in English (**anyaan** ‘milk’, **son** ‘excrement’, **zàkwaan** ‘smoke’), fruits and other items that are typically found in groups (**jàdfaan** ‘peanuts’, **kalwáan** ‘locust bean cakes used as flavoring’), insects typically found in groups (**bə̀rmədán** ‘bedbugs’, **ďùuraawaan** ‘small red ants’), and, in a region where fishing is important, types of fish that come in groups (**pə̀rcən** ‘tilapia fingerlings’). Many nouns that might be considered to be of these semantic types, however, take masculine or feminine agreements, e.g. **àwen** (m) ‘sauce (Hausa *miya*)’, **kwàakwàasin** (f) ‘dum palm fruit(s)’, **ə̀vdàdùwan** (f) ‘mosquito(es)’.

More restricted examples of nouns that might be called “collective” are found in Miya and Hausa. In Miya (Schuh 1989), the words **kutə** ‘thing’, **ham ba...** ‘thing that...’, and **maa** ‘what?’ take plural agreement though they do not have plural morphology, e.g. **níykin kútə** ‘this thing’ (cf. **tákən təmáku** ‘this ewe’, **níykin tə̀makwi** ‘these sheep’).<sup>7</sup> In conservative Hausa dialects, the word **ruwā** ‘water’ takes plural agreement. Hausa has a number of other words with high-high tones and final **-ā** that take masculine singular agreements in the standard dialect but take plural agreements in conservative Western dialects: **karā** ‘stalk(s)’, **kudā** ‘fly/flies’, **gidā** ‘house(s), home (with the connotation of a collection of buildings and multiple family members)’, and a few others. It is generally assumed that these are morphological plurals of the Western

<sup>7</sup> The word **kutə** ‘thing’ does have a morphological plural, **kutatáw**. It is not clear how this differs in meaning from the morphologically singular but lexically collective form **kutə**.

singulars **karè** ‘stalk’, **kujè** ‘fly’, and **gijì** ‘house’ respectively, but a comparative perspective suggests that they were lexical collectives, and still are dialectally.

## 5. Morphological Gender and Number Marking on Nouns

There are Chadic languages with robust gender systems where lexical gender is revealed only by agreement patterns. On the face of it, this is an unstable situation—nouns, at least inanimate nouns, have a “hidden” property that is revealed only when they cooccur with certain other words. Though this situation persists in numerous languages, there have been two recurrent developments that seem to be a reaction to it: develop a system of overt marking of gender on the nouns themselves, or get rid of gender as a lexical category (often with shifting of the erstwhile gender marking to other functions).

Lukas (1968) documented a number of languages across the Chadic family in which nouns had **n** suffixes, which he called *nunation* and which in some cases were associated with masculine gender, and **-t** suffixes, which he called *ta’ation* and which were associated with feminine gender. Lukas likened Chadic nunation to the similar phenomenon in Arabic (from which he borrowed the traditional descriptive term for a suffixed **-n**), though he questions a common origin for Chadic nunation and Arabic nunation. Greenberg (1978) provides a typological account for how languages acquire such affixes. In Greenberg’s account, one can observe a widespread historical development whereby determiners undergo successive semantic bleaching as follows, with concomitant semantic and morphosyntactic characteristics:

**Table 7:** Development of demonstratives into articles (Greenberg)

DEMONSTRATIVE >	STAGE I ARTICLE >	STAGE II ARTICLE >	STAGE III ARTICLE
semantically rich, distinguishing proximal ~ distal, and the like	semantically weakened, showing only definiteness	absence of deictic function, perhaps showing gender or just nounhood	frozen as part of the noun, with no semantic function
stressable, can occur as a separate word	clitic or affix on a host, where the host can be cited as an independent word	determiner source seen in absence where the referent is otherwise known to be definite	recognizable as an affix only through comparative evidence

When determiners are marked for gender, as is typically the case in Chadic languages that retain grammatical gender, the Stage I > II > III article evolution can lead to *gender marked articles* > *gender marking nominal affixes* > *non-functional affixes* respectively, where, in the last case the “affixes” may be recognizable as gender markers only by lexical skewing, where nouns ending or beginning in certain consonants tend to belong to a particular gender.

### 5.1. Stage I articles

Many Chadic languages have developed Stage I articles, e.g. Hausa  $\grave{\text{n}}$  (*m*),  $\grave{\text{r}}$  (< \*t) (*f*),  $\text{̀n}$  (*pl*) (**ràgòn** ‘the ram’, **tunkìyàr** ‘the ewe’, **tumākì̀n** ‘the sheep (*pl*)’) reduced from fuller deictic forms;<sup>8</sup> Ngizim **sònò-gu** ‘the shoe’, **waká-w** ‘the tree’ from the Chadic determiner base \*k; Lele **kama-ŋ** ‘the water’ (< **kama** (*m*) ‘water’), **tamá-ŋ** ‘the woman’ (< **tamá** (*f*) ‘woman’) with suffixed -ŋ undifferentiated for gender. Stage I articles function something like definite articles of European languages, meaning something like “known”, “previously mentioned or implied”, though their presence is usually pragmatically/semantically conditioned in Chadic languages, whereas they tend to be grammatically conditioned in European languages.

### 5.2. Stage II articles

Some languages that retain grammatical gender have developed Stage II articles as gender marking affixes on their citation forms. Examples of such languages are Warji (West), Bachama (Central), and Musey (Masa). The table below shows citation forms of representative nouns. Development of gender marking in the form of Stage II articles in these languages must have taken place independently given the fact that they are geographically and genetically remote from each other and given the absence of any traces of such marking in languages closely related to them. Some of the items in the

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<sup>8</sup> The floating low tone of the Hausa article attaches to preceding high tones to produce a falling tone, e.g. **ràgòn** is realized as **ràgôn**.

languages with Stage II articles are compared to cognate items in closely related language that have not developed citation forms with Stage II articles.

**Table 8:** Original articles used in citations forms

	MASCULINE		FEMININE		PLURAL	
Warji	<b>c'ica-na</b> (Miya <b>càngu</b> )	'billygoat'	<b>aw-ai</b> <sup>9</sup> (Miya <b>'áfuw</b> )	'goat'	<b>tsuwa-na</b> (Miya <b>cùw</b> )	'goats'
	<b>zhiɓa-na</b>	'ram'	<b>tumakw-ai</b> (Miya <b>tómáku</b> )	'ewe'		
Bachama	<b>gam-e</b> (Bura <b>gàm</b> )	'ram'	<b>mbaga-tö</b> (Gude <b>bàga</b> )	'ewe'	<b>mbàg-e</b> (Gude <b>bàgin</b> )	'sheep'
	<b>d'eek-ai</b>	'rooster'	<b>d'yek-tö</b>	'hen'		
Musey	<b>gàmlà-nà</b>	'ram'	<b>tímí-ra</b> (< / <b>ta</b> /)	'ewe'	<b>tímígí-na</b>	'sheep'
	<b>tìl-nā</b> (Zime <b>tēr</b> )	'moon'	<b>fat-tà</b> (Zime <b>fāt</b> )	'sun'		

Because of their semantically weakened status, Stage II articles may lose their gender-marking function (or may never have had one if the Stage II article developed from a determiner that did not mark gender). Western Bade has developed a Stage II article which, itself, is now gender neutral. Compare nouns from Western Bade, which has developed a Stage II article (*nunation*), with Gashua Bade, which has not:<sup>10</sup>

**Table 9:** Gender neutral citations forms

Western Bade	Gashua Bade	gender	
<b>kwàm-ən</b>	<b>kwàm</b>	(m)	'bull'
<b>àràs-ən</b>	<b>àlas</b>	(m)	'sorrel'
<b>zày-aa-n</b>	<b>zàyi</b>	(m)	'rope'

<sup>9</sup> The **-i** feminine of Warji is from the Chadic \***t** feminine determiner base. The North Bauchi languages have undergone a sound change \***t, d** > **y** when non-final: Warji **miy-** 'die' (cf. Bole **motu-**), Warji **xiyin-na** 'crocodile' (cf. Bole **kadàm**).

<sup>10</sup> The morphology and historical issues are discussed in detail in Schuh (1974/75, 1977a).

<b>t̀rkw-aa-n</b>	<b>t̀lku</b>	(m)	‘orphan (m)’
<b>d̀g-aa-n</b>	<b>d̀gà</b>	(m)	‘arrow’
<b>m̀rə-n</b>	<b>m̀li</b>	(f)	‘beard’
<b>t̀rku-n</b>	<b>t̀lku</b>	(f)	‘orphan (f)’
<b>aká-n</b>	<b>akâ</b>	(f)	‘fire’
<b>àko-n</b>	<b>àkau</b>	(m)	‘back’
<b>kuko-n</b>	<b>kukwau</b>	(f)	‘baobab’
<b>raké-n</b>	<b>lakài</b>	(m)	‘bed’
<b>asaké-n</b>	<b>asakài</b>	(f)	‘porcupine’

The nouns differ in gender, but the citation forms of all the Western Bade nouns end in **-n**, which now is a gender-neutral Stage II article. The historical source of this article has a reflex in the Gashua Bade suffixed masculine distal demonstrative, **-âani**. The long **-aa-** replaces a final short vowel, e.g. Gashua Bade **t̀rkw-âani** ‘that orphan’, **d̀g-âani** ‘that arrow’. The feminine demonstratives, on the other hand, leave the final vowel of the noun unaffected, e.g. **aka-tiiwú** ‘that fire’.

Gashua Bade citation forms do not distinguish lexical gender at all, and Western Bade distinguishes gender only in nouns that have **-aa-** (m) vs. **-a-** (f) in citation forms, but there is evidence from Shira,<sup>11</sup> a now extinct close relative of Western Bade, that Stage II articles in Bade at one time did distinguish gender in a way similar to the examples from Warji and Musey above. In Shira, masculine nouns usually ended in **-n** and feminine nouns ended in **-i**, e.g. Shira **miyan** ‘mouth’ (**m̀ny-aa-n** (m) in Western Bade), **akai** ‘fire’ (**aká-n** (f) in Western Bade). It seems that the semantic weakening to Stage II article

<sup>11</sup> Shira data comes from a wordlist collected in Katagum, Nigeria in 1921 by P. Graham Harris, a colonial official. The list is published in Broß (1997), who credits Roger Blench for tracking the list down.

status progressed such that gender marking as a function was lost and the original masculine form spread to all nouns.

Nonetheless, Western Bade nunation retains the morphosyntactic properties of a Stage II article. It is mutually exclusive with definite determiners, such as the previous reference marker **-w**, e.g. **d̀̀g-aa-w** ‘the arrow’, **aká-w** ‘the fire’. Moreover, forms with nunation, being the citation form, are indefinite or generic. In a narrative, once a referent has been mentioned, it becomes definite and can no longer take the Stage II article. For example, here is part of the first line of a story:

**Kà̀yān d̀̀a-kwti ù̀gjlàm̀n d̀̀èk s̀̀āv̀̀nyin d̀̀èŋ d̀̀à̀wun...**

squirrel he-took hyena with guinea fowl with francolin

‘A squirrel took a hyena and a guinea fowl and a francolin (as wives)...’

All the referents are introduced with the Stage II article (underlined), but in subsequent mentions, the article is dropped: **k̀̀aya/k̀̀ayi**,<sup>12</sup> **ù̀gjlàm̀**, **s̀̀āv̀̀nyi**, **dawu**.

### 5.3. Stage III articles

In some cases, original determiners have evolved into Stage III articles. Kera (East Chadic) is a case in point. Another case is found in the Bade-Ngizim group (West Chadic). Many nouns in Duwai, Ngizim, and Gashua Bade end in **-k**, which is not part of the etymological root:

**Table 10:** Nouns with final **-k** in West-B languages

Duwai	Ngizim	Gashua Bade	other language	
<b>(gam)</b>	<b>g̀̀om̀̀àk</b>	<b>g̀̀om̀̀âk</b>	Bole <b>gam</b>	‘ram’
<b>zh̀̀à̀r̀̀òk</b>	<b>zhir̀̀àk</b>	<b>z̀̀əl̀̀àk</b>	Bole <b>z̀̀à̀la</b>	‘pole’

<sup>12</sup> Since all the etymological vowels except the mid vowels and short **-a-** in feminine nouns have been neutralized by addition of the Stage II article, speakers waiver between which vowel to use in “definitized” nouns, often choosing a non-etymological vowel or alternative vowels. In this story, the narrator uses both **k̀̀aya** and **k̀̀ayi** for ‘the squirrel’. See Schuh (1977a) for more details.

àďǎ-bzhàk <sup>13</sup>	bèzhàk	adâ-bzæk	Hausa jūjī < *jibjī < *zibzi <sup>14</sup>	‘rubbish heap’
kuřpòk	kuřpâk	kuřpâk	< Kanuri kurwò	‘cane switch’
(not cognate)	mèràk	mèlàk	Bole mòr	‘oil’

This final **-k** has developed from the **\*k** Chadic determiner base, possibly through reanalysis in genitive constructions, where this determiner serves as a genitive linker, e.g. Duwai **àtkà-k tla** ‘body of a cow’. In the early stages of its development, citation of nouns with **-k** may have been connected to masculine gender. In Western Bade, all these nouns end as masculine nouns in **-aa-n** and lack the **-k** (compare Western Bade **gwàm-aa-n** ‘ram’, **zèr-aa-n** ‘pole’ with items in the table above). There are, however, many originally masculine nouns that do not end in **-k**. The **-k** still has some properties characteristic of Stage II articles. In Ngizim, plurals of these nouns lack the **-k** (Ngizim **gōmàk** ‘ram’, pl. **gōmamín**, **kuřpâk** ‘cane switch’, pl. **kuřpapín**).

#### 5.4. Loss of grammatical gender

Some languages have abandoned the seemingly unstable situation of having a lexical gender distinction that must be memorized for each noun in the absence of any overt marking. There are languages in all the major subgroups of Chadic that have taken this path. Two such West Chadic languages are Karekare and Ngizim, which, though geographic neighbors, are genetically distant from each other. Here are examples of Karekare and Ngizim paired, respectively, with closely related languages that do retain grammatical gender.

<sup>13</sup> The Duwai and Gashua Bade forms literally mean “head-of rubbish heap”. In these languages, many nouns that refer to a mound or protuberance have been lexicalized as “head-of X”.

<sup>14</sup> Paul Newman (p.c.) suggests that the original Hausa form **\*zi-bzi** may also have been a compound, although in this case meaning “*body*-of rubbish heap”.

**Table 11:** Gender lost or retained

KAREKARE (gender lost)		NGAMO (gender retained)		
Citation	‘this...’	Citation	‘this...’	
<b>gam</b>	<b>gam-āyam</b>	<b>gàm</b>	<b>gàm wòyyé’è</b>	‘ram’
<b>tàmci</b>	<b>tàmci-āyam</b>	<b>tèmshì</b>	<b>tèmshí wònsé’è</b>	‘ewe’

NGIZIM (gender lost)		WESTERN BADE (gender retained)		
Citation	‘this...’	Citation	‘this...’	
<b>gōmàk</b>	<b>gōmak-tkú</b>	<b>gwàmān</b>	<b>gwàmà-msó</b>	‘ram’
<b>təmàku</b>	<b>təmàku-tku</b>	<b>təmàkun</b>	<b>təmàku-mcó</b>	‘ewe’

As these examples show, the languages that have lost gender as a lexical category use undifferentiated demonstratives, even for nouns that differ in natural gender. As languages lose gender, what do they do with this now superfluous morphology? There are two possibilities: get rid of it, or put it to some other use. And if they get rid of it, presumably they will only get rid of part of it, since they still need to show deixis and the like, so what part do they get rid of?

The two languages here give some interesting answers. As the table above shows, Karekare does not distinguish demonstratives for gender. It has, however, inherited two genitive linking morphemes, **mà** masculine<sup>15</sup> and **tà** feminine. In some NOUN<sub>1</sub>+NOUN<sub>2</sub> genitive constructions, speakers tend to be fairly consistent in which linker they use for certain nouns as NOUN<sub>1</sub>. For human nouns, **mà** seems to be consistently used with masculine referents and **tà** with feminine: **mal mà Kàriyà** ‘Kariya’s younger brother’, **màla tà Kàriyà** ‘Kariya’s younger sister’. For inanimates, some nouns seem to choose **mà** or **tà** fairly consistently, e.g. **bàrà mà Jàlà** ‘festival of Jalam’ (an annual

<sup>15</sup> This **m-** masculine is an innovation, replacing the Chadic **n-** masculine. It is found systematically throughout the Bole-Tangale group of languages and is also evidenced in the Angas and Ron groups. I have no credible hypotheses for how or why this innovation came about.



celebration held in the village of Jalam), **bàrà mà rìya** ‘hunting in the bush’, **dibèr tà jàgo** ‘Bambara groundnuts’, **dibèr tà Masàr** ‘peanuts’. However, the choice between **mà** ~ **tà** seems random for most nouns, e.g. in texts narrated by the same speaker the following phrases were found: **fa ta dami maiwa** ‘large tamarind tree’ (“tree of tamarind large”) vs. **fa ma cirfi** ‘deleb palm’ (“tree of deb palm”). It seems to be the case that **mà** or **tà** have been lexicalized with certain nouns, or with certain nouns in certain constructions, such that both linkers remain in active use. For genitive constructions created at the spur of the moment, however, the choice is relatively free.

Karekare retains the same two linkers with pronoun adjuncts, but here the choice has been grammaticalized. Attributive genitive pronouns always use **t-**, free genitives always use **m-**: **mèn h̀no /tì-no/**<sup>16</sup> ‘my wife’, **mìzì h̀no /tì-no/** ‘my husband’, **mendè h̀no /tì-no/** ‘my wives’ vs. **mì-no** ‘mine’, **mì-ko** ‘yours (m)’, **mù-ku** ‘yours (pl)’ for any referent.

Ngizim, in its demonstratives, has done something similar to what Karekare has done with pronominal genitives. The original feminine **\*t** is now used as the base of demonstrative adjectives regardless of gender and number: **tàku** ‘this, these’, **tìwú** ‘that, those’, **tənú** ‘that/those in question’, e.g. **gōmak-tkú** ‘this ram’, **təmàku-tku** ‘this ewe’, **təmàkin-tku** ‘these sheep’. The original masculine **\*s-** (seen in masculine demonstratives in Western Bade) is now used as the base for the singular demonstrative pronouns regardless of referent: **sáú** ‘this one’ (usually combined with the demonstrative adjective to give **sū-tku**), **sìwú** ‘that one’, **sənu** ‘the one (in question)’. In addition to the masculine and feminine bases, the Bade/Ngizim group has a base **\*nd-** ~ **\*md-** for plural determiners, derived from the word for ‘people’ (Western Bade **m̀da-n**, Gashua Bade

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<sup>16</sup> See Schuh (2008) for the phonological process involved here.

**ndà**, Ngizim **ndàwà/ndìwà**). Ngizim preserves this base for demonstrative pronouns but not demonstrative adjectives: **ndau** ‘these’, **ndìwú** ‘those’, **ndənu** ‘the ones in question’.

Loss of an active grammatical gender distinction has been particularly widespread in the Central Chadic languages. One such language is Gude. Others include Tera (Newman 1970a), Ga’anda (R. M. Newman 1971a), Margi (Hoffmann 1963). What is interesting in these languages is that most, if not all, have retained at least two, and often three of the Chadic demonstrative bases **\*n** MASCULINE, **\*t** FEMININE, **\*k** GENDER NEUTRAL, but they have reassigned their grammatical roles. Margi preserves all three bases in meanings that Hoffmann (1963:85) gives as **kə** ‘this’ (near), **tà** ‘that’ (far), **nà** ‘that’ (known), e.g. **mdə kə** ‘this person’, **mdə tà** ‘that person’, **mdə nà** ‘that person’. The same forms, but with high tone, can be used pronominally. The **\*n** is also retained in Margi as the previous reference marker in the form of a suffix **-ari** (Hoffmann 1963:54),<sup>17</sup> e.g. **kəm** ‘axe’, **kəmarì** ‘the axe’, **ku** ‘goat’, **kwari** ‘the goat’. Kilba (Schuh 1983b) has undergone a similar reassignment of determiner roles, e.g. **ki nà** ‘this house’, **ki ndà** ‘that house’, **ki ŋgà** ‘that house’ (presumably, **ndà** < **\*n-ta** and **ŋgà** < **\*n-ka**). A theme shared by Margi, Kilba, and Gude is to assign the distal role to **\*t** FEMININE once gender is lost. Kilba has gone a step further by reassigning determiners to function as copulas with the proximal/distal distinction reinterpreted as present and past tense.

Ga’anda and Tera, Central Chadic languages in a separate sub-branch from those mentioned in the previous paragraph, have reinterpreted the determiner bases **\*i/\*y** (presumably originally masculine or gender-neutral) and **\*t** (feminine) as lexical class markers unrelated to gender. Details differ in the two languages, but the systems are similar. All nouns in Tera have what Newman (1964) refers to as a “connecting form” which is used before most suffixes and enclitics. Those that I will here call the “T” class have one of several allomorphs derivable from underlying /t/. Those that I will call the “Y” class have allomorphs roughly relatable to an underlying /i/ and manifested by vowel fronting. These are illustrated with the definite suffix **-á**, the plural clitic **-kú**, and the 1<sup>st</sup> sg. possessive pronoun **-ŋa** ~ **-a**.

<sup>17</sup> The Central Chadic group to which Margi belongs has undergone a sound change of non-initial **\*n** > **r**.

**Table 12:** Tera nouns reflecting now lost gender

	CLASS	CITATION	DEFINITE	PLURAL	my...
shirt	T	<b>luku</b>	<b>luk-t-á</b>	<b>luk-tá-kú</b>	<b>luk-tá ɓaɓa</b>
okra		<b>kànda</b>	<b>kànda-r-á</b>	<b>kànd-r-kú</b>	<b>kànd-r ɓaɓa</b>
mat		<b>xedfa</b>	<b>xet-á*</b>	<b>xetá-kú</b>	<b>xetá ɓaɓa</b>
mortar	Y	<b>tuɓma</b>	<b>tuɓm-y--á</b>	<b>tuɓm-e-kú</b>	<b>tuɓmé ɓaɓa</b>
breast		<b>ɓùɓu</b>	<b>ɓìɓ-y-á</b>	<b>ɓìɓ-i-kú</b>	<b>ɓìɓ-y-a**</b>

\*The root consonant **-ɗ-** assimilates to the **-t-** of the connecting form and the resultant **-tt-** degeminates.

\*\*This is an inalienable noun, which suffixes possessive pronouns directly without use of the particle **ɓa-**.

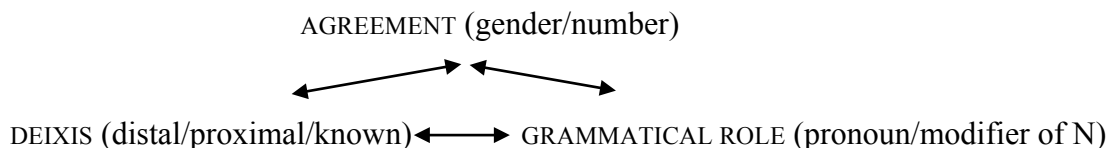
Ga'anda (R. M. Newman 1977a) has “T” stems similar to those in Tera, but in Ga'anda, it seems that there is no unsuffixed citation form. The simple (“non-T”) stem is used only with the plural suffix **-ca**, and the T-stem is used with all other suffixes. The counterpart to the Tera Y-stem has what R. M. Newman calls “Y-prosody”, which (roughly speaking) fronts stem vowels, changes root **s** to **sh**, and changes root final **ŋ** to **y**. Y-prosody is found with indefinite **-a** and genitive **-i**. She exemplifies the Y-prosody class only with the plural suffix (simple stem) and indefinite **-a** (Y-prosody).

**Table 13:** Ga'anda nouns

	CLASS	PLURAL (simple stem)	MODIFIED STEM
arrow	T	<b>xáf-c-á</b> ‘arrows’	<b>xáf-t-á</b> ‘an arrow’
day		<b>fár-cà-dí</b> ‘those days’	<b>fár-tà-dí</b> ‘that day’
person	Y-prosody	<b>naf-cá</b> ‘people’	<b>nef-á</b> ‘a person’
leaf		<b>sà'-cá</b> ‘leaves’	<b>shè'-á</b> ‘a leaf’
bird		<b>dàŋ-cà</b> ‘birds’	<b>díy-à</b> ‘a bird’

### 5.5. Summary

To sum up, determiners in Chadic languages are morphological complexes that potentially fulfill three types of functions at once:



Many Chadic languages retain and morphologically differentiate all three functions, but loss of a function does not necessarily mean loss of a form. In particular, a widespread change in Chadic languages has been to lose grammatical gender as a lexical category, i.e. loss of the AGREEMENT function. But because the morphology of this system is so bound up in grammatical structure, it is difficult to simply discard it, so it remains but moves to other functions. In the cases of Karekare and Ngizim, this has been to the GRAMMATICAL ROLE function, in the case of some Central Chadic languages, it has been to the DEIXIS function, and in yet others it has been to the LEXICAL CLASS distinction itself.

## 6. Gender Stability and Default Genders

Many Chadic languages retain gender as a lexical distinction, but through time, languages replace specific etymons through borrowing or semantic shift, and new items are added to the lexicon. For words referring to animates where natural gender is salient, lexical gender invariably correlates with natural gender, but the question arises as to how gender is assigned to inanimates.

Table 14 below shows 13 items of basic vocabulary with their gender specified for 12 languages representing each of the main branches of Chadic (West: Hausa, Bade, Miya, Ngamo, Ron; Central: Logone, Munjuk;<sup>18</sup> East: Kera, Lele, Mubi, Mokilko; Masa: Musey). The table is meant to address two questions: (1) To what extent is there consistency in gender assignment across languages regardless of whether the compared items are cognate, a question first raised by Newman (1980a)? (2) When an etymon for a particular meaning from the proto-language is replaced, does the replacement item retain the gender of the item that it replaced? For ‘moon’, ‘sun’, ‘fire’, ‘wind’, the answer to both questions seems to be, “Yes.” ‘Moon’ is always masculine, ‘sun’ is always feminine, ‘fire’ is always feminine, and ‘wind’ is always masculine or, in Bade and Kera, collective. ‘Meat’, likewise, is usually masculine or collective. ‘Water’ tends to be plural or, if singular, masculine, though there are a couple of languages where ‘water’ is

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<sup>18</sup> These are Central-B languages. No Central-A languages retain gender as an active lexical category.

unexpectedly feminine.<sup>19</sup> Of particular interest is the fact that none of these items are cognate across all 12 languages, i.e. the gender has remained the same though the word expressing the particular meaning has changed. Looking at the remainder of the items, the picture is more equivocal. ‘Eye’, for example, is usually, but not always feminine; ‘breast’ is usually, but not always masculine. In short, data in the table does suggest that for basic vocabulary, esp. for certain items, lexical gender tends to be stable regardless of the etymological source of the item, but much more data from more languages would be needed to demonstrate the extent to which this tendency is statistically significant.

**Table 14:** Stability of gender specification

	<i>moon</i>	<i>sun</i>	<i>fire</i>	<i>wind</i>	<i>water</i>	<i>meat</i>	<i>fish</i>
HAUSA	watà m	rānā f	wutā f	iskā m	ruwā m, pl	nāmā m	kifī m
W. BADE	təlān m	afan f	akān f	zùwān coll	āmón coll, m	sāsān coll, m	vənākon f
MIYA	tūr m	mùku f	ákúw f	rùwun m	ábíy m	tliwiy m	ghèdè f
NGAMO (G)	tèrè m	hòtù f	yèsì f	hiplà m	hām m	lû = lû m	kèrwò f
RON- BOKKOS	túré m	òwè f	man f	sé m	ham f	ló coll	gùshé coll
LOGONE	tedə m	sə f	fu f	səmadə m	am pl	slu m	kii f
MUNJUK	tile m	fətiy f	afu m,f	simer m	yem m	neŋ m	hilif m
KERA	kítír m	cəwá f	cəwá f	kankaw coll	kan coll	kúsúkí m	áská f
LELE	gìdirè m	tùwà f	tùwà f	kàlò m	kāmā m	síí ?	kùsá ?
MUBI	tírí m	fàt f	kèwwí f	kúsúk m	ám coll	kòmé m	bògòsò m

<sup>19</sup> The feminine category noted for Ron-Bokkos is questionable. Jungrathmayr (1970b) lists the \*am etymon (/ham/ in Ron-Fyer and Ron-Kulere as collectives. He does not list the lexical category in Ron-Daffo or Ron-Scha, but a Scha example with a genitive marker shows it to be plural. Mokilko, the other language with ‘water’ as a feminine, is unusual in its having an exceptionally high percentage of feminine nouns, often corresponding to masculine elsewhere.

MOKILKO	térè m	pèedó f	ùwwó f	màayé m	à'ú f	séy m	pùniso f
MUSEY	tīlnā m	fattà f	kufà f	sémétna m	mbòóna m	tliwna m	kulùfnà m
	<b>nose</b>	<b>head</b>	<b>eye</b>	<b>breast</b>	<b>foot</b>	<b>hand</b>	
HAUSA	hanci m	kâi m	idò m	nōnò m	kafà f	hannū m	
W. BADE	àtlkànən m	adān f	dan f	fəfon m	əzɡərən m	amən f	
MIYA	átím m	ghàm f	átíy f	ápíy m	tsómáy f	kóm m	
NGAMO (G)	wùnti m	k	idò f	yèdī ngô m	shèkè m	sàrà f	
RON- BOKKOS	atin m	háy m	dir f	fóf m	sáy m	râ m	
LOGONE	xsəni m	kaa f	sə f	iwi m	asə m	slacə m	
MUNJUK	merfeŋ m	humok m	aray f	fīyaw m	aziy m, f	tīy m, f	
KERA	nīnə f	cə f	dər f	gaw coll	kámpá coll	kasi coll	
LELE	hindà ?	cà ?	kun- m	kàmyà m	gàn- m	káb- m	
MUBI	ídáano m	kàc f	írīini f	fáabó m	sīn m	fòósó m	
MOKILKO	búndisó f	éègó f	êrsá f	ùdisó f	zíná f	béy m	
MUSEY	cinnà m	yámba f	iirà f	ponà m	semmá m	baná m	

Given the overall Chadic pattern, one would expect the Hausa word for ‘eye’ to be feminine rather than masculine. In fact, Hausa *does* have a dialectal form which manifests the feminine gender normally characteristic of this word, viz. **ijiyà** (f).

Schuh (2003c) describes adaptation of Kanuri loanwords in languages of the Bade/Ngizim group of West Chadic. These languages were under cultural and linguistic influence from Kanuri for several centuries. Of interest here is the fact that Kanuri does not have grammatical gender, whereas gender remains a robust category in Bade, esp. the Western dialects. As noted above, words with salient natural gender invariably are lexically categorized in Chadic languages with the corresponding grammatical gender. Also, in Western Bade, most semantic mass nouns are lexically categorized as collectives. In my current Western Bade lexical database, there are 256 nouns identified

as Kanuri loanwords. From this group, I excluded 73 nouns with salient natural gender and 23 semantic mass nouns that Bade treats as collectives, leaving 160 inanimate count nouns that Bade has assigned masculine or feminine lexical gender. Gender assignment for these 160 nouns is as follows:

feminine: 116 of 160 = 72.5%      masculine: 44 of 160 = 27.5%

The strong skewing toward assigning feminine gender to loanwords suggests that feminine is the default gender. There are no obvious phonological or semantic properties that would account for this skewing. Phonologically, the source words can end in a consonant or any vowel.<sup>20</sup> **sàbùlón** (f) ‘soap’ < K. **sàwûl**, **kàrgùnən** (m) ‘medicine’ < K. **kàrwûn**, **mbànan** (f) ‘help, aid’ < K. **bana**, **kàsùwān** (m) ‘illness’ < K. **kasuwa**, **dàbīn** (f) ‘hoe’ < K. **dawì**, **pukumín** (m) ‘guest room’ < K. **fùwùmí-ràm**, **magèrīpən** (f) ‘dusk’ < K. **mairuwù**, **kârbān** (m) ‘year’ < K. **kàrwù**, **jàrén** (f) ‘truth’ < K. **jirè**, **baltén** (m) ‘late morning’ < K. **balte**. A careful semantic study might reveal some tendencies, but a quick perusal of the words here does not suggest any. For example, mass nouns occur in both genders (‘soap’, ‘medicine’), and time nouns appear in both genders (‘dusk’, ‘late morning’). In short, if natural gender is not involved, feminine is the lexical gender of choice when a word enters the language with no inherited gender.

Kanuri does not have lexical gender, so Bade has to supply gender for Kanuri loans. Since the early 20<sup>th</sup> century, Hausa has been the dominant language of northern Nigeria. Today, all northern Nigerians are fluent speakers of Hausa, and all languages of northern Nigeria have borrowed large numbers of words from Hausa and continue to do so. Since Hausa does have an active system of grammatical gender, one wonders how gender is assigned to Hausa loans. It turns out that the gender that a word has in Hausa is not simply taken over along with the word. I looked at Hausa loans in two Chadic languages that, themselves, have robust lexical gender systems: Western Bade and Miya.

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<sup>20</sup> The Kanuri citations are from modern “standard” Kanuri (Cyffer & Hutchison 1990). Most Kanuri loans came into Bade several centuries ago and were probably from a different dialect area, hence showing a number of differences from the citations here. Readers familiar with Arabic will notice a number of Arabic words. We can assume that these were all mediated through Kanuri, not taken directly from Arabic.

**Table 15:** Gender in loanwords

	W. BADE	MIYA
no. of Hausa loans with semantic exclusions*	93	41
H feminine/H masculine	46/47	17/24
H feminine / B, M feminine	35/64	10/16
% feminine match**	54.7%	62.5%
H masculine / B, M masculine	18/29	18/25
% masculine match	62.1%	72%

\*This is the number of loans for which gender assignment in the borrowing language was verified. For both languages I excluded nouns with natural gender, and for Bade I excluded mass nouns to which Bade has assigned the collective category.

\*\*“Match” means that if a particular noun is feminine in Hausa, it is feminine in the borrowing language, and likewise for masculine.

What these figures show is that gender is not automatically borrowed with a word, even where lexical gender is part of the grammatical system of both languages and where the speakers of the borrowing language are good speakers of the donor language. Favoring of feminine lexical gender in Bade remains evident in these data. Whereas the number of feminine vs. masculine nouns in the Hausa input data is the same (46/47), the genders assigned in Bade are strongly skewed toward feminine (64/29). In Miya, on the other hand, there no evidence of a preference for either gender. The feminine vs. masculine numbers are the same (Hausa 17/24, Miya 16/25). The genders assigned to the individual Hausa words have just been shuffled as they entered the Miya lexicon.

## 7. Ngamo

Ngamo stands out among its close linguistic cousins (Karekare, Bole, Maka) as well as its geographically close but linguistically more distant relative, Ngizim, in preserving a robust system of lexical gender. Nouns themselves have no overt gender marking. Lexical gender is shown by agreement with pronouns and a number of nominal modifiers. The following tables show two masculine nouns, two feminine nouns, and



two plural nouns (whose corresponding singulars are masculine and feminine respectively) with six determiners.<sup>21</sup>

**Table 16:** Ngamo gender and determiners

Determiner	<b>àdà</b> (m) ‘dog’	<b>zòngè</b> (m) ‘hyena’	<b>àwè</b> (f) ‘cat’	<b>tèmshì</b> (f) ‘ewe’
the...	<b>àdà-i ’yè</b>	<b>zòngé-i ’yè</b>	<b>àwè-s ’è</b>	<b>tèmshí-s ’è</b>
this...	<b>àdà wòyyé’è</b>	<b>zòngé wòyyé’è</b>	<b>àwè wònsé’è</b>	<b>tèmshí wònsé’è</b>
that...	<b>àdà wòmí’ì</b>	<b>zòngé wòmí’ì</b>	<b>àwè wònsí’ì</b>	<b>tèmshí wònsí’ì</b>
...mentioned	<b>àdà yé’è</b>	<b>zòngè yé’è</b>	<b>àwè sé’è</b>	<b>tèmshì sé’è</b>
a certain...	<b>àdà-i yó’ótò</b>	<b>zòngé-i yó’ótò</b>	<b>àwè-s só’ótò</b>	<b>tèmshí-s só’ótò</b>
which...?	<b>àdà-i yíyà?</b>	<b>zòngé-i yíyà?</b>	<b>àwè-s síyà?</b>	<b>tèmshí-s síyà?</b>

Determiner	<b>gēji</b> (pl. of m. <b>gājà</b> ) ‘roosters’	<b>tèmkâ</b> (pl. of f. <b>tèmshî</b> ) ‘sheep’
the...	not collected	<b>tèmkà-i ’yè</b>
these...	<b>gēji màye’è</b>	<b>tèmkà màye’è</b>
those...	not collected	<b>tèmkà màmi’ì</b>
...mentioned	not collected	not collected
certain/some...	<b>gēji màd’đi</b> <sup>22</sup>	<b>tèmkà-i màd’đi</b>
which...?	not collected	<b>tèmkà màyiyà, tèmkà màyà</b>

<sup>21</sup> Rules for tonal configurations of phrases are complex. The focus of this section is on the morphology of nouns and determiners, in which tones play no direct role. For description of tones in phrases comprising nouns + determiners, see Schuh (2009:§5.2).

<sup>22</sup> The plural indefinite **màd’đi** is borrowed from Bole. Why, in the entire determiner system, this one item was borrowed is a mystery.

In addition to these determiners, gender/number agreement is displayed in personal pronouns. Unlike some of its genetic cousins that retain grammatical gender, Ngamo does not show gender/number agreement on adjectives, but post-nominal attributive adjectives require gender/number sensitive linking morphemes. These morphemes are identical to relative conjunctions, so attribute adjectives may be viewed as a special type of relative clause.

**gàm yò hetrè** ‘white ram (m)’

**tèmshi-s hetrè** ‘white ewe (f)’

**tèmka mà hetrè** ‘white sheep (pl)’

The definite determiners (those in the first four rows) in the tables above can be further broken down into the following elements:

**Table 17:** Ngamo deixis

Category	BASE FORMATIVE	DEICTIC	DEFINITE FORMATIVE
PRM		-i (m) -s (f) -i (pl)	-’e ~ -’ye
PROXIMAL	wò-y- (m) wò-n- (f) mà- (pl)	-y-e (m) -s-e (f) -y-e (pl)	
DISTAL	wò-N (m, f) mà- (? < *mà-N ) (pl)	-m-i (< *-b-i) (m) -s-i (f) -m-i (p)	
“MENTIONED”		y-e (m) s-e (f) (plural not collected)	

The DISTAL and PROXIMAL demonstratives have a prefix (or prefix complex) that I refer to as a “Base formative”. These demonstratives can be used pronominally. It looks as if the longer pronominal forms have been extended to attributive use.<sup>23</sup> I have broken the DEICTIC portion into two formatives: gender/number marker (-y/-s/-y, -**ɓ**/-s/-**m**) and proximal/distal marker (-e/-i). The -y (= -i when forming a separate syllable) historically comes from the gender-neutral \*i determiner base discussed in §2, specialized to masculine/plural function in Ngamo. The s feminine and m masculine/plural are low-level innovations in the Bole-Tangale group (cf. Bole **emè** ‘this one (m)’, **oshè** ‘this one (f)’). The source of the -s feminine is a mystery, since the expected feminine formative is /t/, while “s” is associated with masculine elsewhere in West Chadic. The masculine/plural m (rather than the Chadic and Afroasiatic \*n) is hard to explain. As noted in the table, the masculine DISTAL [m] seems to come from \***ɓ**, still heard in the Yaya dialect of Ngamo (**wômbi** ‘that one’) and in Karekare (**kwacinò bâm** ‘those houses’). This formative, too, is an innovation, perhaps a development from \*m. The “real” PROXIMAL/DISTAL DISTINCTION is in the vowels.

All the definite determiners in the table are accompanied by an additional element that I call a DEFINITE FORMATIVE. This comes from addition or repetition of the reconstructed \*i definite determiner. It is a fairly common development in West Chadic to add what seems to be a redundant definite marker to a determiner or determiner phrase already marked for definiteness. In elicitation, the Ngamo speakers that I worked with cited noun phrases with definite determiners with this DEFINITE FORMATIVE, but in texts, the determiners frequently appear without this addition, as in the following examples:

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<sup>23</sup> A convergent development has taken place in Hausa. Given the time depth separating Ngamo and Hausa and the absence of extended determiners in languages closely related to Ngamo these developments cannot be attributed to inheritance from a common source.

**man haiko a nam lamba-i** ‘the wife of the squirrel took the *lamba*’<sup>24</sup>

**nzuni ofano gunja-s** ‘they dug up the termite mound’

**Ai nan rukok laha woyye, har ne hetennok laha wommi, ai.**

‘Well, when I enter from this side (**laha**), then I emerge from that side, you know.’

**mandu wonse an udo** ‘this woman has teeth’

**nonti wonsi, an sapya si** ‘that mother, the one who had exchanged him’

**monde maye sam ne wa kasu bu** ‘these women, I haven’t found them at all’

**sorkono, ’ya ye tishinno bu?!** ‘my in-law, isn’t that thing my food?!’

**Jajei se, ko moishe te ka’ai inta bo jobtonto shobno.**

‘That Jajei, you see her thus (you know that) the border of her wrapper is wet.’

(an idiom meaning that Jajei (whom we are familiar with) is insane)

## 8. Gude

Gude has lost grammatical gender as a lexical category. There are masculine and feminine third person singular personal pronouns used when referring to humans, but otherwise, nouns and noun modifiers lack any gender marking.

Lexically, there are two types of nouns, which Hoskison (1983:23-24) refers to as *free class* nouns and *captive class* nouns. Free class nouns in citation form end in **-a** or a consonant; captive class nouns end in **-n**.<sup>25</sup> There are two types of nouns that end in **-a** in citation form: those that end in **-a** only at the end of a phrase but have **-ə** or no final

<sup>24</sup> *Lamba* is a type of steamed cake.

<sup>25</sup> Only a small number of nouns end in consonants other than **n** or vowels other than **a** in citation form. Hoskison (1983:23) says, “Many of these nouns are names for species of plants and animals,” e.g. **məddəŋpikw** ‘hedgehog’ (**mədəmpiku** in Hoskison’s representation). Other categories that may end in consonants or in vowels other than **a** are personal names and place names (**Dzàr** male name, **Nwùv** ~ **Nwuvì** the town Mubi, **Yāfi** female name, **Rəgò** male name) and loanwords that may not be fully assimilated (‘**alkawàl** ‘promise’, **pātùru** ‘cat’, both < Fulfulde).

vowel medially and those that retain **-a** everywhere. This same lexical distinction is found in numerous Central Chadic languages and in West Chadic at least in Duwai. In all these languages, the difference in final vowel behavior seems to be both phonologically and semantically unpredictable. The **-n** of Hoskison’s “captive class” is a Stage II article whose etymological source is the reconstructable determiner base \***n**.<sup>26</sup>

Like many other Chadic languages, Gude makes a three-way distinction among its demonstratives. The table below illustrates these demonstratives along with the behavior of the three classes of nouns.

**Table 18:** Gude demonstratives

			<b>-na</b> ‘this’	<b>-ta</b> ‘that (far)’	<b>-tsa</b> ‘that (in Q)’
<b>-a</b> everywhere	<b>raha</b>	‘axe’	<b>raha-na</b>	<b>raha-ta</b>	<b>raha-tsa</b>
	<b>gàna</b>	‘tongue’	<b>gàna-na</b>	<b>gàna-ta</b>	<b>gàna-tsa</b>
<b>-a</b> final, ə/Ø medial	<b>àva</b>	‘arrow’	<b>àvə-na</b>	<b>àv-ta</b>	<b>àv-tsa</b>
	<b>ràga</b>	‘bow’	<b>ràgə-na</b>	<b>ràg-ta</b>	<b>ràg-tsa</b>
	<b>lùwa</b>	‘meat’	<b>lùwu-na</b>	<b>lùw-ta</b>	<b>lùw-tsa</b>
	<b>səka</b>	‘stomach’	<b>səkə-na</b>	<b>səkə-ta</b>	<b>səkə-tsa</b>
	<b>na</b>	‘head’	<b>nə-na</b>	<b>nə-ta</b>	<b>nə-tsa</b>
Stage II article <b>-n</b>	<b>ùzən</b>	‘child’	<b>ùzə-na</b>	<b>ùzə-ta</b>	<b>ùzə-tsa</b>
	<b>hərfin</b>	‘fish’	<b>hərfi-na</b>	<b>hərfi-ta</b>	<b>hərfi-tsa</b>
	<b>gun</b>	‘fire’	<b>gū-na</b>	<b>gū-tá</b>	<b>gū-tsá</b>
	<b>’inyan</b>	‘peanuts’	<b>’inyā-na</b>	<b>’inyà-ta</b>	<b>’inyà-tsa</b>

<sup>26</sup> In Schuh (1983a) I incorrectly listed two Stage II articles in addition to **-n**, viz. **-a** and **-na**. The former is the final vowel of Hoskison’s free class nouns. The **-na** is, in fact, a form of the Stage II article, but it is found only on verbal nouns.

Hoskison (1983:45) translates the demonstratives as **-na** ‘this’, **-ta** ‘that (far)’, **-tsa** ‘that (close)’. In my notes, I have translated them as in the table. The first two express a fairly straightforward *proximal* ~ *distal* distinction. The exact function of the third would require more study of pragmatics than is possible with existing data.

Gude exemplifies the widespread phenomenon in Chadic languages that have lost the lexical gender distinction whereby formal distinctions originally associated with gender have shifted to other functions:

- \***n** masculine > Gude **-na** proximal
- \***t** feminine > Gude **-ta** distal

The historical source of **-tsa** is not obvious, though it may come from \***s** found in masculine third person singular pronouns.

Addition of the demonstrative suffixes leads to several changes in the form of the base nouns. The **-a** of the citation form is absent in the second group of words, a feature of all medial environments for these words. All common nouns end in H tone in citation form. For nouns that have the pattern LH, **-ta** and **-tsa** condition lowering of the final syllable of the noun. The proximal **-na** does not condition this lowering. It seems that the H before **-na** requires a vowel to bear it because nouns such as **lùwa** ‘meat’, which have no final vowel in the L environment before **-ta/-tsa**, have a ə before **-na** (in this case ə → [u] / w\_\_\_).

Comparative evidence shows that the Stage II article **-n** is not part of the etymological root, compare Gude **hərfin** ‘fish’ with Ngamo **kèrwò**, Bura **kəlfà**, Tera **yurvù**. It is retained with the Previous Reference Marker (PRM)—see examples immediately below—and with most genitives, both alienable and inalienable, e.g. **ùzən-àkì** ‘my child (alienable)’, **ginə-kì** ‘my eye(s) (inalienable)’ (genitives are discussed in Chapter 13). It is omitted with a few kin terms with singular possessors, e.g. **mən** ‘mother’ but **mə-c** ‘his mother’. With demonstratives, it is omitted but the final vowel of the base is lengthened, e.g. **ùzə̀-ta** ‘that child’. Since nearly all phonetically long vowels in Gude are derived, this appears to be a case of compensatory lengthening, that is, the Stage II article is not

simply deleted in the presence of another determiner as it would be in languages like Bade, but its trace remains in the long vowel.

The same set of determiners is used with plural nouns. Nearly all Gude noun plurals end in **n**, and addition of a demonstrative has the same effect as with the Stage II article on singular nouns:<sup>27</sup> **kuvənyinə** ‘huts’, **kuvənyī-na** ‘these huts’, **gunyinə** ‘fires’, **gunyī-ta** ‘those fires’. From a historical point of view, it is not so clear that the final **-n** of plural nouns is a Stage II article because **-n** is a common plural suffix in Chadic. Whatever the source of this **-n**, however, Gude now treats it morphologically like the Stage II article of the singulars.

The Previous Reference Marker of Gude is **-kī**,<sup>28</sup> which is built on the Proto-Chadic \***k** determiner base. Nouns retain the Stage II article **-n** when the PRM is added. Here are some of the nouns from the table above with the PRM:

<b>raha</b>	‘axe’	<b>raha-kī</b>	‘the axe’
<b>səka</b>	‘stomach, interior’	<b>sək-kī</b>	‘the interior’
<b>na</b>	‘head’	<b>nə-kī</b>	‘the head’
<b>ùzən</b>	‘child’	<b>ùzən -kī</b>	‘the child’
<b>hərfin</b>	‘fish’	<b>hərfin-kī</b>	‘the fish’
<b>gun</b>	‘fire’	<b>gun-kī</b>	‘the fire’

## 9. Kera

Ebert (1978, 1979) puts nouns into three main lexical classes: MASCULINE, FEMININE, and COLLECTIVE/PLURAL. From a historical point of view, nouns in the collective category are plurals, but from a modern Kera point of view, they have been lexicalized as a category that can be distinguished from plural. Collectives and “true plurals” differ

<sup>27</sup> These examples are from Hoskison (1983:46), who did not mark their tones and who writes final **-ə** on all words ending in a consonant, though there is no **ə** pronounced in citation form.

<sup>28</sup> In my notes I consistently write this as **kəi**. Hoskison writes **kī**, with a long **ī**. I suspect that the [əi] that I heard is the phonetic manifestation of long **ī**, at least in final position, and hence defer to Hoskison’s transcription.

somewhat semantically and they differ morphologically in that the latter often manifest a suffix **-aw** or **-Vw**. The table below gives examples of nouns with masculine, feminine, collective, and plural counterparts. The data is a composite from Ebert (1978, 1979:144-153). I retain Ebert's orthography, where long vowels are indicated by double letters and mid tone is left unmarked.

**Table 19:** Lexical noun classes in Kera

		MASCULINE	FEMININE	COLLECTIVE	PLURAL
1	'goat'		<b>hàrgá</b>	<b>káaràŋ</b>	
2	'chicken'		<b>dàbàrgá</b>	<b>gàbgur</b>	
3	'dog'	<b>kóoyá</b>	<b>tóoyá</b>	<b>káayá</b>	
4	'son/daughter'	<b>kormə</b>	<b>tərnə</b>	<b>karmə</b>	
5	'boy/girl'	<b>pur</b>	<b>tər</b>	<b>kəmár</b>	
6	'slave'	<b>pam</b>	<b>támɡá</b>	<b>káfkám</b>	
7	'person'	<b>hùlùm</b>		<b>kaa (?)</b>	<b>kaa (?)</b>
8	'rooster'	<b>gòglókì</b>			<b>gàgláw</b>
9	'billy goat'	<b>kupúrki</b>			<b>kəpárkáw</b>
10	'grandfather'	<b>moomə</b>			<b>kəmoomə</b>
11	'husband'	<b>gèdrə</b>			<b>kə̀dàrdə</b>
12	'sauce pot'	<b>kérlew</b>			<b>kəkérlew</b>
13	'hide, skin'	<b>gòlgò</b>			<b>gàlgàw</b>
14	'woman'		<b>hèlgá</b>		<b>kə́ráw</b>
15	'grandmother'		<b>ádiidə</b>		<b>kaádiidə</b>
16	'aunt'		<b>naarə</b>		<b>kə̀naarə</b>
17	'cooking pot'		<b>taatá</b>		<b>kə̀taataw</b>
18	'calabash'		<b>tə́yá</b>		<b>kə́yáw</b>
19	'crocodile'	<b>kim</b>			
20	'faeces'	<b>kusi</b>			
21	'lion'	<b>gòogò</b>			
22	'stone'	<b>párkí</b>			
23	'hunger'		<b>táy</b>		
24	'hole'		<b>tələŋɡá</b>		
25	'thigh'		<b>də̀gmá</b>		
26	'water'			<b>kan</b>	



27	‘grass’			<b>kaadáw</b>	
28	‘wind’			<b>kaŋkaw</b>	
29	‘bug(s)’			<b>kəbəəbər</b>	
30	‘root(s)’			<b>kəsár</b>	
31	‘hand(s), arm(s)’			<b>kasi</b>	
32	‘shoe(s)’			<b>kalmasi</b>	
33	‘broom(s)’			<b>kómár</b>	
34	‘shelter(s) (made of mats)’			<b>gàdlay</b>	

If one scans down the columns, it is immediately evident that a large proportion of the masculine, collective, and plural forms begin with **k-** (→ **g-** when the next consonant is a voiced obstruent) and most of the feminine nouns begin with **t** (→ **d-** when the next consonant is a voiced obstruent).<sup>29</sup> Some masculine nouns have initial **p-**. Ebert (1979:142) says, “Für die Verwendung von **p-** statt **k-** in männlichen Forment kann keine Regel angegeben werden.” I will not consider the masculine **p-** further.

These **k-** and **t-** formatives in modern Kera are Stage III articles, that is determiners that have become frozen as part of the lexical form of a noun and do not participate in any active alternations. Kera illustrates the innovation unique to East Chadic of shifting the Proto-Chadic gender-neutral base **\*k** to become a marker of masculine and plural while relegating the **\*n** masculine to neutral function (see below). Some of the collectives/plurals involve replacement of the singular prefix, masculine or feminine (e.g. items 2, 3, 4, 8, 9, 11, 13, 18), others are simply added to the masculine or plural stem (e.g. items 10, 12, 15, 16, 17). Regarding the status of the the initial CV components of nouns, comparative evidence shows that are frozen prefixes and are not part of the etymological root even when this is not evident in morphological alternations, e.g. **kitir** ‘moon’, cf. Tumak (East Chadic) **dər**, Bole (West Chadic) **tere**; **kəsár** ‘root’, cf. Lele

<sup>29</sup> Ebert (1978:45, 1979:147) describes the feminine “**t**” allomorphy as being a bit more complex: /t/ → c / \_\_ c ~ k, h / \_\_ VC[+son]CV, t / \_\_ [+son], Ø elsewhere. See the pages referenced in Ebert for examples of these other allomorphs.

(East Chadic) **sara**, Bole (West Chadic) **shōrìn**; **dəgná** ‘tail’, cf. Tumak (East Chadic) **jìn** ‘penis’, Ngizim (West Chadic) **gənyì** ‘penis’.

It is surprising that these Stage III articles are *prefixes* rather than suffixes, since nominal modifiers in Chadic languages are typically post nominal. Some languages do, however, place at least some determiners in pre-nominal position (e.g. Hausa and Miya in West Chadic), and “Old Kera” must have done so. Kera has actually retains suffixes as gender-marking Stage II or III articles as well, though these seem lexically less common than prefixes. Ebert (1979:149) lists words containing a masculine suffix **-ki**, e.g., **kú-sú-kí** ‘meat’, with a **k-** Stage III article prefix, cf. Jegu (East Chadic) **su**, Ngizim (West Chadic) **tlùwai**). In addition, she lists a number of feminine nouns with a suffix **-gá** (or **-ká** when abutting with an /s/), e.g. **tál-gá** ‘termite hill’, **seŋ-gá** ‘earth’, **ses-ká** ‘star’. In this case, it is less clear that we are dealing with an old Stage II or III article, since the **-gá** could just as easily be a frozen derivational suffix of undetermined meaning.

A few additional remarks about the items in the table are worthwhile. Ebert distinguishes lexical *collectives* that have no formal singular, *collective plurals* (those serve as plurals grouping nouns from both genders), and *true plurals* (like those in the PLURAL column). Lexical *collectives* (Ebert 1979:152-153) fall into specific semantic groups, mainly mass nouns or referents that tend to come in masses, referents that are paired, and referents that, by their nature, comprise multiple parts. *Collective plurals* (Ebert 1979:150) are found mainly with humans and domestic animals that have male and female counterparts. Some of these have true plurals that serve as plural for just one of the genders, most commonly the masculine, whereas the collective is suppletive or is based on the feminine (cf. English *cows* or suppletive *cattle*, which can include both male and female bovines, where *bulls* can be only males). *True plurals* are restricted to human referents or common household utensils, tools, and the like. All other nouns have only a masculine or feminine form. Note that nouns of this type comprise both count nouns and mass nouns, i.e. the distinction between *masculine* ~ *feminine* and *collective* lexical categories is not one of singular vs. mass/plural.

- TO BE ADDED:
- Disparity in gender assignment: feminine most common
  - Regularized gender/number marking on adjectives
  - Definite determiner system (see Ebert 1977:136)
  - Noun plural (ir)regularities in Chadic context

## 10. Hausa (not yet done)

Grammatical gender and its correlates in Hausa has been thoroughly documented in Parsons (1960a, 1961, 1963) and in major reference grammars, in particular Newman (2000) and Jaggar (2001).

- grammatical gender (Parsons papers)
- manifestations of grammatical gender: determiners, adj. agreement, pronoun agreement
- semantic and morphological correlates with gender (Newman 2000:200ff.)
- gender marking
  - gender at most only *partially* marked on nouns (contrary to most descriptions)
  - overt characterization as gender marking (Newman 1979a, 2000:208ff.)
- n/t/n determiner system + \***k** still seen dialectally
  - interplay of grammar and phonology: the case of feminines not ending in **-aa**
- PRM, four-way deictic distinction on demonstratives (Jaggar)
  - history of demonstratives: \***n**/\***t**/\***n** + \***-n** augment > locative > demonstrative

## 11 | Nominal Plural Morphology

### 1. Nominal Plural Marking

Morphological marking of noun (and adjective) plurals varies considerably across the Chadic family. Some Chadic languages get along largely without morphological pluralization. Typically, such languages will have plurals for a few words, such as terms referring to humans and important domestic animals, but most nouns are not marked for plurality. This is particularly the case among languages of the Bole-Tangale group of West Chadic and of those Central Chadic languages spoken in northeastern Nigeria and northern Cameroon. This might thus be an areal feature, since these groups are, in part at least, geographically contiguous.

In Bole (West Chadic), in my current database of about 2400 common nouns, only 165 are listed as having morphological plurals. Of these, 95 refer to humans, 32 to animates (mainly common animals and birds), and the remaining 27 to common household items, domestic structures, and a few body parts. Here are some examples of singular/plural pairs:

Humans: **mè̀mù/mi'y'yà** ‘person/people’, **mò̀ndù/mondè** ‘woman, wife/women, wives’, **bò̀wu/bòbbè** ‘father’, **dà̀da/dàddè** ‘elder sister’, **mò̀lti/mòllè** ‘younger brother / younger siblings’, **dì̀ya/dìkkè** ‘grandmother; granddaughter’, **kò̀kina/kòkìnàwa** ‘courtier/courtiers’, **kò̀ndo/ kòndòwa** ‘professional praise singer/singers’, **À̀pìno/À̀pìnàwi** ‘Hausa person/people’, **Kà̀rkàre/ Kà̀rkàrèwa** ‘Karekare person/people’

Animals: **à̀dà/à̀dìnshe** ‘dog’, **bì̀dò/bì̀ddìnshe** ‘monkey’, **dò̀sho/dòwì** ‘horse’, **kò̀sum/ kòsse** ‘mouse’, **ò̀shi/uwwà** ‘goat’, **yà̀wi/yàbbi** ‘chicken’

House: **bònò/bonne** ‘house/houses’, **’yàwo/’yàwinshe** ‘granary/ganaries’, **ḡādi/ḡādinshe** ‘knife/knives’, **kòtum/kòtumshe** ‘food bowl/bowls’

Body: **kàla/kàlinshe** ‘finger/fingers’, **ùdo/ùdinshe** ‘tooth’

Kin terms, generic terms for humans, and common domestic animals generally have idiosyncratic plurals (usually involving a vowel change, often to **-e**, and often with geminate C<sub>2</sub>). Ethnic terms and some occupations often have a suffix **-wa** (less commonly **-wi**). There is a default plural **-(in)she**, which, in principle, seems to be usable with any count noun, but in practice, it is volunteered only with common animals and commonly used utensils. As the numbers above suggest, a very large majority of nouns do not use morphological plurals, e.g. **dìndì** ‘toad’, **gùngu** ‘leopard’. **kànkìrshà** ‘puff adder’, **kùshi** ‘baobab’, **mbormi** ‘ebony’, **danda** ‘pestle’ (though a plural was given for ‘mortar’, **tùmà/ tùminshe**), **d’inkiya** ‘gourd cup’, **pocco** ‘arrow’, **shèkè** ‘leg, foot’, **kùmo** ‘ear’, **tère** ‘month (= moon)’, **sòmbòdî** ‘day (period of 24 hours)’.

Ngamo, a close genetic cousin and geographic neighbor of Bole, exhibits similar facts for morphological pluralization.

Turning to Central Chadic, Smith (1969:55) says that in Kapsiki, “Number is usually not indicated by a change in noun morphology. If number is to be indicated in nouns it may be done: (1) by the use of a numeral, (2) by the presence of a plural demonstrative, (3) with a plural qualifier, or (4) in rare cases, by the use of **ye** which is placed directly before the noun.” Smith (1969:55-56) gives a “nearly exhaustive’ list of 15 nouns with morphological plurals, all but two of which (**wusú/wuší** ‘thing/things’, **féléxwé/féléxwéši** ‘seed/seeds’) refer to humans or domestic animals, e.g. **zha/zheli** ‘man’, **malé/miyi** ‘woman’, **máva/maveshí** ‘slave’, **tému/tímatí** ‘sheep’, **kánka/kánkeli** ‘chicken’.

Hoffmann (1963:57) says, “There are two kinds of plural formation in Margi. The majority of nouns make their plurals by adding the suffix **-’yàr** ..., while a small group of certain nouns use special stems as their plurals.” Hoffmann lists only six

monomorphemic nouns of the latter type: **mdè/mjì** ‘person, man/people’, **sál/shílí** ‘man, husband/husbands’, **màlà/màhyìdî** ‘woman, wife/wives’, **bzér/ḡúshá** ‘child, son/sons’, **ḡkwà/ḡkwà’ì** ‘girl, daughter/daughters’, **bzér/tágwí** ‘youth/youths’. A few that add **-’yàr** are **fà/fà’yàr** ‘farm’, **máfá/máfá’yàr** ‘slave’, **kérwà/kérwà’yàr** ‘law’, **mà’wì/mà’wì’yàr** ‘animal’.

Though the **-’yàr** suffix is highly productive for marking plurality, Hoffmann (1963:57) notes that “if the plurality of the noun is clearly indicated by other criteria ... the **-’yàr** may be omitted.” Other facts about this morpheme suggest that it is not really a number marking suffix in the sense of languages where plural morphology shows a change in grammatical class of a noun stem, e.g. Hausa **zàbō** (m), **zàbuwā** (f), **zàbī** (pl) ‘guinea fowl’. Rather, it is a clitic showing multiple referents. In noun phrases with post nominal modifiers, **-’yàr** follows the modifier rather than the noun that is actually plural, e.g. **sèr sóm’yàr** ‘things to eat’ (< **sè-r sóm** “thing-of eating”), **dàrà dèzè’yàr** ‘red caps’ (< **dàrà dèzè** “cap red”). It can be used with proper names to mean “name & associates”, e.g. **Bàshír’yàr** ‘Bashir and his family, Bashir and his people’, not “several Bashirs”. Moreover, it can be added to nouns that are already morphologically plural, e.g. **shílí’yàr kè** ‘these men’ (cf. **sál/shílí** ‘man, husband/husbands’). In short, Margi really belongs among those languages that have true morphological plurals for only a few nouns.

Across the family, such languages are a minority. Most Chadic languages have extensive plural morphology and, in principle, have a plural form available for every count noun. The main difference between languages is whether they have a small number of nouns with idiosyncratic plurals and one or two default plurals that are, in principle, available for every count noun, or whether the inventory of plural types itself is large and large numbers of count nouns have apparently idiosyncratic plurals (or a pluralization system that follows complex rules). The former type is seen in Miya, which has a substantial number of nouns (and adjectives) with idiosyncratic plurals, but can pluralize any count noun with a suffix **RED-aw** (where **RED** = “reduplication”). Ngizim

likewise has nouns with idiosyncratic plurals, but has a plural **-(au)cin** that is typically used with human referents and a default suffix RED-**in** used with others.

**Table 1:** Miya and Ngizim plurals

	MIYA		NGIZIM	
	Singular	Plural	Singular	Plural
person	səm	səbə	nən	ndīwà, ndāwà
woman, wife	'ám	təvam	amâ	àmàtin, àmàtau
child	lày	wùtləmíy	māyìim	māmau
sheep	təmáku	təmakwìy	təmàku	təmàmin, təmàmkin
cow	ghèruw	ghèruwiy	tlà	tlàḏin
young woman	bàzaniy	wùtlə tɔ̀vàm	kùyanga	kùyangaucin
hunter	mə̀zam	mə̀zamáw	mə̀zam	mə̀zàmcin
porcupine	zhàzhəkə	zhàzhəkákàw	ambâi	ambàbín
clay bowl	kìbi	kìbabáw	kwāyàk	kwāyàyin
arrow	tùw	tùwawáw	dègà	dègàgin
rainy season	wàshasham	wàshashamámàw	də̀man	dəmàmin
road	dàrhə	dàrháhàw	də̀vu	də̀və̀vin

Gude (Central Chadic), has a similar profile of morphological pluralization. Not surprisingly, there are fewer languages that have a larger number of plural types. Hausa, to be discussed in §2.4, is such a language.

## 2. Plural Marking in Individual Languages

### 2.1. Ngamo

For the most part, Ngamo does without morphological plural marking on nouns and adjectives. Out of over 1400 nouns and adjectives in my current lexical database, only about 100 were given with morphologically marked plurals. The rough figure of 1400 includes mass and abstract nouns that would probably not be pluralizable in any case, and undoubtedly many of the count nouns would have plural forms that did not emerge from elicitation or texts but that would be acceptable to at least some speakers. Nonetheless, the small number of attested plurals demonstrates the general absence of nominal and adjectival plural marking. Nearly all nouns with morphological plurals are animates, though there are a few inanimates (**bùnì** ‘grindstone’, pl. **bùnàkù**), and many animates do not have regularly used plurals, e.g. **gùngù** ‘leopard’, **kùm’yè** ‘hedgehog’. and many others.<sup>1</sup>

The Gudi Ngamo data in the table below shows plural types that have multiple exemplars. Note that a number of kin terms have a **-tì** suffix used when cited alone or with a noun possessor. The suffix drops when a possessive pronoun suffix is added, e.g. **dàrà-tì** ‘older sister’, **dàrà-tì Kùlè** ‘Kule’s older sister’, but **dàrà-nô** ‘my older sister’.

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<sup>1</sup> Data from Gadaka (2008:§§3.7-11) seems to indicate that Yaya Ngamo has a somewhat richer system of noun plural morphology than does Gudi Ngamo. This dialect difference was substantiated by my own work. The Yaya speaker with whom I worked gave plurals such as **dàkrà** ‘lizard’, plural **dàkràrà**, whereas for Gudi **dàkrâ** ‘lizard’, no plural was volunteered.



**Table 2:** Gudi Ngamo plural types

PLURAL TYPE	SINGULAR	PLURAL	
Suffix <b>-àkù<sup>2</sup></b>	<b>kòrò</b>	<b>kòràkù</b>	‘donkey’
	<b>dò</b>	<b>dònàkù</b>	‘horse’
	<b>yàknà</b>	<b>yàknàkù</b>	‘fool’
	<b>Gòzùm</b>	<b>Gòzmàkù</b>	‘Ngizim’
Suffix <b>-(i/àn)shê</b>	<b>àdà</b>	<b>àdìnshê</b>	‘dog’
	<b>shìdà</b>	<b>shìdànshê</b>	‘seed; type’
	<b>à Híkà</b>	<b>Hìkànshê</b>	‘Bole person’
	<b>kàbàr</b>	<b>kàbìrshê</b>	‘castrated goat’
Suffix <b>-shínè</b>	<b>gàm</b>	<b>gàmshínè</b>	‘ram’
	<b>kòm</b>	<b>kòmshínè</b>	‘cow’
Redup. <b>-àCê</b>	<b>kòrì</b>	<b>kòràrê</b>	‘farm’
	<b>gòshò</b>	<b>gòshàshê</b>	‘stone’
	<b>sòrkô</b>	<b>sòkràrê</b> [w. metathesis]	‘father-in-law’
Infix C <sub>1</sub> or <b>-k-</b> (see note (a) below)	<b>bànò</b>	<b>bapne</b>	‘house’
	<b>gèrà</b>	<b>gekri</b>	‘tall, long; distant’

<sup>2</sup> This plural originally had final H tone, still heard in Yaya Ngamo, e.g. Yaya **kòró** ‘donkey’, plural **kòràkù**. Because of the Great Ngamo Tone Shift (Chapter 5, §6), the H has shifted to the right in Gudi Ngamo but remains as a floating tone that associates with a following syllable, showing up, for example, on the L negative maker **bù** as a F tone, e.g. Gudi **kòràkù bù** ‘not donkeys’. In Tera, a distantly related Central Chadic language, the plural marker is high tone **kú**.

	<b>ndàǎ̀ò</b>	<b>ndekǎ̀e</b>	‘heavy’
	<b>nà’ákò</b>	<b>nèkshì</b>	‘big’
	<b>sèmé</b>	<b>sèsmàkù</b>	‘fool’
Final vowel change	<b>ngèrhô</b>	<b>ngérhì</b>	‘guest, foreigner’
	<b>màndù</b>	<b>mòndê</b>	‘woman; wife’
	<b>dàrà-tì</b>	<b>dàrè</b>	‘older sister’
	<b>tèmshì</b>	<b>tàmká</b>	‘sheep’
	<b>òshì</b>	<b>òuká</b>	‘goat’
Suffix <b>-è/àn-</b>	<b>bò-tì</b>	<b>bòbèn-tì</b>	‘father’
	<b>nòn-tì</b>	<b>nònèn-tì</b>	‘mother’
	<b>mì’ì-tì</b>	<b>mì’yàn-tì</b>	‘co-wife’
	<b>Zàn</b>	<b>Zànzàn-tì</b>	‘Kanuri person’
Infixes <b>-ā-</b>	<b>gòrzò</b>	<b>gòràjì</b>	‘man, male’
	<b>gùmyò</b>	<b>gùmâyâ</b>	‘young woman’
	<b>Ngàmò</b>	<b>Ngámáyâ</b>	‘Ngamo person’
Suppletive	<b>ngò</b>	<b>bìyà</b>	‘person’
	<b>mìzì</b>	<b>zàzì</b>	‘male; husband’
	<b>zàp-tì</b>	<b>shà-tì</b>	‘peer, compatriot’

### NOTES

(a) The examples of plurals formed by infixes are an exhaustive list from my materials for this plural type. I did not get tones for some of them. The word for ‘fool’ is from Gadaka (2008:76). It has both infixed C<sub>1</sub> and suffixed **-aku**. For ‘big’, I propose that the root **\*k** shows up in the

plural as the palatal **sh** before the plural vowel suffix **-i** (a regular sound correspondence in Bole-Tangale, see ‘sheep’ and ‘goat’ under “Final vowel change” plurals). The **-k-** in the plural is an infix. Aside from the word for ‘house’, these are all adjectival concepts. Their “plurals” look more like pluractional verb forms than typical Chadic nominal plurals. See Chapter 8 for pluractional verbs.

(b) A number of kin terms have a **-ti** suffix used when cited alone or with a noun possessor. The suffix drops when a possessive pronoun suffix is added, e.g. **dàrà-tì** ‘older sister’, **dàrà-tì Kùlè** ‘Kule’s older sister’, but **dàrà-nô** ‘my older sister’.

Some nouns allow plurals of more than one type, e.g. **bàyìnshê** ~ **bàyàkù** ‘slaves’, **gòshàkù** ~ **gòshàshê** ‘stones’, **dàrèn-tì** ~ **dàrè** ‘older sisters’. The only types that seem semi-productive are **-àkù** [H] (where [H] indicates a historically underlying high tone) and **-(i/àn)shê**. The latter is borrowed from Bole, where it is the most common plural type. This type of plural is basically not used in the Yaya Ngamo area, where Bole is less widely spoken than in the Gudi area, and for a number of words for which Yaya and Gudi Ngamo have segmentally identical singulars, Yaya has a more conservative plural whereas the Gudi plural is identical to that of the Bole cognate, e.g. Yaya and Gudi **àdà** ‘dog’, Yaya plural **èdén**, Gudi plural **àdìnshê** (cf. Bole singular **àdà**, pl. **àdìnshé**), Yaya **kái**, Gudi **kài** ‘orphan’, Yaya plural **kàyàkù**, Gudi plural **kàyìnshê** (cf. Bole **kàyàù**, plural **kàyìnshé**). The **-she** allomorph is used with CVCVC roots, as it is in Bole. There is no obvious conditioning for **-inshe** vs. **-anshe** (Bole has only **-inshe**). The **-anshe** variant may reflect an earlier native form.<sup>3</sup> The plurals for ‘ram’ and ‘cow’ are also borrowed from Bole. The respective plurals in Yaya are **gàgàm** and **kómè**.

All the plural types other than **-àkù** [H] and **-(i/àn)shê** are represented by five or fewer lexical items, and most items in each group show various idiosyncrasies. This suggests that nominal “pluralization” in Ngamo, at least the Gudi dialect, is, for the most

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<sup>3</sup> Though an **-inshe** plural is not found at all in Yaya Ngamo, I recorded two Yaya nouns with **-anshe**: **bidò** ‘monkey’, plural **bidànshe** (Gudi **bidànshê**), **àn Fikà** ‘Bole person’, plural **Fikànshê** (Gudi **Hikànshê**).

part, pairing of lexicalized singulars and plurals, not a productive rule or set of rules applied to a base.

There are a couple of productive ways to mark plural nominal expressions. One is the agentive construction, which prefix **à** [H] (masc.), **àn** [H] (fem.), and **ànà** (pl.) to a noun, e.g. **à-shírì** (m), **àn-shírì** (f), **ànà-shírì** (pl) ‘thief’. The second is a proclitic **mì** ‘associates of..., things like..., ...& Co.’. This does not actually pluralize the noun itself, but as the translation suggests, it represents multiple referents associated with the type in question, e.g. **mì Gèlkà** ‘Gelka and associates’, **mì Kùlè** ‘Kule & Co.’, **anyani birda mì woka ki toros ka bi** ‘he was cutting loose things like calabashes from the net on the ceiling’. This seems to be the source of the plurals **mìllâ** ‘children’ (cf. **là** ~ **làlâmbà** ‘child’), **mìlmòndê** ‘girls’ (cf. **mòndê** ‘women’) and **mìn nòntí** ‘younger brothers’ (cf. **nòntí** ‘mother’), which retain the earlier form **mìn**, still seen in Bole as such.

## 2.2. Gude

Gude has quite productive nominal plural morphology. There are three common terminations for plural. Superscript <sup>[PAL]</sup> in the third type indicates that the entire stem undergoes morphological palatalization. See further examples in Table 3 below.

<b>-nyi-n/-ŋi-n<sup>4</sup></b>	<b>vəran</b> (pl. <b>vəraŋin</b> ) ‘town’
<b>-ī-n</b>	<b>ɖəva</b> (pl. <b>ɖəvīn</b> ) ‘basket’
<b>-i-n<sup>[PAL]</sup></b>	<b>sərhwá</b> (pl. <b>shirhin</b> ) ‘in-law’

All noun plurals terminate in **-n**.<sup>5</sup> The table below exemplifies the three common plural types and a few irregular plurals for commonly used nouns. All nouns with the

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<sup>4</sup> Hoskison (1983) always writes this termination **nyi-n**. In my notes I have usually written it **ŋi-n**, though occasionally **nyi-n**. Non-glottalized coronal stops become palatalized velars when palatalized, i.e., /t/ → **k<sup>y</sup>**, /d/ → **g<sup>y</sup>**. This phenomenon also affects /n/, though perhaps not as strongly as the stops, accounting for my writing **ŋ**, though this should probably be more accurately written **ŋ<sup>y</sup>**.

Stage II article **-n** (Hoskison’s “captive class”) use the **-nyi-n/-ŋi-n** plural. Nouns that have final stem **-a** in all environments take the **-ī-n** or **-nyi-n/-ŋi-n** type.<sup>6</sup> For nouns with final **-a** only in citation form but  $\emptyset$ /**-ə** elsewhere (Hoskison’s final **-ə** class), all three plural types are found, but the default seems to be the **-i-n**<sup>[PAL]</sup> type.<sup>7</sup> Parenthesized (**a**) or ( $\emptyset$ ) shows whether the final **-a** is retained everywhere or is found only in citation form.

**Table 3:** Gude plural types

PLURAL TYPE	SINGULAR	PLURAL	
<b>-nyi-n/-ŋi-n</b>	<b>gùga (a)</b>	<b>gùgaŋin</b>	‘well’
	<b>ùra (a)</b>	<b>ùraŋin</b>	‘neck, throat’
	<b>dòsa (∅)</b>	<b>dòsənyin</b>	‘earthware bowl’
	<b>kùva (∅)</b>	<b>kùvaŋin</b> <sup>8</sup>	‘hut’
	<b>gun</b>	<b>gunyin</b>	‘fire’
	<b>hərfin</b>	<b>hərfiŋin</b>	‘fish’
	<b>vəran</b>	<b>vəraŋin</b>	‘town’

<sup>5</sup> It is not clear whether this comes historically from the Proto-Chadic plural suffix **\*n** or from the determiner base **\*n** that has evolved into a Stage II article as has happened with singulars, but modern Gude treats it as the latter.

<sup>6</sup> Hoskison (1983:35) says that the latter type “seem to be used only to emphasize the plurality and are much less common than the **-ī-** forms” In elicitation, I simply recorded the first form that my speaker volunteered without checking pragmatics, but **-nyi-n/-ŋi-n** was given less frequently than **-ī-n**.

<sup>7</sup> Hoskison (1983:35-36) gives **-nyi-n/-ŋi-n** as the default plural for this class and lists the **-i-n**<sup>[PAL]</sup> type as an “irregular” type for this class of singulars. The latter type may be a closed class, but it applies to too many nouns to really be called irregular. In his prose statements, Hoskison does not mention the **-ī-n** plural being used with his **-ə** class nouns, but his examples of the **-ī-n** plural actually include two such nouns, and my data includes a number of this type.

<sup>8</sup> As in my notes. One would have expected “**kùvəŋin**”, since **-a** is heard with this word only phrase finally.

<b>-i-n</b>	<b>bàga (a)</b>	<b>bàgīn</b>	‘sheep’
	<b>təkìsa (a)</b>	<b>təkìsīn</b>	‘star’
	<b>àva (∅)</b>	<b>àvīn</b>	‘arrow’
	<b>’wàta (∅)</b>	<b>’wàtīn</b>	‘beans’
<b>-i-n</b> <sup>[PAL]</sup>	<b>bìsma (∅)</b>	<b>bìshmin</b>	‘tick’
	<b>ɣwuzəta (∅)</b>	<b>ɣwuzhìk<sup>y</sup>in<sup>9</sup></b>	‘orphan’
	<b>màdzəga (∅)</b>	<b>màjəgīn</b>	‘younger sibling’
	<b>kàntuhùfa (∅)</b>	<b>kàntuhù’yin</b>	‘worm, grub’
	<b>màlèbàma (∅)</b>	<b>màlibyàmin</b>	‘stutterer’
	<b>làwara (∅)</b>	<b>lèwarin</b>	‘servant’
Some irregular plurals	<b>mən, dən</b>	<b>məsən, dəsən</b>	‘mother, father’
	<b>ənda (ə)</b>	<b>inja</b>	‘person’
	<b>ənfwa (∅)</b>	<b>ənfùgin</b>	‘tree’
	<b>ùhwa (ə)</b>	<b>ùhin</b>	‘goat’
	<b>mahəra (∅)</b>	<b>mahīrən</b>	‘thief’

Hoskison (1983:38) says, “Body parts do not have separate plural forms,” but my data indicate that this does not apply to all speakers. I was able to elicit plurals for many body parts, e.g. **gàna** (pl. **gànīn**) ‘tongue’, **’ila** (pl. **’ilīn**) ‘bone’, and a number of others. All the examples that Hoskison lists as not being pluralizable are paired or multiple body parts, and all but ‘foot’ look like lexicalized plurals that can now take singular referents:

<sup>9</sup> As noted above, /t/ → k<sup>y</sup> when palatalized.

**cīn** ‘hand(s)’, **gīn** ‘eye(s)’, **linyin** ‘tooth/teeth’, **səɗa** ‘foot/feet’. The last is not plural in form, but I was given the plural **səɗəŋin** for this noun.

Finally, Hoskison (1983:38) presents a list of apparent lexicalized plurals (which he refers to as “dead plurals”). Hoskison’s examples of “dead plurals” are all words referring to items that usually occur in groups or are mass nouns. All Hoskison’s and my examples have the **-ī-n** or **-i-n**<sup>[PAL]</sup> termination. Some examples are **ñvwīn** ‘faeces’, **’wa’wīn** ‘ankle bells worn by dancers’, **’ivənyin** ‘charcoal’, **rəkikin** ‘cooking tripod’.

With two exceptions, adjectives are invariable for number, e.g. **màdèdùŋ uhhwá** ‘black goat’, **màdèdùŋ uhhín** ‘black goats’. This may be because almost all adjectives are a special category derived with a prefix **ma-** (see Chapter 14 for discussion of this prefix). Hoskison (1983:55) does give two singular/plural adjective pairs for which I recorded only a singular: **undzə** (pl. **ūji**) ‘small’ (**undzə gyāgya** ‘small chicken’, **ūji gyāgyīn** ‘small chickens’) and **maɗūnə** (pl. **maɗīgərə**) ‘large’ (**maɗūnə gyāgya** ‘large chicken’, **maɗīgərə gyāgyīn** ‘large chickens’).

### 2.3. Hausa

The complexity of Hausa noun plural morphology is well-known. It has been thoroughly described in Newman (2000) and Jaggar (2001) as well as other sources, which should be consulted for details. The goal of this section is to lay out the broad classes, state generalizations that run across those classes, and situate Hausa nominal plural morphology in a broader Chadic (esp. West Chadic) picture.<sup>10</sup>

There are three broad types of plural morphology: final vowel change, reduplication, and suffixation. All classes and subclasses of these types are templatic in terms of both

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<sup>10</sup> A caveat: There are as many ways of classifying Hausa plurals as there are descriptions of them. The facts are complex and, in fact, they are in constant flux from dialect to dialect and generation to generation. The discussion here is laid out primarily with a comparative and historical perspective, not as a systematic synchronic description of the Hausa plural system as it currently exists.

segmental shape and tone patterns. Tonal templates are shown by superscripted tone patterns (H = high tone, L = low tone).  $C_f$  in templates means “the final consonant of the base”;  $C_{f-1}$  means the next to the last consonant.

In the tables below, the left-hand column gives major classes of each of the plural types; the numbered items are subclasses within each of the major classes.

**Table 4:** Hausa plural formations

a. Final vowel change

3+ syll.: -V <sup>LH</sup>	1.	-ai	ḷàḅā̀ṛì biṛì	ḷàḅā̀ṛai biṛai	news monkey
	2.	-ī	ṭàḅarṃā ḅàḳō	ṭàḅarṃī ḅàḳī	mat stranger
2 syll.: see below	3.	-ū	kuj̣èṛā ṛāṃì	kùj̣èṛū ṛāṃū	chair hole
	4.	-ā	mij̣ì	maẓā	husband

b. Reduplicated & types templates derived from reduplication

-āCē <sup>HLH</sup>	5.	-C <sub>2</sub> āC <sub>2</sub> ē ~ -C <sub>2</sub> āiC <sub>2</sub> ai	wuṛì	wuṛàṛē ~ wuṛàiṛai	place
	6.	-C <sub>2</sub> āC <sub>3</sub> ē	kulḳī	kuḷàḳē	cudgel
	7.	-āyē	zōṃō	zōṃāyē	hare
-C(ā)Cā <sup>HLH</sup>	8.	-V <sub>1</sub> C <sub>2</sub> C <sub>2</sub> ā	zōḅè	zōbḅā [zābḅā]	ring
	9.	-C <sub>2</sub> āC <sub>3</sub> ā	siṛḍì	siṛàḍā	saddle



<b>-ōCī<sup>H</sup></b>	10.	<b>-C<sub>f</sub>ōC<sub>f</sub>ī</b>	<b>tāgà</b> <b>lēbūrà</b>	<b>tāgōgī</b> <b>lēbūrōrī</b>	window laborer
	11.	<b>-C<sub>f-1</sub>ōC<sub>f</sub>ī ~</b> <b>-C<sub>f-1</sub>āC<sub>f</sub>ī</b>	<b>tsarkì-yā</b> <b>tunkì-yā</b>	<b>tsarōkī</b> <b>tumākī</b>	bowstring sheep

c. Suffixed types & templates containing suffixes

<b>-uCā<sup>HL</sup></b>	12.	<b>-unà</b>	<b>wàndō</b>	<b>wandunà</b>	trousers
	13.	<b>-C<sub>f-1</sub>uC<sub>f</sub>à</b>	<b>ràkumī</b>	<b>rākumà</b>	camel
	14.	RED- <b>unà</b>	<b>bàkā</b>	<b>bakunkunà</b>	bow
	15.	<b>-ukà</b>	<b>kauyè</b>	<b>kauyukà</b>	village
	16.	RED- <b>ukà</b>	<b>cùtā</b>	<b>cūtuttukà</b>	disease
	17.	RED- <b>uwà</b>	<b>gàrī</b>	<b>garūruwà</b>	town
3 syll.: <b>-aCī<sup>LH</sup></b>  4 syll.: <b>-aCī<sup>HLHH</sup></b>	18.	<b>-ākī</b>	<b>gōnā</b>	<b>gònākī</b>	farm
	19.	RED- <b>ākī</b>	<b>kāyā</b>	<b>kāyàyyakī</b>	burden
	20.	<b>-ànnī</b>	<b>watà</b>	<b>watànnī</b>	month
	21.	<b>C<sub>2</sub>èC<sub>3</sub>anī</b>	<b>gàřmā</b>	<b>gařèmanī</b>	hand plow
	22.	<b>-èC<sub>f-1</sub>aC<sub>f</sub>ī</b>	<b>tařwadā</b>	<b>tařèwadī</b>	catfish

2.3.1. Final vowel change types

In modern Hausa, the final vowel change types are productive only for singular nouns of more than two syllables.<sup>11</sup> Disyllabic nouns with plurals formed by final vowel

<sup>11</sup> There is a certain amount of predictability as to which vowel suffix a noun will take, details which need not concern us. See Newman (2000:Chapter 56).

change all have CVCV root shape and (nearly) all refer to common animals, domestic items, body parts, and the like. They can be viewed as frozen lexicalized forms. In addition to subclasses 1-3, there are disyllables with plurals in **-ā**.

The table shows the  $-V^{LH}$  (final vowel replacement with a L-H tone melody) only for nouns of more than two syllables. I propose that disyllabic vowel-final plurals reflect an earlier period when the plural suffix bore H, but the base retained its lexical tone. This is commonly the case in other West Chadic languages (cf. Ngizim **gùvù/gùv-àv-ín** ‘corpse/s’, **wákà/wák-àk-ín** ‘tree/s’, **dàmbāḷḷèguř/dàmbāḷḷèguř-àř-ín** ‘wild hunting dog/s’, which adds a reduplicative suffix, but retains lexical tones on the base). All disyllabic **-ai**, **-ā** and **-ū** plurals have HL singulars and the plurals are HH. Disyllabic **-ī** plurals have LH tones on both singular and plural, with one exception: **bāwā/bāyī** ‘slave/s’. At an earlier historical stage, the plural suffix was probably chosen on the basis of the singular tone pattern, much as is the case for reduplicated types today. Newman (2000:455) treats **bāwā/bāyī** ‘slave/s’ as “a tonally irregular member of [the disyllabic **-ī** plural] type”, i.e. having a plural with HH rather than LH tones. This seems right for modern Hausa, but if the proposal here is correct, the irregularity would have been in assigning the **-ī** plural suffix to a HL singular, not in the tone pattern of the plural itself.

### 2.3.2. Reduplicated plurals and plurals with related templates

The plural subclasses 5-9 all have disyllabic singulars that are in complementary distribution as to the subclasses of their plurals. Using V for a short vowel and VV for a long vowel, their distribution is as follows:

- |                              |                              |
|------------------------------|------------------------------|
| 5. CVC- bases with HH tones  | 8. CVVC- bases with HL tones |
| 6. CVCC- bases with HH tones | 9. CVCC- bases with HL tones |

7. CVVC- bases with HH tones<sup>12</sup>

Subclasses 10-11 may have at one time been part of this complementarity. Subclass 11 is confined to a few CVCC- roots, often containing a feminine suffix **-yā** that is dropped in the plural, mostly with alternatives in subclass 10 stem including the suffix (cf. **tsarkiyōyi** as a modern alternative to **tsarōkī** ‘bowstrings’). Subclass 11 also contains some erstwhile plurals lexicalized as singulars or mass nouns with no extant singular form, e.g. **karōfi** ‘dyepit(s)’. A final **-ī** reduplicated pattern used with CVC- bases, but with vowel **-ā-** rather than **-ō-**, is seen in unproductively related pairs such as **gūdā/gūdājī** ‘a unit/lumps (in food)’,<sup>13</sup> **tufā/tufāfi** ‘an article of clothing/clothes’ (m. or pl.). In modern Hausa, subclass 10 has become a default plural, used with many loanwords (e.g. **mōtā/mōtōci** ‘car/s’) and as an alternative or replacement for non-productive patterns of native words (**birī/birōri** ‘monkey/s’, cf. the rather archaic **birai** given in the table). Among disyllabic words, however, subclass 10 is almost entirely restricted to nouns with a HL singular and most often feminine in gender.

Setting aside subclass 10, which is now a productive catch-all class for a variety of singular bases, the complementarity of subclasses 5-11 has two characteristics: (a) there is a strong preference toward syllable weight polarity, and (b) the resultant plural matches a trisyllabic template within each class. The exceptions to (a) are subclasses 7 (**zōmāyē** ‘hares’, with all heavy syllables) and 8 (**zōbbā** ‘rings’, with only two heavy syllables); the exception to (b) is subclass 8, which is disyllabic. Taking this subclass 8 first, it clearly derives from a template  $*C_1VVC_2aC_2ā^{HLH}$ , with syncope of the short medial vowel, automatic shortening of the root vowel in the resultant closed syllable, and

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<sup>12</sup> Also in this class are nouns with a geminate  $C_2$  (**gāmmō/gāmmāyē** ‘head pad(s)’) and those with medial  $-NC_3$  where N is homorganic to  $C_3$  (**shīngé/shīngāyē** ‘thorn fence(s)’), that is, cases where  $C_2$  forms a phonologically tight bond with  $C_3$ .

<sup>13</sup> Note that the plural form does not have the H plural tonal template but retains the L of the base singular on the root syllable.

preservation of the HL part of the tone pattern as a falling tone. The reconstructed template was thus trisyllabic with a HLH tonal pattern and weight polarity between the first and second syllables of the plural, but reversed from subclass 9. I admit to having no account for the development of subclass 7 other than that it matches the superordinate template  $-\grave{\text{a}}\text{Ce}^{\text{HLH}}$ . Why, for example, did bases of this type not develop plurals like subclass 8, i.e. singular **zōmō** > plural **\*zōmàmē** > **\*zômmē**? As is so often the case in historical linguistic accounts, all we can do is look at results and identify aberrations. There is rarely a non-speculative answer to “why?”.

### 2.3.3. Does Hausa have “internal-*a*” plurals?

A longstanding, but questionable, claim about Hausa, extending back to Greenberg (1955), asserted most recently in Wolff (2015a), is that Hausa has inherited a “root and pattern” system of morphology comparable to that found in Semitic and Berber. (For a counter view, expounded in considerable detail, see Schuh (1992).) The only evidence ever cited for this claim is plurals of subclass 6. The so-called root and pattern plurals of subclasses 6, 9, and 11 are nothing more than template matching of plurals formed from CVCC- bases to plurals whose base patterns are the reduplications of subclasses 5, 8, and 10. These plurals *add* a reduplicated suffix of the type  $-\text{C}_2\text{-VC}_2\text{V}$ . Nothing is inserted internal to a root. Template matching and a strong preference for alternating syllable weight, makes a plural like **gulàbē** ‘streams’ (< sg. **gulbī**) preferable to a hypothetical reduplication **\*gulbàbē**, which has all heavy syllables. There is no evidence elsewhere in Hausa or in West Chadic, Central Chadic, or Masa for a system of root and pattern morphology inherited from an earlier Afroasiatic stage. Apparent examples, e.g. the plural formation in Ron (West) (Jungraithmayr 1965) are (virtually) all recent low level developments. The situation in East Chadic is not so clear and needs further study, see Jungraithmayr (1978a).

### 2.3.4. Final vowel change plurals and reduplicated plurals

Comparison of final vowel change plurals and reduplicated plurals suggests that these two types really comprise a single “super type” where the reduplicated classes are final vowel change classes with a feature [+RED]. We find the following matches between final vowel types and reduplicated types.

**Table 5:** Hausa final vowel change plurals

-ai		-ā		-ī		ū	
1 [-RED]	5 [+RED]	4 [-RED]	8 [+RED]	2 [-RED]	10 [+RED]	3 [-RED]	? [+RED]
<b>birai</b>	<b>wuràirai</b>	<b>mazā</b>	<b>zôbbā</b>	<b>bàkī</b>	<b>tāgōgī</b> <b>tufāfī</b>	<b>rāmū</b>	(see below)

There are no vowel change plurals ending in mid vowels. Indeed, the only plurals of any kind that end in mid vowels are subclasses 5-7. In conservative Western dialects, subclass 5 has the template  $-C_2\mathbf{ai}C_2\mathbf{ai}^{\text{HLH}}$  rather than the standard Kano  $-\mathbf{ā}C\mathbf{ē}^{\text{HLH}}$  template cited in all the references. The Western form must reflect the earlier template. Sporadic monophthongization of  $\mathbf{ai} > \mathbf{ē}$  is fairly common in Hausa. The change of medial  $-\mathbf{ai}-$  may reflect a dissimilatory effect from the final  $\mathbf{ē}$ .

The table of reduplicated plural classes does not include a class ending in  $-\mathbf{ū}$ . There is, however, class of plurals with the template  $-C_2\mathbf{ā}C_3\mathbf{ū}^{\text{HLH}}$ , e.g. **gurbì/guràbū** ‘shallow hole’, **murhù/murāfū** ‘cooking tripod’. These seem to represent the missing  $-\mathbf{u}$  reduplicated class, but in modern Hausa, they are essentially in complementary distribution with subclass 9: all, or nearly all those with the  $-\mathbf{ū}$  plural have a labial or labialized consonant in the first syllable, those of subclass 9 have other configurations.<sup>14</sup>

<sup>14</sup> Reduplicated plurals with final  $-\mathbf{ū}$  are found in adjectival past participles derived from verbs, such as **dàfāfū** ‘cooked (pl), singular **dāffāfē**) < **dafā** ‘cook’. Newman (personal communication) states, “Although these are not listed in the standard dictionaries, I am quite sure that I have heard **dàbār̀bār̀ū** ‘plans’ and **wàhàlhàlū** ‘troubles’, which presumably represent modern creations.”

Comparative evidence from West Chadic shows, first, that active pluralization processes are the rule rather than the exception in this branch, and, second, that languages like plurals to be longer than singulars. Augmentation for pluralization is accomplished through reduplication or suffixation or both. Here are examples from Ron-Bokkos (Jungrathmayr 1970b:102-106), Miya (Schuh 1998:193-196), and Ngizim (Schuh 1972:13-17), languages that are not geographically contiguous to each other and are not closely related within West Chadic. All these languages, in principle, have plural forms available for all countable nouns.

Ron	Suffixed:	<b>bàkàm</b>	<b>bàkàm-ash</b>	‘knife’
	RED:	<b>nyes</b>	<b>nyes-as</b>	‘python’
Ngizim	Suffixed:	<b>magèraf</b>	<b>magèràf-cin</b>	‘stranger’
	RED+suff.:	<b>àjàgum</b>	<b>àjàgùm-àm-in</b>	‘hippopotamus’
Miya	RED+suff.:	<b>kə̀vən</b>	<b>kə̀vən-án-àw</b>	‘buffalo’
		<b>kúnkúl</b>	<b>kúnkúl-al-àw</b>	‘cap’

(Miya has no plurals formed only by suffixation or only by reduplication.)

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**NOTES on Plurality to double-check and expand on in this chapter.**

- nominal plural marking:
  - reduplication as an adjunct to suffixation
  - templatic nature
  - weight polarity
  
- types of systems: crosscut obligatory or at least frequent use vs. optional or rare use
  - real noun morphology
    - plural suffixes: **n** (determiner or real plural suffix?) , **k**; final vowel change
    - reduplication
    - internal changes (East-B, Ron)

Info on Tera (Central Chadic) (from Newman p.c.):

- plural marker **-kú** is a free morpheme *not* bound to the noun.

-with attributive adjectives modifying plural nouns, **-kú** can appear on both the noun and the adjective.

**guno / gunokú** ‘goat/goats’

**guno boṅndá** ‘the white goat’ (**-nd(ə)-** is a linking particle (L) required between the adjective and a suffix such as the plural marker **-kú** or the suffixed def. article **-á** )

**guno boṅndákwá = guno boṅboṅndákwá** ‘the white goats’ (**kwá = kú + á**) (with plural marking on adj only)

**gunokú boṅboṅndá** ‘the white goats’ (with plural marker **-kú** on N only, although adj in redup. plural form)

**gunokú baṅ boṅboṅndákwá** ‘my white goats’ (lit. goat-pl my white(pl)-L-pl-the)

cf. **gunokú pititindi** ‘small goats’ (with plural marking on N only)

This plural marker **-kú** also serves to indicate plurality of the subject in the 3rd person with no noun subject expressed, e.g. **wà dǎ gòma kú** ‘they went to market’, cf. **wà dǎ gòma** ‘he/she went to market’

## 12 | Attributive Modifiers and Quantification

[in progress]

### NOTES

- genitives: see chapter 14
- determiners: see chapter 10
- adjectives
- relative clauses
- quantifiers

### Adjectives and “Adjectival” Concepts

- means of expressing adjectival concepts
  - primary adjectives
  - nouns expressing qualities
  - adjective-like words derived from verbs: statives, participles
  - primary verbs: pred. X QUALITY, attrib. X that is QUALITY
- attributive syntax
  - word order, generally N ADJ. Hausa is a partial exception.
  - gender/number agreement vs. invariability
  - linking morphemes
    - N Linker (m/f/pl) Adj (invariable)
    - expression of plurality (required on all elements?)
- comparison
- *ish* formation
  - Margi (p.68)
  - Logone (Shryock 2014:13-14)



Notes on Tera:

Adjective: attributive follows with **-nd-i** (indef), **-nd-a** (def); predicate has bare adj. (clear examples with the color adjective ‘red’)

Stative/participle: attributive follows with **-ka-nd-i** (indef), **-ka-nd-a** (def); predicate has base + **-an**

(stative verbs have verb form: ‘it is full ‘contrasts with ‘it has become full’)

- Reduplicated adjectives pattern with simple adjectives as predicates but used attributively seem to work like verbs in using the marker **-ka-**

Tera Table (tones not marked):

BASE (ADJ)		PREDICATE		ATTRIBUTIVE	
<b>ḥoŋ</b>	white	pərsa ḥoŋ	the horse is white	pərsə ḥoŋnda	the white horse
<b>ḍyod</b>	bitter	gora ḍyod	the kola is bitter	goro ḍyodndi	bitter kola
<b>teber</b>	straight	sabira teber	the stick is straight	sabir teberndi	a straight stick
<b>kalma- kalma</b>	blue	derya kalma- kalma	the cap is blue	dere kalma- kalmakanda	the blue cap

BASE (VERB)		PREDICATE		ATTRIBUTIVE	
<b>woya wa ruḃa</b>	the boy became injured	woya ruḃaran	the boy is injured	woy ruḃakandi	an injured boy
<b>lukta wa zəḃi</b>	the gown wore out	lukta zəḃtan	the gown is worn out	luktə zəḃkandi	a worn out gown

### Relative Clauses

- complementizer: invariable or number/gender marked
- depth of extraction/resumptive pronouns

### Ngamo

**adai hetere** ‘white dog’      **tèmshis hetrè** ‘white sheep’

**damatos hoyo** ‘new broom’    **òshis ùnù** ‘black goat’

**dà’ur yò màṁā’ì** ‘a basket that is small’

**hàm yò kòlnò**    ‘hot water’ (“water that is hot”)

**ngòi wòyyè ùnu miriu** ‘that man is coal black’

### Hausa

- real adjectives:

morphosyntactic properties that distinguish them as a category on their own  
before or after as attributives; predicates; gender/number agreement

- participial adjectives < verbs: same properties as real adjectives
- statives: only predicates
- **mai/marar** as attributives; ‘have’ as predicates
- ANSQ's:
- adjectives derived from ANSQ's

**Quantifiers as Attributives and Predicates**

- order with respect to head and other attributives
- overt expression of number on head
  - numbers (cardinal and ordinal)
  - “all”
  - indefinites: a, a certain, some, another, others
  - universal quantification (‘everyone’, ‘anyone’, ‘whoever’, ‘no one’, etc.)

## 13 | Genitive Constructions

### 1. Overview

A number of features are recurrent in Chadic genitive constructions, broadly speaking:

- Head initialness: In a genitive construction A + B, A is always the head and B is its “modifier”, e.g. POSSESSED+POSSESSOR (Hausa **littāfi-n d'ālibī** ‘book-of (belonging to) the student’), PART+WHOLE (Hausa **rēshè-n bishiyà** ‘branch-of a tree’), CATEGORY+TYPE (Hausa **kàho-n būsà** ‘horn-for blowing’).
- Semantic range:
- Gender and number agreement: In most, if not all, Chadic languages that retain grammatical gender, gender of the head noun conditions the form of overt genitive markers, often with a third form for plural head nouns, e.g. Miya **mbàrgu nuwun** ‘my ram (m.)’, **tómáku tuwun** ‘my ewe (f.)’, **tómakwìy niywan** ‘my sheep (pl.)’.
- Lexically determined linking elements: Nouns in some languages fall into apparently arbitrary lexical classes that condition the forms of genitive constructions. These classes usually—perhaps always—are traceable to the loss of lexical gender that has left morphological residue in various construction types, including genitives.
- Singular vs. plural pronoun possessors: A fairly widespread distinction in Central Chadic languages is a dichotomy in the marking of singular vs. plural pronominal possessors. This is sometimes associated with neutralization of the alienable / inalienable distinction with plural possessors.
- Genitive pronoun suffixes vs. other pronoun suffixes: 1<sup>ST</sup> person definitely and maybe 3<sup>rd</sup> masculine are different for possessive vs. object suffixes.

- N+N compounds: In many Chadic languages, N+N compounds are formally indistinguishable from N+N genitive constructions, with the only criterion for calling them “compounds” being the fact that they are semantically non-compositional, e.g. Hausa **ƙarfin jàkī** ‘strength of the donkey’ (a genitive phrase) vs. **ƙarfin gwīwà** ‘encouragement’, lit., “strength of knee” (a compound). Some languages, however, formally differentiate genitives from compounds, e.g. Podoko **yàwá dáyà** ‘water of a bird’ (with a genitive high tone on the first syllable of the second noun) vs. **yàwá dáyà** a type of plant (with the second noun tonally unaltered).
- Alienable vs. inalienable possession: Typical in Chadic languages.

## 2. Alienable vs. Inalienable Possession

A widespread distinction is the existence of different constructions depending on whether the head is “alienable”, i.e. something of which ownership could be transferred, or “inalienable”, most typically body parts and kinship terms, but also often items viewed culturally as non-transferable, such as one’s household. There is considerable variation in the extent and productivity of the distinction. In some languages, only a few kin terms require special inalienable construction; in some the list of nouns treated as inalienable may be extensive but still require special marking; and in some the distinction seems to be almost entirely semantically governed.

### 2.1. West Chadic

In many West languages, one only finds remnants of alienable/inalienable, e.g. Hausa below (synchronically lost), Bole only in some kin terms, Bade and Ngizim losing Stage II articles, and a few special cases like Bade ‘house’.

Miya has a full-fledged alienable/inalienable distinction; it differentiates nominalized V + subject vs. object.

## 2.2. Central Chadic

The alienable/inalienable contrast is widespread, but what counts as “inalienable” varies. Construction for plural possessors often different from singular and sometimes neutralizes alienable/inalienable distinction

### 2.2.1. Podoko

Inalienable only for certain kin terms (Jarvis 1989:17).

**Table 1:** Alienable (al.) ‘goat’ vs. inalienable (inal.) ‘father / wife’ in Podoko

	al. sing	inal. sing	al. pl	inal. pl
1sg	<b>nawé mayá</b> ‘my goat’	<b>ba-la</b> ‘my father’ <b>nəs-á!a</b> ‘my wife’	<b>nawá-ki dá!la</b> ‘my goats’	<b>babá-!k dá!la</b> ‘my fathers’
2sg ‘your’	<b>nawé maká</b> ‘your goat’	<b>ba-təka</b> ‘your father’ <b>nəs-átəka</b> ‘your wife’	<b>nawá-ki dá!təka</b> ‘your goats’	<b>babá-!ki</b> <b>dá!təka</b> ‘your fathers’
N	<b>nawé də!wa</b> ‘girl’s goat’	<b>ba-ta Páďa</b> Paďa’s father’	<b>nawá-ki dá !dəwa</b> ‘girl’s goats’	

Note: The symbol ! indicates downstep.

- singular alienables take **ma-** pronouns, floating H linker with nouns
- singular inalienables take direct pro (and, I would argue, an **-a-** linker, which Jarvis interprets n as the prepausal form of the N) and repeat 3<sup>rd</sup> person pro before a possessive N. See Jarvis table for pronoun forms
- alienable/inalienable distinction neutralized with a plural possessed N
- plural possessed N requires a linker **da-**+direct pro
- compounds: do not have H linker

### 2.2.2. *Ga'anda*

In *Ga'anda* (R. M. Newman 1971b:24-26), inalienables are limited to a list of specific kin terms<sup>1</sup> and a few other special nouns (p. 25), mostly belonging to what she calls the T-class, and to body parts used as locatives, mostly belonging to what she calls the Y-stem class, though in genitives they take the “simple” form (non-palatalized form). I am sure that the “body parts as locatives” is just a special case of COMPOUNDS, cf. cases like **wàás mée** ‘beard’ (hair of mouth), **wà-t fârtà** ‘sun’ (fire of day), etc.

Inalienables (1) have no linker, (2) use a special set of pronouns, and (3) take a **-t-** suffix with T-class nouns, but use the “simple stem” of Y class words.

Most nouns are alienable, including, surprisingly, body parts. They (1) use modified stem for both T and Y class nouns, (2) have a linker /i/, and (3) use a special set of pronouns

#### Inalienable:

T: / <b>shike-</b> / ‘friend’	<b>shikee-tə-na</b> ‘my friend’	<b>shikee-tə Musa</b> ‘Musa’s friend’
Y: / <b>xur-</b> / ‘inside’	<b>xur-na</b> ‘in me’	<b>xur Musa</b> ‘in Musa’

#### Alienable:

T: / <b>shuk-</b> / ‘spear’	<b>shuk-t-i-ncə</b> ‘my spear’	<b>shuk-t-i Musa</b> ‘Musa’s spear’
Y: / <b>xwər-</b> / ‘stomach’	<b>xwir-i-ncə</b> ‘my stomach’	<b>xwir-i Musa</b> ‘Musa’s stomach’

### 3. *Ngamo*

*Ngamo* has grammatical gender. Genitive constructions require marking for the gender and number of the head noun, though masculine marking is distinct from plural marking only with independent genitives. *Ngamo* marks inalienable as distinct from alienable genitives only for selected kin terms. For the most part, N+N compounds are formally indistinct from N+N genitives, i.e. N+N constructions are classified as “compounds” based primarily on semantic criteria.

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<sup>1</sup> Tera, a language in the same group as *Ga'anda*, manifests an interesting phenomenon. Although kin terms, as expected, are normally inalienable, a loanword in that semantic class behaves as alienable: **ŋəny-a** ‘my uncle’ (native word), cf. **bol-a** ‘my thigh’ vs. **kaawu ɓa-ŋa** ‘my uncle’ (synonym borrowed from Fula), cf. **pərsə ɓa-ŋa** ‘my horse’.

### 3.1. Default genitive

All genitive constructions other than those for selected kin terms use default patterns that are governed by the gender or number of the head noun. If the head noun is feminine singular, a linker **-k** is required. Masculine and plural head nouns simply juxtapose  $N_1+N_2$ . The genitive construction conditions tonal alternations, to be discussed below, but these are not related to gender or number.

Feminine $N_1$ :	<b>tèmshì-k Músá</b>	‘Musa’s ewe’
	<b>kèrwò-k ngô</b>	‘a person’s fish’
	<b>sàrà-k ngô</b>	‘a person’s hand’
Masculine $N_1$ :	<b>gàm Músá</b>	‘Musa’s ram’
	<b>gárá bídò</b>	‘a monkey’s beans’
	<b>tìlì tèmshì</b>	‘a sheep’s heart’
Plural $N_1$ :	<b>tèmkà Músá</b>	‘Musa’s sheep (pl.)’
	<b>gējí Dísà</b>	‘Disa’s roosters’
	<b>mìllà Jìbìr</b>	‘Jibir’s children’

Tonally, Ngamo is complex. Roughly speaking the original situation in Ngamo seems to have been that  $N+N$  genitives were marked by a floating H between the two nouns. This is seen most clearly in the Yaya dialect in  $N+N$  constructions where both nouns have lexical LL tones: Yaya dialect **gùmýò-k Dímpzà** ‘Dimza’s girlfriend’ (feminine  $N_1$ ), **zùgò bídò** ‘monkey’s body’ (masculine  $N_1$ ). The first syllable of  $N_2$  in both cases has H tone, regardless of whether or not the linking **-k** conditioned by a feminine  $N_1$  intervenes. The Gudi dialect, which is the focus of Ngamo sections of this book, has undergone what I refer to as the GREAT NGAMO TONE SHIFT (GNTS), see Chapter 5, 6. This is a tone change that has shifted the tones of all words one tonal domain to the right and L has replaced the original initial domain. For disyllabic nouns



the, outcomes have been the following: \*LL > LL, \*LH > LL(H), \*HH > LL(H), \*HL > LF, where “(H)” = floating H. It is not hard to see that the GNTS would have complicated the assignment of tones in genitive constructions. Probably because of this, Gudi Ngamo has restructured the tone patterns of N+N genitive constructions. The table below shows the tones of genitives comprising disyllabic nouns with all the possible combinations of the four most common tone patterns.

**Table 2:** Tone in Ngamo genitives

N2 → N1 ↓	*LL > LL	*LH > LL(H)	*HH > LL(H)	*HL > LF
	<b>bìdò</b> ‘monkey’	<b>témshí</b> ‘sheep’	<b>kòrò</b> ‘donkey’	<b>kàdâm</b> ‘crocodile’
*LL > LL <b>ùdò</b> ‘tooth’	<b>ùdò-k bìdò</b>	<b>ùdò-k témshì</b>	<b>ùdò-k kórò</b>	<b>ùdò-k kàdâm</b>
*LH > LL(H) <b>tìlì</b> ‘heart’	<b>tìlì bìdò</b>	<b>tìlì témshì</b>	<b>tìlì kórò</b>	<b>tìlì kàdâm</b>
*HH > LL(H) <b>kèrwò</b> ‘fish’	<b>kèrwò-k bìdò</b>	<b>kèrwò-k témshì</b>	<b>kèrwò-k kórò</b>	<b>kèrwò-k kàdâm</b>
*HL > LF <b>lìnsò</b> ‘tongue’	<b>lìnsò bìdò</b>	<b>lìnsò témshì</b>	<b>lìnsò kórò</b>	<b>lìnsò kàdâm</b>

The overall tone scheme of every combination is LHL. In most cases, the H is on first syllable of N<sub>2</sub>, as it was originally in constructions in which both nouns had LL citation tones (see the Yaya Ngamo examples above). The only exception is seen where a noun cited with LF tones is in N<sub>2</sub> position. It seems that these nouns already contain a lexical H (F = H+L on one syllable) and therefore the desired LHL pattern is “built in”, though displaced one syllable to the right. There are a few nouns, including some proper names, that have a HL pattern. Not surprisingly, constructions with these as N<sub>2</sub> also have the LHL pattern, e.g. **lìnsò Dísa** ‘Disa’s tongue’.<sup>2</sup> The default patterns for masculine, feminine, and plural nouns with pronoun genitives are seen in the following paradigms.

<sup>2</sup> The situation becomes more complex when N<sub>1</sub> is a noun cited with HL tones or when either noun is not disyllabic. A full account of the GNTS and a comprehensive discussion of tones can be found at <[http://www.linguistics.ucla.edu/people/schuh/Papers/ms\\_2009\\_ngamo\\_tones\\_and\\_clitics.pdf](http://www.linguistics.ucla.edu/people/schuh/Papers/ms_2009_ngamo_tones_and_clitics.pdf)>.

**Table 3:** Ngamo genitive paradigms

	<b>tìlì</b> (m) ‘heart’	<b>ùdò</b> (f) ‘tooth’	<b>tèmkâ</b> (pl.) ‘sheep’ <sup>3</sup>
1 sg.	<b>tìlì-nò</b>	<b>ùdò-n-nò</b>	<b>tèmkâ-nò</b>
2 m.sg.	<b>tìlì-ŋ-kò</b>	<b>ùdò-k-kò/ùdò-t-kò</b>	<b>tèmkâ-ŋ-kò</b>
2 f.sg.	<b>tìlì-n-shì</b>	<b>ùdò-shì</b>	
3 m.sg.	<b>tìlì-nì</b>	<b>ùdò-n-nì</b>	<b>tèmkâ-nì</b>
3 f.sg.	<b>tìlì-n-tò</b>	<b>ùdò-tò</b>	<b>tèmkâ-n-tò</b>
1 pl.	<b>tìlì-mù</b>	<b>ùdò-m-mù</b>	
2 pl.	<b>tìlì-ŋ-kù</b>	<b>ùdò-k-kù/ùdò-t-kù</b>	
3 pl.	<b>tìlì-n-sù</b>	<b>ùdò-sù</b>	

In an abstract phonological analysis, which reflects the history, the masculine and plural constructions are N-**n**+PRONOUN and the feminine ones are N-**t**+PRONOUN. The pronouns all retain their underlying/historical segmental forms, but the masculine/plural linker /**n**/ and the feminine /**t**/ are altered by rules observable elsewhere in Ngamo (Schuh 2005). When /**n**/ is followed by a nasal, it is replaced by compensatory lengthening of the final vowel of N<sub>1</sub>; it assimilates to place of articulation of following obstruents (**-k**, **-sh**, **-t**, **-s**). When /**t**/ is followed by a coronal obstruent (**-sh**, **-t**, **-s**), it is replaced by compensatory lengthening of the final vowel of N<sub>1</sub>; it obligatorily completely assimilates to a following nasal (**-n**, **-m**) and optionally to a non-coronal obstruent (**-k**). The result of these alternations is that the feminine linker /**t**/ before a nasal pronoun has the phonetic form that the masculine linker /**n**/ would originally have had! Moreover, the result is a geminate nasal (**-nn-**, **-mm-**), yet the motivation for the alternations of the linker must have been the avoidance of geminate consonants—Ngamo has no geminate consonants in native roots.

<sup>3</sup> I did not elicit a full paradigm for any morphologically plural head noun. The forms here, however, illustrate all the relevant alternations.

Accounting for the tones of pronominal genitives in Gudi Ngamo is problematic. Historically, the genitive pronoun suffixes bore H, as they still do in Yaya Ngamo: Yaya **zùgò-nó** ‘my body’, **tìlì-nó** ‘my heart’. The GNTS can explain the L on genitive pronouns in Gudi—the H tonal domain shifted off the pronoun—but comparative evidence from Yaya does not account for the H preceding the pronoun. Most pronominal genitives in Gudi follow a LHL template similar to that seen above for N+N genitives, but there are data points that contradict this.

It is the “nasal pronouns” (**-no** ‘my’, **-nì** ‘his’, **-mu** ‘our’) that condition the most interesting alternations (compensatory lengthening of the final vowel of N<sub>1</sub> with the masculine linker /n/ vs. complete assimilation of the feminine linker /t/). Quite a few nouns in Ngamo end in nasals, so one wonders what the outcome of these with genitive pronouns might be. While I cannot provide a comprehensive answer, three nouns present an interesting contrast.<sup>4</sup> The word **gàm** ‘ram’, which has final /m/, suppresses the masculine linker /n/ and retains /m/ in all environments: **gàmno** ‘my ram’, **gàmni** ‘his ram’, **gàmko** ‘your (m.sg.) ram’, **gàmto** ‘her ram’. The word **kèn** ‘maternal uncle’, with final /n/, does likewise: **kènno** ‘my uncle’, **kènko** (probably [kèŋkò]) ‘your (m.s.) uncle’, **kènni** ‘his uncle’. However, the final **-n** in the word /sùn/ ‘name’ undergoes the rules of the masculine linker: **sù-nò** ‘my name’, **sùŋ-kò** ‘your (m.s.) name’, **sù-nì** ‘his name’, **sùn-tò** ‘her name’, **sù-mù** ‘our name’.<sup>5</sup>

### 3.2. Genitives with kin terms

Ngamo has special inalienable genitive constructions only for kin terms. As is typical in Chadic languages with an alienable/inalienable distinction, kin terms that use special genitive constructions are a subset of the words semantically classifiable as kin terms.

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<sup>4</sup> The same question would arise for words ending in other consonants. No nouns in Ngamo end in obstruents, but some nouns end in /l/ or /r/. It seems that I elicited pronominal genitive data only for masculine nouns ending in the consonants /m/ and /n/.

<sup>5</sup> As is the case for other pronominal genitives, an account of the tones is problematic. ‘Ram’ and ‘name’ historically bore H tone, ‘uncle’ bore L. All three are cited with L in Gudi Ngamo because of the GNTS.

Following are lists of all the semantic kin terms that I have identified in Ngamo. For ease of reference, I refer to those using a special genitive construction as “inalienable” and those using the default genitive construction as “alienable”, though of course they are all semantically “inalienable”. I include the respective plurals, to which I return below.

#### Inalienable kin terms

<b>bõtí</b>	pl. <b>bòbèntí</b>	‘father’
<b>nòntí</b>	pl. <b>nònèntí</b>	‘mother’
<b>dìshítí</b>	pl. <b>dìkè</b>	‘grandfather; grandson’
<b>dìkàtí</b>	pl. <b>dìkè</b>	‘grandmother; granddaughter’
<b>bà’tí</b>	(no plural)	‘daughter’
<b>bàtí</b>	pl. <b>bà`inshê</b>	‘elder brother’
<b>dàràtí</b>	pl. <b>dàrèntí, dàrè</b>	‘elder sister’
<b>bèi nòntí</b>	pl. <b>mìn nòntí</b>	‘younger brother’ (“son of mother”) [ <b>bè</b> < Bole]
<b>bà’ nòntí</b>	pl. <b>mìn nòntí</b>	‘younger sister’ (“daughter of mother”)
<b>màndù</b>	pl. <b>mòndê</b>	‘wife’
<b>mì`ití</b>	pl. <b>mì`yàntí, mì`yè</b>	‘co-wife’
<b>sòrkítí</b>	(see ‘father-in-law’)	‘mother-in-law’
<b>zàptí</b>	pl. <b>shàtí</b>	‘peer, age-mate’

#### Alienable kin terms

<b>mìzì</b>	pl. <b>zàzì</b>	‘husband’
<b>là</b>	pl. <b>mìllà, mìl mòndê</b>	‘son, child’; pl. ‘girls’
<b>sòrkô</b>	pl. <b>sòkrârê</b> [sic]	‘father-in-law’
<b>kèntí</b>	(plural?)	‘maternal uncle’
<b>zònì</b>	pl. <b>zònànshê</b>	‘relative’

<b>yágàrà</b> (< Kanuri)	‘a blood relative’
<b>dùkkà</b> (< Bole)	‘next younger sibling’
<b>gàjì</b> (< Kanuri)	‘youngest sibling’
<b>búm mà’î</b> (< <b>bòmú màì</b> ‘our small father’)	‘younger paternal uncle’
<b>búm nà’àkô</b> (< <b>bòmú nà’àkô</b> ‘our big father’)	‘older paternal uncle’

Four features distinguish the inalienable group from the alienable group:

- Citation form and form with nominal possessors end in a suffix **-ti**<sup>6</sup>
- No linker before genitive pronoun suffixes
- All pronoun suffixes have falling tone rather than L
- Third masculine singular suffix is **-î** ([-’î] after a vowel) rather than **-ni**

Of the citation forms in the inalienable group, all but the word for ‘wife’ end in **-ti**. The plurals of most of these also end in **-ti**. It is evident that this is a suffix because when the possessor is a pronoun, the genitive pronoun replaces **-ti**. The word **màndù** ‘wife’ does not bear the suffix **-ti** but has a special genitive form **màn**, used with both nominal and pronominal possessors. In addition to the presence of the **-ti** suffix in the following examples, note the absence of the linker **k** seen in the default genitive with feminine head nouns. The expression for ‘Kule’s father-in-law’, which uses the default genitive, is included to contrast it with ‘Kule’s mother-in-law’, which uses the inalienable construction (see these words with pronouns below).

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<sup>6</sup> This suffix must come from the proto-Chadic feminine determiner formative **\*t**. In Ngamo, it has lost any connection to feminine grammatical gender and is found only in the functions seen here, a feature found, as far as I can tell, only in Ngamo and Bole. Neighboring, but genetically more distant Karekare probably shows something closer to the original situation: Karekare **nă tà Kàriyà** ‘Kariya’s mother’. Compare this with **nân-î** ‘his mother’ (with no linker, as in Ngamo) and **bă’ mà Kàriyà** ‘Kariya’s father’ with the masculine linker **mà** found also in Kanakuru (Newman 1974), but not in Ngamo or Bole.

<b>bòtì Kùlè</b>	‘Kule’s father’	<b>nòntì Kùlè</b>	‘Kule’s mother’
<b>bàtì Kùlè</b>	‘Kule’s elder brother’	<b>dàràtì Kùlè</b>	‘Kule’s elder sister’
<b>(sòrkò Kùlè</b>	‘Kule’s father-in-law’)	<b>sòrkìtì Kùlè</b>	‘Kule’s mother-in-law’
		<b>màn Kùlè</b>	‘Kule’s wife’

The following paradigms with pronominal genitives illustrate the last three bullet points distinguishing inalienable from alienable kin terms:

**Table 4:** Alienable vs. inalienable kin terms

	<b>bòtì</b> ‘father’	<b>nòntì</b> ‘mother’	<b>bàtì</b> ‘brother’	<b>dàràtì</b> ‘sister’	<b>sòrkìtì</b> [inal.] ‘ <i>m.</i> -in-law’	<b>sòrkò</b> [al.] ‘ <i>f.</i> -in-law’
1 sg.	<b>bò-nò</b>	<b>nò-nò</b>	<b>bà-nò</b>	<b>dàrà-nò</b>	<b>sòrkì-nò</b>	<b>sòrkò-nì</b>
2 m.sg.	<b>bò-kò</b>	<b>nòn-kò</b>	<b>bò-kò</b>	<b>dàrà-kò</b>	<b>sòrkì-kò</b>	<b>sòrkó-n-tò</b>
3 m.sg.	<b>bòb-î</b>	<b>nòn-î</b>	<b>bà-’î</b>	<b>dàrà-’î</b>	<b>sòrkì-’î</b>	<b>sòrkò-nì</b>
3 f.sg.	<b>bò-tò</b>	<b>nòn-tò</b>	<b>bà-tò</b>	<b>dàrà-tò</b>	<b>sòrkì-tò</b>	<b>sòrkó-n-tò</b>

Note the following features of these paradigms: (i) The final **-n** of the root of **nòn-tì** ‘mother’ undergoes the same loss with compensatory lengthening of the root vowel before **n** as in the default genitive constructions. (ii) The root for ‘father’ has an idiosyncratic variant, **bòb-**. This must be an archaic feature since it is also found in Karekare. (iii) ‘Father-in-law’ has the alienable genitive construction with masculine linker **-n-**, L tone pronouns, and 3<sup>rd</sup> masculine singular **-nì**. This contrasts with ‘mother-in-law’, which has the inalienable construction. Other remarks:

- **man** ‘wife of...’: As noted above, **màndù** ‘wife’ has the form **màn** in genitive constructions. With a 3<sup>rd</sup> masculine singular pronoun, it is **màn’î** ‘his wife’, with a glottal stop, though elsewhere this pronoun is simply **-î** after a consonant.

- **bèi nòntí** ‘younger brother’,<sup>7</sup> **bà’ nòntí** ‘younger sister’, **mìn nòntí** ‘younger siblings’: These are compound expressions meaning ‘son-of mother’, ‘daughter-of mother’, ‘children-of mother’. With pronominal genitives, ‘mother’ takes the expected alienable genitive form, e.g. **bèi nò-nô** ‘my little brother’, **bèi nòn-î** ‘his little brother’, **mìn nò-mû** ‘our younger siblings’.
- Plurals: The only plural inalienable kin term that I elicited with pronominal suffixes is **shàtì**, the suppletive plural of **zàptì** ‘peer’. It behaves like singulars: **shàkò** ‘your (m.s.) peers’, **shà’ì** ‘his peers’, **shàtò** ‘her peers’. Presumably the final **ti** seen on other plurals would likewise be replaced by genitive pronoun suffixes.

In Bole, which is similar to Ngamo in kin-term genitives, the **-ti** drops with pronoun possessors with all kin terms, singular and plural:

**Table 5:** Alienable vs. inalienable kin terms

	SING. CITATION	‘their ...’	PL CITATION	‘their ...’
younger brother	<b>móltí</b>	<b>mólsù</b>	<b>móllètí</b>	<b>móllèsú</b>
grandfather / grandson	<b>dìshítí</b>	<b>dìshísù</b>	<b>dìkkètí</b>	<b>dìkkèsú</b>

- **kèntí** ‘maternal uncle’: This word is included in the alienable list, even though it is cited with the suffix **-ti**. It does replace this suffix with pronominal genitives, but the pronouns have the form used in alienable constructions, with L tones and 3<sup>rd</sup> masculine singular **-ni**: **kènnò** ‘my maternal uncle’, **kènkò** ‘your (m.s.) maternal uncle’, **kènnì** ‘his maternal uncle’.

<sup>7</sup> **Bè-** ‘son’ is a loanword from Bole. The word for ‘son’ in Gudi Ngamo is **lâ**, which is also the general word for ‘child’.

### 3.3. Compounds

For the most part, N+N compounds are formally indistinguishable from N+N phrases and are judged to be compounds only on the basis of semantic non-compositionality. Some compounds with masculine head nouns have a linking **-i**. Elsewhere, this **-i** appears only on nouns in certain non-genitive syntactic contexts, such as with following indefinite determiners, e.g. **dò** ‘horse’ but **dò-i yó’ótò** ‘a certain horse’.<sup>8</sup> Certain generic words serve as relatively productive headwords in compounds, parallel to constructions that might be formed through derivational morphology in other languages. Examples are **bò** (m) ‘mouth’, meaning something like “beginning of, edge of”, **bèi** (m)<sup>9</sup> ‘place of’, used as a formative for locatives, **kà** (f) ‘head’, meaning “top of, protuberance”, **yà** (f) ‘thing’, used as an instrumental formative, **là** (m, f) ‘child’, used to mean “offspring of” and as a diminutive formative.

**Table 6:** Masculine vs. feminine compounds

MASCULINE N <sub>1</sub> , MASCULINE COMPOUND		FEMININE N <sub>1</sub> , FEMININE COMPOUND	
<b>kùmà rô</b>	leaf “ear of tree”	<b>dàmìk sínkàu</b>	mushroom “spirit’s anvil”
<b>òsò bô</b>	jaw “bone of mouth”	<b>ḏìshìk bô</b>	lip “skin of mouth”
<b>òyù kólà</b>	ring “metal of finger”	<b>gèḏ’òk tílì</b>	bravery, fearlessness “strength of heart”
<b>bei sena mishi</b>	bar “place for drinking beer”	<b>lè’ik rô</b>	fruit “bearing of tree”

<sup>8</sup> The feminine counterpart to masculine **-i** is **-s**, e.g. **tèmshí** ‘ewe’ but **tèmshí-s sò’ótò** ‘a certain ewe’. This **-s** seems never to appear in compounds.

<sup>9</sup> In both Yaya and Gudi Ngamo, I was given a word **bè’í** ‘place’ (**bè’i** in Gudi because the GREAT NGAMO TONE SHIFT) with feminine gender. However, both dialects use a reduced form of this word in compounds (Yaya **béi**, Gudi **bèi**) and treat it as masculine.



<b>bò démè</b>	rubbish heap “mouth of sweepings”	<b>sàràk dǎmì</b>	blacksmith’s hammer “hand of anvil”
<b>hèr kúlè</b>	food remaining in bowl “bottom of the calabash”	<b>’yàk gòmà bò</b>	gift from a traveler “thing for meeting mouth”
<b>kòlá-i gǎjì</b>	little finger “finger of youngest sibling”	<b>’yàk záutà kà</b>	comb “thing for combing head”
<b>lú-i riyà</b>	wild animal “animal/meat of bush”	<b>là kôm</b>	calf ( <i>m. or f.</i> ) (of cow) “child of cow”

Determining the grammatical gender of a compound is an issue separate from the form and meaning of a compound. Usually the gender agreements with compounds are with the lexical gender of the head noun, but not always. For example, **hài gîm** ‘maize’ (“guinea corn of *gim*”, the latter word perhaps related to **gàm** ‘ram’) shows feminine agreements, though **hài** ‘guinea corn’ is masculine, and **bò gǎrgù** ‘end of the hot dry season’ (“mouth of the town”) shows feminine agreement, though **bò** ‘mouth’ is masculine and **gǎrgù** ‘town’ is feminine. On the other hand, **ànkò búni** ‘stone held in hands while grinding’ (“pestle of grindstone”) shows masculine agreements, though both **ànkô** ‘pestle’ and **bùni** ‘grindstone’ are lexically feminine, and **kà bì** ‘conical hut roof’ (“head of hut”) show masculine agreements though **kà** ‘head’ is feminine. Cross-linguistically in languages with grammatical gender, determining gender of compounds is complex, an issue that obviously applies to Ngamo as well (see Newman 2000:110-111 for determinants of gender in Hausa).

### 3.4. Independent genitives

The independent genitive constructions overtly show the three-way lexical distinction with formatives **y-** masculine, **s-** feminine, and **ma-** plural. None of these formatives show up in linked genitives, but they are found elsewhere in Ngamo agreement morphology.

**Table 7:** Independent genitives

	Masculine	Feminine	Plural	
1 sg.	<b>yònô</b>	<b>sònô</b>	<b>mànô</b>	mine
2 m.sg.	<b>yòkô</b>	<b>sòkô</b>	<b>màkô</b>	yours (m)
2 f. sg.	<b>yòshî</b>	<b>sòshî</b>	<b>màshî</b>	yours (f)
3 m.sg.	<b>yòbî</b>	<b>sòbî</b>	<b>màbî</b>	his
3 f.sg.	<b>yòtô</b>	<b>sòtô</b>	<b>màtô</b>	hers
1 pl.	<b>yòmû</b>	<b>sòmû</b>	<b>màmû</b>	ours
2 pl.	<b>yòkû</b>	<b>sòkû</b>	<b>màkû</b>	yours (pl)
3 pl.	<b>yòsû</b>	<b>sòsû</b>	<b>màsû</b>	theirs
Noun	<b>yò Mūsa</b>	<b>sò Mūsa</b>	<b>mà Mūsa</b>	Musa's

### 4. Gude

Gude had three main types of genitive constructions (Hoskison 1983): (i) a default pattern used in all N+N genitives and in constructions with genitive pronouns and an alienable noun; (ii) constructions with an inalienable noun plus a genitive pronoun and N<sub>1</sub>+N<sub>2</sub> constructions where N<sub>1</sub> is one of just five kin terms; and (iii) N+N compounds.

## 4.1. Default genitive

Essentially all N+N constructions other than compounds follow the same pattern, illustrated below. The forms in parentheses are citation forms for N<sub>1</sub>. Summarizing the facts, (i) nouns that end in **a** in citation form, which are of two kinds: those that retain **a** everywhere (**ráhá/a**) and those that reduce **a** to **ə** or delete it, depending on phonological environment (**sóká/ə**); (ii) nouns that end in the Stage II article **-n**, which deletes when overtly definite, e.g. when modified by a definite determiner:

<b>ráhá ngà Húmtí</b>	‘Humti’s axe’ ( <b>ráhá/a</b> )
<b>mápá ngà là</b>	‘cow’s horn’ ( <b>mápa/a</b> )
<b>sókó ngà hórfin</b>	‘fish’s stomach’ ( <b>sóká/ə</b> )
<b>ínyán ngà Húmtí</b>	‘Humti’s peanuts’ ( <b>ínyán</b> )
<b>hórfin ngà Húmtí</b>	‘Humti’s fish’ ( <b>hórfin</b> )
<b>cíínó ngà Húmtí</b>	‘Humti’s hand’ ( <b>cíín</b> )
<b>mín ngà Bèlì</b>	‘Bili’s wife’ ( <b>mín</b> )
<b>ùuzón ngà Húmtí</b>	‘Humti’s child’ ( <b>ùuzón</b> )

The main features of N+N genitives are (i) that they always have a linker **ngà** and (ii) that N<sub>1</sub> retains the Stage II article **-n**. (Nouns that end in **-a** in citation form reduce it to **-ə** or not as would be the case in any phrase medial environment for the particular noun).

The paradigms below illustrate the forms of default genitive constructions where the second element is a pronoun, e.g. ‘my axe’, ‘your hut’, ‘his fish’, etc.:<sup>10</sup>

<sup>10</sup> The 1<sup>st</sup> singular suffix **/-ki/** and the 2<sup>nd</sup> singular **/-kù/** are usually pronounced **[kʷ]** and **[kʷ]** respectively at the end of a phrase. They bear an audible L tone, so I have represented them here with vowels as tone bearers.

**Table 8:** Gude default genitive constructions

	<b>ráhá/a</b> ‘axe’	<b>kùva/ə</b> ‘hut’	<b>hórfín</b> ‘fish’	<b>ínyán</b> ‘peanuts’	<b>ùzón</b> ‘child’
1 sg.	<b>ráh-á-kì</b>	<b>kùv-á-kì</b>	<b>hórfín-à-kì</b>	<b>ínyán-à-kì</b>	<b>ùzón-à-kì</b>
2 sg.	<b>ráh-á-kù</b>	<b>kùv-á-kù</b>	<b>hórfín-à-kù</b>	<b>ínyán-à-kù</b>	<b>ùzón-à-kù</b>
3 m.sg.	<b>ráh-á-kòì</b>	<b>kùv-á-kòì</b>	<b>hórfín-à-kòì</b>	<b>ínyán-à-kòì</b>	<b>ùzón-à-kòì</b>
3 f.sg.	<b>ráh-á-ttè</b>	<b>kùv-á-ttè</b>	<b>hórfín-à-ttè</b>	<b>ínyán-à-ttè</b>	<b>ùzón-n-à-ttè</b>
1 dual you & me	<b>ráh-á-g-áṅw</b>	<b>kùv-á-g-áṅw</b>	<b>hórfín-g-áṅw</b>	<b>ínyán-g-áṅw</b>	<b>ùzón-g-áṅw</b>
1 pl. ex.	<b>ráh-á-g-èn</b>	<b>kùv-á-g-èn</b>	<b>hórfín-g-èn</b>	<b>ínyán-g-èn</b>	<b>ùzón-g-èn</b>
1 pl. in.	<b>ráh-á-g-ám</b>	<b>kùv-á-g-ám</b>	<b>hórfín-g-ám</b>	<b>ínyán-g-ám</b>	<b>ùzón-g-ám</b>
2 pl.	<b>ráh-á-g-òn</b>	<b>kùv-á-g-òn</b>	<b>hórfín-g-òn</b>	<b>ínyán-g-òn</b>	<b>ùzón-g-òn</b>
3 pl.	<b>ráh-á-ttí</b>	<b>kùv-á-ttí</b>	<b>hórfín-à-ttí</b>	<b>ínyán-à-ttí</b>	<b>ùzón-à-ttí</b>

The genitive pronominal constructions all consist of three elements: the noun stem, the pronoun suffix, and a LINKER, **-à-** or **-g-**. The **-g-** LINKER is found only with plural non-3<sup>rd</sup> person pronouns (that is, pronouns with two or more referents consisting only first or second persons). Both **-a-** and **-k/g-** as genitive linkers are widespread in Biu-Mandara and West Chadic languages.<sup>11</sup> The distribution of these linkers seen in this table seems to be a Gude-specific innovation, but a distinction of linkers used with singular vs. plural possessors is seen elsewhere in Biu-Mandara-A, e.g. in Podoko and in Bura-Margi languages.

With singular nouns ending in **-á** in citation form (both invariant **-a** and **-a** that reduces to **-ə**), the **-á** coalesces with the **-à-** linker and replaces the L of the linker, but the

<sup>11</sup> The **-k-** part of the singular pronouns (including gemination of the **-tt-** in 3<sup>rd</sup> feminine singular) is probably itself originally the **\*k** determiner formative. In modern Gude, however, these pronouns are invariable units.

underlying presence of the L is heard as a downstepped H on the 3<sup>rd</sup> m.sg. and 3<sup>rd</sup> pl. pronouns.

At the underlying level, the plural non-3<sup>rd</sup> person forms combine **-g-+*-à-***, with the following outcomes:

‘you & me’	<b>/-g-<i>-à-</i>áŋw/</b>	→ <b>[-g-<i>-à-</i>ŋw]</b>
‘we (excl.)’	<b>/-g-<i>-à-</i>ín/</b>	→ <b>[-g-<i>-è-</i>n]</b>
‘we (incl.)’	<b>/-g-<i>-à-</i>ám/</b>	→ <b>[-g-<i>-à-</i>m]</b>
‘you (pl.)’	<b>/-g-<i>-à-</i>ún/</b>	→ <b>[-g-<i>-ò-</i>n]</b>

The underlying /*ī*/ of ‘we (excl.)’ and /*ū*/ of ‘you (pl.)’ are seen in inalienable constructions in the next section below. The vowel coalescences /a *ī*/ → [ē] and /a *ū*/ → [ō] are a regular part of Gude phonology. The coalescence of the underlying L of the *-à-* linker plus the H vowels of the pronouns results in downstepped H.<sup>12</sup>

#### 4.2. Genitives with inalienable N<sub>1</sub>

With a couple of exceptions, the INALIENABLE vs. ALIENABLE distinction in Gude shows up only with pronominal genitives. I seem to have collected no data on this for pronouns, so I rely on Hoskison’s description. Hoskison (1983:41-42) presents the following paradigms of selected body part terms with genitive pronouns. He does not mark tones and his representations of the final vowels of pronouns are a little different from mine because of differing analytical choices.

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<sup>12</sup> Many verbal nouns are cited with a suffix **-ná**, which seems to be a combination of the Stage II article **-n** plus final **-a/-ə**. When a genitive pronoun is added to such derived nouns, the result is more or less as expected. Thus, from **ďáfná** ‘*tuwo*’ (apparently from a no-longer used verb root), we find **ďáf(ə)n-á-kì** ‘my *tuwo*’, **ďáf(ə)n-á-kài** ‘his *tuwo*’, **ďáfən-g-èn** ‘our (excl.) *tuwo*’, with retention of the **-n-** of the citation form, coalescence of the **á** with the *-à-* linker, and downstepped H on the underlying H of the 3<sup>rd</sup> m.sg. and 1<sup>st</sup> pl. excl. pronouns.

**Table 9:** Genitives with body part terms

	<b>ma/a</b> ‘mouth’	<b>səfʌ/a</b> ‘leg’	<b>gin</b> ‘eye’
1 sg.	<b>ma-ki</b>	<b>səfʌ-ki</b>	<b>gi-nə-ki</b>
2 sg.	<b>ma-ku</b>	<b>səfʌ-ku</b>	<b>gi-nə-ku</b>
3 m.sg.	<b>ma-kī</b>	<b>səfʌ-kī</b>	<b>gi-nə-kī</b>
3 f.sg.	<b>ma-tə</b>	<b>səfʌ-tə</b>	<b>gi-nə-tə</b>
1 dual you & me	<b>m-āŋwu</b>	<b>səf-āŋwu</b>	<b>gi-n-aŋwu</b>
1 pl. ex.	<b>m-ēnə</b>	<b>səf-īnə</b>	<b>gi-n-īnə</b>
1 pl. in.	<b>m-āmə</b>	<b>səf-āmə</b>	<b>gi-n-āmə</b>
2 pl.	<b>m-ōnə</b>	<b>səf-ūnə</b>	<b>gi-n-ūnə</b>
3 pl.	<b>ma-tī</b>	<b>səfʌ-tī</b>	<b>gi-nə-tī</b>

The pronouns will be recognized as being those seen above, but without the linkers **-à-** and **-g-**. These constructions are used with most body part terms and some kin terms, but not all. Hoskison (1983:142-143) gives a list of body part terms, on pages 144-145 a list of kin terms, and on pages 146-147 a list of inalienable nouns<sup>13</sup> (those with directly suffixed pronouns). A number of terms in the first two lists are not in the third, e.g. **ilá/a** ‘bone’ and **mín** ‘wife’ are not in the inalienable list, but **fədfhá/a** ‘gums’ and **ŋúzhin** ‘co-wife’ are. On the other hand, Hoskison (1983:42-43) notes that the alienable/inalienable distinction is semantically productive for body part terms that are in his inalienable list, citing **səfʌ-ki** ‘my leg (as part of my body)’ vs. **səf-ā-ki** ‘my leg (e.g. an animal leg that I will roast)’.

<sup>13</sup> Hoskison uses the term “inherently possessed” rather than “inalienable”. I use the latter to maintain terminological consistency and because it seems to be the more widely used term for this distinction.

Both Hoskison (1983:43) and I recorded the four kin terms in the table below as having irregular genitive forms. These have special constructions with singular genitive pronouns, but not with plural pronouns, where they use the default constructions.<sup>14</sup>

**Table 10:** Irregular genitives with 4 kin terms

	<b>mǎn</b> ‘mother’	<b>dǎn</b> ‘father’	<b>kəkǎn</b> ‘grandmother’	<b>dzədzǎn</b> ‘grandfather’
1 sg.	<b>yǎy</b>	<b>dǎd</b>	<b>kək</b>	<b>dzədz</b>
2 sg.	<b>mú</b>	<b>dú</b>	<b>kùkú</b>	<b>dzədzú</b>
3 sg. m./f.	<b>mǎc</b>	<b>dì</b>	<b>kəkək</b>	<b>dzədzək</b>
you & me	<b>mǎn-g-ǎŋw</b>	<b>dǎn-g-ǎŋw</b>	<b>kəkǎn-g-ǎŋw</b>	<b>dzədzǎn-g-ǎŋw</b>
1 pl. ex.	<b>mǎn-g-ěn</b>	<b>dǎn-g-ěn</b>	I did not elicit these forms but I have a note that they use the “default” forms rather than special inalienable forms.	
1 pl. in.	<b>mǎn-g-ǎm</b>	(not elicited)		
2 pl.	<b>mǎn-g-ǎn</b>	(not elicited)		
3 pl.	<b>mǎn-à-ttí</b>	<b>dǎn-g-àttí</b> [sic]		

There is some lack of clarity and/or disagreement between Hoskison’s data and mine with regard to plurals of these kin terms and the forms of genitive constructions with both singular and plural possessors. I leave these aside as details not relevant to the general point, viz. these four kin terms do require special marking for genitive constructions.

These four words also have special forms with nominal genitives (not discussed by Hoskison). Consider the following phrases:<sup>15</sup>

<sup>14</sup> Hoskison (1983:43) writes the vowels of the 2<sup>nd</sup> singular pronouns as long. This may be correct. I did not check the forms in phrase-medial position, where this distinction would clearly emerge.

<sup>15</sup> Parallel forms are used for ‘grandmother’ and ‘grandfather’, e.g. **kəkək Rǎbí** ‘Rabi’s grandmother’.

<b>màc ùzàn</b>	‘a child’s mother’
<b>màc mánjéwàn</b>	‘children’s mother’
<b>màc B̀̀lì’</b>	‘Bili’s mother’ ( <b>B̀̀lì’</b> = a male name)
<b>màc R̀̀bí</b>	‘Rabi’s mother’ ( <b>R̀̀bí</b> = a female name)
<b>d̀̀ ùzàn</b>	‘a child’s father’
<b>d̀̀ mánjéwàn</b>	‘children’s father’
<b>d̀̀ B̀̀lì’</b>	‘Bili’s father’
<b>d̀̀ R̀̀bí</b>	‘Rabi’s father’

These expressions do not use the linker **ngà** seen in all other N+N genitives, both alienable and inalienable. Rather, the possessed noun takes the form that it would have with a third person singular possessor (**màc** ‘his/her mother’, **d̀̀** ‘his/her father’) regardless of whether the possessor is singular or plural, masculine or feminine. The tones, when compared to the citation tones of either N<sub>1</sub> or N<sub>2</sub>, are problematic. I will not try to account for them here.

Finally, the word **ngúrá/ə** ‘husband; man, male human’ is treated as inalienable but is somewhat idiosyncratic. Hoskison (1983:43) states that this word “has an alternative possessive form in the first person singular only: **ngúrki** ‘my husband’ (regular) and **ngúrí** ‘my husband’ (irregular).” The speaker with whom I worked also used the inalienable construction with 2<sup>nd</sup> person **ngúrkù** ‘your husband’, though not 3<sup>rd</sup> person, i.e. **ngúráttə** ‘her husband’ = the default genitive with linker **-à-**. More interestingly, **ngúrí R̀̀gwà** ‘Rugwa’s husband’ with a noun possessor uses the form that Hoskison identified as the alternative 1<sup>st</sup> person possessed form, a construction that is in semantic contrast with **ngúró ngà R̀̀gwà** ‘Rugwa’s boyfriend’, which is the default N+N genitive.



## 4.3. Compounds

Consider the following constructions:

**Table 11:** Compound vs. genitive formation

N <sub>1</sub> CITATION	COMPOUND		GENITIVE	
sə́dʔá/ə	sə́dʔə ndá	human foot	sə́dʔə ngà ndà	a person's foot
sáká/ə	sák hórfin	a fish stomach	sákə ngà hórfin	a fish's stomach
lùwá/ə	lù bəlín	wild animal ("animal of bush")		
hórfin	hórfi gèrǎ	a river fish	sárfón ngà Húmtí	Humti's fish
cín	cí zómán	right hand ("hand for eating")	cínə ngà Húmtí	Humti's hand
àgin	ágy Úvá	eggplant (sp.) ("eggplant of Kanuri")	àgin ngà Húmtí	Humti's eggplant
liḡin	liḡ əddá	cuspid ("tooth of dog")	liḡə nga Rəgwa	Rugwa's tooth

There are two clear differences between compounds and regular genitive phrases. First, the compounds do not use the linker **ngà**. Second, for nouns cited with the Stage II article **-n**, the article is absent in compounds but is retained in genitive phrases.

A special case of this type of compounding is with body part terms and other words used as relational locatives.

á gì bəlín	'in the bush' (< gín 'eye')
á sákə lúmá	'in the market' (< sáká/ə 'stomach')
á tsǎ ḡfwà	'under the tree'
á hàdǎ vədǎ	'during the night'

**kà shín ní á hà Húmtí dõr** ‘I will come to Humti tomorrow’

cf. **há ngà Húmtí** ‘Humti’s location’ (default genitive)

**hõn** ‘to you (pl.)’ (locative goal) ≠ **há-g-õn** ‘your (pl.) location’ (default genitive)

**Tsa** ‘under’ and **hada** ‘between, amongst’ do not seem to be used independently as nouns. **Há** ‘place’ has a function found in probably all Chadic languages of expressing a location for referents that are not, themselves, locative—one cannot say, as in English, ‘I went to John’, but rather one must say “I went to John’s place”. With this noun, it is possible to make a contrast with both noun and pronoun complements between serving as a locative formative and being the head noun in a genitive construction.

There is a second type of construction found in some compounds (citation form of N<sub>1</sub> is in parentheses):

<b>ùzà tã ngúra</b>	‘boy’ (“child tã male”) ( <b>ùzãn</b> )
<b>ùzè tã cìn</b>	‘little finger’ (“child tã hand”)
<b>ùmpú tã sákúwá</b>	‘sorghum flour’ (“flour tã sorghum”) ( <b>ùmpún</b> )
<b>ùmpá-t kábàn</b>	‘cotton’ (“flour tã gown”)
<b>ìnyà-t Ûvá</b>	‘peanuts’ (“nuts tã Kanuri”) ( <b>ìnyán</b> )
<b>ìnyà tã sàṅá</b>	‘Bambara groundnuts’ (“nuts tã origin”) = <b>ìnyá sàṅá</b>
<b>lègìd tã mbóɗ</b>	‘last month’ (“month tã yesterday”) ( <b>lègìd’á/ə</b> )

This construction seems not to be productive. For example, **zhàtán Násárá** ‘granulated salt’ (“salt[of] European”) (**zhàtáná/ə**) does not allow the alternative \***zhàtán tã Násárá** even though it seems semantically parallel to the construction for ‘peanuts’. There are at least three grammatical morphemes of the form **tã**: this marker of compounds, a preposition introducing definite direct objects, and a complementizer for relative clauses. They all have their source in the Proto-Chadic feminine determiner

formative \*t, but in modern Gude, it seems that they must be listed as unrelated formatives.

Finally, some expressions that one would probably want to call N+N compounds use the default construction with **ngà**:

<b>há ngá bǎn</b>	‘bed’ (“place of sleeping”)
<b>túwún ngà kwára</b>	‘braying’ (“cry of donkey”)
<b>nó ngà kùvá</b>	‘roof’ (“head of hut”)

I cannot say whether compounds of this form have special semantic connotations nor whether this is a productive way to form compounds. Out of a list of 213 constructions flagged as compounds in my database, only 13 have this form, suggesting that the other methods of compound formation are probably still commonly used.

#### 4.4. Independent genitives

Independent genitive pronouns have the following forms. They all consist of the **n-à-**+PRONOUN SUFFIX, where the pronoun suffixes are those seen in all the paradigms above. The **-à-** linker coalesces with the plural non-3<sup>rd</sup> person pronouns and the L tone is replaced by the H of the pronoun vowel (or the resulting R → H, a fairly widespread alternation). The **n-** is invariable regardless of gender and/or number of the referent, though historically it comes from a masculine determiner formative \*n-.

**Table 12** : Gude Independent genitive pronouns

SINGULAR		PLURAL	
1 sg.	<b>n-à-kì</b>	you & me	<b>n-àṅw</b>
		1 pl. excl.	<b>n-én</b>
		1 pl. incl.	<b>n-ám</b>
2 sg.	<b>n-à-kù</b>	2 pl.	<b>n-ón</b>
3 sg. m.	<b>n-à-kói</b>	3 pl.	<b>n-à-ttí</b>
3 sg. f.	<b>n-à-ttè</b>		

Independent genitives formed from nouns use the linker **nga** of the default genitive.

**ngà Rábí** ‘that of Rabi’

**ngá Rəgwà** ‘that of Rugwa’

**ngózáṅ** ‘that of a child’ (**ùzáṅ**)

**ngà há** ‘that of a place’ (**há/á**)

**ngá lá** ‘that of a cow’ (**lá/á**)

**ngá rá** ‘that of a farm’ (**rá/è**)

The first four items suggest that **nga** has tone polar to that of the first syllable of the following noun. The third item would be underlyingly /**ngá ùzáṅ**/, with a regular Gude coalescence of /**a ũ**/ → [**ō**] as well as coalescence of the tones, with presence of the underlying L showing up as downstepped H on the last syllable. The last two items show that the picture may be somewhat more complicated, however. **Há** and **lá** are cited with final **-a** bearing H tone, and this **-á** is retained in all environments. **Rá** becomes **rè** in phrase medial position. Yet **há** conditions L on **ngà** whereas both the latter items condition H on **ngá** and are pronounced with downstepped H. Unfortunately, I do not

have the range of data for these and other items that would be necessary for providing a complete analysis.

#### 4.5. Nominalized verbs with expressed subjects and objects

Worth noting but not carefully investigated by either Hoskison (1983) or me are constructions with a nominalized verb with semantic subject vs. object. Here are the examples that I have:

VERB + SUBJECT: **pàlèn ngà Húmí**

‘Humti’s passing by’ (VN **pàlná** < root **pal**)

VERB + OBJECT: **àl úuzèn ~ àlón t-úuzèn [d̥i Húmí]**

‘looking for a/the boy [is what Humti did]’ (VN **àlón** < root **al**)

The VERB + SUBJECT construction is the default N+N genitive, where N1 retains the Stage II article (in this case, **-na** with regular morphophonological alternations). Two forms for VERB + OBJECT were given. The first seems to have the form of a compound, juxtaposing verb and noun roots, something like, “boy-hunting”.<sup>16</sup> The second looks like a compound with the linker **t-** (see above), but normally N<sub>1</sub> in these compounds would lose the Stage II article.<sup>17</sup> Though the dataset here is small (two examples!), this difference is consistent with that observed in other languages, where NOMINALIZED VERB + SUBJECT seems to exhibit a larger boundary between verb and subject than the boundary between NOMINALIZED VERB + OBJECT (see discussion of Miya above and Hausa in §6.2).

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<sup>16</sup> The citation form for ‘boy’ is **ùuzèn**, with LH tones, but in the construction here, ...**úuzèn** has initial H with downstep on the second syllable. I did not get enough information on Gude tones to explain this.

<sup>17</sup> Definite direct objects are marked by preceding **tə** (Hoskison 1983:109), but this interpretation of the **t-** is not possible here because N<sub>2</sub> **ùuzèn**, with the Stage II article **-n**, is explicitly indefinite.

## 5. Kera

Though Kera does have grammatical gender, this is not reflected in genitive constructions, that is, genitive constructions do not vary with respect to the gender or number of the head noun. Kera does have an alienable vs. inalienable distinction in genitives.

### 5.1. Alienable genitives

N+N alienable genitives require a linker **kə**, which is invariable regardless of gender or other lexical features of N<sub>1</sub> (Ebert 1979:154).

**hàrgá kə həlgóh** ‘the woman’s goat’

**kul kə kúmnáh** ‘the chief’s house’

**bék kə hùlùm** ‘someone’s possession’

Pronominal possessors with alienables use forms also used as independent possessive pronouns (‘it’s mine’, ‘it’s hers’, etc.). Parallel to alienables with nominal possessors, the genitive constructions are invariable regardless of gender or other lexical features of the noun. They all have initial **n-**, probably from the original Chadic masculine determiner formative **n**. Non-first persons have the form **n-PRONOUN-tV**<sup>18</sup> where PRONOUN has been reduced to a vowel except for 2<sup>nd</sup> singular masculine **-m-**. The V in **-tV** is a copy of the vowel of the pronoun, except for **ə** (a phonetically a high mid vowel), which copies as **/i/**. First persons, singular and plural, lack the final **-tV**. The word **hàrgá** in the table is ‘goat’, a feminine noun.

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<sup>18</sup> The **-t-** itself is probably historically from the proto-Chadic **\*t** feminine determiner base and is seen as the *initial* formative in independent pronouns.

**Table 13:** Kera paradigm of genitive pronouns

SINGULAR		PLURAL <sup>19</sup>	
1 sg.	<b>hàrgá nín</b>	1 pl. excl.	<b>hàrgá náŋ</b>
		1 pl. incl.	<b>hàrgá náré</b>
2 sg.m.	<b>hàrgá nəmtí</b>	2 pl.	<b>hàrgá nəətí</b>
2 sg.f.	<b>hàrgá niití</b>		
3 sg. m.	<b>hàrgá nuutú</b>	3 pl.	<b>hàrgá neeté</b>
3 sg. f.	<b>hàrgá naatá</b>		

## 5.2. Inalienable genitives

Ebert (1979:153) implies that all kin terms, body parts that are part of one's own body, and inherent parts of plants are treated as inalienable.<sup>20</sup> The inalienable category also includes other words such as **sám** 'name' (**səmam** 'your (m.sg.) name') and **mé** 'death' (**mé-də̀ hùlù̀m** 'a person's death') that could not be transferable, suggesting that (in)alienable syntax in Kera is semantically determined.

Inalienables are distinguished formally from alienables in two ways: (i) Inalienables are directly juxtaposed to the possessor rather than being "linked" as with alienables (**kə̀**

<sup>19</sup> In the paradigm for pronominally possessed alienable nouns, Ebert (1979:155) does not give examples with first person plural possessors, probably because in her discussion, the paradigm compares an alienable noun with an inalienable, and for inalienables, 1<sup>st</sup> plural possessors behave idiosyncratically (see below). I can't find examples of alienable nouns with 1<sup>st</sup> plural possessors. I have filled in the forms seen in this paradigm under the assumption that with alienables, 1<sup>st</sup> person possessors behave in parallel fashion to other persons.

<sup>20</sup> **Kor** 'blood' (lexically composed of a prefix **k-** plus the root **\*bor**) is inalienable (**kor-dù** 'his blood'). Generally, bodily fluids are not treated as inalienable in Chadic languages that have an alienable/inalienable distinction. In Kera, **kor** is a masculine (singular) noun. Other bodily fluids such as **kə̀dgi** 'saliva', **kidiw** 'urine' belong to the collective category and do not seem to be treated as inalienable.

with nominal N<sub>2</sub>, **n-** with pronominal N<sub>2</sub>). (ii) Most inalienables require what Ebert (1979:155) calls a “REL-Form” in genitive constructions.

Omitting a few details involving individual words, most kin terms directly precede the possessor with no stem modification (other than regular phonological alternations). Most non-kin inalienable require what Ebert (1979:155-157) refers to as REL-Forms. These REL-Forms are of three types: (i) those with a “linking consonant”, (ii) those that lengthen the root vowel—**cə** ‘head’ does both (i) and (ii)—and (iii) those that take a suffix **də**. The linking consonants of type (i) are **-r**, **-n**, and **-g** (only one example of the latter is given). Nouns of types (i) and (ii) are lexically stipulated; type (iii) is the default. Here are examples of the various inalienable configurations

**Table 14** : Inalienable configurations

TYPE	ROOT	ROOT + N	ROOT + PRONOUN
DIRECT	<b>mar</b> wife	<b>mar àvété</b> wife of the hare	<b>murú</b> his wife
	<b>seen</b> brother	<b>seenə hùlùm</b> a person’s brother	<b>síinú</b> his brother
	<b>kámnə</b> parents	(I couldn’t find an ex. with N possessor)	<b>kámnu</b> his parents
<b>-r</b>	<b>kámpá</b> foot	<b>kampar hùlùm</b> a person’s foot	<b>kəmpúró</b> his foot
	<b>cə</b> head	<b>cəərə hùlùm</b> a person’s head	<b>cúurú</b> his head
<b>-n</b>	<b>tər</b> girl	<b>tərnə hùlùm</b> a person’s daughter	<b>tərnú</b> his daughter
<b>-g</b>	<b>gèlèr</b> nail	<b>gèlèrgə hùlùm</b> a person’s nail	<b>gìlìrgù</b> his nail
LONG V	<b>kur</b> neck	<b>kuurə hùlùm</b> a person’s neck	<b>kúurú</b> his neck
	<b>kasi</b> hand	<b>kas hùlùm</b> a person’s hand	<b>kaasam</b> your hand
<b>-də</b>	<b>kor</b> blood	<b>kor-də hùlùm</b> a person’s blood	<b>kor-dù</b> his blood
	<b>mé</b> death	<b>mé-də hùlùm</b> a person’s death	<b>mé-dù</b> his death
	<b>kəsár</b> root	<b>kəsár-də kápàŋ</b> root of a tree	<b>kəsár-dù</b> its root

Pronominal possessors of inalienables use pronoun suffixes (also used for direct objects of verbs). The table below provides a pronoun paradigm with **cə** ‘head’, which has the REL-Form **cəərə**.



**Table 15** : Possessive pronoun paradigm

SINGULAR		PLURAL	
1 sg.	<b>cáarń</b>	1 pl. excl.	<b>cээрэ áré</b>
		1 pl. incl.	<b>cээрэ áŋ</b>
2 sg.m.	<b>cээрэм</b>	2 pl.	<b>cээрəŋ</b>
2 sg.f.	<b>ciiri</b>		
3 sg. m.	<b>cúurú</b>	3 pl.	<b>cíirí</b>
3 sg. f.	<b>cээрэ</b>		

Ebert (1979:134-135) notes that first person plural pronominal suffixes, both exclusive and inclusive and when use both as objects and as genitives, behave differently from other persons. Rather than using special bound suffixes, these two forms use the independent pronouns.

Nouns that can be used in either an inalienable or alienable (acquired possession) sense can take alienable or inalienable syntax depending on meaning, e.g. **kúsúk-dəm** ‘your (m.sg.) flesh’ vs. **kúsúk nəmtí** ‘your (m.sg.) meat (for eating)’.

### 5.3. Compounds

Ebert (1979) seems not to explicitly discuss compound syntax, but there are many examples in her dictionary (Ebert 1978) of  $N_1+N_2$  constructions with non-compositional meaning. All of these use direct juxtaposition, as with inalienable constructions, and where  $N_1$  has a lexically specified REL-Form, it takes that form.

<b>kuurə kasi</b>	‘wrist’ (“neck of hand”)	<b>kuur-</b> = REL-Form of <b>kur</b>
<b>wé-də kápəŋ</b>	‘fruit’ (“bearing [of] tree”)	<b>wé-də</b> = REL-Form of <b>wé</b> ‘birth’
<b>kas kápəŋ</b>	‘branch’ (“arm of tree”)	
<b>gùd kápəŋ</b>	‘remedy’ (“bottom [of] tree”)	

<b>kósné kápàŋ</b>	‘leaf’ (“ear [of] tree”) <b>kúsn-</b> = REL-form of <b>kósóŋ</b> ‘ear’
<b>ku kuli</b>	‘doorway’ (“mouth [of] hut”)
<b>cəərə kuli</b>	‘roof’ (“head [of] hut”) <b>cəərə</b> = REL-Form of <b>cə</b> ‘head’
<b>karmə kasi</b>	‘fingers’ (“children [of] hand”)
<b>caanə kàrmán</b>	‘lack of something’ <b>caanə</b> = REL-Form of <b>càa</b> ‘poverty’ <sup>21</sup>
<b>gìs dàagò</b>	‘palm leaf mat’ <sup>22</sup>
<b>gìs dèrgá</b>	‘grass mat’

I found a couple of expressions with a linking formative **gə̀**. This resembles the LINKER in N **ká** N alienable genitives, and historically they may have the same source. However, today, they differ both segmentally and tonally, and Kera (1979:156) lists **-g-** as one of the *Bindungskonsonanten* found in REL-Forms.

**kár gə̀ ánùl** ‘dance costume/adornments’ (“stuff of dancing”)

**kèsáw-kəsáw gə̀ gùudù** ‘his buttocks’ (“fat of his bottom”)

Typical of Chadic languages, Kera expresses locative relations such as ‘in’, ‘on’, ‘under’, etc. with body part terms or terms transparently related to body parts. As expected, these use direct juxtaposition as with inalienable possession.

**dər kéna** ‘in the water’ (“eye [of] water”)

**kú cówá** ‘next to the fire’ (“mouth [of] fire”)

**gìidə̀ kápăŋ** ‘in the bush’ (“belly [of] the trees”)

cf. **gìidə̀ kápàŋ** ‘tree trunk’ (“belly [of] tree”)

<sup>21</sup> I interpret this as representative of a rather productive compounding process in Chadic that yields such expressions as “lack of knowledge” = ‘ignorance’, “lack of politeness” = ‘insolence’, etc.

<sup>22</sup> From **gìsi** ‘mat’. Neither **dàagò** nor **dèrgá** are listed as separate entries in Ebert (1978). Presumably they mean ‘(species of) palm tree’ and ‘(species of) grass’ respectively.

- gùudú** ‘behind him’ = ‘his backside, his buttocks’  
**káwál d̀àrgá** ‘spirit associated with termite mounds’

#### 5.4. Independent genitives

The paradigm below (Ebert 1979:136) shows the independent genitive pronouns, which are also the genitive forms used with alienably possessed nouns. They are invariable with respect to gender and number of the referent.

**Table 16:** Kera independent genitive pronouns

SINGULAR		PLURAL	
1 sg.	<b>nín, kátán</b>	1 pl. excl.	<b>náŋ</b>
		1 pl. incl.	<b>náré</b>
2 sg.m.	<b>nəmtí</b>	2 pl.	<b>nəətí</b>
2 sg.f.	<b>niití</b>		
3 sg. m.	<b>nuutú</b>	3 pl.	<b>neeté</b>
3 sg. f.	<b>naatá</b>		

## 6. Hausa

Compared to many—even most—Chadic languages, Hausa has a rather simple genitive system. Genitive marking is sensitive to lexical gender/number. There is no alienable/inalienable distinction, though remnants of an earlier distinction may exist.

### 6.1. Basic genitive system

All productively formed genitive constructions in Hausa, regardless of the semantic relation expressed between  $N_1$  and  $N_2$ , have the shape  $N_1$ -LINKER  $N_2$ . The shape of LINKER is determined by gender/number of  $N_1$ : **-n** for masculine and plural, **\*t** for feminine (of nouns ending in the vowel **a**). The feminine historical **\*t** still shows up as /t/

with first person singular N<sub>1</sub> in all dialects and variously as [t], [ř], [l], or G (= geminate copy of a following consonant) elsewhere depending on dialect and speech style. The [ř] and [l] variants are the result of a regular sound change that affected all syllable-final coronal stops (Newman 2004)

<b>dókì-n kàkà</b>	‘grandfather’s horse’
<b>gódîyá-ř kàkà ~ gódîyá-l kàkà ~ gódîyá-k kàkà</b>	‘grandfather’s mare’ <sup>23</sup>
<b>dáwákí-n kàkà</b>	‘grandfather’s horses’

The forms of the LINKER are the same whether the “possessor” is a noun or a pronoun. In the paradigm below, which uses the same N<sub>1</sub> as above, I present just the “Standard Hausa” forms. The nasal LINKER /n/ assimilates in place of articulation to a following consonant, e.g. **dókì-n-kà** ‘your horse’ → [dókìŋkà]. The feminine LINKER with pronouns shows the same variants as with a nominal N<sub>2</sub>.

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<sup>23</sup> The [ř] variant is the standard form used in careful or emphatic speech, modeled on the dialect of Kano. The [l] variant is found only in northern dialects. The geminate variant is heard universally and is probably the only common variant in western dialects.

**Table 17** : Paradigm of bound possessive pronouns

	MASCULINE	FEMININE	PLURAL
1 sg.	<b>dókì-n-á</b>	<b>góǀyá-t-á</b>	<b>dáwákí-n-á</b>
2 sg.m.	<b>dókì-n-kà</b>	<b>góǀyá-ř-kà</b>	<b>dáwákí-ŋ-kà</b>
2 sg.f.	<b>dókì-n-kì</b>	<b>góǀyá-ř-kì</b>	<b>dáwákí-ŋ-kì</b>
3 sg.m.	<b>dókì-n-sà</b>	<b>góǀyá-ř-sà</b>	<b>dáwákí-n-sà</b>
3 sg.f.	<b>dókì-n-tà</b>	<b>góǀyá-ř-tà</b>	<b>dáwákí-n-tà</b>
1 pl.	<b>dókì-n-mù</b>	<b>góǀyá-ř-mù</b>	<b>dáwákí-m-mù</b>
2 pl.	<b>dókì-n-kù</b>	<b>góǀyá-ř-kù</b>	<b>dáwákí-ŋ-kù</b>
3 pl.	<b>dókì-n-sù</b>	<b>góǀyá-ř-sù</b>	<b>dáwákí-n-sù</b>

All the genitive pronouns other than first singular have the form -CV, placing the LINKER in syllable final position. This triggers assimilation of the masculine and plural nasal to place of articulation and the /t/ → [ř] (→ G) alternation. The first person singular pronoun is -á,<sup>24</sup> placing the LINKER in syllable initial position, thus revealing its historically original forms.

Not revealed in this paradigm is the fact that the LINKER conditions *lengthening* of a preceding vowel. The three illustrative nouns all have final long vowels in citation form, so no lengthening is required; however the vowels are shortened in the closed syllables

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<sup>24</sup> Suppletive allomorphs /n/ ~ /V/ for first person singular are a feature of proto-West Chadic, if not of Proto-Chadic. For example, the Hausa independent 1<sup>st</sup> singular pronoun is nǎ. Partly because of this, partly because of the fact that -n plus á forms a CV syllable, most, if not all Hausa speakers today think of the first person singular genitive pronoun as -nǎ, i.e. the n is viewed as part of the pronoun rather than being the LINKER. That this is not historically correct is evident both in the fact that all other persons have the LINKER -n- and in the fact that the /t/ allomorph of the feminine LINKER is used with feminine nouns. Reanalyses of this type partly explain why the \*n ~ \*V 1<sup>st</sup> singular allomorphy has been replaced in many languages in favor of a single 1<sup>st</sup> singular formative n.

formed when the LINKER is inserted before a CV pronoun (/dókì n sà / → dókì-n-sà). However, in genitive constructions where N<sub>1</sub> ends in a lexical short vowel, the vowel is lengthened with first person genitives, e.g. **cúkú** ‘cheese’ but **cúkúná** ‘my cheese’, **àyàbà** ‘banana’ but **àyàbàtá** ‘my banana’. Dialectal evidence confirms that lengthening is conditioned by the LINKER. In Western dialects, the third masculine singular genitive is /i/, appearing as **ná-i** for masculine and plural, **tá-i** for feminine, e.g. **dókì-ná-i** ‘his horse’, **gódíyá-tá-i** ‘his mare’.<sup>25</sup> Like first person singular in all dialects, these Western dialect forms use a genitive construction that leaves the final syllable of N<sub>1</sub>- open, and the vowel of this syllable is lengthened, e.g. **cúkú** ‘cheese’ but **cúkú-ná-i** ‘his cheese’, **àyàbà** ‘banana’ but **àyàbà-tá-i** ‘his banana’.

The historical source of the LINKER is the set of demonstrative bases **ná** (masculine, plural), **tá** feminine. In fact, these can still be heard in N+N constructions such as **bàkà ná máhàr̃bí** ‘hunter’s bow’, **kíbíyà tá máhàr̃bí** ‘hunter’s arrow’,<sup>26</sup> perhaps more literally translated into English as “the bow/the arrow that of the hunter”. It is probably this cliticized determiner that originally conditioned lengthening of the preceding vowel, though in modern Hausa, lengthening is conditioned only with pronoun possessors. That is, **cúkú tá máhàr̃bí** ‘cheese of the hunter’, **àyàbà tá máhàr̃bí** ‘banana of the hunter’ retain lexical short vowels on N<sub>1</sub> (Newman 2000:306).

## 6.2. Possible remnants of an alienable/inalienable distinction

Hausa does not make a syntactic distinction between alienable and inalienable possession. In languages that have it, the syntactic distinction related to this semantic distinction typically shows up in genitive constructions involving transferable

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<sup>25</sup> The **-í** ‘his’ comes from an **\*i** determiner base. The **-sà** ‘his’ form seen in the paradigm — **shì** ‘his’ is also a widely heard variant — is the proto-(West?) Chadic third masculine singular pronoun. The determiner bases **\*i** and **\*n** have frequently replaced this true pronoun to express third masculine singular.

<sup>26</sup> These examples are from Newman (2000:300).

possessions vs. parts of one's own body, transferable possessions vs. kin terms, true possession vs. compounds, and subject of a nominalized verb vs. object of a nominalized verb.<sup>27</sup> Hausa uses the same genitive syntax in all these cases.

<b>kwánò-n-á</b>	‘my bowl’	<b>ídò-n-á</b>	‘my eye’
<b>mótà-ř-kà</b>	‘your car’	<b>màtá-ř-kà</b>	‘your wife’
<b>hùlá-ř Sání</b>	‘Sani’s cap’	<b>hùlá-ř kwánò</b>	‘motorcycle helmet’ (“cap-of metal bowl”)
<b>cî-n námà-n ùngùlú</b>	‘a vulture’s eating meat’	<b>cî-n námà-n ùngùlú</b>	‘eating vulture meat’

Nonetheless, one can point to a few possible hints suggesting an earlier time when pre-Hausa did make this distinction. The abusive expressions **úwákà** ‘your mother!’ and **ùbákà** ‘your father!’ are invariably pronounced with a long vowel and no LINKER before the possessive pronoun rather than the expected (and otherwise grammatical) **úwá-ř-kà** and **ùbá-n-kà** respectively. In Schuh (1974), I suggested that these expressions became frozen at a time when inalienable genitives were formed by direct juxtaposition rather than with a linker.

Active formation of N+N compounds in Hausa today uses normal linked genitives, e.g. **bàřkònón-tsòhúwá** ‘teargas’ (“pepper-of old woman”), **cá-cá-ř bàkí** ‘argument’ (“gambling-of mouth”). A small number of N+N compound involve direct juxtaposition,

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<sup>27</sup> The distinction between semantic subject vs. semantic object does show up in one situation. Verbs of certain classes form verbal nouns with a suffix -`wá. In nominalized constructions with an expressed subject, such verbs use this verbal noun with the regular genitive construction, but with an expressed object, the verb + object construction has the same form as in a finite verbal construction. For example, **yá kářántá shí** ‘he read it’ with nominalized subject is **kářántáwá-ř-sà tánà dà kyáu** ‘his (manner/action) of reading is good’, but with nominalized object **kářántá shí yánà dà wùyá** ‘reading it is difficult’.

e.g. **kwáná-ráwá** ‘dangling ear-pendant’ (“spending day-dancing”), **bírì-bòkò**<sup>28</sup> ‘big but ineffective person or thing’ (“monkey-trickery”), but most of the examples of this type in Newman (2000:119-120) look as if they are reduced phrases of some kind rather than having a source in genitives. For example, **zákí-bánzá** ‘type of sugar cane’ (“sweetness-uselessness”) is probably from a phrase “[its] sweetness [is] useless”. If, in fact, pre-Hausa did at one time form compounds by direct juxtaposition, a more likely source of evidence would be frozen compounds no longer recognizable as such, e.g. English *daisy* < “day’s eye” or *stirrup* < “mount-rope”.

Unfortunately, our understanding of reconstructable features of the Hausa lexicon is hardly even in its infancy, but I venture here just a couple of examples. It is common in at least some languages to lexicalize locative words with a root such that the root is rarely, if ever used alone. For example, in Bole **bìn** “hut” is rarely, if ever used alone. The **gàbìn** “inside hut” is the usual word for ‘hut’, **bòbìn** “mouth [of] hut” is ‘doorway’. In Bade, a number of words referring to mounds or protuberances have been compounded with **ádà** ‘head’, e.g. **ádàbzák** ‘rubbish heap’ (cf. Ngizim **bàzhàk**), **ádàkú** ‘knee’ (cf. Ngizim **kùfú**).<sup>29</sup> In Hausa, the word for ‘excrement’ is **káshí**. I suggest that this word is derived from **ká** ‘head’ plus the Proto-West Chadic **\*is-y** (Karekare **ishè**, Duwai **isháu**). This root is probably also the base of Hausa **másái** ‘cesspit’. **Káshí** was thus originally a compound meaning “mound of shit”! Another possible such compound may be **kàfádà** ‘shoulder’, though in this case I cannot cite a plausible cognate for the root.

As a final example, I suggest that the prefix **bà-** use to form ethnonyms such as **Bà-háush-è** ‘Hausa man’ was originally the word ‘mouth’, whose root is seen in **bàkí**

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<sup>28</sup> This is the same word found in the name Boko Haram. As pointed out by Newman (2013b), **bòkò** is a native Hausa word which originally meant ‘sham, inauthenticity’ and etymologically had nothing to do with the English word “book” as often claimed.

<sup>29</sup> It is worth noting that these are frozen compounds in Bade. As in Hausa, the productive way to form N+N compounds is N-**k** N, where **-k** is a linker, e.g. **ádà-k sósàu** ‘roof’ (“head-of hut”).



‘mouth’. Newman & Schuh (2016) explain that Hausa ethnonyms were originally language names, parallel to language names in other languages that use ‘mouth’ to mean language, e.g. Bole **bò Àpìnó** ‘Hausa language’. Through a series of reinterpretations, language names in Hausa shifted to become ethnonyms and language names came to be formed by suffixing **-áncí**, e.g. **Bóláncí** ‘Bole language’.

## 14 | Lexical Derivation

### 1. Agentive, Instrumental, and Locative Nouns

Greenberg (1966:48) states, “Hausa and other Chad languages have an **m-** prefix which forms nouns of place, instrument and agent. This prefix occurs very commonly in Semitic, Egyptian, Berber and Cushitic with the same general range of meaning.” This prefix is widespread enough in Chadic to confirm Greenberg’s implication that it was inherited into Proto-Chadic from Afroasiatic. In West Chadic, it is well-attested in Hausa and in the Bade/Ngizim group. For example, in Ngizim we find nouns like the following:<sup>1</sup>

- Agent:           **maruwái** ‘farmer’ < **rūyu** ‘cultivate’  
                       **màràkènàk** ‘traveler’ < **ràkènu** ‘walk, travel’
- Instrument:   **màta** ‘right hand’ < **tau** ‘eat’  
                       **màḏəvâràk** ‘forefinger’ < **ḏəvâru** ‘threaten by pointing’
- Location:       **madəbak** ‘place for watering animals’ < **dəbu** ‘water animals’  
                       **mazgài** ‘the afterlife’ < **zəgau** (VN **zəgàyà**) ‘know’

**Table 1:** Ron-Daffo (Seibert 1998:19-20)

AGENT <b>mà-</b>			
<b>felan</b>	forge	<b>màfèlan</b>	blacksmith
<b>ta’</b>	build	<b>màtá’</b>	mason

<sup>1</sup> A detailed discussion of nouns with the **m-** prefix in closely related Western Bade can be found in Schuh (2007:623-626).

PLACE <b>ma-</b> (M)			
<b>shâsh</b>	defecate	<b>mashâsh</b>	toilet
<b>wetây</b>	hide	<b>mawet</b>	hiding place
<b>ta'</b>	build	<b>matá'</b>	place free of weeds
GROUP MEMBER <b>mà-/ma-</b>			
<b>Wulyán</b>	the Hausas	<b>Màwulyán</b>	a Hausa man
<b>Dáfó</b>	Daffo people	<b>Màdáfó</b>	a Daffo man
<b>hùràl</b>	water spirits	<b>màhùràl</b>	water spirit
<b>ɗafál</b>	people	<b>maɗafál</b>	person

The **m-** prefix is found outside West Chadic as well. In Central Chadic, it is extensively used in Gude. It is also found in a few words in Gidar, e.g. **mahala** ‘thief’ < **əhala** ‘steal’ and **məgza** ‘blacksmith’.<sup>2</sup> The **m-** prefix may well be better attested in Gidar than the sparse available lexical data indicate. Some adjectives (**məbàyin** ‘tall’ < **əbàya** ‘be tall’) and ethnonyms (**Mə̀dàbà** ‘Daba person’) have the **m-** prefix. These uses are also seen in Gude.

The **m-** prefix is not fully productive in any language, even when it is relatively robust as it is in Hausa (Newman 2000:53) and Gude (Hoskison 1983:27). A few lexicalized remnants exist here and there in other languages.

In West Chadic, a remnant can be found in South Bauchi languages in the word for ‘thief’, e.g. Zodi **mokər**, Zaar **mêər**, derived from Proto-Chadic **\*kər-** ‘steal’. A possible remnant in Central Chadic is Lagwan **musxwi** ‘thief (m)’, **musxun** ‘thief (f)’ < **sxə** ‘seize’ (Shryock & Brahim 2014). Hoffmann (1963:48), who curiously at the time expressed doubts about the Chadic membership in Afroasiatic, noted remnants of **m-** place, instrument, and maybe agent in Margi, a core Central Chadic language.

<sup>2</sup> Mouchet (1950:53) has a quasi-reconstruction *GZA* for ‘blacksmith’, and the **\*gz** root for ‘forge’ is attested in West Chadic, e.g. Ngamo **gizò** ‘forging’.

Most Chadic languages, however, have lost all traces of an **m-** prefix. For agentives, the most common pattern is a compound using the word for “person” or a special noun-like or clitic morpheme meaning “one who does...”. For example,

Bole (West):	<b>an shiri</b> ‘thief’ (“one who does stealing”)
Miya (West):	<b>bá kír</b> ‘thief’ (“one who does stealing”)
Bura (Central):	<b>mdə-r həlá</b> ‘thief’ (“person-of stealing”)
Tera (Central):	<b>nə ʃədli</b> ‘blacksmith’ (“one who does smithing”)
Musey (Southeast):	<b>sàā kūlnà</b> ‘thief’ (“person of stealing”)
Kera (East):	<b>hùlùm bə dègàayà</b> ‘thief’ (“person who-does theft”)

Even in languages that have **m-**prefixed agentives, the more productive pattern forms agentives with compound expressions, e.g.

Hausa (West):	<b>mài tàfiyà</b> ‘traveler’ (“one who does traveling”)
Ngizim (West):	<b>bàci nānam</b> ‘drummer’ (“one who does drumming”)
Gude (Central):	<b>ndè dzègunən</b> ‘teacher’ (“one who does teaching”)

In many, if not most East Chadic languages, all of which have an active gender/number system and rather productive derivational morphology, the common pattern seems to be to use number/gender marking suffixes on a root indicating an action or occupation.

Tumak:	<b>mùji</b> (m), <b>mùjèr</b> (f), <b>mùjèg</b> (pl) ‘thief’; cf. <b>mùjègən</b> ‘theft’
Bidiya:	<b>míisò</b> (m), <b>míisà</b> (f), <b>míisè</b> (pl) ‘thief’ < <b>míis</b> ‘steal’
Dangaleat:	<b>gàrpò</b> (m) ‘blacksmith’ < <b>gàrpē</b> ‘forge’
Mubi:	<b>màràṅò</b> (m), <b>mùròṅú</b> (pl) ‘thief’ < <b>màráṅ</b> ‘steal’

In all Chadic languages, terms for most commonly used instruments, such as cooking utensils, farming implements, blacksmith's tools, etc. are non-derived root words, and dictionaries and grammars generally do not list derived instrument forms. Where data on such forms is available, the most common pattern is a compound of the type “thing(s) for ...”. Here are a few examples.

Hausa (West):	<b>àbinci</b> ‘food’ (“thing-for-eating”) <b>àbi-n-hannu</b> ‘bracelet’ (“thing-of hand”) <sup>3</sup>
Miya (West):	<b>ham ba gara</b> ‘things for wedding celebration’
Bura (Central):	<b>sù-r nzànzì</b> ‘stool’ (“thing-for sitting”)
Tera (Central):	<b>ɗy-e zəmi</b> ‘food’ (“thing-for eating”)

Turning to locatives, available information indicates that these typically form a compound with a generic word “place”.

Ngizim (West):	<b>rī dābak</b> ‘cemetery’ (“place-of burial”)
Miya (West):	<b>à batlón ē kuw àbíy</b> ‘they went to draw water’ (“they went to the <u>place of drawing water</u> ”)
Bura (Central):	<b>vì ɗùwàr dzì</b> ‘hiding place’ (“place-of hiding self”)

## 2. Ethnonyms and Language Names

A well-documented feature of Hausa morphology is a prefix **bà-**, which forms ethnonyms, e.g. **Bà-haush-è** ‘Hausa person’. (The corresponding plural uses a suffix **-āwā**, which has HH or LH tone, added to the root without the **bà-**, e.g. **Hàusāwā** ‘Hausas’. Derivation of ethnonyms by affixation seems to be unique to Hausa. All other

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<sup>3</sup> These, and a few other similar items, have become lexicalized, i.e. they are not phrases formed by productive syntactic rules. This is seen by the short final vowels. Were they literally “thing-for eating” and “thing-for hand”, the final components would be **cí**, with a long vowel and falling tone, and **hannū** with a long final vowel, respectively.

Chadic languages for which information is available express ethnonyms either with an often unanalyzable root word alone or by means of a compound, usually translatable as “person-of...” or “son-of...”.

Bole (West):	<b>Àpìno</b> ‘Hausa person’
	<b>Nguzum</b> ‘Ngizim person’
Ngizim (West):	<b>Àpə̀no</b> ‘Hausa person’
	<b>Dl̀rai</b> ‘Karekare person’
Miya (West):	<b>mìy dzə̀hə/dzaku</b> ‘Miya person (m/f)’
	<b>wìyahən dzə̀hə/dzàku</b> ‘Hausa person (m/f)’
Zaar (West):	<b>Zaar</b> ‘Zaar person’
	<b>Válti</b> ‘Hausa person’
Bura (Central):	<b>Bùrà</b> ‘Bura person’
	<b>Mvwà</b> ‘Kanuri person’
Mafa (Central):	<b>Mafa</b> ‘Mafa person or language’
Tera (Central):	<b>Nyimátli</b> ‘Tera person’
	<b>Gəm</b> ‘Bura or Babur person’
Gidar (Central):	<b>ɗəf na Kàɗà</b> ‘Gidar person’ (“person of <i>Kada</i> ”)
Musey (Southeast):	<b>Ōyná</b> ‘Tupuri person’
Lele (East):	<b>Lèlè</b> ‘Lele person’

By far, the most common way to form language names is a compound “mouth of X”, where “X” is an ethnonym (Newman & Schuh 2016). In some languages the ethnonym alone can also refer to the language.

Gidar (Central):	<b>ma Kàdà</b>	‘Gidar language’ (“mouth of <i>Kàdà</i> ”)
Mafa (Central):	<b>dáyi mafa = mafa</b>	‘Mafa language’ (“neck/voice-of <i>Mafa</i> ”) <sup>4</sup>
Musey (Southeast):	<b>vun Museyna</b>	‘Musey language’
Lele (East):	<b>kùb lèlè</b>	‘Lele language’
Bura (Central):	<b>Bùrà</b>	‘Bura person or language’
Margi (Central):	<b>Màrgyí</b>	‘Margi person or language’

Parallel to agentives, East Chadic languages, esp. those of the “B” sub-branch, use derived forms of a basic root for ethnonyms and language names.

Mubi: **Minjilò** (m.), **Minjilè** (f), **Mónjùl** (pl) ‘Mubi person’; **Mónjúl** ‘Mubi language’

Bidiya: **Bidiyò** (m), **Bidiyà** (f), **Bidiyè** (pl) ‘Bidiya person’; **Bidiyà** ‘Bidiya language’

Migama: **Mìgààmú** (sg), **Mìgààmì** (pl); **Mìgààmá** ‘Migama language’

Mokilko: **Móòkilé** (m), **Móòkilòwó** (f), **Móòkilàgí** (pl); **Móòkilkó** ‘Mokilko language’

### 3. Abstract Nouns

TO DO

- Bade/Ngizim **-akwai**

- Warji? Look at card file notes

- Bura/Margi **-kur**

- Hausa **-nci, -nta, -ntaka**

- Hausa **ANSQs** (Abstract Nouns of Sensory Quality): parallels in other languages? Newman’s grammar mentions Guruntum and Migama as possibilities

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<sup>4</sup> As in Mafa, some languages use “neck” or “voice” rather than “mouth” to mean “language”, but almost none use “tongue”.

## 4. Ngamo

### 4.1. Agentives and possessors

No traces of the **m-** agentive/instrument/place prefix are evident in Ngamo. As is the case in many Chadic languages, there is a single set of formatives that range over the notions of *agent*, *owner*, and *one characterized by*, and it is these formatives that take on the agentive function carried by the **m-** prefix seen in languages like Hausa or Ngizim. In Ngamo these clitics are **à** (masculine), **àn** (feminine), **àná** or **ànìn** (plural). Here are examples representing the range of uses of these formatives, including agentivity. For cultural or biological reasons, some of the cells may be filled only by masculine or by feminine forms.

**Table 2: Agentive in Ngamo**

MASCULINE	FEMININE	PLURAL	Meaning	Base
<b>à shìrì</b>	<b>àn shìrì</b>	<b>àná shìrì</b>	‘thief’	<b>shìrì</b> <sup>5</sup> stealing
<b>à gízo</b>		<b>àná gízò</b>	‘blacksmith’	<b>gízò</b> smithing
	<b>àn shòktô</b>	<b>àná shòktô</b>	‘nursing woman’	<b>shòktô</b> nursing
<b>à óyù</b>	<b>àn óyù</b>	<b>àná óyù</b>	‘wealthy person’	<b>óyù</b> money
<b>à bánò</b>		<b>àná bánò</b>	‘householder’	<b>bánò</b> house
	<b>àn háwò</b>	<b>àná háwò</b>	‘pregnant woman’	<b>hàwò</b> stomach
<b>à gòllà</b>	<b>àn gòllà</b>	<b>àná gòllà</b>	‘sick person’	<b>gòllà</b> disease
<b>à híplà</b>	<b>àn híplà</b>	<b>àná híplà</b>	‘crazy person’	<b>híplà</b> wind
<b>à mátò</b>	<b>àn mátò</b>	<b>àná mátò</b>	‘deceased person’	<b>mátò</b> death

These expressions can be used as postnominal modifiers, e.g. **màndù àn-shòktô** ‘a woman that is nursing’ (lit. “woman doer-nursing”).

<sup>5</sup> The base noun has LL tones but HL in the masculine and feminine agentive expressions. This is a result of the GREAT NGAMO TONE SHIFT (GNTS) described in Chapter 5, §6. The singular (but not the plural) agentive morphemes originally had H tone, which has shifted to the first syllable of the base and which has been replaced by default L on the agentive morpheme.



#### 4.2. Instruments

Instrumental nouns in Ngamo are compounds based on the noun **'yà** 'thing', which is feminine and hence requires a linker **-k**.

<b>'yak opshi</b>	'digging tools'
<b>'yak beshinsu</b>	'their things for drumming'
<b>'yak uskai</b>	'ingredients for the medicine'
<b>'yàk hènà bò</b>	'pot cover' ("thing for covering the mouth")
<b>'yàk gosa kâ</b>	'pillow' ("thing for propping the head")
<b>'yàk zautà kà</b>	'comb' ("thing for combing the head")
<b>'yàk kadî</b>	'foodstuff, produce' ("stuff of the world")

#### 4.3. Locative nouns

Locative nouns are compounds based on the noun **bè'i** 'place'. This is usually contracted in compounds to **bè'y** or even **bei** (with loss of the glottal stop / glottalization), as in the following examples from the Gudi dialect:

<b>bei sena mishi goro</b>	'place for rituals' ("place of drinking beer for sacrifice")
<b>be'y ngontimui</b>	'our chatting place'

This structure seems to be more productive in the Yaya dialect, illustrated in examples like the following, which seem not to be current in Gudi:

<b>bei wâshi</b>	'wrestling arena'
<b>bei nefso</b>	'place to rest'
<b>bei ngôntî</b>	'conference hall' ("place for discussion")

#### 4.4. Ethnonyms

The Gudi dialect expresses ethnonyms with root words, whereas the Yaya dialect seem to prefer a compound of the form “person of...”:

Gudi: **Ngàmò** (pl. **Ngamāyâ**) ‘Ngamo person’

**Gòzùm** (pl. **Gòzmākù**) ‘Ngizim or Karekare person’

**Zàn** (pl. **Zànzàntì**) ‘Kanuri person’

**Àpnò** (pl. **Àpnàkù**) ‘Hausa person’

Yaya: **ngôi Ngàmò** ‘Ngamo person’

**ngòi Kanò** ‘person from Kano, Kanoite’

#### 4.5. Language names

Language names use a compound of the form “mouth-of ETHNICITY”:

**bò Ngàmò** ‘Ngamo language’

**bò Gozùm** ‘Ngizim or Karekare language’

**bò Zân** ‘Kanuri language’

#### 4.6. Diminutive

Diminutives are erstwhile compounds formed with **là**, a reduced variant of the **lawo** root meaning ‘child’. Synchronically, **là** + Noun translates as ‘little X’, e.g.

**là gorzò** ‘boy child, baby boy’ (lit: “little man”)

**là mandù** ‘girl child, baby girl’ (lit: “little woman”)

**la dakra** ‘a little lizard’

**yo haiko iko la yokrongom yo’oto**

‘that of the squirrel amounted to a certain small amount’

## 5. Gude

(This section not yet fully developed.)

Gude retains the proto-Afroasiatic **ma-** derivational prefix. Hoskison (1983:27-30) notes that the **mV-** prefix is not productive; he distinguishes **ma-** and **mə-** (which is used with inanimates).

### 5.1. Agentive

**màdzùgùna** < ? ‘student’

**mahəra** < ? ‘thief’

farmer

miser

shepherd

coward

fearful person

person hungry for meat

parent

person who performs circumcisions

### 5.2. Instrument

**mabu’un** < **bu’un** ‘winnow’ ‘winnowing calabash’

‘wall around a compound’

‘others’

### 5.3. Adjectival participles

Presumably the same, or at least etymologically related. **m-** prefix is used to derive adjectives from verbs. This is akin to the use of the **ma-** prefix in Semitic languages, usually described as a “participle”. Examples:

‘sharp’

‘ripe’

‘tall’

‘full’

‘white’

‘emaciated’

‘ground up’

‘roasted’

‘dry’

‘wet’

## 5.4. Ethnonyms

Hoskison (1983:29) lists a few ethnonyms with a prefix **ma-**, and I collected a few.

**mapuḍa** ‘person of the Gude tribe’ (old name) < Hoskison

**màhùla** ‘person of the Huli subtribe of Gudes’

**məndzàŋa** ‘Njanye person’

**madzara** ‘person of Dzara’ (Muchella village) < Hoskison

Others use a root word:

**ŋudá** ‘Kilba person’

**pəsàna** ‘Fulani person’

**ùva** ‘Kanuri person’

## 5.5. Language names

None collected; the word for ‘language’ is **ùra** ‘neck, throat’ rather than a form meaning ‘mouth’.

## 6. Kera

### 6.1. Agentive

**hùlùm bà dùktí** ‘blacksmith’ (“person who-does smithing”)

**hùlùm bà dègàayà** ‘thief’ (“person who-does theft”)

### 6.2. Ethnonyms and language names

**ku káwrá** ‘Tupuri language’ (where **ku** is ‘mouth’); **hùlùm bà káwrá** ‘Tupuri person’, **kəkáwráŋ** ‘Tupuri (collective)’

**hùlùm bà kéerá** ‘Kera person’, **kəkéeráŋ** ‘Keras (collective)’ **ku kéerá** ‘Kera language’

## 7. Various Other Languages

### Notes:

Mofu: participles, and other derivatives, see Barreteau's dictionary, **ma-** page 161;  
there is a big list on page 40

Guruntum p. 39, note **mimeerè** 'thief'

Lamang, pp. 40-41: agents and ethnonyms

Kotoko (Makary): see entries under **ma-**

## 15 | Simplex Verbal Sentences

The prevalent declarative sentence type in Chadic languages is SVO with word order marking argument structure and prepositions marking non-argument adjuncts. However, VSO order is the prevalent order in Central Branch in languages spoken in the northern Nigerian-Cameroon border area. Overlapping the typology of word order in declarative clauses is word order in sentence types that incorporate focus on a constituents. In fact, the prevalent ordering is for sentences with a focused constituent to retain *in situ* order, i.e. in sentences with a focused object, the SVO or VSO declarative orders tends to be retained. Word orders in languages vary, however, in sentences that have focus on the subject. Most descriptions discuss focus in a separate section from declarative clauses. I have chosen to discuss declarative clause order and clauses with focus together as a way to highlight commonalities and differences between languages.

A further issue of internal and comparative interest in Chadic languages is a distinction between what is usually referred to as *prefix conjugation* and *suffix conjugation*, i.e. marking subject agreement by verbal prefixes or by verbal conjugations. These subject marking types would seem to correspond to SVO and VSO main clause orders respectively and have attracted attention for their comparative interest for the wider comparative Afroasiatic picture.

### 1. Word Order in Simplex Verbal Clauses

For each language, I present a declarative clause, a clause with a questioned direct object, and a clause with a questioned subject. In (virtually?) all Chadic languages, the word answering a constituent question will occupy the same position as the corresponding question word, e.g. Bole Q: 'yuwū òshi ye *lò?* 'who caught the goat?', A: 'yuwū òshi ye *dāndè* 'the children caught the goat', where the question 'who' and its answer 'children' are both post verbal. The major division in placement of focused items is between subjects and all other constituent types.

## 1.1. SVO languages

1.1.1. *In situ* focused objects, post verbal focused subjects

## Bole (I.A.2.a)

<b>dānde 'yùwan òshi</b>	'the children caught the goat'
<b>dānde 'yùwan ye lè?</b>	' <i>what</i> did the children catch?'
<b>'yuwū òshi ye ló?</b>	' <i>who</i> caught the goat?'

## Kanakuru (I.A.2.b)

<b>Ngoje a ko-no kom</b>	'Ngoje caught me a rat'
<b>kà gər mēndai?</b>	' <i>what</i> did your take?'
<b>bən ləkət dowi pala?</b>	' <i>which horse</i> knows how to race?'

## Duwai (I.B.1.b)

<b>ùwktlī kshə gùriyà</b>	'the children caught the goat'
<b>ùktlī kshə mù?</b>	' <i>what</i> did the children catch?'
<b>əkshə gùriyo nə ndiyè?</b>	' <i>who</i> caught the goat?'

## Mofu (II.A.5.b)

<b>màtəkwàyà tà kədfi dák w dāw lá</b>	'a hyena has killed my goat'
<b>màtəkwàyà à kədfi mē?</b>	' <i>what</i> did the hyena kill?'
<b>màkədá úkw kàh ná mē?</b>	' <i>what</i> killed your goat?'

## Buwal (II.A.7)

<b>wala mzda á ká-tsāf gədwadā āka</b>	'the blacksmith (f) is-decorating the post'
<b>xwā lā-ēnē á māwəl ŋkwā vemey?</b>	' <i>what</i> are you doing for for your husband?'
<b>má dā-ēkē wālā fəgwālākw nyā vājáj?</b>	' <i>who</i> will bring-me the wife of that leper?'

1.1.2. *In situ* focused objects, preverbal focused subjects

## Angas (I.A.3.a)

<b>shàal dùu gùrūm mwá</b>	'money spoils people'
<b>ghá pò bòn kə mē?</b>	' <i>what</i> are you plucking?'
<i>írì tū, nàmtsə gyóo</i> <b>ghən cáa mân gənyô?</b>	' <i>what kind of animal</i> is coming like this?'

Ron-Bokkos (I.A.4.a)

<b>si tíndèsh luŋ yá</b>	‘they smashed the pot’
<b>điŋ ’ávúsh ’vwén?</b>	‘how many birds did he see?’
<b>mè ðoò cìn ghəə kənɛɛ?</b>	‘what happened to the goat?’

Miya (I.B.2.a)<sup>1</sup>

<b>Nùwya a tənza márdù</b>	‘Nduwya planted millet’
<b>fà kóna taabərma mənə?</b>	‘how many mats did you buy?’
<b>m-áa mbyára kábə taf-a?</b>	‘what tore your gown?’

Zaar (I.C.1.)

<b>wût cì ñàá záakii ndzárt há məshí</b>	‘the fire burnt the young lion to death’
<b>løndəŋ tá fi gwàasəŋ wuri?</b>	‘what [how] would elephant do?’
<b>írì kú, nàmtsə gyóo ghən cáa mân gənyô?</b>	‘what kind of animal is coming like this?’

Margi (II.A.2)

<b>ŋkwàr nà jàŋ əvər bələ kwán-nón</b>	‘that daughter was herding goats for him’
<b>nàndà tsía wà rà?</b>	‘whom did they kill?’
<b>mì ŋ áhəŋ áshilí vəŋ rá?</b>	‘what brought you here?’

Kotoko (II.B.1.a)

<b>mafī ā i gə sətó só nówó</b>	‘hyena pointed his finger at leopard’
<b>tó ndəa-g hən kidá wadí?</b>	‘what work do you do?’
<b>kám dʒi le nō ðo kən ngō ró?</b>	‘you (f.s) what thing brought you to this place?’

Lele (III.A.2)

<b>tòrò kánó gùnà</b>	‘the chicken rejected the peanut’
<b>Jáni hīndī mē gà?</b>	‘what did Jani cook?’
<b>mē bā sàg kā nyā gō kāsūwām ní gà?</b>	‘what tore your gown?’

<sup>1</sup> Miya has VOS as an alternative declarative order with no apparent difference in focus (Schuh 1998), e.g. **à tənza súw màrd-áy aa Nùwya** ‘Nduwya planted millet.’ Focus constructions are invariable.



## Kera (III.A.3)

<b>wə áwáŋ hàrgá</b>	‘he is killing a goat’
<b>Agèlèm ló táŋ mintí?</b>	‘ <i>who</i> did Agelem beat?’
<b>mintí/ló táŋ nəwri mó?</b>	‘ <i>who</i> beat your sister?’

## Barain (III.B.4)

<b>Músà ñ bédíjì máŋgò ñj Úmàr</b>	‘Musa will give a mango to Umar’
<b>Músà tà ñ òmm-o ñj má?</b>	‘ <i>who</i> will Musa marry?’
<b>màá wòlló?</b>	‘ <i>who</i> will win?’

## Dangaleat (III.B.1.a)

<b>ŋá píl díbíró</b>	‘he opened the door’
<b>kì gínà màà riyà?</b>	‘ <i>what</i> do you do for work?’
(could not find any examples of subject questions)	

## Mubi (III.B.1.b)

<b>bóori á híin éwíngu rí sèerí</b>	‘the hyena tied his mother with a rope’
<b>kám hálē ká làá mí?</b>	‘you <i>what</i> are you doing?’

## 1.1.3. Preverbal focused objects, preverbal focused subjects

## Hausa (I.A.1)

<b>yārā sun kāmà àkwiyà</b>	‘the children caught the goat’
<b>mḕyārā sukà kāmà?</b>	‘ <i>what</i> did the children catch?’
<b>su wā̀ sukà kāmà àkwiyà?</b>	‘ <i>who (pl.)</i> caught the goat?’

## Bura (I.A.2)

<b>Hámàn kè bàrà</b>	‘Haman sought (someone)’
<b>w-àn tó Hámàn bàrà</b>	‘ <i>who</i> did Haman look for?’
<b>w-àn bàrà bzè rí?</b>	‘ <i>who</i> looked for the child?’

## Gidar (II.A.C)

<b>à lbáa-só-ná-k háw sè-n báynáni</b>	‘he bought a goat for his friend’
<b>nàwány Tizi à ró di?</b>	‘ <i>who</i> did Tizi abuse?’
<b>nàwány dè háw di?</b>	‘ <i>who</i> stole the goat?’

## 1.2. VSO languages

1.2.1. *In situ* focused objects, post verbal focused subjects

Podoko (II.A.4.a)

<b>a kəsá kəsə ta mərsra</b>	‘they caught the thief’ <sup>2</sup>
<b>a təla tawə ndi na?</b>	‘ <i>what</i> did one cook?’
<b>a təla wa sləbə na?</b>	‘ <i>who</i> cooked the meat?’

1.2.2. *Preverbal* focused subjects and objects

Lamang (II.A.4.b)

<b>yá-yá Yágh tə Bòkò</b>	‘Squirrel has begotten Hyena’
<i>mákw-àa w-é dá-wù má í m-dé nè?</i>	‘ <i>whose daughter</i> are you going to marry with that?’
<i>àmá né dzá-tá nè?</i>	‘ <i>what</i> killed him?’

Sukur (II.A.6)

<b>da pəká ɣwiy dógóvu yá-rá</b>	‘hyena gathered this meat away’
<i>na ɣónj bòn-má maɣixé mbə ba’î-y</i>	‘ <i>which work</i> did the men do with this before?’
<i>nda-xáy da lá ɣui dza yí sádɣiga-y?</i>	‘ <i>who</i> will carry the meat home now?’

Gude (II.A.7)

<b>ká àly úzən t́ Húmtí</b>	‘the boy looked for Humti’
<i>tí-wú àlì Húmtí ya?</i>	‘ <i>who</i> did Humti look for?’
<i>wú àlì t́ Húmtí ya?</i>	‘ <i>who</i> looked for Humti?’

## 1.3. Function marking and word order with adjuncts

Chadic languages rely primarily on word order to show function of core arguments (subjects and direct objects). Functions of adjuncts are shown by prepositions and include locatives, instruments, comitatives, temporal expressions, and manner phrases

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<sup>2</sup> The focus position in Podoko is postverbal. If no other constituent has focus, a copy of the verb is placed in postverbal position.

among others.<sup>3</sup> Most adjuncts are placed VP final, i.e. in declarative statements, they follow a direct object if there is one. Focused adjuncts usually take the position that focused objects would take, i.e. *in situ* or fronted depending on the language. Normal word order is VSO for Podoko, Gude, and Sukur, SVO for the other languages.

### 1.3.1. Languages with *in situ* focused adjuncts

#### Bole

Q: **dānde 'yùwan òshi ye gà àw wà?** 'where did the children catch the goat?

A: 'yùwangò gà bõ gòggò 'they caught it *beside the road*'

#### Duwai

Q: òkshə gùriya dè mù? 'with what did they catch the goat?'

A: òkshì òkshə dè zi 'they caught it *with a rope*'

#### Miya

Q: fà kwíy zhàak wankwa? 'how did you catch the donkey?'

A: món kwiy-là aa àa wuya 'I caught it *with difficulty*'

#### Podoko

Q: a tɔla a tawə ndi slɔbɔ na? 'with what did one [ndi] cook the meat?'

A: a tɔla a malə nd-a 'one cooked it *with oil*'

#### Mofu

Q: kà fàdà dáagwáw kàh ná tà mè? 'with what did you wrap your mat?'

A: yà fàdà ná tá zèwéd 'I wrapped it *with a rope*'

#### Buwal

**xwā tsāf á véméy, bēnzēr?** 'with what did you decorate squirrel?'

**áy dāk á váy?** 'where did they go?'

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<sup>3</sup> Temporal phrases could be said to represent a special case. Temporal expressions such as *today, now, last year*, etc. on the one hand usually have no prepositional marking and, on the other hand, have greater freedom of syntactic position than other adjuncts.

Barain

**kà gǎnēji kítà** *íṅ bāa* ‘he works *with his brother*’  
**wǒolēji nōpútò** *tà ít* ‘they are slaughtering a goat *for the feast*’

### 1.3.2. Languages with fronted focused adjuncts

Hausa

**dà mēzā kà kirā àbōkinkà?** ‘with *what* will you call your friend?’  
 cf. **zân kirā àbōkīnā dà sàlūlā** ‘I will call my friend with a cell phone’

Gude

**â hàdá vàḍâg-iin zè má** ‘in the middle of the night we ate (food)’  
 cf. declarative **kó ág-ií nó zè má** ‘we ate (food) in the middle of the night’

Sukur

**dam yá-má tá pə ir-y** ‘*separately* they came from the place...’  
 cf. declarative **a nanas-kwamá-n nda xá-y tʃitʃij dam-da-dam ndzam ndíka**  
 ‘I asked these people for you each separately just now’

## 1.4. Indirect objects

### 1.4.1. Nominal indirect objects: in situ focus

Nominal indirect objects are syntactic adjuncts, usually marked by a preposition. In declarative statements, they normally follow a nominal direct object if there is one. When focused, they follow the word ordering pattern of focused direct object.

Bole

**daande ’yùwan òoshi m̄ boosù** ‘the children caught a goat *for their father*’  
**daande ’yùwan òoshi yé l-lò?** ‘*for whom* did the children catch the goat?’

Ngizim

**maamuu jibnaa aakù ii àf̄kahi** ‘the children caught the goat *for their father*’  
**maamuu jib aakù ii tái?** ‘*for whom* did the children catch the goat?’

Miya

**Kásáy à zara ’afuw várkə** ‘Kasay called the goats *for the boy*’  
**Ndùwya kəna híwìy wée?** ‘*for whom* did Nduwya buy meat?’

## Mofu

**yà tá-wùzàrà wày ngá bày lá ngádà málàk** ‘I showed the house of the chief *to the stranger*’

**Ká wùzàrà wèy ngá bày ná ngádà wà?** ‘*to whom* did you show the house of the chief?’

## Buwal

**sā-mbāl-ēnē wrèy í ǵāng mǎnā** ‘I pluck vegetables *for my aunt*’

**xwā mbāl-ēnē wrèy á váyáy?** ‘*for whom* are you trimming vegetables?’

## Barain

**kà lèyì yē kórtó íy Úmàr** ‘he sent a pot *to Umar*’

**Músà tá m̀ bèdèyì m̀ péesí m̀ mà?** ‘*to whom* will Musa give his horse?’

Kotoko<sup>4</sup>

**kani ā n-fó gāram n-gə-n yó shú** ‘then he *gave his wives* some meat’

## 1.4.2. Nominal indirect objects: fronted focus

## Hausa

**naa gayàa wà ìyaalìinaa làabáaṙii** ‘I told *my family* the news’

**su-wàa ka gayàa wà làabaaṙii?** ‘*who all* did you tell the news to?’

## Gude

**kó vīi-ny àlín ká Humtí** ‘I gave eggs *to Humtí*’

**ká-wú vīi-h àlì-n-āa?** ‘*who* did I give eggs to?’

## Sukur

**a xón-kwa-rá ta takur** ‘they slaughtered *for you* the chicken’<sup>5</sup>

**kángə wu kwá nə mək ŷ?** ‘*to whom* will you give it?’

<sup>4</sup> I could find no examples of questioned/focused indirect objects.

<sup>5</sup> I could not find an example with a nominal indirect object to show if it would be VP final in a declarative sentence.

### 1.4.3. Pronominal indirect objects [not yet done]

- verbal affixes
- incorporation into verb word
- essentially mirroring nominal IO, e.g. Hausa, Tera
- Bade marked with prepositions: placement shows closer to verb than DO

### 1.5. Accusative case marking in Gude and Lamang

The examples above illustrate word order as the primary way of marking arguments (subjects and objects). Among Central-A languages, at least Gude and Lamang mark accusative case by a prefix **tV-**.

For Gude, I have the following remarks in my notes: (1) /**tá-**/ is never obligatory; /**tá-**/ is not possible with semantically indefinite objects; (3) features such as animacy or mass play no role; (4) TAM plays no role. The object case marker is found in the following contexts, among others:

Definite DO nouns, declarative S: **ká àly úzón tá Húmtí** ‘the child looked for Humti’

cf. **\*ká àlí-c Húmtí** Proper names are inherently definite.

Definite DO noun, questioned subj: **wú àli t-úzō-ná?** ‘who looked for the child?’

DO pronoun: **ká àli Húmtí tá-ny** ‘he looked for me’

**ká àli Húmtí tá-ttí** ‘Humti looked for them’

Focused DO noun: **tá Húmtí àlí-c** ‘it’s Humti that he looked for’

Focused Pro DO: **tə-x àli Húmtí** ‘it’s you that Humti looked for’

Questioned object: **tú-wú àllón Húmrí ya?** ‘who will Humti look for?’

cf. **mí àlón Húmtí ya?** ‘what will Humanti look for?’ **mí** ‘what?’ seems to be treated as indefinite, whereas **wú** ‘who?’ is definite; I have no examples of **\*tá-mí**.

For Lamang, I find the discussion in Wolff (2015b: 252-255) difficult to follow, but examples show that both nominal and pronominal objects can take the **t-** accusative prefix in that language.

## 2. Prefix and Suffix Conjugation

*Editor's Note:* The question of prefix vs. suffix conjugation is an issue of longstanding interest in Chadic studies. Internally, the issue is important to a proper understanding of the nature of verbal constructions in the family, where some languages manifest both prefix and suffix conjugation depending *inter alia* on TAM – in Tera, for example, suffix conjugation is limited to the Subjunctive — and to proposals about Proto-Chadic word order. In addition, the issue deserves attention because Chadic (like Semitic) is a constituent member of the Afroasiatic phylum, where the prefix/suffix conjugation matter has long been a focus of scholarly inquiry. In Chadic, this phenomenon has been addressed in descriptions of a few individual languages and in a few studies looking at the matter in a broader context. What has been lacking has been a careful, comprehensive, insightful comparative study of the kind that would have appeared as a long section in this volume if RGS had been able to undertake. As a substitute for the treatment of this topic that we would have greatly benefitted from, I am contributing references to a few selected articles on the subject:

- Jungraithmayr, Herrmann. 1975. Types of conjugational forms in Chadic. In *Hamito-Semitic*, ed. by James and Theodora Bynon, pp. 399–413. The Hague: Mouton.
- Jungraithmayr, Herrmann. 1987. Zur Suffixkonjugation in Osttschadischen. *Afrika und Übersee* 70: 49–60.
- Jungraithmayr, Herrmann. 2005. Prefix and suffix conjugation in Chadic. In *Proceedings of the 10th Meeting of Hamito-Semitic (Afroasiatic) Linguistics*, ed. by Pelio Fronzaroli and Paolo Marrassini, pp. 411–419. Florence: Dipartimento di Linguistica, Università di Firenze.
- Mukarovskiy, Hans G. 1983. Pronouns and prefix conjugation in Chadic and Hamito-Semitic. In *Studies in Chadic and Afroasiatic Linguistics*, ed. by Ekkehard Wolff and Hilke Meyer-Bahlburg, pp. 51–63. Hamburg: Helmut Buske.
- Voigt, Rainer M. 1987. The two prefix-conjugations in East Cushitic, East Semitic, and Chadic. *Bulletin of the School of Oriental and African Studies* 50: 330–345.
- Voigt, Rainer M. 1989. Verbal conjugation in Proto-Chadic. In *Current Progress in Chadic Linguistics*, ed. by Zygmunt Frajzngier, pp. 267–284. Amsterdam: John Benjamins.
- Zaborski, Andrzej. 2014. Questions of Chadic ‘prefix’ conjugations and Chadic-Afroasiatic ablaut. In *Hausa and Chadic Studies in Honour of Professor Stanisław Piłaszewicz*, ed. by Nina Pawlak, Ewa Siwierska, and Izabela Will, pp. 75–84. Warsaw: Elipsa.

### 3. Ngamo

Ngamo has SVO clausal order. If there is an expressed nominal direct object it immediately follows the verb. Nominal indirect objects, marked by a clitic **kì** [H], follow a nominal direct object. (See below for discussion of the realization of this and other clitics.) All other adjuncts follow the direct object. Below are examples with an intransitive verb and with a transitive verb plus nominal direct object showing various adjuncts.

#### Explanation of terms in examples:

- Pf = PERFECTIVE: Marked both by particular tone patterns and vowels on the verb root and by a suffix **-ko** that shows up in certain environments.
- IpF = IMPERFECTIVE: Marked by a verb form that is basically a verbal noun.
- Sjn = SUBJUNCTIVE: Mark by particular final vowels and tone patterns.
- plS = plural subject suffix: In the PERFECTIVE, Ngamo and other northern Bole-Tangale languages have a suffix **-an-** when the subject is plural (any person).
- TOT = TOTALITY EXTENSION.
- ICP = Intransitive Copy Pronoun: Many Chadic languages use a pronoun suffix on intransitive verbs that reflects person, number, and gender of the subject. In Ngamo, the ICP is used only with verbs having the TOTALITY extension, which shows up tonally in these examples, but an overt TOTALITY (TOT) suffix shows up example (h) below.
- prt = particle: Particle of vaguely defined pragmatic function.

- |     |  |  |
|-----|--|--|
| (a) | <b>mìllá hìndf-án-sù</b><br>children stand[Pf]-plS-ICP         | ‘the children stood up’                                |
| (b) | <b>mìllá ngàh-àn-kó òshì</b><br>children catch[Pf]-plS-Pf goat | ‘the children caught the goat’                         |
| (c) | <b>mìllá ngàh-àn-kó òshì-k bò-sù</b><br>..... for father-their | ‘the children caught the goat for their father’        |
| (d) | <b>mìllá ngàh-àn-kó òshí à bò bíllè</b><br>..... at edge road  | ‘the children caught the goat at the edge of the road’ |



- (e) **millá ngàh-àh-kó òshí kì zòrì** ‘the children caught the goat with a  
 ..... with rope rope’
- (f) **millá ngàh-àh-kó òshi kì sàrà-n-sù** ‘the children caught the goat with their  
 ..... with friends-of-them friends’
- (g) **millá ngàh-àh-kó òshí nzónò** ‘the children caught the goat yesterday’  
 ..... yesterday

The examples above are all in the PERFECTIVE, but the SVO order applies to all TAMs. The following proverb shows a FUTURE marked by the auxiliary **go**, which uses an IMPERFECTIVE form of the main verb, followed by a SUBJUNCTIVE clause.<sup>6</sup>

- (h) **Na ko go-t-ko haďa mushei ke ko haď yo a shiḍar.**  
 if you go-TOT-ICP eat[Ipf] carrion prt you eat[Sjn] that one having fat  
 ‘If you are going to eat carrion, eat one that is fat.’  
 (“if you are going to misbehave, you might as well do a job of it”)

Grammatical function is shown by a combination of word order, prepositions, and meaning. Nominal subjects directly precede the verb and nominal direct objects directly follow the verb. Locative goals are also marked by word order alone. They directly follow intransitive verbs of motion, and with transitive verbs with a direct object, they follow the direct object.<sup>7</sup>

<sup>6</sup> A number of the examples in this section come from texts where tone and vowel length were not marked. These factors play no role in basic clausal syntax.

<sup>7</sup> This is generally the case, at least in West Chadic. I did not elicit examples of  $\text{VERB}_{\text{TRANSITIVE}} \text{DO}_{\text{NOMINAL}} \text{GOAL}$ . Examples in texts with nominal referents in both functions are sparse and the data is equivocal. Here are two sentences of similar structure:

**Biya mokshe damatos hoyo<sub>DO</sub> bano<sub>GOAL</sub> kabun woto bo duďano bu baya karei kori le’ya zina bu.**

‘People do not take a new broom<sub>DO</sub> home<sub>GOAL</sub> before one cooks “doorway food” [a meal prepared at the planting season] lest the farm not produce well.’

**Biya mokshe shoho hoi bano<sub>DO</sub> a bano<sub>GOAL</sub> bu baya a laktantik bano.**

‘People do not take wood of the bushwillow home lest it cause dissolution of the household.’

In the first, the goal, **bano**, is unmarked except for order after the object. In the second, the preposition **a**, generally used with stationary locatives, marks the goal.

- (i) **tad-an-ko bano** ‘they arrived home’  
arrive[Pf]-plS-Pf home
- (j) **hat-an-ko bo billa** ‘they came out to the edge of the road’  
exit[Pf]-plS-Pf edge road
- (k) **mandu mo(k)<sup>8</sup>-ko-k dugduri bo buze** ‘the woman brought troubles to the  
woman carry[Pf]-Pf-TOT troubles edge well well’

Temporal adverbs are usually independent lexical items marked for function only by meaning and tend to occupy the most external position of a clause. Temporal adverbs may fairly freely appear clause initial with no particular pragmatic focus.

- nè kàpko kàno mìlàsè’è** ‘I planted peanuts this year’
- mìlàsè nè gonno kàhà kànô** ‘this year I am going to plant peanuts’

### 3.1. Prepositions

Ngamo is typical of Chadic languages in having only a few basic prepositions. The most frequently encountered are the following:

- kì** ‘with (instrument or comitative)’ (see examples (e, f) above)
- kì [H]** ‘from, via’ (**kì Gádàkà** ‘from Gadaka’)
- kì [H]** ‘to (indirect object), for (indirect object)’ (see example (c) above)
- kít** ‘like’ (**kít ngágàyá** ‘like a fortune-teller’)
- à** ‘at, on, in’ (see example (d) above)

At first glance, Ngamo looks to have even fewer prepositions than its Chadic cousins, with three distinct functions marked by a preposition of the segmental shape **ki**. Comparative evidence shows that three distinct etymological sources have fallen together. The form **kì** ‘with (instrumental, comitative)’ is cognate with Bole **gà**, Karekare

<sup>8</sup> The verb root is /mok-/. Verbs elide the final root consonant when it would form a geminate with a consonant-initial suffix (Schuh 2005).

**kà**, with L tone, and in Ngamo we find **hàikò k(i) bìdò** ‘a squirrel with/and a monkey’. The form **kì** [H] ‘from, via’, with a floating H tone, is cognate with Bole **kó**, Karekare **ká**, with H tone. Because of the Great Ngamo Tone Shift (Chapter 5) the preposition in Ngamo is pronounced with L, but it has a floating H, which docks onto the complement. The etymological source of the INDIRECT OBJECT **kì** [H] is not obvious (Bole has **n̄**, Karekare has **à**). In Ngamo, the INDIRECT OBJECT clitic is now homophonous with **kì** [H] ‘from, via’, with a floating H that docks to its complement, e.g. **ònkó bàyám kì bìdò** ‘he gave tigernuts to the monkey’ (from **bìdò** with LL tones).

The prepositions of the segmental shape **ki** nearly always elide the /i/ and cliticize to the preceding word if it ends in a vowel. Even when this process applies, the underlying tones are evident: /**hàikò k̄ bìdò**/ → [**hàikòk bìdò**] ‘squirrel and monkey’, with underlying L **kì** ‘with’, but /**ànkò k̄ [H] bìdò**/ → [**ànkòk bìdò**] ‘he told the monkey’, with underlying **kì** [H] ‘to (indirect object)’.<sup>9</sup>

The stationary locative preposition **à** can be used alone with a noun to mean ‘in, on, at’, with the positional relation determined from context.

**a tugadi hara a sheke doni** ‘he poked a thorn into the foot of his horse’

**Tul a hena, tul a bi. (Kifinya.)** Riddle: ‘*Tul* outside, *tul* in the hut. (A drinking cup.)’

Like other Chadic languages, Ngamo expresses relational locations such as “in”, “on”, “under”, “behind”, etc. with words of nominal origin, many transparently derived from or even identical to body part words. Some of the most frequently encountered in Ngamo are the following:

<b>hèr</b>	‘under’	< <b>hèr</b> ‘base, bottom, underside’
<b>bèi</b>	‘behind’	< <b>bèi</b> ‘back’
<b>dom</b>	‘in front of, before’	(used only in locative sense)

<sup>9</sup> A full description of Ngamo tones and the behavior of tones and clitics is provided in Schuh (2009).

<b>kà</b>	‘on(to)’	< <b>kà</b> ‘head’
<b>tòn(kò)</b>	‘in, inside’ (usually stationary)	cf. Yaya Ngamo <b>tònkò</b> ‘hole’
<b>hàwò, hàk</b>	‘in, into’ (usually involves motion) ( <b>hàwò</b> +pronoun, <b>hàk</b> +noun)	< <b>hàwò</b> ‘belly’
<b>bò</b>	‘next to, alongside’	< <b>bò</b> ‘mouth’
<b>zùgò, zùk</b>	‘against, on’ ( <b>zùgo</b> +pronoun, <b>zùk</b> +noun)	< <b>zùgò</b> ‘body’
<b>gàmà, gà</b>	‘to person’ ( <b>gàmà</b> +pronoun, + <b>gà</b> noun)	cf. Yaya Ngamo <b>gàmà</b> ‘waist’

The preposition **à** is optional when these words are used in a stationary sense. Here are examples of each of these words in context.

<b>a golshe a her kushis so’oto</b>	‘he spends the day <u>under a certain baobab</u> ’
<b>ada barinni bei gam</b>	‘the dog hid <u>behind the ram</u> ’
<b>ula botko dom godbi</b>	‘the load has broken loose <u>in front of a <i>Piliostigma</i> plant</u> ’
<b>a talshisu ka bano</b>	‘they jumped <u>onto the house</u> ’
<b>a ngara shampur a ka-to</b>	‘she will tie twigs <u>onto herself</u> ’
<b>a goyou a ton ham</b>	‘he was playing <u>in the water</u> ’
<b>gelampa kashou ki ton dishi</b>	‘licking sesame <u>from inside the mortar</u> ’
<b>diranko kashou a hawo-to</b>	‘they pounded sesame <u>in it</u> ’
<b>a go rusu a hak gunjas so’oto a bo billa</b>	‘they went and entered <u>inside a termite mound beside the road</u> ’
<b>haiko a ngarniti katwas a bo hatanni</b>	‘the squirrel tied the bottle <u>onto his tail</u> ’
<b>a d’eito bo hoti</b>	‘she sat <u>in the sun</u> ’
<b>nè n’innanno zùk rô</b>	‘I leaned <u>against the tree</u> ’

**nduko njina roi'ye, sorom matinni a ho'yinni zugoni**

‘when he leaned on the tree, suddenly he died and dried up next to it’

**andi uskai yo'oto a gmano** ‘I have a certain medicine’  
(lit. “there is a certain medicine at my place”)

**nè ndùko gâ Gyàlkâ** ‘I went to Gyalka’

**ne sarako gama-ni** ‘I will send you to him’

Locative adjunct expressions must have a location as the head. Referents such as people or animals cannot be locations, so they must be embedded in a phrase such as “the place of...”, e.g. Hausa **wurin**. Gudi Ngamo uses **gàmà/gâ**, an expression specialized for this purpose, though it has a location word as its source, as seen from the Yaya cognate.

### 3.2. Pronouns

The paradigms in Table 1 below show all the pronominal arguments for verbs.<sup>10</sup> *Subjects* for first and second person are proclitics. Their status as clitics, rather than being free pronouns is shown by the fact that they are tonally integrated with the verb. First singular originally had L tone, the others had H. Because of the Great Ngamo Tone Shift, the H has docked to the verb. Third person pronoun subjects are optional and are expressed by independent pronouns, not clitics, hence leaving the tone of the verb unaffected. The column illustrating subject uses the intransitive verb root **er-** ‘stand up’ with the INTRANSITIVE COPY PRONOUN (ICP). The ICP appears only with the TOTALITY extension. Note that the pronominal suffixes are identical to the direct object pronominal clitics on verbs with the TOTALITY extension.

*Indirect object* pronouns are always clitics attached directly to the verb stem. Other verbal suffixes follow the indirect object clitic, as seen here with the TOTALITY suffix **-tî**.

*Direct object* pronouns are expressed as clitics only when the verb bears the TOTALITY extension, which has the allomorph **/-in-/** in this environment. Otherwise, pronominal direct objects are realized as independent pronouns, seen in the column with

<sup>10</sup> The verbs are in the PERFECTIVE. The same facts concerning pronominal allomorphy apply to all TAMs.

the unextended verb. If both direct object and indirect object are pronominal, the direct object is expressed with an independent pronoun, e.g. **té kàbìn-tò sí'ì** ‘she showed him (sí'ì) to her (-tò)’.

**Table 1:** Pronominal paradigms

	Subject & ICP '... stood up'	Direct object unextended V 'he tied ...'	Direct object with TOTALITY 'he tied...up'	Indirect obj. unextended V 'he tied for ...'	Indirect obj. with TOTALITY 'he tied up for...'
1 sg.	<b>nè èrinnô</b>	<b>ngàrkó nè'è</b>	<b>ngàrínô</b>	<b>ngàrnò</b>	<b>ngàrnòtí</b>
2 m. sg.	<b>kò éritkô</b>	<b>ngàrkó kôì</b>	<b>ngàrínkô</b>	<b>ngàrkò</b>	<b>ngàrkòtí</b>
2 f. sg.	<b>shì éríshî</b>	<b>ngàrkó shî</b>	<b>ngàrínshî</b>	<b>ngàrshî</b>	<b>ngàrshîtí</b>
3 m. sg.	<b>(sí) èrinnî</b>	<b>ngàrkó sí</b>	<b>ngàrínî</b>	<b>ngàrnî</b>	<b>ngàrnîtí</b>
3 f. sg.	<b>(té) èritô</b>	<b>ngàrkó tê</b>	<b>ngàrínô</b>	<b>ngàrtò</b>	<b>ngàrtòtí</b>
1 pl.	<b>mù érámmû</b>	<b>ngàrkó mùnî</b>	<b>ngàrímû</b>	<b>ngàrmû</b>	<b>ngàrmûtí</b>
2 pl.	<b>ngù éránkû</b>	<b>ngàrkó ngùnî</b>	<b>ngàrínkû</b>	<b>ngàrkù</b>	<b>ngàrkùtí</b>
3 pl.	<b>(nzùnî) èránsû</b>	<b>ngàrkó nzùnî</b>	<b>ngàrínsû</b>	<b>ngàrsù</b>	<b>ngàrsùtí</b>

In Ngamo and some of its closest Chadic neighbors (Bole and Karekare, at least) can “pronominalize” adjuncts by means of the ADDITIVE verbal extension. This is a suffix /-d-/ that can refer to a previously mentioned locative, instrumental, temporal, or manner adjunct. This extension can also indicate repetition of an action, in a sense pronominalizing that action.<sup>11</sup>

<sup>11</sup> Lukas (1971) calls the cognate affix in Bole *die Wiederholungserweiterung* ‘the repetition extension’. The most reliable way to elicit the affix using English or Hausa is to use ‘again’, e.g. ‘he did it again’, but this is only one of a rather large array of environments appropriate for this extension.

**sai a anik zonge ta si kas-di uska** ‘he said to the hyena to pour some medicine on it’

**a gunanni a de’i-di zonge** ‘he ran off and left the hyena there’

**sai ada ngete hada lu, nami a sa-di ham**

‘then the dog fell to eating the meat, then he drank water with it’

**wonas na Abare ino weno oyum, Dimza na inom a se-di jibo**

‘the dance, if Abare does it and gets money, Dimza, if he does it, he will experience a beating for it’

**Ta, “Ta li’yi-di.”** ‘he said, “OK, vomit again!”

## 16 | Sentences Without Verbs

### 1. Ngamo

#### 1.1. Identificational sentences

Ngamo has no copula. Equational sentences simply juxtapose the subject and the predicate.

- (a) **gùmyò wònsé án yànkâ** ‘that girl is a show-off’  
girl that[f] one-who swaggering
- (b) **wòyyè lá bó’ótò Tídá** ‘this is the son of the late Tida’  
this one[m] son deceased Tida
- (c) **Jìbìr zàp-nó búngà** ‘Jibir is my male friend’  
Jibir peer-my boyfriend
- (d) **zàp-tó gùmyò Gyàbó** ‘her girlfriend is Gyabo’  
peer-her girlfriend Gyabo
- (e) **dìpkà-nò Jójò, kì ká kà’à, gídá-nó mándù**  
younger sibling-my Jojo with on thus “luck”-my woman  
‘my immediately younger sibling is Jojo (a female name), and for that reason, my “luck” is a woman’

Comments: Examples (c-d) suggest that the grammatical role of subject vs. predicate is, to some extent pragmatically determined, not unlike English. That is, there is probably some pragmatic focus on the second noun phrase (‘Jibiri is *my pal*’ vs. ‘her girlfriend is *Gyabo*’), shown only by ordering.<sup>1</sup> The same effect seems to hold for (e). The reference is to a custom whereby the sex of one’s next youngest sibling is one’s “luck”. In this

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<sup>1</sup> **Búngà** with a male possessor means ‘pal, buddy’, and with a female possessor it means ‘boyfriend’. **Gùmyò** with a female possessor means ‘female pal’, and with a male possessor it means ‘girlfriend’.



case, if the first person the speaker sees in the morning is a woman, it should be a lucky day.

Subject pronouns in equational sentences are subject clitics, i.e. they take the same forms that they would as subjects of verbs. In the second example below, an independent pronoun serves as a topic. The grammatical subject /**nè**/ has apocopated its underlying final vowel and has become phonologically cliticized to the preceding topic.

(f) **kò ngó-i sàrêi** 'you are a worthless person'  
 you(ms) person-of uselessness

(g) **ne-n baya** 'as for me, I'm a slave'  
 me<sub>[Top]</sub>-I slave

Equational sentences, like all other clause types, are negated by clause-final **bù**, and polar ("yes/no") questions use the same clause-final particles as other clause types: **đo** for a "neutral" polar question, as in (j) and **du** showing doubt or incredulity as in (k).

(h) **ngò yè làlámá bù** 'this person is not a child'

(i) **riya-s somu bu** 'the bush is not for us'

(j) **nè yàknà đó?** 'am I a fool?'

(k) **wòyyè kàdám bù dú?** 'isn't that a crocodile?'

Questioned and focused subjects of equational sentences, as in other clause types, are postposed. In a question asking for simple identification, pragmatics tend to place focus on the question word and the response to it, as in (l-m) (compare N = N sentences as in (c-d) above). Note that there is no postverbal subject marker in either the question or the answer of (l) nor in the question in (m).<sup>2</sup> The underlined part of (n), however, has a

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<sup>2</sup> I am assuming that **ei** in (m) is the word 'thing', i.e. the /i/ is part of the word. Because the definite marker for masculine nouns and the postposed subject marker are cliticized **-i**, it is not always clear whether the **i** of a word ending in ...Vi is part of the word or a separate morpheme.

focused subject, and the presupposed phrase is marked by the postposed subject marker (FS) **-i**.<sup>3</sup>

- (l) Q: **wòyyè mỳà?** ‘what is this?’  
 A: **wòyyè fènsìr** ‘it is a pencil’
- (m) **ei miya?** ‘what is the thing?’

- (n) **Zàkùtè kàusó dèyí-n-ní kòknà-jèrò kàusó nzùnî áí**  
 Zakute now mount[Pf]-Tot-ICP elderly-old now “they” indeed  
**jèrò-i kà ólyó-i nzúnî**  
 old-of on smoke-FS “they”

‘Zakute now has become advanced in age, now *he indeed* is an old person on the smoke’

## 1.2. Adjectival, stative, and quantifier predicates

As in equational sentences, sentences with descriptive predicates directly juxtapose the subject and descriptor: **sámsám** ‘cold’ (a), **gúlà** ‘brackish’ in (b), **gèdé-k...** ‘different from...’ in (c). The descriptor may be accompanied by an ideophone: **gèrà wórin** ‘very deep’ in (d), **únú mírú** ‘coal black’ in (e). A pronominal subject is marked by a proclitic: **à** ‘he’ as in (f).<sup>4</sup> In negative descriptions, the negative morpheme **bù** comes at the end of the clause, as in (g-h) in the next set of examples. A question referring to a descriptor uses **lòlò** ‘how?’. As is the case for word-questions in general in Ngamo, the question word and its answer are *in situ*, seen in (i).

<sup>3</sup> Two points are of culture interest. First, **nzùnî** ‘they’ is a *plural of politeness*, the referent being singular. Second, **jèrò-i kà ólyò** ‘old person on smoke’ is an idiom referring to the fact that an old person will remain in a smoke-filled hut rather than going out.

<sup>4</sup> I did not elicit any examples with first or second person subjects and could not find any in texts. Presumably the subject clitics used in equational sentences (see above) and verbal sentences would be used, e.g. **kò gèrà** ‘you are tall’.

- (a) **hàm wóyò sámsám** ‘this water is cold’
- (b) **hàm búzè wòyyè gúlà** ‘the water of that well is brackish’
- (c) **yòno gèdé-k yòbì** ‘mine is different from his’
- (d) **bùzè wòyyè gèrà wórín** ‘this well is very deep’
- (e) **ngòì wòyyè únú míríu** ‘that man is coal black’
- (f) **à shìklê** ‘he is miserly’
- (g) **hò’ùì ndádó bú, sáktár** ‘the gourd is not heavy, it is without substance’
- (h) **gìdbá-nó gógórzò báya màmandù bù** ‘my shelter is square, not round’
- (i) Q: **ya ye yo a sarshe si ye, suba-ni lolo?**  
 thing the that one send[Hab] him Top appearance-his how?  
 ‘the thing that one is sending, what is it like?’
- A: **kuma-ni lulugde** ‘his ears are ladle-like’

Ngamo has processes for deriving descriptive predicates. One such process derives words meaning “X-like, X-ish” from nouns by reduplicating the first syllable. Examples are seen above in (h) (**gógórzò** ‘square’ < **gòrzò** ‘male’, **màmàndù** ‘round’ < **màndù** ‘woman’) and (i) (**lúlúgdê** ‘ladle-like’ < **lùgdê** ‘ladle’). Most predicates related to verbs that would be translated into English as participial predicates are unaccusative verbs in the PERFECTIVE with the ICP, e.g. **hò’ùì lòhí-n-ní** ‘the gourd is dented’ < **lòhâ** ‘dent, be dented’, **sàntà bókí-n-ní** ‘the grass is burned up’ < **bòkô** ‘burn’, **kwìtáwànnòs tábá-tò shít** ‘my eggplant is bright red’ < **tàbâ** ‘be red’. There is, however, a semi-productive suffix **-(ē)no** (**-no** with class A1 verbs, **-ēno** elsewhere) that derives non-verbal stative predicates from verbs.

- (j) **à dèínó à kùmpàtè bònònnì** ‘he is seated inside his house’ (< **dèi-kô** ‘sit, stay’)
- (k) **bo jobtonto shobno** ‘she is crazy’ (“the edge of her wrapper is wet”)  
 (< **shòb-kô** ‘moisten, get wet’)

(l) **dàdàlìnnì ngìr'yénó kít mírìrì** ‘his waist is constricted like a wasp’

(< **ngìr'yâ** ‘be constricted in the middle, be hour-glass shaped’)

(m) **kì élélí kòrì nà'àkò, kì kánnì mè shúlténò**

(< **shúltâ** ‘come to a point, form an angle’)

‘at the bottom the farm is wide, at the top, however, it is narrow’

(n) **kultamas siyake tefeno, bei dei na ho'iko bu** (< **tâfâ** ‘be red’)

‘every eggplant is red, assuming that it has not dried up’

Quantifiers can be used as predication through direct juxtaposition. A typical Chadic structure is SUBJECT QUANTITY. For example, ‘there are three of us’ would be ‘we [are] three’, ‘he has ten goats’ would be ‘his goats [are] ten’. I did not elicit any examples with this structure in Ngamo nor have I found any in texts. Here are examples with the quantifiers **yâm** and **shèi** ‘much, many, in large amount’.<sup>5</sup> In both cases, the subject is a possessed noun referring to a quality. The qualities are expressed as nouns in Ngamo and hence cannot be predicates attributed to the subject.

(o) **bìlki-n-nì yâm** ‘he is very foolish’ (“his foolishness is great”)

(p) **làwò yè kurba-n-nì yâm** ‘the boy is very disrespectful’

(lit. “the boy, his disrespectfulness is great”)

(q) **An subano na'ako rubu-ni shei. (Gunja.)**

‘I have a gown, its pockets are many. (Termite mound.)’

(Example (q) is a riddle whose answer is **gùnjà** ‘termite mound’, referring to the many entrances.)

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<sup>5</sup> **Yâm** is actually a noun whose primary meaning is something like ‘intensity, great difficulty or pain’. It shows how the rather vague semantic relationship between the subject and predicate in NOUN+NON-VERB sentences can lead to different categorial interpretations of the predicate word.

### 1.3. Existentials

Existence is expressed by the invariable forms **án** or **àndí**.<sup>6</sup> The former requires a following complement; the latter can be used with a following or preposed complement or alone to mean ‘there is/are some (understood complement)’. Negation uses the general clause final negative marker **bù**.

**án hám** = **àndí hám**            ‘there is water’

**án hám bù** = **àndí hám bù**       ‘there is no water’

Q: **Ta, “Kauso ne’e jo, an ma’i riya na’ako wollino?”**

‘He said, “Now as for me, is there a supreme lord of the bush who surpasses me?”’

A: **Ta, “Andi.”**                            ‘He answered, “There is.”

**án é**    **bàgá-shí-k**                    **’yá-nó** **bù**  
 there is    thing                            concern-your(fs)-with things-my not  
 ‘there is nothing of concern to you in my affairs’

**hoti andi bu**                                ‘there isn’t any sunlight’

**samsam andi bu**                            ‘there aren’t any at all’

### 1.4. “Have” sentences

Sentences expressing possession and typically translatable as English ‘have’ use the existential **án/àndí** discussed in the previous section. The possessor is expressed by a topicalized noun or pronoun followed by the existential expression, a genitive on the possessed item, or both.

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<sup>6</sup> The source may be the verb **ikô** ‘do, happen’ with an impersonal subject, which is expressed by adding the plural agreement suffix **-an**. In Gudi Ngamo this is now pronounced **’yàn-kô**, with a glottalized **’y**. However, in Bole, which is widely used by Gudi Ngamo speakers, this verb stem with plural subject is pronounced **an-**, so the current Gudi Ngamo existential may either reflect an earlier pronunciation or be a direct loan from Bole, where the existential is **ándi**. The suffix **-di** is probably the additive suffix.

<b>nè án dàtmà shóhò-nò à riyà</b>	‘I have a stack of wood in the bush’ (“me, there is a stack of my wood in the bush”)
<b>mandu wonse an udo</b>	‘that woman has teeth’ (“that woman, there is teeth”) (expression meaning that someone is a sorceress)
<b>ne andi komshine-no ka-su kunu</b>	‘I have three cows’ (“me, there are my cows, three head”)
<b>andi uskai yo’oto a gama-no</b>	‘I have a certain medicine’ (“there is a certain medicine at my place”)
<b>ede-ni andi bu, shap taka-nii</b>	‘he had no beans, they were finished off’ (“his beans existing not, all had finished”)

In some cases an existential or a “have” possessive translation seems to work equally well.

<b>án nànkà zùgòni</b>	‘there is a blemish on his body’ <i>or</i> ‘his body has a blemish’
<b>sheke Galka an kule</b>	‘Galka is bowlegged’ (“Galka has bow-leggedness”) <i>or</i> ‘as for Galka’s legs, there is bow-leggedness’
<b>zòrìs àndi kòrsà</b>	‘the rope has knots in it’ <i>or</i> ‘as for the rope, there are knots’
<b>gébrí wònsè yé ándí hòryò</b>	‘this bamboo is hollow’ (“this bamboo has hollowness”) <i>or</i> ‘as for this bamboo, there is a hollow’

### 1.5. Locative predicates

Locative sentences have the form SUBJECT à LOCATION. The location can be a noun or pronoun expressing a location or a phrase using any of several relational locative words meaning ‘in’, ‘on’, ‘behind’, etc. If a third person subject is known from context it may have Ø expression.

<b>Na samba a eli, sheke ke a eli.</b>	‘if a snake is on the ground, one’s foot, too, is on the ground’
<b>bei a wondí</b>	‘maybe he is there’
<b>a her kushi so wonsi’i</b>	‘it’s under that baobab’
<b>àwè à ká sálí à mòishè sí</b>	‘a cat was on the wall watching him’
<b>te me, balun-to har bolo a hirik ka-to</b>	‘as for her horns her two horns (lit: “her horns even two”) were in the middle of her head’

I did not elicit examples of locative sentences with non-third person subjects in Gudi Ngamo nor could I find any in texts. Below are some examples from Yaya Ngamo. The auxiliary **à** is used in these cases as well, indicating that it is a general auxiliary for such sentences, not specifically third person. The speaker tended to use a topicalized pronoun referring to the subject, but the first example shows that this is not obligatory. I also did not elicit or find textual examples of negative locative sentences in Gudi Ngamo. A negative is included below showing that negation follows the general pattern with a clause final **bù**.

<b>m-a hau ki bano</b>	‘we are in (lit: “inside of”) the house’
<b>ne n-a dom-ko</b>	‘I am in front of you (m.s.)’
<b>koi k-a dom-no</b>	‘you are in front of me’
<b>tei a dom-no</b>	‘she is in front of me’
<b>ne n-a dom bano bu</b>	‘I am not in front of the house’

When questioning the subject of a locative sentence, it is postposed, as in other sentence types. If the location is questioned, there are two options. The general word meaning ‘where?’ is **tiyà**, which is *in situ*, as is normal for questioned non-subjects. There is, however, an interrogative word **tá** ‘where?, how?’ used only in locative questions to mean ‘where is...?’ and in greetings to mean ‘how is/are...?’ (e.g. **tá mòndê?** ‘how are the wives?’). This word is always sentence initial.

<b>à dǎhù-nò-m lô?</b>	‘who is directly behind me?’
<b>bòltó-n-nì mè à tìyà?</b> pair-of-it indeed it is where	‘where is the other one?’
<b>tǎ kòrì-n-kó?</b>	‘where is your farm?’

## 1.6. Presentatives

The presentative used with offering something is **hímòyí** ‘here it is!’ In discourse, the most common form is **moya**, used to introduced a new element. Both are derived from the verb **mòì-kô** ‘see, look’, perhaps imperative forms, but in their presentative function the literal sense has been lost. Alternatively, **wòì**, a reduced form of the masculine demonstrative **wòyyê** ‘this one’ may be used in the latter sense.

**’ya ye damtini sai moya nduko ga a dolma**

‘the thing bothered him, so here it was, he went to a fortune teller’

**wòì á shírí ndínò** ‘here it was, a thief came’

## 2. Hausa

Modern Hausa has three copulas. There are two “general” copulas: **nē**, **cē** in Standard Hausa = **nā**, **tā** in Western Hausa, where the **n-** forms show masculine and plural agreement, the **c-/t-** forms show feminine agreement.<sup>7</sup> They derive historically from the Afroasiatic determiner bases **\*n-** and **\*t-** (Greenberg 1960). These copulas follow the word of which they are predicated, e.g. Standard Hausa **rākumī nē** ‘it’s a camel’, **kē cē** ‘it’s you (f.s.)’, **wadānnàn rākumā nāwa nē** ‘these camels are mine’. The third copula is **kè/kè**, which derives from an Afroasiatic determiner base **\*k-**. In traditional treatments

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<sup>7</sup> Parsons (1963) labeled these forms the *stabilizer*, a term that Hausa scholars continue to use. From a cross-linguistic typological perspective, however, the function of these forms fits with forms usually referred to as *copulas*, which are often forms of a verb “be” if a language has such a verb, or, as in the case of Hausa, by non-verbal formatives that could be translated by forms of the verb “be” in English.



of Hausa this formative is not described explicitly as a copula, but that is clearly one of its functions, if not its primary function.<sup>8</sup> It appears only in relative environments.

Copular statement w. focus:	<b>wāwā ka kè</b>	‘a fool is what you are!’
Copular relative clause:	<b>lōkàcīn dà na-kè yārò</b>	‘when I was a child’
Focused locative:	<b>à cikin garkè su-kè</b>	‘in the pen is where they are’
Focused ‘have’:	<b>dà mūgùn halī ya-kè</b>	‘a bad disposition is what he has’

The copular function comes up in just about every Hausa conversation in the expression **shīkènan** ‘that’s it, OK, fine’, literally **shī** ‘it’ + **kè** COPULA + **nan** ‘here’, which is a fixed instantiation of the general collocation ...**kè nan** ‘...is what it is’ (lit: COPULA “here”), e.g. **rashīn sanī kè nan** ‘it’s just ignorance’ (lit: “lack of knowing is here”).

It is this **kV** copula which is the source of the relative TAM auxiliaries in Hausa. In this function, there are two realizations in terms of vowels: **kà** and **kè(e)**. In Standard Hausa, **kà** is restricted to the RELATIVE PERFECTIVE, **kè(e)** elsewhere.<sup>9</sup> The length differentiation between **kè** and **kè** is functionally and environmentally conditioned. Stated in slightly oversimplified terms, the form with the long vowel (**kè**) is used when directly followed by “substantive” items, the one with the short vowel (**kè**) elsewhere (R. M. Newman 1976, Newman 2000:578-580). Substantive items include verbs (**wā ya-kè**

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<sup>8</sup> Newman (2000:579-580), in effect, does single out **kè** (with a short vowel) as a copula, by describing this form as “RELATIVE-CONTINUOUS2”, distinct from “RELATIVE-CONTINUOUS1” **kè** (with a long vowel). All the functions of the RELATIVE-CONTINUOUS2 are non-verbal and **kè** itself can be translated by the English copula, viz. the verb BE. Labeling the functions of **kè** as “continuous”, implying verbal progressivity, is misleading.

<sup>9</sup> Western dialects use **kà** in both the RELATIVE PERFECTIVE and the RELATIVE CONTINUATIVE, differentiated by subject clitics and by use of a finite verb vs. a verbal noun (**mī sun-kà yī?** ‘what did they do?’ vs. **mī su-kà yī?** ‘what are they doing?’), **kè** phrase final (= Standard Hausa), and either **kè** or, more commonly, a form called **-aG** by Newman (2000:581) in other environments where Standard Hausa would use the short copula **kè**. In the **-aG** realization, **G** = geminate copy of the following consonant: WH **wā ad dà zōbè?** ‘who has a ring?’ As noted by Newman, this comes from \***ak**, itself a reduction of the \***kV** copula, with the \***k** now always appearing as gemination.

**fitā?** ‘who is leaving?’), locative nouns (**wà ya-kè cikin dākì?** ‘who is inside the hut?’), locative adverb (**shī kè nan** ‘that’s it’, lit: “it is here”), statives (**su wà su-kè zàune** ‘who all are seated?’). The form with a short vowel is used before true prepositions (**wà ya-kè dà zōbè** ‘who has a ring?, lit: “who is with a ring?’), **mè ya-kè à nân?** ‘what is at here?’), and utterance final (**wāwā ki-kè** ‘a fool is what you (f.) are’).

In Standard Hausa only the long **kè** is found in CONTINUATIVE expressions with verbs, such as in **mè ka-kè cī?** ‘what are you eating?’ and before “substantive” words such as locative nominals, e.g. **wà ya-kè cikin dākì?** ‘who is in the hut?’ (see other examples above).<sup>10</sup> The long **è** is either a portmanteau blending the vowel of **kè** with the original CONTINUATIVE auxiliary **à** (\***kè à** > **kè**) or lengthening of \***kè** on analogy with the long vowel of the CONTINUATIVE auxiliary **nà** (**ka-nà cīn gyàdā?** ‘are you eating peanuts?’). Use of the CONTINUATIVE **nà** and the long RELATIVE CONTINUATIVE **kè** before non-verbs (**Audù ya-nà cikin dākì** ‘Audu is in the hut’, **wà ya-kè cikin dākì?** ‘who is in the hut?’) represents a recent innovation. Relative constructions like **wà ya-kè dà zōbè** ‘who has a ring?’, with a short **kè**, in effect, represent the earlier situation, where the subject was directly juxtaposed to the predicate and would have had no auxiliary in the non-relative form (\***ya dà zōbè** ‘he has a ring’, or perhaps \***shī dà zōbè**, with an independent pronoun subject). This is the structure in virtually all other West Chadic languages.

The **kè** with a short mid-vowel in Standard Hausa (**wà ya-kè dà zōbè** ‘who has a ring?’) must be a result of analogical resistance to the short mid-vowel lowering rule, though my guess is that if one were to record examples of normal speech, one would find that /**kè**/ in this context is, in fact, usually pronounced [kà]. Finally, the Western Hausa **aG**, mentioned in footnote 9 (**wà ad dà zōbè?** ‘who has a ring?’) follows from a regular syncope rule affecting at least **kè**, viz. /**e**/ → Ø /VC\_\_X, X ≠ Ø (delete short /**e**/ when in an open syllable that is not phrase final).

Why do the RELATIVE PERFECTIVE pronouns not all have the form PRONOUN **kà**? Originally they all *did* have this configuration! The historical development is shown in the PERFECTIVE subject pronoun set paradigm above. The pronouns themselves had two shapes: CVN and Cā. The \*Cā **kà** RELATIVE PERFECTIVE pronouns apocopated the

<sup>10</sup> Western Hausa does have long **kè** in the ...**kè nan** collocation, probably due to dialect mixing.

final **-à** by the rule alluded to in the preceding paragraph, followed by obligatory gemination of the **\*-k** (Newman 2004). The RELATIVE PERFECTIVE paradigm now had two kinds of pronouns, **CVNkà** and **CaG**, which is exactly the situation in modern Western Hausa, with one slight adjustment: the 2<sup>nd</sup> feminine singular has shifted to **kiG** by analogy to all the other singular pronouns, which have the form **CVG**. In Standard Hausa, the **CaG** pronouns were degeminated,<sup>11</sup> leaving all these pronouns with the shape **Cv** (**v** = short vowel), which is the segmental shape of all the DEFAULT SUBJECT CLITICS used in other TAMs. The **-n-** of the **CVNkà** pronouns was dropped to analogically align the subject agreement clitics with all the other CV subject agreement clitics. This latter development “ignored” the fact that Relative PERFECTIVE TAM now mixed CV clitics and **CV-kà** TAM markers, but such formal inconsistencies are a typical result of analogical changes, which tend to leave all kinds of synchronically anomalous residue.

### 3. Kilba (incomplete)

The Kilba demonstratives extended their roles to become copulas, e.g. **ɲgàmən ndèr-zwà na** ‘Ngamin is a farmer’ (“Ngamin person-farming COPULA”). Unlike any other Chadic language known to me, the copular use of demonstratives, combined with their deictic functions, can express special types of deixis in copular sentences, including tense. Thus, it is possible to say **ɲgàmən ndèr-zwà nda** ‘Ngamin was a farmer’ (but no longer is, perhaps because he has died), and **ɲgàmən ndèr-zwà ɲga** ‘Ngamin (who is not present at the moment) is a farmer’. See Schuh (1983b) for a description of Kilba demonstratives and copular sentences.

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<sup>11</sup> Degemination has been a fairly common process in Standard Hausa, cf. WH **raggō** ‘lazy person’, SH **ragō**, WH plurals with a suffix **-ukkà** such as **zaurukkà** ‘reception hall’ vs. SH **zaurukà**.

## References

[Entries added by the Editor that were not cited by Schuh himself are marked by superscript \* after the date.]

- Abraham, R. C. 1959. *The Language of the Hausa People*. London: University of London Press.
- Abraham, R. C. 1962. *Dictionary of the Hausa Language*. London: University of London Press.
- Alio, Khalil. 1988. Transitivity et conjugaison à suffixes en bidiya. In *Études tchadiques: transitivity et diathèse*, ed. by Herrmann Jungraithmayr and Henry Tourneux, pp. 21–31. Paris: Geuthner.
- Alio, Khalil, and Herrmann Jungraithmayr. 1989. *Lexique bidiya. Une langue centre-africaine (République du Tchad) avec une introduction grammaticale*. (Frankfurter wissenschaftliche Beiträge / Kulturwissenschaftliche Reihe, 16) Frankfurt: Vittorio Klostermann.
- Allison, Sean. 2012. *Aspects of a Grammar of Makary Kotoko (Chadic, Cameroon)*. PhD dissertation, University of Colorado.
- Alojaly, Ghoubeid. 1980. *Lexique touareg-français*. Copenhagen: Akademisk Forlag.
- Bargery, G. P. 1934. *A Hausa-English Dictionary and English-Hausa Vocabulary*. London: Oxford University Press
- Barreteau, Daniel. 1978a. Structure du lexème verbal en mofu-gudur. In *Préalables à la reconstruction du proto-tchadique*, ed. by J.-P. Caprile and Herrmann Jungraithmayr, pp. 115–142. Paris: SELAF.
- Barreteau, Daniel. 1978b. La transcription d'un texte mofu-gudur: problèmes linguistiques. In *Cinq textes tchadiques (Cameroun et Tchad)*, ed. by Herrmann Jungraithmayr and J.-P. Caprile, pp. 7–54. Berlin: Dietrich Reimer.
- Barreteau, Daniel. 1988a. *Description du mofu-gudur (langue de la famille tchadique parlée au Cameroun): 1. Phonologie, 2. Lexique*. (Travaux et documents, 206) Paris: ORSTOM.
- Barreteau, Daniel. 1988b. La transitivity en mofu-gudur. In *Études tchadiques: transitivity et diathèse*, ed. by Herrmann Jungraithmayr and Henry Tourneux, pp. 33–56. Paris: Geuthner.
- Barreteau, Daniel, and Paul Newman. 1978. Les langues tchadiques. In *Inventaire des études linguistiques sur les pays d'Afrique Noire d'expression française et sur*

- Madagascar*, ed. by Daniel Barreteau, pp. 291–330. Paris: Conseil International de la Langue Française.
- Barth, Heinrich. 1862–1866. *Sammlung und Bearbeitung central-afrikanischer Vokabularien. Collection of Vocabularies of Central–African Languages*. Gotha: Justus Perthes (Reprint with an introduction by A. H. M. Kirk-Greene, London: Frank Cass (1970)).
- Blazhek, Václav. 1995\*. The microsystem of personal pronouns in Chadic, compared with Afroasiatic. In *Studia Chadica et Hamitosemitica: Akten des Internationalen Symposions zur Tschadsprachenforschung*, ed. by Dymitr Ibrizimow and Rudolf Leger with the assistance of Gerald Schmitt, pp. 36–57. Cologne: Rüdiger Köppe.
- Blench, Roger. 2010. Bura verbal extensions. Unpublished ms.  
<<http://www.rogerblench.info/Language/Afroasiatic/Chadic/Central/Bura/Bura%20Verbal%20Extensions.pdf>>
- Bow, Catherine. 1999. *The Vowel System of Moloko*. MA thesis, University of Melbourne.
- Bradshaw, Mary. 1999. *A Cross-Linguistic Study of Consonant-Tone Interaction*. PhD dissertation, Ohio State University.
- Bross, Michael. 1997. Some remarks on the history of the extinct languages Auyo, Shira and Teshena. In *Guddiri Studies: Languages and Rock Paintings in Northeastern Nigeria*, ed. by Wilhelm Seidensticker, Michael Bross, and Ahmad Tela Baba, pp. 37–63. Cologne: Rüdiger Köppe.
- Burquest, Donald A. 1986\*. The pronoun system of some Chadic languages. In *Pronominal Systems*, ed. by Ursula Wiesemann, pp. 77–101. Tübingen: Gunter Narr.
- Burquest, Donald A. n.d. Angas-Hausa-English vocabulary. Unpublished ms. 80 pages.
- Caïtucoli, Claude. 1978. Schèmes tonals et morphologie du verbe en masa. In *Préalables à la reconstruction du proto-tchadique*, ed. by J.-P. Caprile and Herrmann Jungraithmayr, pp. 67–88. Paris: SELAF.
- Callender, John B. 1975. *Middle Egyptian*. (Afroasiatic Dialects, 2) Malibu, CA: Undena Publications.
- Caprile, Jean-Pierre. 1978. Notes linguistiques sur le tobanga à partir d'un conte en cette langue. In *Cinq textes tchadiques*, ed. by Herrmann Jungraithmayr and J.-P. Caprile, pp. 121–175. Berlin: Dietrich Reimer.
- Caron, Bernard. 2005. *Za:r (Dictionary, Grammar, Texts)*. Ibadan: IFRA.

- Christaller, J. G. 1875. *A Grammar of the Asante and Fante Languages Called Tshi*. Basel: Basel Evangelical Missionary Society.
- Clements, George N. 1992. The sonority cycle and syllable organization. In *Phonologica 1988: Proceedings of the 6th International Phonology Meeting*, ed. by Wolfgang U. Dressler, et al., pp. 63–76. Cambridge: Cambridge University Press.
- Colombel, Véronique de. 1998\*. Les pronoms dans une dizaine de langues des monts du Mandara. *Linguistique Africaine* 21: 95–110.
- Comrie, Bernard. 1976. *Aspect*. London: Cambridge University Press.
- Cyffer, Norbert, and John P. Hutchison. 1990. *Dictionary of the Kanuri Language* (Publications in African languages and linguistics, 13). Dordrecht: Foris Publications.
- Dittemer, Clarissa, Dymitr Ibriszimow, and Karsten Brunk. 2004\*. Les pronoms en tchadique: vue d'ensemble. In *Systèmes de marques personnelles en Afrique*, ed. by Dymitr Ibriszimow and Guillaume Segerer, pp. 55–96. Leuven/Louvain: Peeters.
- Dixon, R. M. W. 1994. *Ergativity*. Cambridge: University Press.
- Djibrine, Bada Adoum Zaid, Paul de Montgolfier, et al. 1973. *Vocabulaire dangaléat: kaawo dangla*. Sarh, Chad: College Charles Lwanga.
- Ebert, Karen H. 1975. *Sprache und Tradition der Kera (Tschad), Teil 1: Texte*. (Marburger Studien zur Afrika- und Asienkunde, Serie A, Afrika, 6) Berlin: Dietrich Reimer.
- Ebert, Karen H. 1976. *Sprache und Tradition der Kera (Tschad), Teil 2: Lexikon/Lexique*. (Marburger Studien zur Afrika- und Asienkunde, Serie A, Afrika, 8) Berlin: Dietrich Reimer.
- Ebert, Karen H. 1977. Definiteness in Kera. In *Papers in Chadic Linguistics: Papers from the Leiden Colloquium on the Chadic Language Family*, ed. by Paul Newman and Roxana Ma Newman, pp. 25–35. Leiden: Afrika-Studiecentrum.
- Ebert, Karen H. 1978. Lexical roots and affixes in Kera. In *Préalables à la reconstruction du proto-tchadique*, ed. by J.-P. Caprile and Herrmann Jungraithmayr, pp. 41–50. Paris: SELAF.
- Ebert, Karen H. 1979. *Sprache und Tradition der Kera (Tschad), Teil 3: Grammatik*. (Marburger Studien zur Afrika- und Asienkunde, Serie A, Afrika, 15) Berlin: Dietrich Reimer.
- Ebobissé, Carl. 1979. *Die Morphologie des Verbs im Ost-Dangaleat (Guera, Tschad)*. (Marburger Studien zur Afrika- und Asienkunde, Serie A, Afrika, 21). Berlin: Dietrich Reimer.

- Fédry, Jacques (with the collaboration of Jonas Khamis and Moussa o/Nedjei). 1971a. *Dictionnaire dangaléat (Tchad)*. Paris: Afrique et Langage.
- Fédry, Jacques. 1971b. *Phonologie du dangaléat (Tchad)*. Thèse de 3ème cycle, Institut National des Langues et Civilisations Orientales. Lyon: Afrique et Langage.
- Fédry, Jacques. 1974. *pátó à l'est, pàtò à l'ouest*. Paper presented at the 11<sup>th</sup> Congress of the West African Linguistic Society, Yaoundé, April 1-5, 1974.
- Fleming, Harold C. 1983. Chadic external relations. In *Studies in Chadic and Afroasiatic Linguistics*, ed. by Ekkehard Wolff and Hilke Meyer-Bahlburg, pp. 17–31. Hamburg: Helmut Buske.
- Foulkes, H. D. 1915. *Angass Manual*. London: Kegan Paul, Trench, Trübner & Co.
- Frajzyngier, Zygmunt. 1977. On the intransitive copy pronouns in Chadic. In *Papers from the Eighth Conference on African Linguistics*, ed. by Martin Mould and Thomas J. Hinnebusch, pp. 73–84. Los Angeles: Department of Linguistics, UCLA.
- Frajzyngier, Zygmunt. 1984. On the Proto-Chadic syntactic pattern. In *Current Progress in Afro-Asiatic Linguistics: Papers of the Third International Hamito-Semitic Congress*, ed. by James Bynon, pp. 139–159. Amsterdam: John Benjamins.
- Frajzyngier, Zygmunt. 1987. Encoding locative in Chadic. *Journal of West African Languages* 17(1): 81–97.
- Frajzyngier, Zygmunt. 1989. *A Grammar of Pero*. (Sprache und Oralität in Afrika, 4) Berlin: Dietrich Reimer.
- Frajzyngier, Zygmunt. 2001. *A Grammar of Lele*. (Stanford Monographs in African Languages) Stanford: CSLI Publications.
- Frajzyngier, Zygmunt. 2003\*. Tone and vowel deletion, insertion, and syllable structure. In *Stress and Tone: The African Experience*, ed. by Rose-Juliet Anyanwu, pp. 83–98. Cologne: Rüdiger Köppe.
- Frajzyngier, Zygmunt. 2008. *A Grammar of Gidar*. (Research in African Studies, 13) Frankfurt: Peter Lang.
- Frajzyngier, Zygmunt, and Erin Shay. 2012. Chadic. In *The Afroasiatic Languages*, ed. by Zygmunt Frajzyngier and Erin Shay, Chapter 5, pp. 236–341. (Cambridge Language Surveys) Cambridge: Cambridge University Press.
- Frick, Esther. 1977. *The Phonology of Dghwede*. (Language Data Microfiche, AF 11) Dallas: SIL.
- Gadaka, Hassan Usman. 2008. Nazarin dangantakar harshen Hausa da harshen Ngamo ta fuskar ginin kalma a matsayinsu na harsuna iyalin Chadi. BA thesis, ABU Zaria.

- Gimba, Alhaji Maina. 1998. *Low tone raising in Bole*. MA thesis, UCLA.
- Gimba, Alhaji Maina. 2000. *Bole Verb Morphology*. PhD dissertation, UCLA.
- Gimba, Alhaji Maina, and Russell G. Schuh. 2015. *Bole-English-Hausa Dictionary and English-Bole Wordlist*. (University of California Publications in Linguistics, 148) Oakland: University of California Press. (<scholarship.org/uc/ucpress>)
- Givón, Talmy. 1979. *On Understanding Grammar*. Orlando: Academic Press.
- Gravina, Richard. 2014. *The Phonology of Proto-Central Chadic: The Reconstruction of the Phonology and Lexicon of Proto-Central Chadic, and the Linguistic History of the Central Chadic Languages*. Utrecht: LOT. (= PhD dissertation, University of Leiden)
- Greenberg, Joseph H. 1950. Studies in African linguistic classification: IV Hamito-Semitic. *Southwestern Journal of Anthropology* 6: 47–63.
- Greenberg, Joseph H. 1955. Internal a-plurals in Afroasiatic (Hamito-Semitic). In *Afrikanistische Studien [Festschrift D. Westermann]*, ed. by Johannes Lukas, pp. 198–204. Berlin.
- Greenberg, Joseph H. 1958. The labial consonants of Proto-Afro-Asiatic. *Word* 14: 295–302.
- Greenberg, Joseph H. 1960. An Afro-Asiatic pattern of gender and number agreement. *Journal of the American Oriental Society* 80: 317–321.
- Greenberg, Joseph H. 1965. The evidence for \*/mb/ as a Proto-Afroasiatic phoneme. In *Symbolae Linguisticae in Honorem Georgii Kuryłowicz*, ed. by Adam Heinz, et al., pp. 88–92. Cracow.
- Greenberg, Joseph H. 1966. *The Languages of Africa*, 2<sup>nd</sup> edition. Bloomington, IN: Indiana University.
- Greenberg, Joseph H. 1970. Some Generalizations concerning glottalic consonants, especially implosives. *International Journal of American Linguistics* 36: 123–145.
- Greenberg, Joseph H. 1978. How does a language acquire gender markers? In *Universals of Human Language. Vol. 3: Word Structure*, ed. by Joseph H. Greenberg, pp. 47–82. Stanford: Stanford University Press.
- Hair, P. E. H. 1967. *The Early Study of Nigerian Languages: Essays and Bibliographies*. (West African Language Monograph Series, 7) Cambridge: Cambridge University Press (Reprint with an introduction by Paul Newman, Aldershot: Gregg (1994)).
- Haruna, Andrew. 2003. *A Grammatical Outline of Gùrdùng/Gùrùntùm (Southern Bauchi, Nigeria)*. (Westafrikanische Studien, 25) Cologne: Rüdiger Köppe.



- Hayward, Richard J. 2000. Afroasiatic. In *African Languages: An Introduction*, ed. by Bernd Heine and Derek Nurse, pp. 74–98. Cambridge: Cambridge University Press.
- Hellwig, Birgit. 2011. *A Grammar of Goemai*. (Mouton grammar library, 51). Berlin: Walter de Gruyter.
- Hellwig, Birgit. 2011\*. The semantics of copy pronouns in Goemai. In *Copy Pronouns: Case Studies from African Languages*, ed. by Anne Storch, Gratien G. Atindogbé, and Roger M. Blench, pp. 65–79. Cologne: Rüdiger Köppe.
- Hetzron, Robert. 1976. Two principles of genetic reconstruction. *Lingua* 38: 89–108.
- Hodge, Carleton T. 1971. Afroasiatic S-causative. *Language Sciences [Indiana]* 15: 41–43.
- Hodge, Carleton T., and Ibrahim Umaru. 1963. *Hausa Basic Course*. Washington, D.C.: Foreign Service Institute.
- Hoffmann, Carl. 1963. *A Grammar of the Margi Language*. London: Oxford University Press.
- Hoffmann, Carl. 1971. *Provisional check list of Chadic languages*. (Chadic Newsletter, Special Issue) Marburg.
- Hoffmann, Carl. 1975. Towards a comparative phonology of the languages of the Angas-Goemai group. University of Ibadan Faculty Seminar, March 19, 1975.
- Hoffmann, Carl. 1981. Group-internal sound correspondences in the Bura-Margi group of Central Chadic. Paper presented at the International Colloquium on the Chadic Language Family, September 15-18, 1981.
- Hoskison, James T. 1975. *Notes on the Phonology of Gude*. MA thesis, Ohio State University.
- Hoskison, James T. 1983. *A Grammar and Dictionary of the Gude Language*. PhD dissertation, Ohio State University.
- Hunter, Linda. 1980. Stress in Hausa: An experimental study. *Studies in African Linguistics* 11: 353–374.
- Hyman, Larry M. and Russell G. Schuh. 1974. Universals of tone rules: Evidence from West Africa. *Linguistic Inquiry* 5: 81–115.
- Hyman, Larry M. and John R. Watters. 1984. Auxiliary focus. *Studies in African Linguistics* 15: 233–273
- Imam, Alhaji Abubakar. 1962. *Magana Jari Ce*. Littafi na Farko. Zaria: Gaskiya Corporation.

- Jaggar, Philip J. 1981. *Some Unusual Lexical Passives in Hausa*. MA thesis, UCLA.
- Jaggar, Philip J. 1982. Monoverbal imperative formation in Hausa: A striking case of analogical realignment. *Journal of African Languages and Linguistics* 4: 133–156.
- Jaggar, Philip J. 2001. *Hausa*. (London Oriental and African Language Library, 7) Amsterdam: John Benjamins.
- Jaggar, Philip J., and Malami Buba. 1994. The space and time adverbials nan/can in Hausa: Cracking the deictic code. *Language Sciences* 16: 387–421. (Reprinted in *Space in Languages*, ed. by Petr Zima, pp. 82–124 (1996). Prague: Charles University and the Academy of Sciences of the Czech Republic)
- Jarvis, Elizabeth. 1986. Nominal and verbal pluralisation in Podoko. *Journal of West African Languages* 16(1): 80–90.
- Jarvis, Elizabeth. 1989. Esquisse grammaticale du podoko. In *Descriptions de langues camerounaises*, ed. by Daniel Barreteau and Robert Hedinger, pp. 39–127. Paris: ORSTOM; ACCT.
- Jarvis, Elizabeth, and Ndoula Lagona. 1989. *Dictionnaire podoko-français*. Yaoundé: SIL.
- Jungraithmayr, Herrmann. 1964. Texte und Sprichwörter im Angas von Kabwir (Nordnigerien), mit einer grammatischen Skizze, Teil I und II. *Afrika und Übersee* 48: 17–35, 114–127.
- Jungraithmayr, Herrmann. 1965. Internal **a** in Ron plurals. *Journal of African Languages* 4: 102–107.
- Jungraithmayr, Herrmann. 1968a. Ancient Hamito-Semitic remnants in the Central Sudan. *African Language Review* 7: 16–22.
- Jungraithmayr, Herrmann. 1968b. The Hamitosemitic present-habitative verb stem in Ron and Mubi. *Journal of West African Languages* 5(2): 71–76.
- Jungraithmayr, Herrmann. 1970a. On root augmentation in Hausa. *Journal of African Languages* 9: 83–88.
- Jungraithmayr, Herrmann. 1970b. *Die Ron-Sprachen: Tschadohamitische Studien in Nordnigerien*. (Afrikanistische Forschungen, 3) Glückstadt: J. J. Augustin.
- Jungraithmayr, Herrmann. 1974. Perfektiv- (Kurz-) und Imperfektiv- (Lang-)Stamm im Aspektsystem Osttschadohamitischer Sprachen. In *ZDMG Supplement II*, pp. 583–95.
- Jungraithmayr, Herrmann. 1975. Der Imperfektivstamm im Migama (Djonkor von Abu Telfan, Republik Tschad). *Folia Orientalia* 16: 85–100.

- Jungraithmayr, Herrmann. 1975\*. Types of conjugational forms in Chadic. In *Hamito-Semitic*, ed. by James and Theodora Bynon, pp. 399–413. The Hague: Mouton.
- Jungraithmayr, Herrmann. 1978a. Gebrochene Plurale im Mubi (Ost-Tschad). In *Struktur und Wandel afrikanischer Sprachen: Vorträge vom XX. Deutschen Orientalistentag*, ed. by Herrmann Jungraithmayr, pp. 121–131. Berlin: Dietrich Reimer.
- Jungraithmayr, Herrmann. 1978b. Présentation d'un conte en sibine (sumray) – texte, notes et vocabulaire. In *Cinq textes tchadiques*, ed. by Herrmann Jungraithmayr and J.-P. Caprile, pp. 177–211. Berlin: Dietrich Reimer.
- Jungraithmayr, Herrmann. 1978c. A tentative four stage model for the development of the Chadic languages. In *Atti del Secondo Congresso Internazionale di Linguistica Camito-Semitica*, ed. by Pelio Fronzaroli, pp. 381–388. Florence: Istituto de Linguistica e di Lingue Orientali, Universitadi Firenze.
- Jungraithmayr, Herrmann. 1978d. The Zime dialect cluster ('Kado', 'Dari') in southern Chad: Its verbal aspect system. *Afrika und Übersee* 61: 1–27.
- Jungraithmayr, Herrmann. 1981. Les langues tchadiques: généralités (carte et texte). In *Les langues dans le monde ancien et moderne. I. Les langues de l'Afrique subsaharienne*, ed. by Gabriel Manessy, pp. 401–406. Paris: CNRS.
- Jungraithmayr, Herrmann. 1983. On mono- and triradicality in early and present-day Chadic: How reliable are reconstructions? In *Studies in Chadic and Afroasiatic Linguistics*, ed. by Ekkehard Wolff and Hilke Meyer-Bahlburg, pp. 139–156. Hamburg: Helmut Buske.
- Jungraithmayr, Herrmann. 1987\*. Zur Suffixkonjugation in Osttschadischen. *Afrika und Übersee* 70: 49–60.
- Jungraithmayr, Herrmann. 1991. *A Dictionary of the Tangale Language (Kaltungo, Northern Nigeria)*. (Sprache und Oralität in Afrika, 12) Berlin: Dietrich Reimer.
- Jungraithmayr, Herrmann. 1992. Migama: Die Sprache von Wilhelm Raabes "Abu Telfan". In *Komparative Afrikanistik: Sprach-, geschichts- und literaturwissenschaftliche Aufsätze zu Ehren von Hans G. Mukarovsky anlässlich seines 70. Geburtstags*, ed. by Erwin Ebermann, E. R. Sommerauer, and K. É. Thomanek, pp. 199–212. Vienna: Afro-Pub.
- Jungraithmayr, Herrmann. 2005\*. Prefix and suffix conjugation in Chadic. In *Proceedings of the 10th Meeting of Hamito-Semitic (Afroasiatic) Linguistics*, ed. by Pelio Fronzaroli and Paolo Marrassini, pp. 411–419. Florence: Dipartimento di Linguistica, Università di Firenze.
- Jungraithmayr, Herrmann. 2012. Chadic. In *Semitic and Afroasiatic: Challenges and Opportunities*, ed. by L. Edzard, pp. 296–368. Wiesbaden: Harrassowitz.

- Jungraithmayr, Herrmann. 2013. *La langue Mubi / Kaan gi Mongul (République du Tchad: Précis de grammaire • Textes • Lexique*. Berlin: Dietrich Reimer.
- Jungraithmayr, Herrmann, and Abakar Adams. 1992. *Lexique migama: migama-français et français-migama (Guéra, Tchad), avec une introduction grammaticale*. (Sprache und Oralität in Afrika, 17) Berlin: Dietrich Reimer.
- Jungraithmayr, Herrmann, and Philibus I. Diyakal. 2008. *Lyang Lu: One Thousand and One Proverbs, Idioms and Sayings in Mushere (N. Nigeria) with a Grammatical Outline and Vocabulary*. (Wissenschaftliche Gesellschaft an der Johann Wolfgang Goethe-Universität, Schriften (WGF-Sch), 22) Stuttgart: Franz Steiner.
- Jungraithmayr, Herrmann, and Philibus I. Diyakal. 2013. Mushere, a Chadic language of five level tones. *Zeitschrift der Deutschen Morgenländischen Gesellschaft* 163(2): 297–307.
- Jungraithmayr, Herrmann, and Dymitr Ibriszimow. 1994. *Chadic Lexical Roots. Vol. 1: Tentative Reconstruction, Grading, Distribution and Comments. Volume 2: Documentation*. (Sprache und Oralität in Afrika, 20) Berlin: Dietrich Reimer.
- Jungraithmayr, Herrmann, and Kiyoshi Shimizu. 1981. *Chadic Lexical Roots. Vol. 2: Tentative Reconstruction, Grading and Distribution*. (Marburger Studien zur Afrika- und Asienkunde, Serie A, Afrika, 26) Berlin: Dietrich Reimer.
- Kenstowicz, Michael. 1987. The phonology and syntax of wh-expressions in Tangale. *Phonology Yearbook* 4: 229–241.
- Kidda, Mairo. 1985\*. Morpheme alternation in Tangale: A syllable structure approach. In *Précis from the Fifteenth Conference on African Linguistics*, ed. by Russell G. Schuh, pp. 173–180. Los Angeles: Department of Linguistics, UCLA.
- Kidda, Mairo. 1993. *Tangale Phonology: A Descriptive Analysis*. (Sprache und Oralität in Afrika, 8) Berlin: Dietrich Reimer.
- Koelle, Sigismund W. 1854. *Polyglotta Africana*. London: Church Missionary House. (Reprint with a historical introduction by P. E. H. Hair and an index by David Dalby. Graz: Akademische Druck- u. Verlagsanstalt (1963)).
- Kraft, Charles H. 1974<sup>a</sup>. Reconstruction of Chadic pronouns I: Possessive, object, and independent sets – an interim report. In *Third Annual Conference on African Linguistics*, ed. by Erhard Voeltz, pp. 69–94. Bloomington: Indiana University.
- Kraft, Charles H. 1981. *Chadic Wordlists*. (Marburger Studien zur Afrika- und Asienkunde, Serie A, Afrika, 23, 24, 25) Berlin: Dietrich Reimer.
- Kraft, Charles H., and A. H. M. Kirk-Greene. 1973. *Hausa*. (Teach Yourself Books) London: Hodder and Stoughton.

- Kurzyca, Bartosz. 2009\*. Iambic templates in Hausa morphology. *Studies of the Department of African Languages and Cultures* 43: 21-97
- Leben, William R. 1971. The morphophonemics of tone in Hausa. In *Papers in African Linguistics*, ed. by Chin-Wu Kim and Herbert Stahlke, pp. 201–218. Edmonton: Linguistic Research, Inc.
- Leben, William R. 1977\*. Length and syllable structure in Hausa. In *Papers from the Eighth Conference on African Linguistics*, ed. by Martin Mould and Thomas J. Hinnebusch, pp. 137–143. Los Angeles: Department of Linguistics, UCLA.
- Leger, Rudolf, and Ulrike Zoch. 2011\*. Intransitive Copy Pronouns in Chadic. In *Copy Pronouns: Case Studies from African Languages*, ed. by Anne Storch, Gratien G. Atindogbé, and Roger M. Blench, pp. 11–46. Cologne: Rüdiger Köppe.
- Lemeshko, B. G. 1967. La racine et le thème du verbe dans la langue haoussa. In *II Congrès International des Africanistes. Communications de la Délégation de l'URSS*, pp. 3-5. Moscow.
- Lovestrand, Joseph. 2012. *The Linguistic Structure of Barain (Chadic)*. MA thesis, Graduate Institute of Applied Linguistics [Dallas].  
<[http://www.gial.edu/documents/theses/Lovestrand\\_Joseph-thesis.pdf](http://www.gial.edu/documents/theses/Lovestrand_Joseph-thesis.pdf)>
- Lukas, Johannes. 1968. Nunation in afrikanischen Sprachen. *Anthropos* 63: 97–114.
- Lukas, Johannes. 1969. Tonpermeable und Tonimpermeable Konsonanten im Bolanci (Nordnigerien). In *Ethnological and Linguistic Studies in Honour of N. J. van Warmelo*, pp. 133–138. Pretoria: Government Printer.
- Lukas, Johannes. 1970-1972. Die Personalia und das primäre Verb im Bolanci (Nordnigerien), Mit Beiträgen über das Karekare. *Afrika und Übersee* 54: 237–286; 55: 114–139.
- Lukas, Johannes. 1971. Über das erweiterte Verb im Bolanci (Nordnigerien). *Journal of African Languages* 10: 1–14.
- Lukas, Johannes. 1974/75. Studien zur Bade-Sprache (Nigeria). *Afrika und Übersee* 58: 82–105.
- Maddieson, Ian. 1974. A possible new cause of tone-splitting: Evidence from Cama, Yoruba, and other languages. In *Studies in African Linguistics, Supplement 5*, pp. 205–221.
- Maddieson, Ian. 1983\*. The analysis of complex phonetic elements in Bura and the syllable. *Studies in African Linguistics* 14: 285–310.

- Maddieson, Ian. 1987. The Margi vowel system and labiodorinals. *Studies in African Linguistics* 18: 327–355.
- McIntyre, J. A. 1989. Is Hausa *zoo* a grade 6 verb of motion? *Afrikanistische Arbeitspapiere* 19: 7–22.
- Meyers, Laura F. 1976. *Aspects of Hausa Tone*. (UCLA Working Papers in Phonetics, 32) Los Angeles: Department of Linguistics, UCLA.
- Mijinguini, Abdou. 1994. *Karamin Kamus na Hausa zuwa Faransanci [Concise dictionary of Hausa and French]*. [Niamey]: SP-CNRE/PS - UNESCO.
- Mirt, Heide. 1969. Einige Bemerkungen zum Vokalsystem des Mandara. In *ZDMG Supplementa I. Vorträge, Teil 3*, ed. by W. Voigt, pp. 1096–1103.
- Mouchet, Jean. 1950. Vocabulaires comparatifs de quinze parlers du Nord-Cameroun. *Bulletin de la Société d'Études Camerounaises* 29/30: 5–74.
- Mouchet, Jean. 1966. *Le parler daba: esquisse grammaticale précédée d'une note sur l'ethnie daba, suivie de lexiques daba-français et français-daba*. (Recherches et Études Camerounaises, 10) Yaoundé.
- Mous, Maarten. 2012. Cushitic. In *The Afroasiatic Languages*, ed. by Zygmunt Frajzyngier and Erin Shay, Chapter 6, pp. 342–422. (Cambridge Language Surveys) Cambridge: Cambridge University Press.
- Mu'azu, Mohammed Aminu. 2009. *A Grammar of Kilba Language*. Munich: LINCOM.
- Mukarovsky, Hans G. 1983\*. Pronouns and prefix conjugation in Chadic and Hamito-Semitic. In *Studies in Chadic and Afroasiatic Linguistics*, ed. by Ekkehard Wolff and Hilke Meyer-Bahlburg, pp. 51–63. Hamburg: Helmut Buske.
- Murray, Robert W., and Theo Vennemann. 1983. Sound change and syllable structure in Germanic phonology. *Language* 59: 514–528.
- Newman, F. W. 1844. Remarks on the Hausa language, based upon “The Vocabulary” of the same, “with Grammatical Elements, by the Rev. J. F. Schön, 1843”. In *Researches into the Physical History of Mankind*, ed. by James Cowles Prichard, pp. 627–631. London: Sherwood, Gilbert, and Piper.
- Newman, Paul. 1964. A word list of Tera. *Journal of West African Languages* 1(2): 33–50.
- Newman, Paul. 1968. The reality of morphophonemes. *Language* 44: 507–515.
- Newman, Paul. 1970a. *A Grammar of Tera: Transformational Syntax and Texts*. (University of California Publications in Linguistics, 57) Berkeley & Los Angeles: University of California Press.

- Newman, Paul. 1970b. Historical sound laws in Hausa and in Dera (Kanakuru). *Journal of West African Languages* 7: 39–51.
- Newman, Paul. 1971. Transitive and intransitive in Chadic languages. In *Afrikanische Sprachen und Kulturen – Ein Querschnitt* [Festschrift J. Lukas], ed. by Veronika Six, et al., pp. 188–200. Hamburg: Deutsches Institut für Afrika-Forschung.
- Newman, Paul. 1972. Study Kanakuru, understand Hausa. *Harsunan Nijeriya* 2: 1–13.
- Newman, Paul. 1972\*. Syllable weight as a phonological variable. *Studies in African Linguistics* 3: 301–323. [Reprinted in abridged form in *Syllable Weight in African Languages*, ed. by Paul Newman. Amsterdam: John Benjamins (2017).]
- Newman, Paul. 1973. Grades, vowel-tone classes and extensions in the Hausa verbal system. *Studies in African Linguistics* 4: 297–346.
- Newman, Paul. 1974. *The Kanakuru Language*. (West African Language Monograph Series, 9) Leeds: Institute of Modern English Language Studies, University of Leeds and West African Linguistic Society.
- Newman, Paul. 1975. Proto-Chadic verb classes. *Folia Orientalia* 16: 65–84.
- Newman, Paul. 1976. The origin of Hausa /h/. In *Papers in African Linguistics in Honor of Wm. E. Welmers*, ed. by Larry M. Hyman, Leon C. Jacobson, and Russell G. Schuh, pp. 165–175. Los Angeles: Department of Linguistics, UCLA.
- Newman, Paul. 1977a. Chadic classification and reconstructions. *Afroasiatic Linguistics* 5: 1–42.
- Newman, Paul. 1977b. Chadic extensions and pre-dative verbs in Hausa. *Studies in African Linguistics* 8: 275–297.
- Newman, Paul. 1977c. The formation of the imperfective verb stem in Chadic. *Afrika und Übersee* 60: 178–192.
- Newman, Paul. 1977d. Lateral fricatives (“hlaterals”) in Chadic. In *Papers in Chadic Linguistics*, ed. by Paul Newman and Roxana Ma Newman, pp. 107–119. Leiden: Afrika-Studiecentrum.
- Newman, Paul. 1979a. Explaining Hausa feminines. *Studies in African Linguistics* 10: 197–226.
- Newman, Paul. 1979b. The historical development of medial /ee/ and /oo/ in Hausa. *Journal of African Languages and Linguistics* 1: 172–88.
- Newman, Paul. 1980a. *The Classification of Chadic within Afroasiatic*. Leiden: Universitaire Pers.

- Newman, Paul. 1980b. The two R's in Hausa. *African Language Studies* 17: 77–87.
- Newman, Paul. 1983. The efferential (alias “causative”) in Hausa. In *Studies in Chadic and Afroasiatic Linguistics*, ed. by Ekkehard Wolff and Hilke Meyer-Bahlburg, pp. 397–418. Hamburg: Helmut Buske.
- Newman, Paul. 1985. Tone splitting and Gwandara ethnohistory. In *Précis from the Fifteenth Conference on African Linguistics*, ed. by Russell G. Schuh, pp. 233–237. (*Studies in African Linguistics*, Supplement 9) Los Angeles: Department of Linguistics, UCLA.
- Newman, Paul. 1989. The historical change from suffixal to prefixal reduplication in Hausa pluractional verbs. *Journal of African Languages and Linguistics* 11: 37–44.
- Newman, Paul. 1990. *Nominal and Verbal Plurality in Chadic*. Dordrecht: Foris Publications.
- Newman, Paul. 1992\*. The drift from the coda into the syllable nucleus in Hausa. *Diachronica* 9: 227–238.
- Newman, Paul. 1995. Hausa tonology: Complexities in an “easy” tone language. In *The Handbook of Phonological Theory*, ed. by John Goldsmith, pp. 762–781. Oxford: Blackwell.
- Newman, Paul. 1997. Hausa phonology. In *Phonologies of Asia and Africa*, ed. by Alan Kaye, vol. 1, pp. 537–552 (chap. 27). Winona Lake, IN: Eisenbrauns.
- Newman, Paul. 2000. *The Hausa Language: An Encyclopedic Reference Grammar*. New Haven: Yale University Press.
- Newman, Paul. 2004. *Klingenheben's Law in Hausa*. Cologne: Rüdiger Köppe.
- Newman, Paul. 2006. Comparative Chadic revisited. In *West African Linguistics: Papers in Honor of Russell G. Schuh*, ed. by Paul Newman and Larry M. Hyman, pp. 33–47. (*Studies in African Linguistics*, Supplement 11) Columbus: Ohio State University.
- Newman, Paul. 2007. *A Hausa-English Dictionary*. New Haven: Yale University Press.
- Newman, Paul. 2012. Pluractional verbs: An overview. In *Verbal Plurality and Distributivity*, ed. by Patricia Cabredo Hofherr and Brenda Laca, pp. 185–209. Berlin: de Gruyter.
- Newman, Paul. 2013a. The Chadic Language family: Classification and name index. *Mega-Chad Miscellaneous Publications*. <<http://hdl.handle.net/2022/20964>>
- Newman, Paul. 2013b. The etymology of Hausa *boko*. *Mega-Chad Miscellaneous Publications*. <<http://hdl.handle.net/2022/20965>>



- Newman, Paul. 2015. *Comprehensive Bibliography of Chadic and Hausa Linguistics*, 3rd edition. Bloomington: IU ScholarWorks < <http://hdl.handle.net/2022/20576>>.
- Newman, Paul, and Roxana Ma. 1966. Comparative Chadic: Phonology and lexicon. *Journal of African Languages* 5: 218-251.
- Newman, Paul, and Russell G. Schuh. 1974. The Hausa aspect system. *Afroasiatic Linguistics* 1(1): 1–39.
- Newman, Paul, and Russell G. Schuh. 2016. Hausa language names and ethnonyms. *Journal of African Languages and Linguistics* 37(2): 185–200.
- Newman, Roxana Ma. 1971a. *A Case Grammar of Ga'anda*. PhD dissertation, UCLA.
- Newman, Roxana Ma. 1971b. Downstep in Ga'anda. *Journal of African Languages* 10(1): 15–27.
- Newman, Roxana Ma. 1976. The two relative continuous markers in Hausa. In *Papers in African Linguistics in Honor of Wm. E. Welmers*, ed. by L. M. Hyman, L. C. Jacobson, and R. G. Schuh, pp. 177–190. Los Angeles: Department of Linguistics.
- Newman, Roxana Ma. 1977. Y-prosody as a morphological process in Ga'anda. In *Papers in Chadic Linguistics*, ed. by Paul Newman and Roxana Ma Newman, pp. 212–230. Leiden: Afrika-Studiecentrum.
- Newman, Roxana Ma. 1990. *An English-Hausa Dictionary*. New Haven: Yale University Press.
- Newman, Roxana Ma, and Vincent J. van Heuven. 1981. An acoustic and phonological study of pre-pausal vowel length in Hausa. *Journal of African Languages and Linguistics* 3: 1–18.
- Parsons, F. W. 1960a. An introduction to gender in Hausa. *African Language Studies* 1: 117–136.
- Parsons, F. W. 1960b. The verbal system in Hausa. *Afrika und Übersee* 44: 1–36.
- Parsons, F. W. 1961. The operation of gender in Hausa: The personal pronoun and genitive copula. *African Language Studies* 2: 100–124.
- Parsons, F. W. 1963. The operation of gender in Hausa: Stabilizer, dependent nominals and qualifiers. *African Language Studies* 4: 166–207.
- Parsons, F. W. 1970. Is Hausa really a Chadic language? Some problems of comparative phonology. *African Language Studies* 11: 272–288.
- Parsons, F. W. 1971/72. Suppletion and neutralization in the verbal system of Hausa. *Afrika und Übersee* 55: 49–97, 188–208.

- Parsons, F. W. 1981. *Writings on Hausa Grammar: The Collected Papers of F. W. Parsons*, ed. by Graham Furniss. Ann Arbor, MI: UMI Books on Demand.
- Pawlak, Nina. 1997\*. Demonstratives and pronouns in grammatical systems of Chadic. In *Langues et contacts de langues en zone Sahelo-Saharienne: 3e Table ronde du réseau diffusion lexicale*, ed. by Sergio Baldi, pp. 133–142. Naples: Istituto Universitario Orientale, Dipartimento di Studi e Ricerche su Africa e Paesi Arabi.
- Pearce, Mary. 2006\*. The interaction between metrical structure and tone in Kera. *Phonology* 23(2): 259–286. (Special journal issue: *Between Stress and Tone*, ed. by Bert Remijsen and Vincent J. van Heuven).
- Pulleyblank, Douglas. 1983. Extratonicity and polarity. In *Proceedings of the [2nd] West Coast Conference on Formal Linguistics (WCCFL)*. 2: 204–216.
- Rowton, M. B. 1962. The use of the permansive in Classical Babylonian. *Journal of Near Eastern Studies* 21: 233–303.
- Schneeberg, Nan. 1974. *Sayanci Phonology*. PhD dissertation, Indiana University.
- Schön, James Frederick. 1843. *Vocabulary of the Hausa Language. Phrases, and Specimens of Translations, to which are prefixed, the Grammatical Elements of the Hausa Language*. London: Church Missionary Society.
- Schuh, Russell G. 1971. Verb forms and verb aspects in Ngizim. *Journal of African Languages* 10(1): 47–60.
- Schuh, Russell G. 1972. *Aspects of Ngizim Syntax*. PhD dissertation, UCLA.
- Schuh, Russell G. 1974. A note on inalienable possession in Hausa. *Journal of West African Languages* 9(2): 113–114.
- Schuh, Russell G. 1974/75. Nunation and gender in Bade. *Afrika und Übersee* 58: 106–119.
- Schuh, Russell G. 1977a. Bade/Ngizim determiner system. *Afroasiatic Linguistics* 4(3): 101–174
- Schuh, Russell G. 1977b. West Chadic verb classes. In *Papers in Chadic Linguistics: Papers from the Leiden Colloquium on the Chadic Language Family*, ed. by Paul Newman and Roxana Ma Newman, pp. 143–166. Leiden: Afrika-Studiecentrum.
- Schuh, Russell G. 1978a. Bade/Ngizim vowels and syllable structure. *Studies in African Linguistics* 9: 247–283.
- Schuh, Russell G. 1978b. *Bole-Tangale Languages of the Bauchi Area (Northern Nigeria)*. (Marburger Studien zur Afrika- und Asienkunde, Serie A, Afrika, 13) Berlin: Dietrich Reimer.

- Schuh, Russell G. 1981a. *A Dictionary of Ngizim*. (University of California Publications in Linguistics, 99) Berkeley & Los Angeles: University of California Press.
- Schuh, Russell G. 1981b. Using dialect geography to determine prehistory: A Chadic case study. *Sprache und Geschichte in Afrika* 3: 201–250.
- Schuh, Russell G. 1981-82. Field notes on Bura, Gude, Kilba, Lele, Mofu, Podoko and Zime.
- Schuh, Russell G. 1983a. The evolution of determiners in Chadic. In *Studies in Chadic and Afroasiatic Linguistics*, ed. by Ekkehard Wolff and Hilke Meyer-Bahlburg, pp. 157–210. Hamburg: Helmut Buske.
- Schuh, Russell G. 1983b. Kilba equational sentences. *Studies in African Linguistics* 14: 311–326.
- Schuh, Russell G. 1984. *Données de la language kada (gidar)*. Ms, UCLA.  
<[http://linguistics.ucla.edu/people/schuh/Papers/B22\\_1984\\_gidar\\_kada.pdf](http://linguistics.ucla.edu/people/schuh/Papers/B22_1984_gidar_kada.pdf)>
- Schuh, Russell G. 1989. Gender and number in Miya. In *Current Progress in Chadic Linguistics*, ed. by Zygmunt Frajzyngier, pp. 171–181. Amsterdam: John Benjamins.
- Schuh, Russell G. 1992. The non-existence of ‘internal-*a*’ plurals in Hausa. Unpublished paper presented at the 23rd Annual Conference on African Linguistics, Michigan State University, March 26–29, 1992.  
<[http://linguistics.ucla.edu/people/schuh/Papers/B27\\_1992\\_internal\\_a\\_plurals.pdf](http://linguistics.ucla.edu/people/schuh/Papers/B27_1992_internal_a_plurals.pdf)>
- Schuh, Russell G. 1998. *A Grammar of Miya*. (University of California Publications in Linguistics, 130) Berkeley & Los Angeles: University of California Press.
- Schuh, Russell G. 2001. Sources of gemination and gemination as a morpheme in Bole. Paper presented at the 32<sup>nd</sup> Annual Conference on African Linguistics, University of California, Berkeley.
- Schuh, Russell G. 2002. Palatalization in West Chadic. *Studies in African Linguistics* 31: 97–128.
- Schuh, Russell G. 2003a. Chadic overview. In *Selected Comparative-Historical Afrasian Linguistic Studies: In Memory of Igor M. Diakonoff*, ed. by M. Lionel Bender, Gábor Takács, and David L. Appleyard, pp. 55–60. Munich: LINCOM.
- Schuh, Russell G. 2003b. A comparative study of West Chadic verb suffixes. In *Selected Comparative-Historical Afrasian Linguistic Studies. In Memory of Igor M. Diakonoff*, ed. by M. Lionel Bender, Gábor Takács, and David L. Appleyard, pp. 71–86. Munich: LINCOM.

- Schuh, Russell G. 2003c. The functional unity of the Hausa and West Chadic subjunctive. In *Papers in African Linguistics* 3, ed. by Jason Kandybowicz, pp. 17–42. Los Angeles: Department of Linguistics, UCLA.
- Schuh, Russell G. 2003d. The linguistic influence of Kanuri on Bade and Ngizim. *Maiduguri Journal of Linguistic and Literary Studies* 5: 55–89.
- Schuh, Russell G. 2005a. Degemination, compensatory lengthening, and gemination in Gudi Ngamo. In *UCLA Working Papers in Linguistics, 11 (Papers in Phonology 6)*, ed. by Jeffrey Heinz, Andrew Martin, and Katya Pertsova, pp. 1–11. Los Angeles: Department of Linguistics, UCLA.
- Schuh, Russell G. 2005b. The TOTALITY EXTENSION and focus in West Chadic. Paper presented at the International Berlin Focus Conference, 6–8 October 2005.
- Schuh, Russell G. 2007. Bade morphology. In *Morphologies of Asia and Africa*, Volume 1, ed. by Alan S. Kaye, pp. 587–639. Winona Lake, IN: Eisenbrauns. (The original manuscript with fuller examples is available at <[http://aflang.linguistics.ucla.edu/Bade/Papers/WB\\_morphology.pdf](http://aflang.linguistics.ucla.edu/Bade/Papers/WB_morphology.pdf)>)
- Schuh, Russell G. 2008. Shooting through the nose in Karekare: A study of nasally released stops in a Chadic language. In *UCLA Working papers in Phonetics, No. 107*, pp. 56–73.
- Schuh, Russell G. 2009. Ngamo tones and clitics. Unpublished ms., UCLA. <[http://www.linguistics.ucla.edu/people/schuh/Papers/ms\\_2009\\_ngamo\\_tones\\_and\\_clitics.pdf](http://www.linguistics.ucla.edu/people/schuh/Papers/ms_2009_ngamo_tones_and_clitics.pdf)>
- Schuh, Russell G. 2010. Comments on Zygmunt Frajzyngier's *Grammar of Gidar*. *Afrika und Übersee* 91: 119–136.
- Schuh, Russell G. 2011\*. Quantitative metrics in Chadic and other Afroasiatic languages. *Brill's Annual of Afroasiatic Languages and Linguistics* 3: 202–235.
- Schuh, Russell G. 2013. Metrics of Bole songs. Paper presented at the 7th Biennial International Colloquium on Chadic Languages, Hamburg, 12–14 September 2013.
- Schuh, Russell G., and Alhaji Maina Gimba. 2005. Low tone raising in Bole. *Afrika und Übersee* 88: 229–264.
- Schuh, Russell G., and Alhaji Maina Gimba. n.d. Chapters from a descriptive grammar of Bole. Unpublished ms., UCLA.
- Schuh, Russell G., Alhaji Maina Gimba, and Amanda Ritchart. 2010. Bole intonation. In *UCLA Working papers in Phonetics, No. 108*, pp. 226–248. Los Angeles: Department of Linguistics,

- Seibert, Uwe. 1998. *Das Ron von Daffo (Jos-Plateau, Zentralnigeria): Morphologische, syntaktische und textlinguistische Strukturen einer westtschadischen Sprache*. Frankfurt: Peter Lang.
- Shay, Erin. 2008\*. Coding the unexpected: Subject pronouns in East Dangla. In *Interaction of Morphology and Syntax: Case Studies in Afroasiatic*, ed. by Zygmunt Frajzyngier and Erin Shay, pp. 85–105. Amsterdam: John Benjamins.
- Shryock, Aaron. n.d. *A Dictionary of Musey*. Maroua, Cameroon: SIL.
- Shryock, Aaron, with Marouf Brahim. 2014. *Lexique pratique du lagwan*. SIL Cameroun.
- Simons, Pamela, with the help of Christophe Weibegué and Samuel Salet. n.d. Lélé verbes. Unpublished ms., typescript.
- Skinner, Neil. 1996. *Hausa Comparative Dictionary*. (Westafrikanische Studien: Frankfurter Beiträge zur Sprach- und Kulturgeschichte, 11) Cologne: Rüdiger Köppe.
- Smith, David M. 1969. *The Kapsiki Language*. PhD dissertation, Michigan State University.
- Steiner, Richard C. 1977. *The Case for Fricative-Laterals in Proto-Semitic*. (American Oriental Series, 59) New Haven: American Oriental Society.
- Stolbova, Olga V. 2005. Chadic \*N, \*R, \*L and their correspondences in Semitic and Kushitic. In *Proceedings of the 10th Meeting of Hamito-Semitic (Afroasiatic) Linguistics*, ed. by Pelio Fronzaroli and Paolo Marrassini, pp. 49–63. Florence: Dipartimento di Linguistica, Università di Firenze.
- Stolbova, Olga V. 2007. Secondary laterals in Chadic. In *Topics in Chadic Linguistics III: Historical Studies. Papers from the 3rd Biennial International Colloquium on the Chadic Languages*, ed. by Henry Tourneux, pp. 93–101. Cologne: Rüdiger Köppe.
- Thomas, Michael F. 2014. *A Grammar of Sakun (Sukur)*. PhD dissertation, University of Colorado Boulder.
- Tourneux, Henry. 2004\*. Les marques personnelles en kotoko et en mafa/wandala (langues tchadiques de la branche centrale). In *Systèmes de marques personnelles en Afrique*, ed. by Dymitr Ibrizimow and Guillaume Segerer, pp. 199–212. Leuven/Louvain: Peeters.
- Tourneux, Henry, with the collaboration of Hamat Patan. 1991. *Lexique pratique du munjuk des rizières: dialecte de Pouss*. (Études tchadiques, Monographies) Paris: Geuthner-ORSTOM.

- Tourneux, Henry, Christian Seignobos, and Francine Lafarge. 1986. *Les Mbara et leur langue (Tchad)*. Paris: SELAF.
- Tuller, Laurice. 1986. *Bijjective Relations in Universal Grammar and the Syntax of Hausa*. PhD dissertation, UCLA.
- Van Antwerp, Alanna. 2003\*. *A Study of the Reference Systems of the Chadic Languages: A Preliminary Typology*. M.A. thesis, University of Colorado.
- Viljoen, Melanie. 2013. *A Grammatical Description of the Buwal Language*. PhD dissertation, Latrobe University.
- Voigt, Rainer M. 1987\*. The two prefix-conjugations in East Cushitic, East Semitic, and Chadic. *Bulletin of the School of Oriental and African Studies* 50: 330–345.
- Voigt, Rainer M. 1989\*. Verbal conjugation in Proto-Chadic. In *Current Progress in Chadic Linguistics*, ed. by Zygmunt Frajzyngier, pp. 267–284. Amsterdam: John Benjamins.
- Weibegu , Christophe, and Pierre Palayer. 1982. *Lexique l l -fran ais*. Sarh: Centre d' tudes Linguistiques.
- Welmers, Wm. E. 1959. Tonemics, morphotonemics, and tonal morphemes. *General Linguistics* 4: 1–9.
- Welmers, Wm. E. 1973. *African Language Structures*. Berkeley & Los Angeles: University of California Press.
- Westermann, Diedrich, and M. A. Bryan. 1952. *The Languages of West Africa*. (Handbook of African Languages, Part 2) London: Oxford University Press for the International African Institute.
- Wolff, H. Ekkehard. 1977. Patterns in Chadic (and Afroasiatic?) verb base formations. In *Papers in Chadic Linguistics: Papers from the Leiden Colloquium on the Chadic Language Family*, ed. by Paul Newman and Roxana Ma Newman, pp. 199–233. Leiden: Afrika-Studiecentrum.
- Wolff, H. Ekkehard. 1981. Die tschadischen Sprachen. In *Die Sprachen Afrikas*, ed. by Bernd Heine, Thilo C. Schadeberg, and Ekkehard Wolff, Chapter 11, pp. 239–262. Hamburg: Helmut Buske
- Wolff, H. Ekkehard. 1983. *A Grammar of the Lamang Language (Gwad Lamang)*. (Afrikanistische Forschungen, 10) Gl ckstadt: J. J. Augustin.
- Wolff, H. Ekkehard. 1993. *Referenzgrammatik des Hausa*. (Hamburger Beitr ge zur Afrikanistik, 2) M nster & Hamburg: Lit.

- Wolff, H. Ekkehard. 2001. Verbal plurality in Chadic: Typology and grammaticalization chains. In *Proceedings of the 27th Annual Meeting of the Berkeley Linguistics Society, Special Session on Afroasiatic Linguistics*, ed. by Andrew Simpson, pp. 123–167. Berkeley: BLS.
- Wolff, H. Ekkehard. 2015a. Hausa language. *Encyclopædia Britannica Online*. Chicago: Encyclopædia Britannica Inc. <<http://www.britannica.com/topic/Hausa-language>>
- Wolff, H. Ekkehard. 2015b. *The Lamang Language and Dictionary*. Vol. 1: *The Lamang Language*; Vol. 2: *A Dictionary of Lamang*. Cologne: Rüdiger Köppe.
- Wolff, H. Ekkehard, and Ludwig Gerhardt. 1977. Interferenzen zwischen Benue-Kongo- und Tschad-Sprachen. *Zeitschrift der Deutschen Morgenländischen Gesellschaft* Supplement 3: 1518–1543.
- Zaborski, Andrzej. 2014\*. Questions of Chadic ‘prefix’ conjugations and Chadic-Afroasiatic ablaut. In *Hausa and Chadic Studies in Honour of Professor Stanisław Pilażewicz*, ed. by Nina Pawlak, Ewa Siwierska, and Izabela Will, pp. 75–84. Warsaw: Elipsa.
- Zec, Draga. 1995. Sonority constraints on syllable structure. *Phonology* 12: 85–129.

# Appendix: Classification of Chadic Languages

[adapted from Newman (2013b) with permission]

## THE CHADIC FAMILY

### I. West Chadic Branch (W-C)

#### A

1. Hausa group: Hausa, Gwandara
2. Bole-Tangale group:
  - a. Bole, B'ele, Daza, Deno, Galambu, Gera, Geruma, Karekare, Kirfi, Maka, Ngamo, Bure†
  - b. Tangale, Kanakuru, Kupto, Kushi, Kwami, Nyam, Pero, Piya, Widala
3. Angas(-Goemai) group:
  - a. Angas, Chip, Jorto, Kofyar, Mupun, Mushere, Sura
  - b. Goemai, Koenoem, Montol, Pyapun, Tal
  - c. Gerka
4. Ron group:
  - a. Ron (Bokkos, Daffo), Kulere, Mundat, Sha (Scha)
  - b. Fyer, Tambas

#### B

1. Bade(-Ngizim) group: Bade, Duwai, Ngizim, Auyo†, Shira†, Teshena†
2. North Bauchi (Warji) group:
  - a. Warji, Diri, Jimbin, Kariya, Mburku, Miya, Siri, Tsagu
  - b. Pa'a



C [Note: This sub-branch was formerly classified as group 3 within sub-branch West-B]

1. South-Bauchi group (= “Barawa cluster”):
  - a. Dass, Geji, Polchi, Zaar (Saya, Sayanci), Zari, Zeem, Luri†
  - b. Bubbure, Guruntum, Jimi, Ju
  - c. Boghom, Kir, Mangas

## II. Biu-Mandara Branch (B-M) (= Central Chadic)

A

1. Tera group:
  - a. Tera, Jara
  - b. Ga’anda, Hona
2. Bura group: Bura, Chibak, Kilba, Margi
3. Higi group: Higi, Bana, Hya, Kapsiki
4. Mandara group:
  - a. Mandara (Wandala), Dghwede, Glavda, Guduf, Gvoko, Malgwa, Podoko
  - b. Cineni, Hdi, Lamang, Vemgo
5. Matakam group:
  - a. Mafa (Matakam), Chuvok
  - b. Dugwor, Giziga, Mada, Mefe, Merey, Mofu, Moloko, Muyang, Ouldémé, Zulgo
  - c. Muktele
  - d. Mbuko, Vame
6. Sukur.
7. Daba group: Daba, Buwal, Mazagway, Mbedam, Mina
8. Bata group: Bata, Bachama, Gude, Gudu, Jimi, Ngwaba, Nzanyi, Sharwa, Tsuvan, Zizilivakan

B [Note: Whether this II.B unit (especially the Kotoko group) should be treated as a sub-branch within B-M rather than as a separate, independent branch of Chadic remains to be determined.]

1. Kotoko group:
  - a. Kotoko, Jilbe, Logone, Majera, Zina
  - b. Buduma
2. Musgu group: Musgu (Munjuk), Mbara, Muskuḿ†

C

1. Gidar

### III. East Chadic Branch (E-C)

A

1. Somrai group: Sibine/Somrai, Buso, Gadang, Miltu, Mire, Ndam, Sarwa, Tumak
2. Lele group: Lele, Gabri, Kabalai, Kimre, Nancere, Tobanga
3. Kera group: Kera, Kwang

B

1. Dangla-Mubi group:
  - a. Dangla/Dangaleat, Bidiya, Birgit, Bourmataguil, Migama, Mogum, Toram
  - b. Mubi, Kajakse, Masmaje, Zirenkel
  - c. Kujarge
2. Mokilko (Mukulu)
3. Sokoro group: Sokoro, Mawa, Saba, Tamki, Ubi
4. Barain

### IV. Masa Branch (M-S) (= Southeast)

A

1. Masa group: Masa, Gizey, Marba, Mesme, Musey, Zime, Zumayaḿ†

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